Issue 01|2022

betop

MAGAZINE OF THE FRIEDHELM LOH GROUP

SPEED AND TRANSPARENCY

FINDING OUT FASTER THAN EVER WHAT'S GOING ON IN PROCESSES

What the smart factory of tomorrow needs today – and what plant operators and engineers should be doing now to pave the way.

Joining forces – it’s the only way!

Dear readers,

The current crises are reshaping our future. They are forcing us to question and rethink things we have always taken for granted – and to find answers to questions that have never been asked before.

We have been deeply shocked by the escalation of the conflict between Russia and Ukraine. We have war in Europe – something that few would have thought possible. Other crises are troubling us, too, such as the seemingly endless COVID-19 pandemic and the major supply issues affecting global markets. It is said that necessity is the mother of invention, and we can definitely see that now. What's more, it can unleash hidden strengths.

The crises have certainly made one thing clear – joining forces is the only way! More than ever, the focus is on pulling together. After all, the challenges of the future can only be overcome through a common approach. The challenges are simply too complex. A sense of community is developing into a new beacon of hope and a new strength.

The same applies in industry, too. Networking is also the buzzword here. When it comes to the digital and sustainable transformation of industry, we need integrated solutions – technology platforms that combine the best of both worlds, namely IT and industry. What’s needed are companies that bring even more efficiency to manufacturing by merging areas previously regarded as separate, such as IT ecosystems, edge cloud technologies, smart services, and value creation processes in panel building, switchgear and mechanical engineering.

The Friedhelm Loh Group is uniting these worlds. Together, step-by-step, we are bringing about the digital and sustainable transformation of industry. With you. With Rittal as the world market leader for enclosure system technology and OT infrastructure. With Eplan, the number one in electrical engineering software and service. With Cideon, the leading system integrator for CAD/CAM and PDM/PLM systems. With German Edge Cloud, the pioneer in IoT solutions for Industry 4.0. And with Stahlo and LKH for steel processing and plastic component manufacture.

Read on and be inspired by the new “be top”.

Be a part of the team!

Kind regards,

Prof. Friedhelm Loh

Prof. Friedhelm Loh
Owner and CEO of the Friedhelm Loh Group

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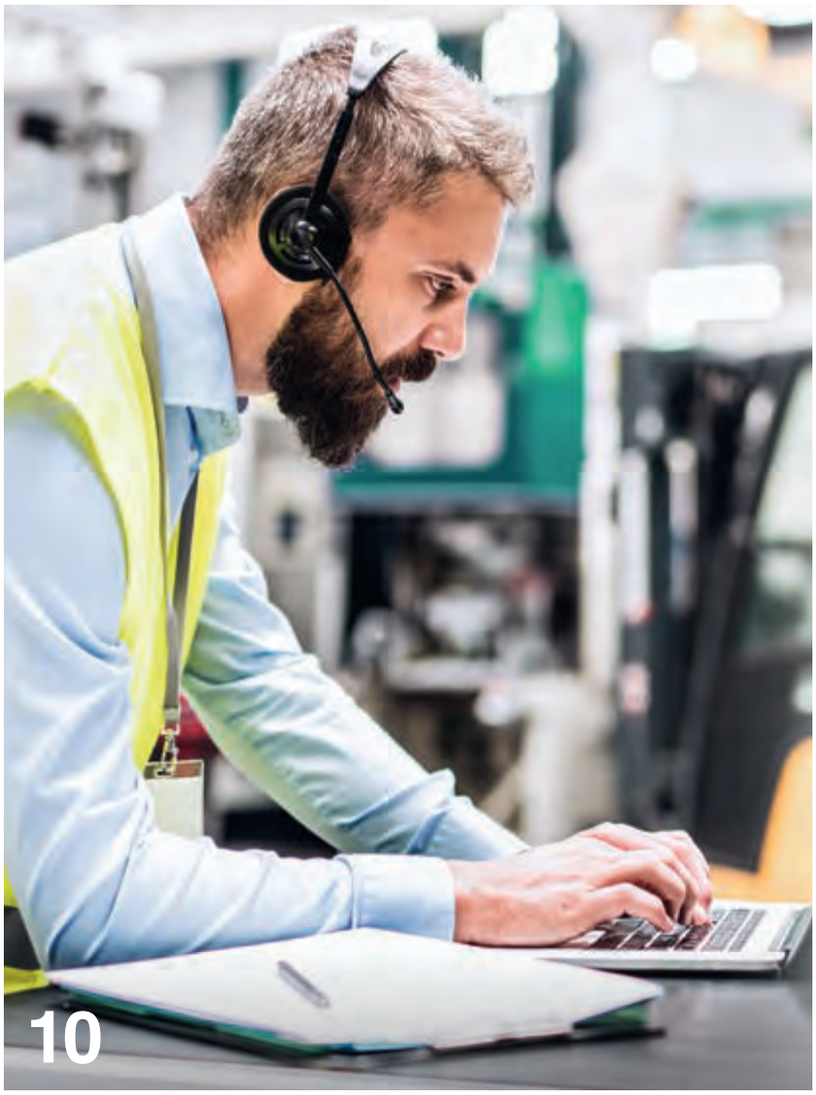


COVER STORY: SMART FACTORY

SPEED AND TRANSPARENCY

The goals of digital transformation are clearly defined. It all comes down to more transparency, knowledge and speed in operations – but what does that mean for production managers and those responsible for machinery, equipment and systems? We provide practical examples and solutions from Rittal,Eplan and German Edge Cloud and explain, step by step, how it can all be done.

Dr Carola Hilbrand
Director Corporate Communications
Friedhelm Loh Group

What do you think of be top?

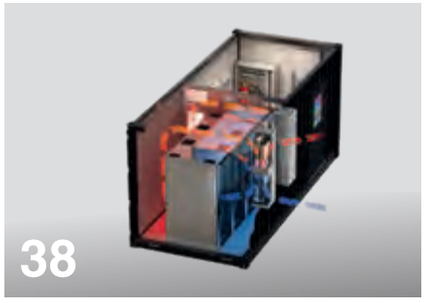
"What are we doing well and what could we make even better? Your opinion is important to us and we'd love to hear your ideas. Maybe you'd even like to see a fascinating article from your company featured in be top. The editorial team is looking forward to your feedback!"

Write to us at:
betop@friedhelm-loh-group.com

NEWS UPDATE

COVER STORY
SMART FACTORY

INNOVATION



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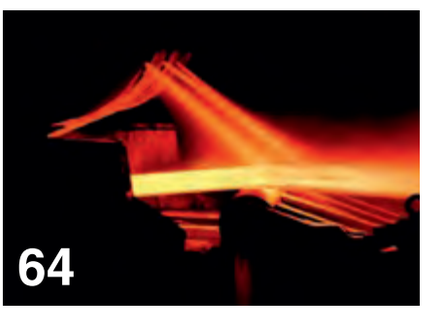

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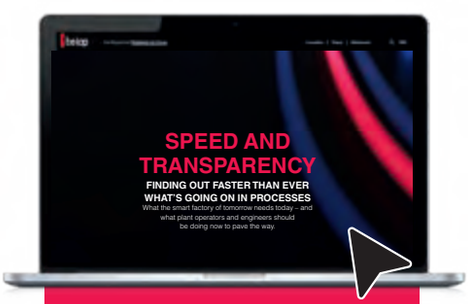


be top online

Check out the digital version of be top:

https://betop.friedhelm-loh-group.com

Fox Award for be top

Media experts were full of praise: "be top is a wide-ranging magazine that engages the reader with language that is unusually animated for these sectors of industry." This won the magazine the silver FOX AWARD.

FOX AWARDS 2021

NEWS

Punching machine: The FlexPunch by EHRT is part of the Rittal value chain and is also used in the Rittal Innovation Center in Haiger to bring innovations to life for customers.

RITTAL

New Managing Director of Rittal Automation Systems

Mechanical engineering. Jochen Trautmann took up his post as Managing Director of Rittal Automation Systems on 1 April 2022. The industrial engineer has spent the past 20 years working in top management positions for mid-sized corporate groups. Prior to joining Rittal, his most recent role was as CEO of WOMA GmbH. Trautmann is now responsible for pooling mechanical engineering expertise in the Friedhelm Loh Group at the Rittal Automation Systems competence centre. This will further expand the role of the solutions partner as an expert on machinery and tools for industrial customers in panel building, switchgear and mechanical engineering. Since 1 January 2022, two companies have joined Rittal Automation Systems. EHRT Maschinenbau GmbH from Rheinbreitbach is the worldwide market leader for punching and bending machines, which are used to process flat materials such as busbars or profiles. Alfra GmbH from Hockenheim, which develops application solutions for magnetic and lifting technology, has been setting standards in the production of electrical equipment and metalworking tools for over a hundred years.

ALFRA Passion for Tools

EHRT

EHRT Maschinenbau GmbH and Alfra GmbH are now part of Rittal Automation Systems.

IDC STUDY

Looking for best practices for edge & cloud?

Study highlights. The cloud is increasingly becoming the centre of gravity in IT, as has now been confirmed by a recent IDC study. Of the 200 companies surveyed, more than 95 per cent have already developed a cloud strategy – stating as their reasons that the cloud strengthens their digital transformation and makes innovation faster. Edge computing is becoming a bigger priority, too, as it brings considerable benefits for the prerequisites of digital transformation. These include real-time processes, low latency, comprehensive automation of processes and seamless provision and processing of data. Some 62 per cent of respondents said edge computing would be a high priority over the next two to five years. The study also reveals important insights about GAIA-X. The executive letter in the study with tips for optimising cloud use and practical examples from German Edge Cloud and Rittal is available to download at www.gec.io

Edge and cloud are top priorities. That's the conclusion of the IDC study on cloud architecture and cloud infrastructure in Germany in 2021 ("Cloud-Architekturen und Cloud-Infrastrukturen in Deutschland 2021").

TOP 100 COMPANY

Rittal well out in front on innovation

Award winner. Rittal has now been awarded a TOP 100 seal of approval in recognition of its outstanding innovation in panel building and switchgear. This means the family-owned business is now ranked as one of Germany's 100 most innovative companies. Rittal scored highly thanks to its innovation processes and the steps taken by the executive management to boost innovation. "We are delighted to have received the TOP 100 award as proof of our company's innovative strength," says Markus Asch, CEO Rittal International. "Our top priority is to support our customers by providing them with all-in-one solutions, especially for the digital transformation. Ongoing innovation is key to this goal." A prime example is the Rittal plant in Haiger, in the state of Hesse – a cutting-edge facility for the production of compact and small enclosures.

Feeling proud: Markus Asch, CEO Rittal International and Chairman of the Board (right), and Uwe Scharf, Rittal Managing Director Business Units and Marketing.

READERS' POLL AWARD

US engineers choose Rittal racks

Two awards at once. Readers of the US magazine "Control Engineering" have chosen to honour both the VX SE system enclosure and the TS IT Pro server rack from Rittal with the Engineers' Choice Award 2022. "Innovative solutions such as the VX SE and TS IT make manufacturing more efficient through smart applications of new technologies," said the editorial team when commenting on the engineers' choice. Andreas Ruzic, CEO of Rittal USA, was delighted to receive the awards: "To be selected by the 'Control Engineering' readers for not one, but two awards is affirmation of our innovative industrial automation and IT infrastructure solutions in the U.S."

CONVINCING WIN FOR RITTAL IN READERS' POLL

2021 IT Supplier of the Year in five categories

"LANline" poll. Readers of the IT magazine "LANline" have voted Rittal "2021 Supplier of the Year" – and not just in one category, but in five! They voted Rittal into first place in the categories "Enclosure Systems for Data Centres and Networks", "Data Centre Cooling Technology", "Data Centre Monitoring" and the top category "Most Innovative Supplier from the IT and Data Centre Infrastructure Sectors", and into second place in the "Physical Data Centre Security" category. "The Herborn-based company really cleaned up in every category relevant to data centre infrastructure," said the "LANline" editorial team when commenting on the result. "The awards are testament to the successful development and acceptance of the new IT infrastructure platform Rittal RiMatrix Next Generation (NG), the system platform for IT infrastructure that is unique worldwide," says Michael Nicolai, Head of Sales IT Germany at Rittal.

Online retailer JD.com operates Asia No.1 – one of the biggest and most modern logistics centres in Asia – with the help of Rittal enclosures, power distributors and cooling units.

JD.COM IN CHINA

Asia No.1 – full of Rittal technology

Modern logistics centres process orders efficiently so that goods ordered online can be delivered to customers quickly. Asia No.1, one of the biggest and most modern B2C logistics centres in Asia, is no exception. Rittal has supplied a range of Blue e+ climate control units and rack, enclosure and power distribution solutions for Asia No.1.

Online trade is booming in China, with sales there growing by 40 per cent each year. In 2018 alone, some 610 million keen shoppers in China ordered goods and products via the web. With figures like these, the e-commerce logistics sector also needs to keep up. JD.com, China's biggest e-commerce platform, has therefore responded by setting up Asia No.1, one of the biggest and most modern B2C logistics centres in Asia. Originally set up in Shanghai, Asia No.1 has now been expanded to include a further nine centres in eight major cities.

To meet the high standards required of the entire logistics system, the warehousing and order-picking process needs to be efficient, precise and, above all, highly automated. Safe and reliable enclosure, power distribution and climate control solutions are used to provide the best possible protection for the control technology and to ensure excellent system availability. At Asia No.1, these solutions have been supplied by Rittal. Rittal received the Asia No.1 order from its project partner Fives Group. This logistics equipment supplier is responsible for providing the material flow and sorting solutions for the Asia No.1 logistics centres. These include logistics solutions such as the automated cargo-to-person order-picking system, the automated 3D warehouse, the high-speed cross-belt sorter, the automated guided vehicles (AGVs), the multi-storey loft-type steel racking system and a multitude of automatic conveyor systems.

The necessary electronic components require complex cabling and need to be housed securely. This is where Rittal enclosures large and small come in. Climate control for these enclosures is provided by energy-efficient cooling units from the Blue e+ series. Power is distributed via the Rittal busbar system RiLine, which went down well in the project thanks to its compact design and flexible installation options.

STELLANTIS MEXICO

Service contract for 1,500 cooling units

Automotive industry. Stellantis is the fourth-biggest car manufacturer in the world, producing world-famous brands in more than 30 countries. In Saltillo in Mexico, for example, Stellantis produces car engines for the North-American market.

When it comes to producing engines, maximum system availability is a must. Key factors here are panel and switchgear systems that work reliably – and this applies to the climate control technology, too. In the interests of ensuring that all cooling units in the engine production line run perfectly 24/7, Stellantis took out a service and maintenance contract with Rittal Mexico for 1,500 cooling units.

Alongside regular maintenance and professional fault diagnosis, the service also comprises a delivery system for spare parts that Rittal keeps ready across its global network. Furthermore, the contract includes replacing defective or "energy-guzzling" cooling units with Rittal energy-efficient cooling units from the Blue e or Blue e+ series – meaning Stellantis can further reduce its carbon footprint during production.

Stellantis: The fourth-biggest automotive corporation in the world produces brands such as Alfa Romeo, Chrysler, Fiat, Maserati, Opel and Peugeot.

UNIVERSITY OF OXFORD

Mini data centre solves a problem in Oxford

The University of Oxford has one of the biggest university collections in the world, which includes the Museum of Natural History.

The University of Oxford has one of the biggest and most important collections in the world, comprising more than 21 million objects, specimens and printed items. The collection also includes the Museum of Natural History, which is part of the Gardens, Libraries and Museums (GLAM) division. Given a rising demand for data, the IT infrastructure needed to be completely upgraded to improve computer and telephone data connections.

THE CHALLENGE

As the historical building is listed, converting it was not an option. Anjanesh Babu, the IT Project Leader at GLAM, was therefore looking urgently for a different solution so that structural modifications could be avoided. Rittal came up trumps with a concept that fitted the bill perfectly – a turnkey micro data centre with an enclosure, fully fitted out with IT racks, accessories, climate control, PDUs, monitoring and fire protection. The extra-special feature is a space-saving liquid cooling unit integrated directly into the rack. The system could therefore be installed in the museum basement, without the need for any expensive structural modifications. Babu was very relieved when the new micro data centre was up and running: "Thanks to the Rittal micro data centre, we were able to use the proposed site, which saved us a lot of time, energy and outlay."

Complete transparency: End-to-end digitalisation is the only practical solution to cost and efficiency pressures.

SPEED AND TRANSPARENCY

WHAT THE SMART FACTORY OF TOMORROW NEEDS TODAY

The factory thinkers have done their bit. The **smart factory** is their new holy grail. It's now the turn of the factory makers. The goals of **digital transformation** are clearly defined. It all comes down to mo e transparency, knowledge and speed in operations – but what does that actually mean for **production managers and those responsible for plants and machinery?** Practical experience and solutions from **Rittal, Eplan** and **German Edge Cloud** show, step by step, how it can all be done.

Text: Ulrich Kläsener, Hans-Robert Koch, Steffen Maltzan

Schuler and German Edge Cloud

END-TO-END DIGITALISATION

When it comes to smart factories, **Schuler**, the world's biggest **press manufacturer**, is well ahead of the game. The company is using **end-to-end digitalisation** and **complete transparency** to speed up its manufacturing processes.

It's a pity you can't simply buy an Industry 4.0 turnkey solution. However, that's not really surprising. After all, whether it's a case of building a new greenfield factory or reconfiguring an existing environment, the requirements in production facilities all round the world are too specific and the needs too distinct. A blueprint simply doesn't exist. Perhaps that's also why many companies have failed in their first attempt to become a smart factory. The big question, therefore, is how companies can make it work second time round. How actually can manufacturers benefit from AI, AR, 5G, condition monitoring and predictive maintenance? How much of that is feasible and what's worthwhile? Moreover, if we lay aside the big picture of a smart factory for a moment, what preparations does every manufacturing company need to make – and in what way – with a view to acting more intelligently in the future? "It all comes down to achieving complete transparency through digitalization," says Dr Robert Vollmer, Head of Digital Automotive Solutions at Schuler, the world's biggest press manufacturer. Why? Alongside topics such as component quality, energy consumption and cost efficiency, Vollmer picks out two major trends in the automotive industry that can only be managed successfully in practice with end-to-end digitalization: "The first challenge manufacturers are facing is small batch sizes – cars are becoming highly customised products. Nowadays, the production line is retooled up to five times per shift – and as a general rule, that means more than ten tool changes per day." Using data transparency to get things moving faster in manufacturing is therefore an obvious solution. What about the second major trend? "Car manufacturers are going right to the limits in every regard. From a technical point of view, they're taking everything to extremes – design, consumption, user-friendliness, comfort. This all needs to be taken into consideration as we look back along the process chain to manufacturing and to the suppliers of semi-finished products and raw materials."

IDENTIFYING CORRELATIONS

The challenges are therefore well known – but how does a major plant engineering company such as Schuler react to them? With transparency, as it happens. Schuler offers a track & trace solution for press shops as part of its Digital Suite. This means automotive manufacturers can trace their components down to master data level and order level at all times – whether during the production process itself or later on as part of a recall. It's all a case of drawing the correct conclusions,

Track & trace: Schuler and Porsche use track & trace solutions from German Edge Cloud in their Smart Press Shop in Halle so they can trace bodywork part defects more quickly and effectively.

as Vollmer explains: “In concrete terms, the benefit is far less waste. Given the huge sales in large press shops – materials to the tune of hundreds of millions – this produces big results fast. It’s also obvious that any company that’s producing scrap is not being productive. What’s important for us, therefore, is that operators and factory managers in the field receive precise information and that transparency helps them identify the really important correlations. Isolated information from the ERP just isn’t enough.” Looking at the whole picture – complete supply and production chains in this case – it has been possible to shorten response times to errors and, in the long run, to prevent malfunctions from occurring in the first place.

STATE OF THE ART – EASIER SAID THAN DONE

Dr Vollmer has absolutely no doubt that the Schuler Digital Suite is a text-book example of one of these new, data-driven business models that gives a new dynamism to a supplier from Germany – a high-wage country. However, he is equally sure that getting to that point involves crossing some tricky, uncharted territory: “State of the art is easier said than done.” Schuler therefore entered into a technological partnership with German Edge Cloud (GEC) to turn what is theoretically possible into a practical application. GEC, a Friedhelm Loh Group company, implemented the track & trace solution on the hardware and software side. The solution works perfectly, everyone understands it and the necessary data sovereignty has been ensured. German Edge Cloud and its sister companies Eplan and Rittal are currently positioning themselves as technology partners for industry – not just in terms of engineering, sourcing and manufacturing, but also in the operations sector, as Bernd Kremer, COO Cloud & Industrial Solutions at GEC, explains: “We think up new digital solutions for the production areas in a down-to-earth way, align these with the specific challenges facing our customers on site and implement them in the simplest way possible.” Read on to find out how this all works in the Rittal plant in Haiger. ■

“Operators and factory managers need precise information and the associated transparency for the really important correlations – information from the ERP just isn’t enough.”

Dr Robert Vollmer
Head of Digital Automotive Solutions at Schuler

Rittal and German Edge Cloud

COMPLETE VISUALISATION

Collecting, structuring and analysing manufacturing data is anything but simple – and the same goes for **visualising live operating states.** However, this is already part of everyday work on the shop floor in the new **Rittal plant in Haiger**.

Every day, the network handles 18 terabytes of newly generated data. That's business as usual at the Rittal plant in Haiger. After all, these volumes of data are the very fuel of cutting-edge manufacturing – without it, Rittal wouldn't be able to produce the 8,000 compact and small enclosures that it has been manufacturing daily since 2019. Getting to this point wasn't easy, however. "Digital transformation is still hard and groundbreaking work," comments Markus Asch, CEO Rittal International.

As impressive as operations in the Haiger plant now are, the background history is the most fascinating aspect of all. Sister company German Edge Cloud (GEC) provided support for the plant in central Hesse. A specialist in the digitalization of manufacturing processes, GEC focuses on one simple question – how can software be used to make manufacturing more efficient? Dieter Meuser, CEO Cloud & Industrial Solutions at GEC, neatly sums up the starting point: "The issue tends to be a complete mishmash of machinery and applications. There's not much point in collecting data here unless you understand it in the context of production as a whole." The first step was therefore absolutely essential – GEC and Rittal put together mixed teams of specialists from both manufacturing and IT.

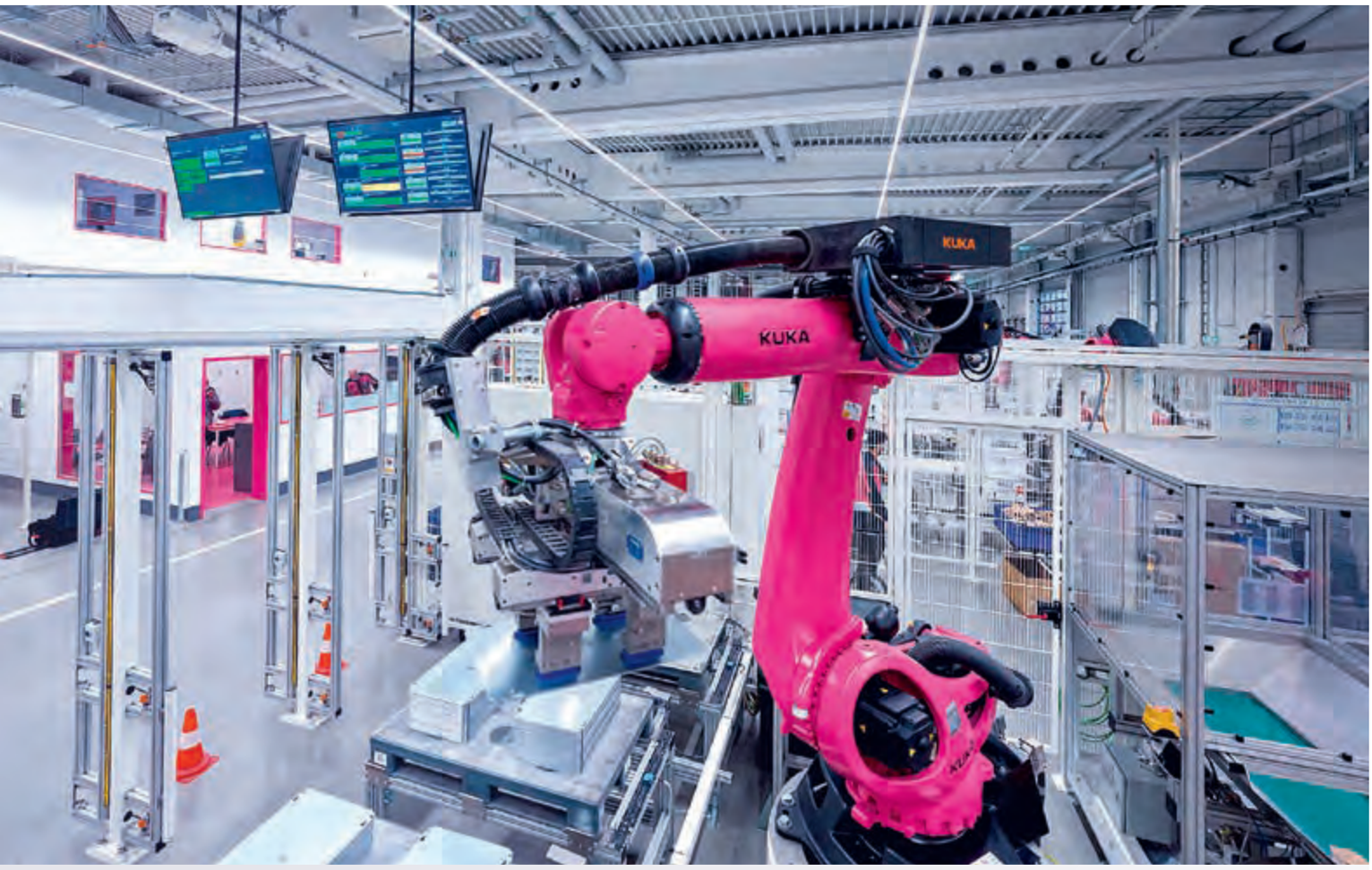
"The GEC solution in the Rittal plant in Haiger serves as an example for industry."

Markus Asch
CEO Rittal International

Everything in view: Performance dashboard systems in the Rittal plant in Haiger mean the status and progress of production are instantly visible.

OVERCOMING HURDLES IN HAIGER

The issue of collecting and processing data was resolved in a number of stages. Broadly speaking, the data from all machines is now collected, structured hierarchically in a manufacturing execution system (MES) and processed in industrial analytics applications to make it ready for use in manufacturing once more. To do this, GEC developed the ONCITE edge cloud solution – an easy-to-implement Digital Production System consisting of software and hardware. As a result, system maintenance engineers and production planners in the plant can check a dashboard for all the information needed to intervene quickly in factory operations. The dashboards are the cockpit of the system that comprises analytics, alerts and live reporting on the status of production. Large monitors visually display what 250 networked machines (equipped with sensors), system components and 20 automated guided vehicles (AGVs) are doing – or, indeed, what they're not doing. If there is a problem, it can be dealt with swiftly, because information about bottlenecks in ongoing production is provided in seconds, with precise analysis at the ready. Today, a clearer picture is emerging of previous problems. Rittal and GEC initially found themselves facing a whole host of unexpected bumps along the way. The inconsistent machine data semantics and the balancing out of IT and production complexity were to be expected. However, bottlenecks and missing materi-



al in the systems were a vivid reminder of the saying "no pain – no gain". As Dr Marc Sesterhenn, Managing Director of Operations at Rittal, confirms: "Thanks to ONCITE, we were able to significantly increase transparency across the entire manufacturing process, with close interlinking of production and intralogistics. We can see immediately if a storage space is about to overflow, if a line is at a standstill, if there's a backlog or if the AGVs are too slow."

DIGITAL MANUFACTURING

Is it all as good as it sounds? "We really can suck up data from a huge range of sources, collect it in the MES and structure it hierarchically. These smaller-scale packets of data are then combined with the mass data collected – signals and image and sensor data – and displayed on the dashboards as processed production data," says Meuser. It doesn't matter whether the data is analysed on premise via edge computing or in the cloud. "What's more important is that we have fast, high-performance edge cloud technology and that ONCITE can gradually be enhanced with other software solutions and new data."

TRANSPARENCY OVER EVERYTHING

Key figures displayed on the performance dashboard show the result. The dashboard displays production progress in the form of quantities, cycle times etc. and emits an alarm if a bottleneck occurs. "We recently recorded a fault on the packaging line. Thanks to the dashboard system, this was rectified in less than a minute. We can see immediately how long a line is in autostop for, whether there are pending transport orders for AGVs and what the quantities are per day and per shift," explains Moritz Heide, Head of System Maintenance and Production Planning at the Rittal plant in Haiger. "This creates transparency and gives us control options across all manufacturing lines and systems," he continues. ONCITE therefore makes active manufacturing control possible. The next step being planned is to link SAP ERP to ONCITE so Rittal can see the order backlog and display availability details for orders. "The plant in Haiger, with the GEC solution, really does serve as an example for industry," confirms Markus Asch, CEO Rittal International. ■

"We can collect production data from a range of sources, structure it and display the processed data on performance dashboards."

Dieter Meuser
CEO Cloud & Industrial Solutions at German Edge Cloud

Top 5 lessons

Smart manufacturing:
In its production plant in Haiger, Rittal rigorously implements Industry 4.0 standards.

LEARNING AND GETTING GOING

When setting up the **Rittal plant in Haiger,** there was ample opportunity to gain real insight very early on – after all, digital transformation is a mammoth project. The key question now is: What did we learn in the process? The five top lessons learned may prove helpful when embarking on the **smart factory** process:

1. CHANGE OUTPACES IMPLEMENTATION

A greenfield plant becomes a brownfield plant faster than you can say "digital transformation". Whatever companies are planning today in terms of IT, OT or IIoT infrastructure is out of date even before the first machines are started up. Anything that can't be implemented in a few months should be left alone. In other words, it's important to keep the bigger picture in mind. However, the setup should be divided into logical, process-based modules and layers.

2. GET SMARTER STEP BY STEP SMARTER WERDEN

In truth, companies don't actually build a "smart factory". Instead, they build a state-of-the-art automated factory and take regular, consistent, pre-planned steps to boost integration and make manufacturing continuously smarter. By recognising and accepting these two points at an early stage, they can be turned into a strength – thinking in terms of the whole system, building in modules and linking processes in a standardised way. This means stable production and the possibility of batch size 1 can be achieved more quickly. That does not mean building isolated solutions – quite the opposite, in fact. The ultimate, overall goal is known and individual building blocks are built into a seamless pyramid, thanks to standardised interfaces.

3. TRANSPARENCY ITSELF IS A LEAP FORWARD

By achieving transparency across all production processes, companies are creating the basis for the first major leap forward in terms of digitalization. This step alone boosts efficiency significantly and sustainably – and that's before getting into the realms of data analytics and AI. This can be achieved with GEC through a virtual factory solution based on edge cloud computing. The solution creates a live overview of everything that's going on in production.

4. USE INTERDISCIPLINARY TEAMS

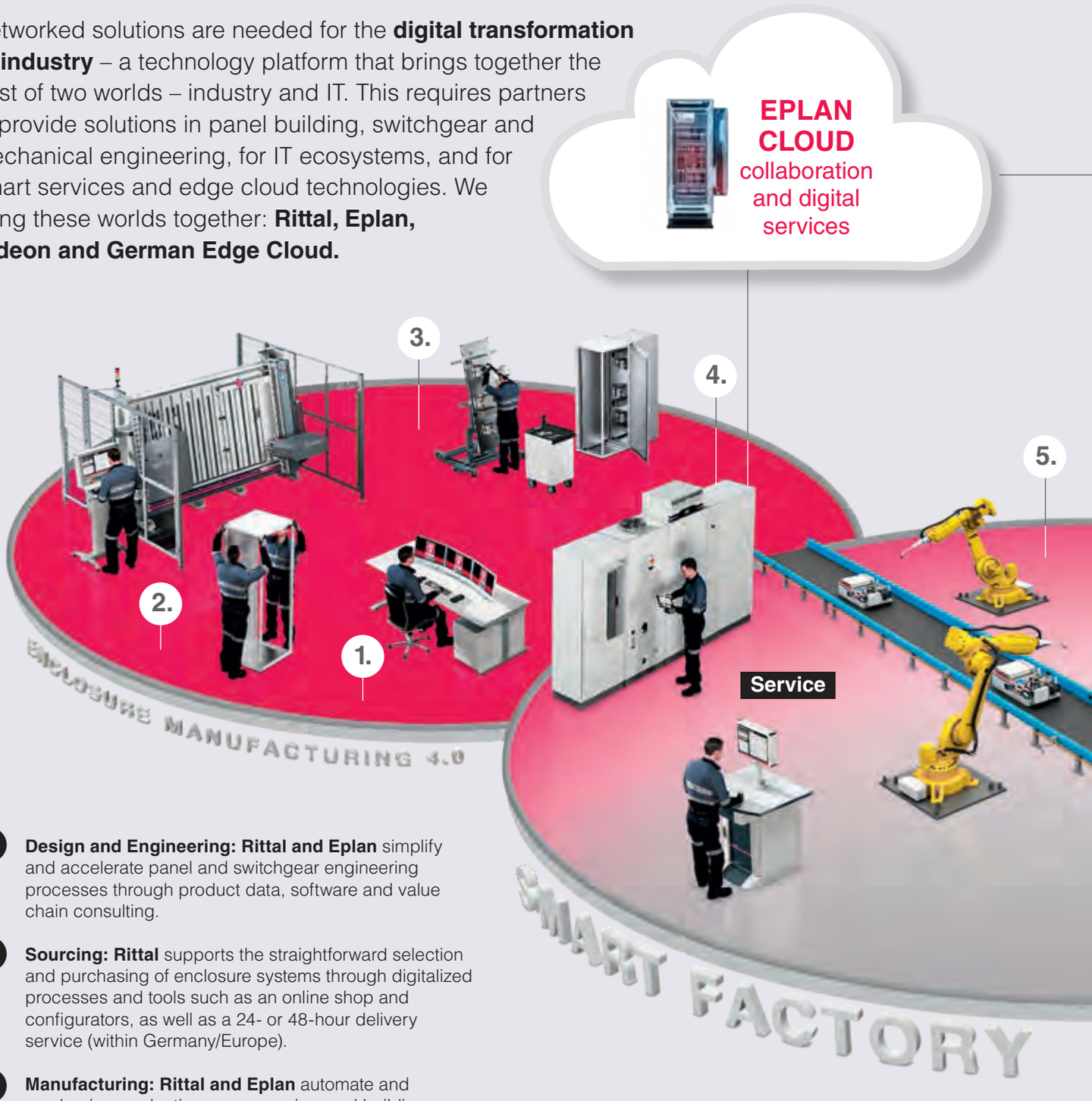
When integrating machinery and data, it's important not to forget the human element. It's crucial to form interdisciplinary teams with specialists from all relevant areas. Together, OT and IT specialists support the setup and act as 24/7 problem solvers. Industry experts are familiar with the pitfalls of MES and IIoT. Multi-cloud experts ensure networking takes place on the basis of data sovereignty. All in all, what we need are reliable, user-friendly solutions that don't need much looking after – plug and play, in other words!

5. COURAGE AND PREPARATION ARE THE KEY TO SUCCESS

Everyone involved needs one thing – the right mindset. Determination, courage to take risks and a certain joy in the unknown are needed. Good preparation for the implementation is another must. After all, if companies want to remain customer-focussed, efficient and competitive, digital integration of manufacturing is the only answer.

INSPIRATION FOR THE SMART FACTORY

Networked solutions are needed for the **digital transformation of industry** – a technology platform that brings together the best of two worlds – industry and IT. This requires partners to provide solutions in panel building, switchgear and mechanical engineering, for IT ecosystems, and for smart services and edge cloud technologies. We bring these worlds together: **Rittal, Eplan, Cideon and German Edge Cloud.**



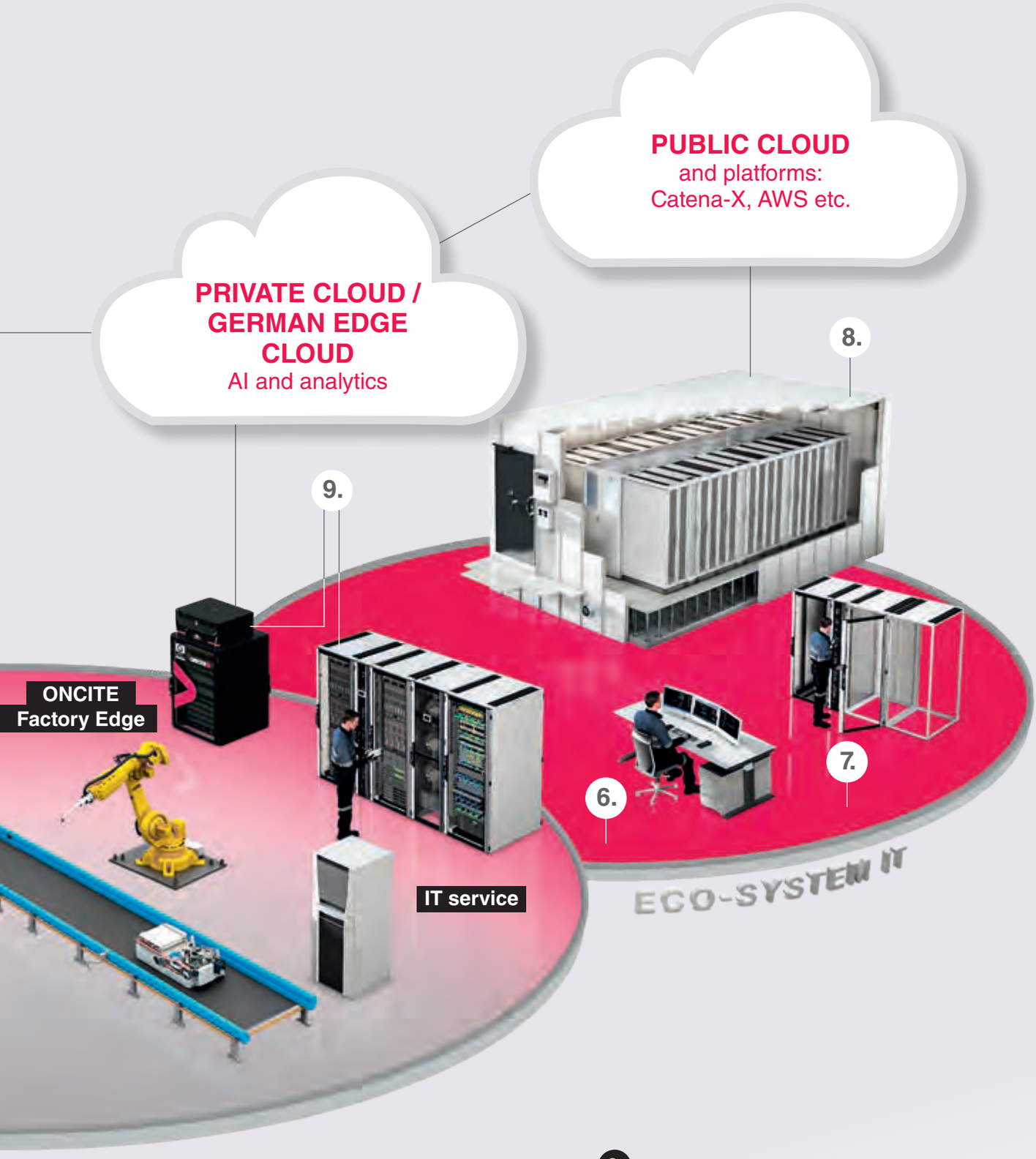
1. **Design and Engineering: Rittal and Eplan** simplify and accelerate panel and switchgear engineering processes through product data, software and value chain consulting.

2. **Sourcing: Rittal** supports the straightforward selection and purchasing of enclosure systems through digitalized processes and tools such as an online shop and configurators, as well as a 24- or 48-hour delivery service (within Germany/Europe).

3. **Manufacturing: Rittal and Eplan** automate and mechanise production processes in panel building and switchgear, e.g., with milling and drilling centres, fully automatic assembly machines, and so on.

4. **Operations:** With Eplan Pro Panel and Rittal ePocket, **Eplan and Rittal** offer a digital twin for the error-free documentation of machines and systems. Rittal service ensures higher system availability and better energy efficiency.

5. **System design: Eplan**, as a design and engineering solution provider, supports companies with electrical planning, automation and mechatronics. With their leading software platform, standardised data and interfaces ensure consistency throughout the entire value chain. **Cideon**, as a system integrator, advises businesses and offers the optimisation and integration of engineering processes with software & services relating to CAD/PDM/PLM.



6. **IT/OT engineering: Experts** in **the Rittal** IT competence centres have comprehensive know-how and many years of experience in numerous international IT projects.

7. **OT infrastructure system:** A **Rittal** modular, end-to-end system that includes racks, power, cooling, security and monitoring, can be used to build customised solutions for all IT scenarios easily and quickly. Everything from the rack, rack edge, enterprise, and colocation data centres to hyperscale data centres can be configured.

8. **OT complete system:** For example, the **Rittal** data centre in a container. These standardised systems can be installed within a very short period of time, offering the advantage of a turnkey handover, including full documentation.

9. **IT data centre/edge cloud services:**
Rittal and German Edge Cloud, together with their partners, offer solutions to meet all the needs of scalable and economical IT for edge and cloud scenarios – from data centres to IIoT solutions as ONCITE.

Rittal ePocket

ENCLOSURES INTO THE CLOUD!

The same principles that apply to **smart manufacturing processes** apply to the operation of plants and machinery, too – these also need to be smart. With **Rittal ePocket**, Rittal and Eplan are now migrating **the lifecycle files of panel and switchgear systems** to the cloud. This is a major benefit for those esponsible for machinery and plants and for panel builders, switchgear manufacturers and maintenance engineers.

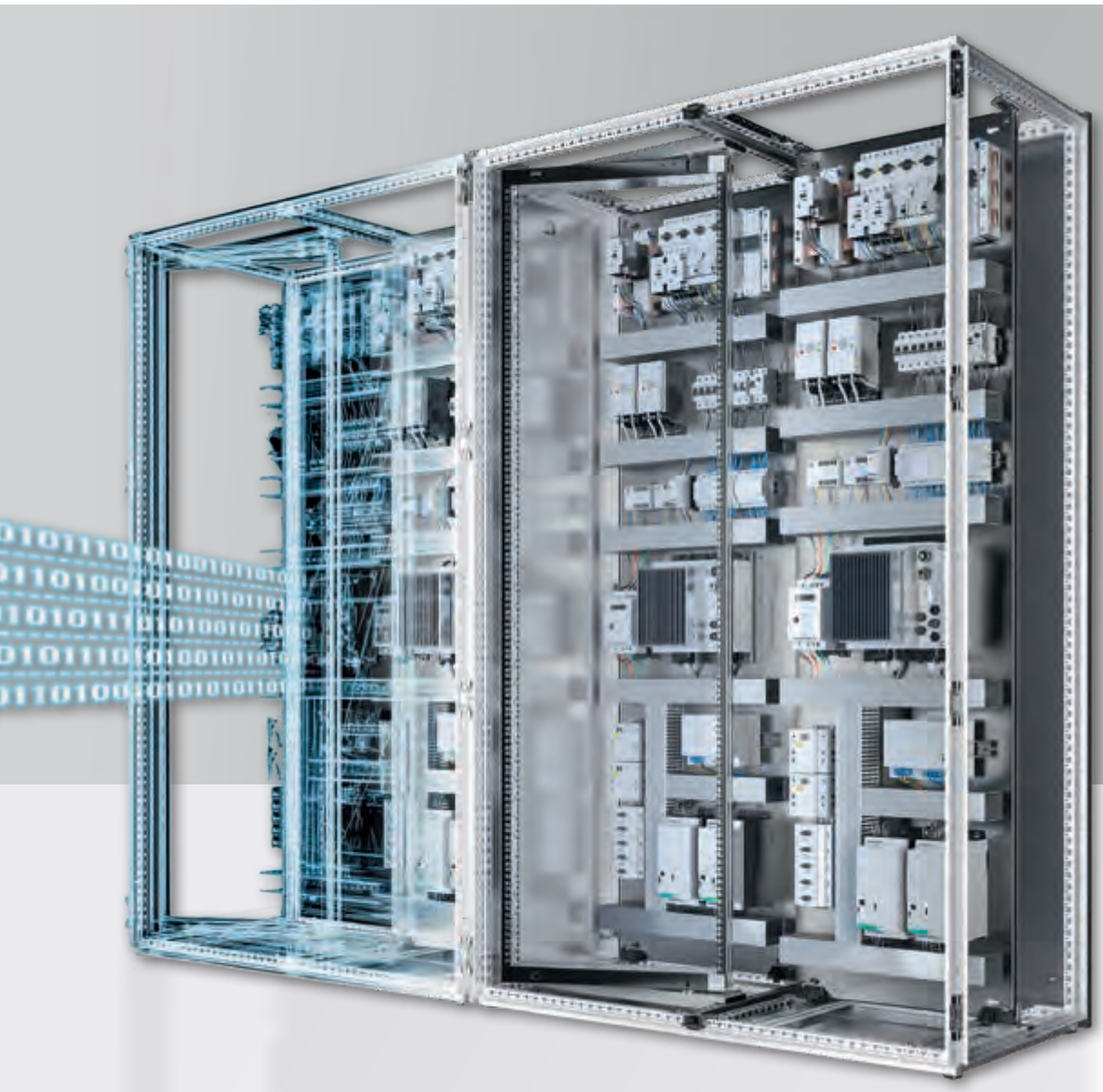
The electrotechnical documentation and digital twin of a panel and switchgear system now have a new home. Rittal ePocket – the digital wiring plan pocket – is migrating to the cloud. Staff can use their smartphone or tablet to access up-to-date engineering information directly from the shop floor. The digital lifecycle file is replacing the folder of paper documentation and giving the staff responsible for plants and machinery new flexibility for operations and maintenance.

In other words, cloud plus digital instead of document folder plus analogue. The system is so simple, so logical and so good, that everybody benefits in some way – those responsible for machinery and plants, enclosure builders and maintenance engineers alike – because Rittal ePocket gives all these people easy access to consistent data that is always up to date. The digital lifecycle file for the panel and switchgear system answers all relevant questions staff in the broad field of operations might have.

Since late 2021, a space has been reserved in the Eplan cloud for every Rittal enclosure in the VX25, VX SE, AX and KX series. All project data relating to the enclosure, such as wiring plans, maintenance tables, certificates and manuals, can be stored here. Anyone who is authorised to do so can use the integral Eplan eView on their smartphone or tablet to scan the QR code on the enclosure to gain access to the data. Access from a desktop computer is also possible, so engineering modifications or maintenance can be consistently documented, for example, and project data can be updated. Rittal ePocket is being established as the digital hub of a new ecosystem, in which various stakeholders work together in a switchgear lifecycle.

BENEFITS AT A GLANCE

- Always up to date throughout the entire lifecycle of a plant
- Rapid spare part procurement and repair in the event of a fault
- Unequivocal matching of the up-to-date digital twin to the up-to-date real model with all components
- No more paper documentation required – significant reduction in CO_2
- Prospect of enhancing the digital wiring plan pocket by adding information about the carbon footprint



No more piles of paper – Rittal ePocket moves the wiring plan to the cloud.

ANY QUESTIONS ABOUT RITTAL ePocket?
Simply scan this QR code to access further information.

SIEMENS AWARD FOR RITTAL ePocket

Rittal ePocket – the digital wiring plan pocket – has now won the Siemens Enclosure Sustainability Award that was presented for the first time in 2021. The award honours suppliers and Siemens employees whose ideas support Siemens' ambitious sustainability targets. "Thanks to our close technological collaboration with Rittal, we could see the potential benefits for Siemens immediately, even before the digital wiring plan pocket was launched on the market," explains Ahmet Cavas, Global Commodity Manager of Siemens Smart Infrastructure for the Cabinets & LV Switchgear material field. "Rittal ePocket is doubly sustainable – alongside the CO_2 savings, it also digitally strengthens the long-term, efficient cooperation between operators, planners, manufacturers and switchgear producers."

Rittal ePocket

UP-TO-DATE DATA DURING SERVICE

If we assume **a panel and switchgear system has a product lifecycle lasting 15 years**, its paper documentation will generally be out of date. Countless **service engineers** will have added notes about overhauls, replaced parts etc. All this takes up valuable time in the event of a **fault or modificatio** . Everybody wants out of this situation. We caught up with **Sebastian Seitz,** Managing Director at Eplan, and **Uwe Scharf,** Managing Director of Business Units and Marketing at Rittal, to ask them about this.

With Rittal ePocket, Eplan and Rittal are offering a digital wiring plan pocket. Who is likely to benefit from this?

Scharf: ePocket is aimed at panel builders, switchgear manufacturers, those responsible for machinery and plants, and maintenance engineers in the manufacturing industry. All these people have a role in the industrial automation ecosystem – and all will benefit from ePocket in their own way.

Seitz: There's also a clear benefit for the environment. At the moment, when a customer takes delivery of machinery and equipment, they really ought to offset this by planting a tree straight away – because the amount of paper documentation would practically fill half a lorry.

So what exactly is your alternative?

Scharf: Electrical engineering regulations often demand a mountain of paperwork. A 50-page document for a single terminal – why? The same is true of wiring plan documents. Traditionally, these documents are printed out and stuck inside the door in a plastic wallet – and there are three or four thick files in the enclosure, too. That's an additional fire load risk besides anything else. It's not good. With ePocket and the use of QR codes, we're offering a digital alternative.

What are the specific advantages of ePocket for servicing or modifications?

Seitz: By scanning a QR code on the enclosure, users can easily access the system documentation, including the digital twin, in the Eplan cloud. In the case of a fault or modification, it's important to do the right thing straight away. That means validating data as quickly as possible and putting it in context – and this is where complete Eplan documentation is a huge help.

Scharf: It means faults can be quickly located and defective components can be identified and replaced. When a malfunc-

"In the event of a fault or modification, it s important to validate data as quickly as possible and put it in context – and this is where complete Eplan documentation is a huge help."

Sebastian Seitz
CEO Eplan

"Nowadays, maintenance engineers and those responsible for machinery and plants need full transparency, readily available data and precise analysis so they can make the right decisions."

Uwe Scharf
Managing Director of Business Units and Marketing at Rittal

tion occurs, plant operators need to be able to pinpoint the problem as quickly as possible.

How does ePocket work in terms of keeping documentation up to date?
Seitz: The buzzword here is redlining. The person responsible for project planning can check any rough notes made in ePocket by the maintenance engineer, make any corrections needed and integrate the changes into the final plan. As a result, the database is always consistent and up to date. Rittal ePocket is as dynamic as the enclosure itself. Anybody can access it at any time and from any device. The same is true when it comes to ordering spare parts.

What are the benefits in terms of the upstream panel building and switchgear?
Scharf: Rittal ePocket opens up numerous opportunities. If the plant engineer agrees with the customer that the digital wiring plan pocket will be the only handover medium, there's potential for saving thousands of euros that would otherwise be spent on printing and compiling the documentation. What's more, the plant engineer continues to be a key player in this ecosystem, even in the operating phase. When it comes to major modification and maintenance work in particular, external parties are often involved. They can strengthen their technological partnership with the operator. Ultimately, when given access rights, the plant engineer can provide support for the enclosure throughout its product life. One benefit is that, years later, the plant engineer can take the initiative and, for example, recommend a new climate control solution that drastically reduces power consumption. The operator can also be given maintenance recommendations or tips about recycling or zero waste concepts. All of this is hugely relevant nowadays.

Ecology and carbon footprint are important buzzwords – are these already included in Rittal ePocket?
Seitz: No, not yet, because there's no standard for that so far. However, we're already working hard on the necessary foundations for this, partly at the suggestion of major customers and due to more stringent certifications, too. This applies to the carbon footprint both of installed components and of assembly, delivery and installation. Together with Rittal and the ZVEI – the German Electrical and Electronic Manufacturers' Association – we are carrying out a research project on the digital twin of the enclosure that also includes information about the carbon footprint. This is an excellent approach, because all the focus at the moment is on the carbon footprint of plant operations.

Rittal ePocket is stored in the Eplan cloud – so the question regarding security is an obvious one...
Seitz: The Eplan cloud is hosted in line with the very latest security standards. Our security operations team regularly conducts tests to review the security of the systems and infrastructure on a proactive basis. What's more, the only thing that's made available in the cloud is the enclosure documentation – including in the form of the wiring plan – and there's no access to the machine or its controls. The entire thing runs completely separately to the operation of the plant.

Scharf: Rittal ePocket stores all project data in a defined area within the Eplan ecosystem. It also structures the data and assigns the relevant access rights to it. Depending on the authorisation, those involved can access wiring plans, I/O lists, production layouts, climate control technology designs and standards, product and project documentation, maintenance manuals, and so on. It goes without saying that they can store new, up-to-date information there, too. ■

Thank you for the interview!

NEWS

INNOVATIONS FROM
THE FRIEDHELM LOH GROUP

TESVOLT AND RITTAL

New energy storage systems in the VX25

Premiere. Tesvolt, a manufacturer of battery storage systems from Wittenberg, is premiering its new E-series at “The Smarter E Europe” trade fair in Munich (11 – 13 May 2022). The battery storage system is equipped with the latest generation of battery cells from Samsung and the new Dynamix Battery Optimizer (DBO), which has been optimised for the cells. The new TS HV 70 E and the TS-I HV 80 E/100 E are characterised by particularly high energy density, efficiency and durability. The energy storage modules are installed in the VX25 enclosure system from Rittal. The experts at Tesvolt designed the new climate control and ventilation solution together with Rittal. The battery storage systems offer a huge range of potential applications for a wide variety of industries even in multi-use mode. They make it possible to optimise private consumption, cap peak loads, keep reserve current and cut costs.

Smart solution – the new Blue e+ S cooling units from Rittal

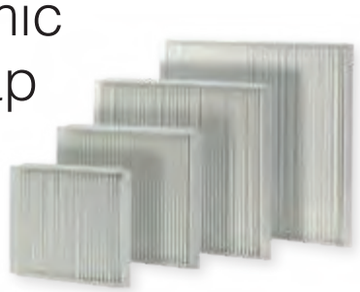
BLUE E+ S COOLING UNITS

Cool new addition with sustainable DNA

Efficient cooling. Rittal is expanding its portfolio of smart cooling unit solutions by adding the new Blue e+ S range (more on p. 32). Its latest cooling units with their lower output categories of 300, 500, and 1,000 W have been designed for efficienc , ensuring a smaller footprint and lower costs – just like their “big brothers.” The reason for this is the Blue e+ technology used, which combines a heat pipe with an inverter-controlled compressor function. It operates without an actual compressor or expansion valve, and so does not need any electrical energy, except to run the fan. Another feature that shrinks the carbon footprint is that the global warming potential of the refrigerant used in these units is up to 50 per cent lower than that of the one used in older devices.

NEW PLEATED FILTER

Economic dust trap



Well ventilated. They are often one of the details of enclosure design that get little attention – the filte mats of fan-and-filter units. Yet selecting and maintaining the filter medium and using original Rittal accessories are frequently key factors in ensuring systems operate reliably and efficientl . The new Rittal pleated filters for TopTherm fan-and-filter units offer better dust protection for the components in the enclosure as fine dust particles are filte ed out of the air much more efficientl . What’s more, it is possible to achieve up to 40 per cent higher ventilation performance in the same IP54 protection category. The running time of the fan is reduced as a result, which cuts energy costs to the same extent.

ISO 27001-CERTIFIED

Eplan Cloud is secure!

International standard. TÜV Nord has done the test and issued the ISO 27001 certifi ate – the operation of the Eplan Cloud is secure! For customers, this means the cloud is operated and developed to internationally recognised standards. The customer data stored in the cloud platform is stringently encrypted and systematically protected from misuse and unauthorised access. The data is safeguarded through regular, tested backup processes and a team of security experts works around the clock to remedy any weak points. Find out more about the security of the Eplan Cloud at: www.eplan.com/en/trust-center.html

EPLAN MARKETPLACE

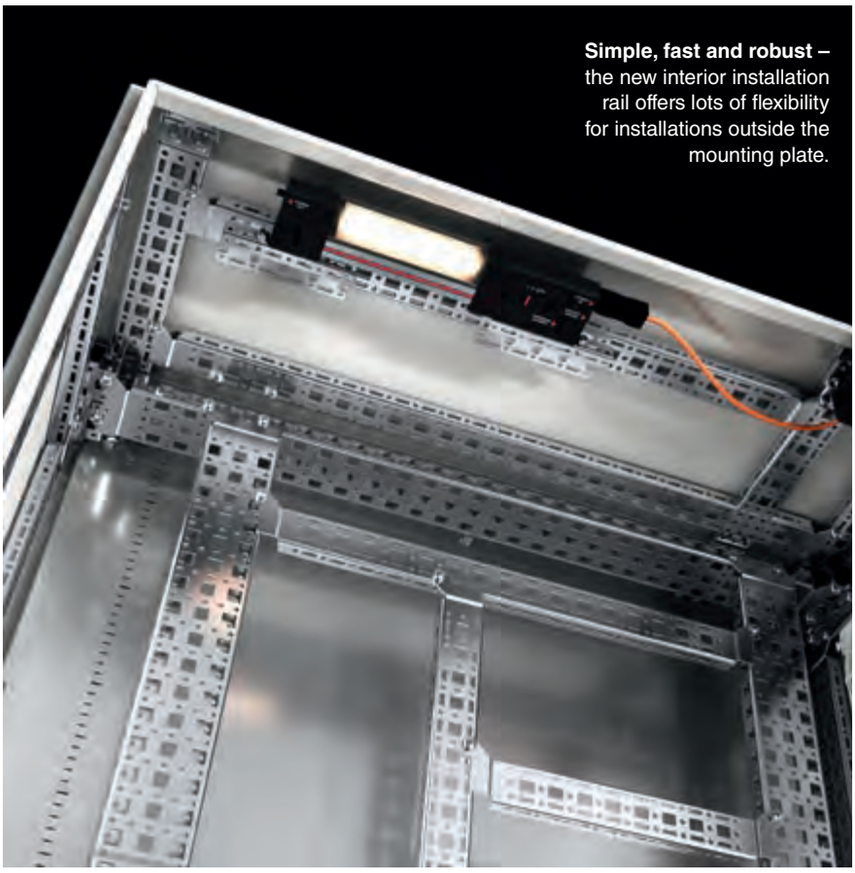
Find engineering professionals faster

New service. The Eplan marketplace connects companies fast and globally with service providers from the engineering, enclosure manufacturing and consulting sectors. After all, day-to-day business operations show that obstacles often arise in project work, data processing and integration that companies can't overcome on their own. In many cases, HR support is also required. The question then arises of which provider in the disciplines covered by Eplan is suitable in this particular case. The Eplan marketplace makes this search process easier. The platform is therefore a valuable source of advice for companies.

NEW RITTAL INTERIOR INSTALLATION RAIL FOR AX ENCLOSURES

More flexibility for fitting out

Clever little rail. Sometimes, it's the little things that make all the difference. Rittal is now proving this with the new interior installation rail for the AX compact enclosure. It enables electrical components to be installed easily, quickly and with great stability outside the mounting plate. What's more, this can be done without any drilling, which creates more flexibi - ity in the enclosure for fitting out and more space for greater packing density. All this is possible because a form-fit connection is created when screwing the rail into the locators on the side panels of the AX. Further fitting out using VX rails and punched sections with a 25 mm pitch pattern that are otherwise only found in the VX25 large enclosure is another advantage that now makes the AX a real system enclosure.



Simple, fast and robust – the new interior installation rail offers lots of flexibility for installations outside the mounting plate.

RiPanel – the new enclosure configurator

THE PRICE IS LIVE!

In the past, system planners and designers have had to search through parts lists to work out the costs of their newly planned enclosures. **The new RiPanel configu ator** now makes their lives a lot easier, as they can clearly **see live prices and alternative options** throughout the entire planning and configu ation process.

Text: Michael Siedenhans

Want to plan and configu e enclosures down to the last detail while keeping an eye on live prices at the same time?

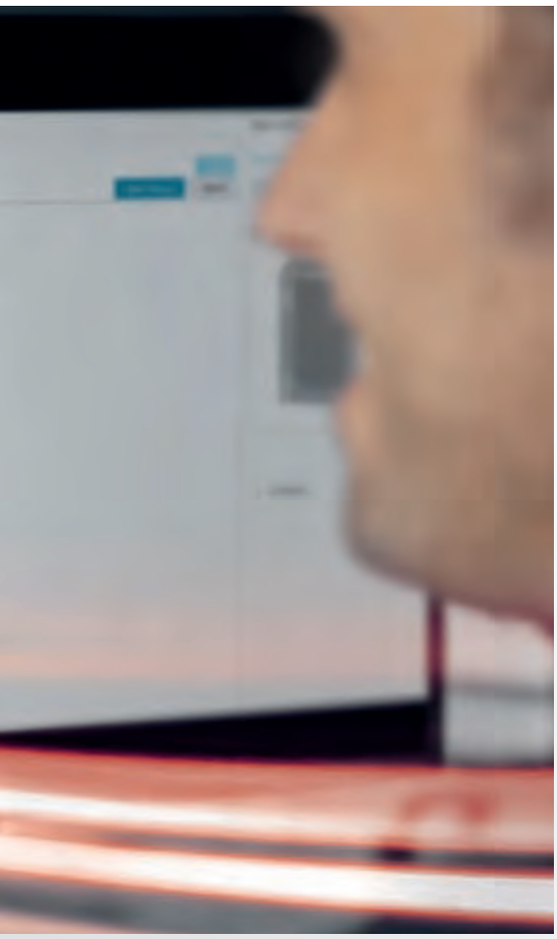
There's no mistaking Dimitri Kungl's enthusiasm as he talks about his experiences with the new version of RiPanel. As an electrical engineering designer working for Lang, he has been using the configurator since December 2021 to configure and order enclosures for high-quality CNC, milling and engraving machines. "With the new version, I can configure highly customized enclosures and I have an immediate overview of all the elements I need, right down to the last detail," Kungl explains. He then mentions another benefit offered by the new version: "The prices are displayed clearly and immediately. That saves me a lot of time – I can order straight away with a single click. In the past, I always had to use the parts lists to work out the prices." The new direct price information is helping Lang achieve almost seamless production: "If I place an order today, I'll get the order confirmation from Rittal tomorrow and then the enclosure will arrive at our premises in Hüttenberg the day after that."

CONFIGURATION COMPLETE WITHIN HALF AN HOUR

If it all sounds easy, that's because the new version of Rittal RiPanel makes it exactly that – even though an enclosure for special mechanical engineering equipment is a complex product comprising up to a hundred elements that Kungl has to put together. In addition to the frame, base, side panels and roof, these elements also include cable systems, various cut-outs for the mounting plates, fan, signal lights and control components such as the monitor and, last but not least, the wiring plan pocket. Depending on customer needs, these holes tend to be specifically defined. When using RiPanel, they can be implemented to bespoke specifications right from the configuration stage. Kungl can make use of predefined drilling patterns and clearly position the cut-outs he wants in 3D. This gives him a continuous and precise overview of where his cut-outs are in relation to other components of the enclosure. It takes the electrical engineer around half an hour to configure a standard enclosure using the new version of RiPanel. In the case of a more complex system, it can sometimes take up to four hours. "It all depends on the accessories we want and what other special requirements we have."

A WIDE RANGE OF OPTIONS – AND ALL DOWN TO THE LAST DETAIL

Every year, Kungl orders up to 50 enclosures from Rittal for his company. Requirements and specifications are often unusual – and are generally highly complex, too. That's why he, along with other system planners and designers, needs a powerful configurator that can be used to design customised enclosures with ease – complete with appropriate accessories, plausibility checks to prevent errors, 3D visualisation, libraries of predefined drilling patterns and a direct link to the online shop. All this is exactly what the new version of RiPanel gives him: "The user interface is clearly laid out and easy to use. I have even more technical options at my fingertips and the direct price information provides great transparency. What's more, there's end-to-end consistency throughout the entire engineering, ordering and manufacturing process," he comments. "Quite simply, the new version is really useful, because I can plan and configure enclosures right down to the last detail with the help of the 3D visualisations. This all means I now have an even bigger range of options," he adds, summing up the benefits.



RiPanel, the new enclosure configurator, makes it all possible – the easy way to configure and order customised enclosures online, complete with accessories and price information.

"With RiPanel, I can now configu e highly customised enclosures. What's more, the prices are displayed immediately and that saves me time."

Dimitri Kungl
Electrical engineering designer
Lang GmbH & Co. KG

Further benefits of RiPanel

- Integrated plausibility checks prevent any potential order or design errors.
- All data is stored in RiPanel and can be easily used for subsequent projects, even when modifications are required.
- The virtual prototype of the planned enclosure can be transferred to production machines such as the Perforex MT for further NC machining.
- More information about RiPanel is available at: www.rittal.com/com-en/Configuration

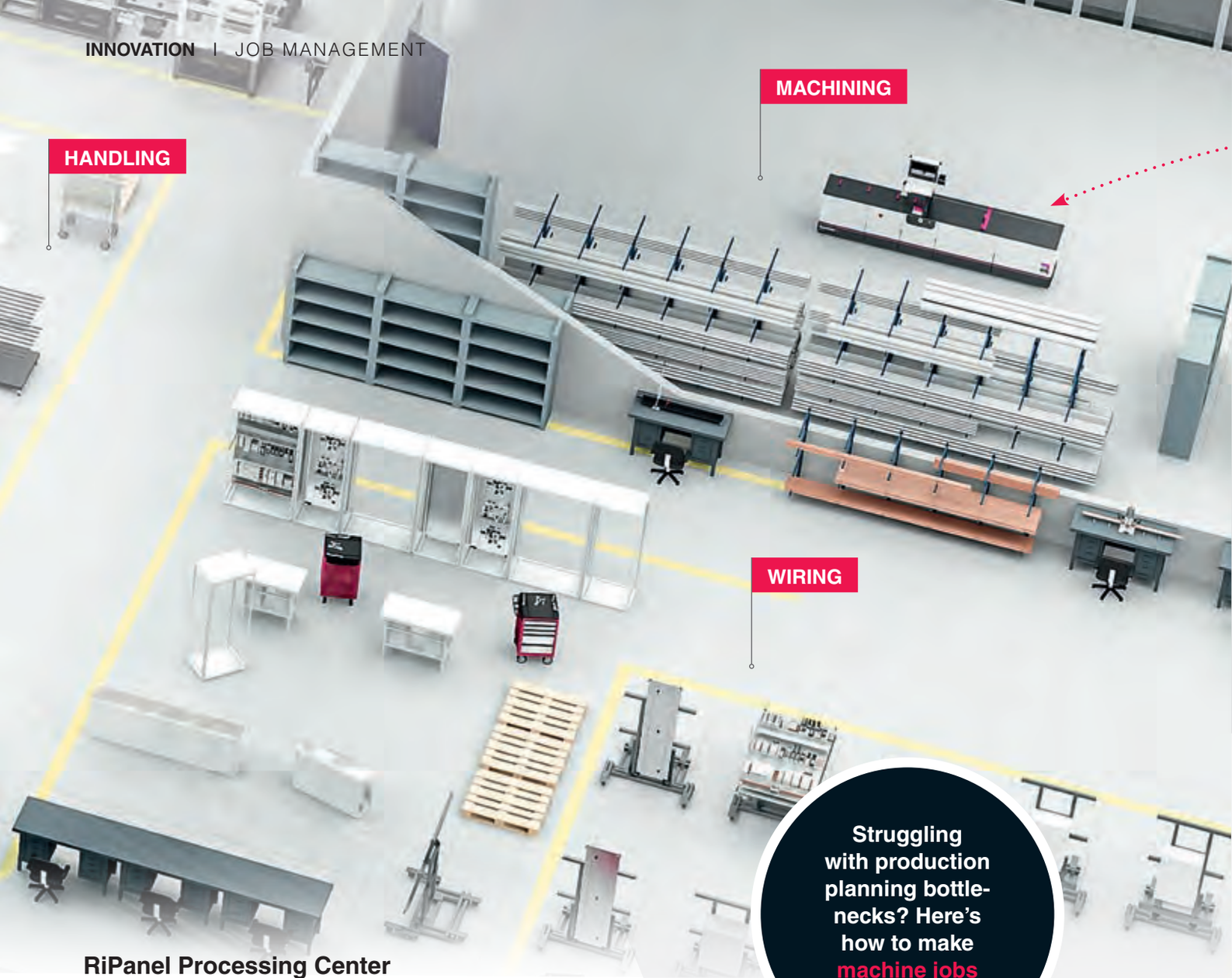
LIVE AND DIRECT – THE PRICE OF THE COMPONENTS SELECTED

When Kungl is configuring an enclosure, a parts list is constantly displayed and updated, showing him the components he has selected and the total price. What's more, it is linked to the online shop. During the configuration process, he can therefore always keep an eye on the price of his current design – not just for standard products, but for components that are to be specially manufactured and installed by Rittal, too. This makes it easier for him to decide between different options – standard or custom-made products. All it then takes is a click to order the components he needs from the Rittal online shop and the goods are delivered within 48 hours. "What's more, it always works – even in these times of global supply issues. Rittal quite simply has it all under control. We can depend on the enclosures being delivered on time. This is extremely important to us, because nothing in mechanical engineering can work without enclosures," emphasises Kungl. ■

FIND OUT MORE

www.lang.de

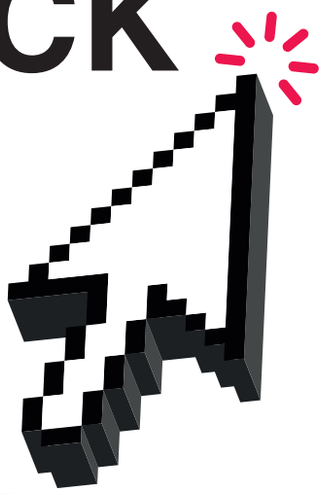
Video: Configuration made easy with RiPanel



RiPanel Processing Center

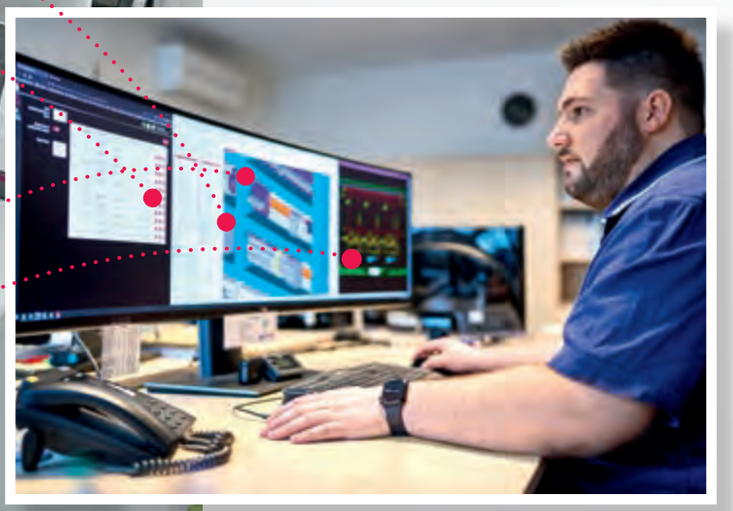
MACHINE JOBS AT A CLICK

Struggling with production planning bottlenecks? Here's how to make machine jobs faster.



For equipment manufacturers, the interplay between engineering and manufacturing processes is anything but trivial. **Data that is relevant for manufacturing** needs to be transferred to the relevant **processes on machines** on a project-by-project basis, which often involves a considerable amount of work and some "interface hurdles". Help is now at hand with the **RiPanel Processing Center** from **Rittal,** a new job management tool for straightforward, centralised production planning. The benefits a e being demonstrated in initial practical tests at **Müller Schaltanlagen.**

Text: Dr Jörg Lantzsch



"The new Perforex MT Milling Terminal has led to a complete rethink of our 3D construction planning and production planning."

Lukas Ortmann
Responsible for production planning at Müller Schaltanlagen

Upping the tempo: The RiPanel Processing Center from Rittal provides an end-to-end solution for the efficient management of production and machine jobs in panel building and switchgear manufacturing.

Different systems for electrical and construction planning, printed lists and using USB sticks to transfer data to machines – end-to-end data availability was sadly lacking in standard practices at Müller Schaltanlagen up until 2020. "Our previous solution had been created over a period of many years and had numerous drawbacks," admits Lukas Ortmann, who is responsible for CAD, project and production planning at the company. Many businesses in the sector have similar outdated solutions. Production planning is the real bottleneck. In panel building and switchgear manufacturing, this step is often highly complex. Without an appropriate platform, companies are forced to utilise the interfaces of the individual machines during planning, which means more time is required for production planning and manufacturing. Moreover, panel building and switchgear manufacturing involve a whole host of steps that need to be coordinated – from milling and laser machining to wire processing and wiring.

RETHINKING PROCESSES

Extensive automation of both job planning and manufacturing is a must if companies are to meet customer pressure. As Ortmann explains, Müller Schaltanlagen is no exception: "In early 2021, when we were about to invest in a new Perforex MT machining centre, we also had a complete rethink when it came to our construction and production planning." The company has since been using the RiPanel Processing Center from Rittal, a job management tool that acts as a hub between engineering and manufacturing.

SMOOTHING THE PATH TO THE MACHINE JOB

The software takes the design data from the engineering stage, registers parameters such as the quantity and target date, and then converts the data into machine jobs. Consequently, machines such as the Perforex milling centre know exactly which job is next. The RiPanel Processing Center can also plan and carry out the further steps.

The software currently supports the new Perforex MT Milling Terminal and the Secarex cutting centre, but the ultimate plan is for all Rittal Automation Systems machines to be connected.

FEWER ERRORS

The RiPanel Processing Center digitalizes and combines the three traditional manufacturing steps. At the engineering stage, the Müller Schaltanlagen planning team uses Eplan Pro Panel software to create the digital twin. The data can then be fed via direct interfaces into the job management tool, where the project file containing all the machining information is split into the various machining steps and forwarded to the relevant process steps ▸

SECAREX

Cuts cable ducts, cable duct covers and support rails to size quickly, accurately and ergonomically.

PERFOREX MT MILLING TERMINAL

Machines everything from the smallest of enclosures and panels to large enclosure systems (drilling, thread tapping and milling).

in production. The actual workstations use this data for efficient job processing. “The resulting end-to-end data management – from electrical and construction planning to production planning and manufacturing is much more efficient and also prevents the errors that could easily occur in the past due to the numerous manual steps,” says Ortmann, who is highly satisfied with the new solution.

ALWAYS KNOWING WHAT’S HAPPENING

The new development is the first to support intelligent job management, while manufacturing benefits from end-to-end data management. “Eplan Pro Panel provides us with a text-based description of the digital twin, which is then forwarded to the RiPanel Processing Center,” explains Rittal product specialist, Thorsten Freytag. The AML file the system uses has an open data format that is sent to the machines. To ensure users maintain a constant overview of the manufacturing process, the machines use a status feedback function to keep the RiPanel Processing Center up to date on the manufacturing status, meaning that resources can be utilised and distributed efficiently. As a web-based tool, the “job manager” can be used anywhere, which gives workshop managers a high level of flexibility for easy and efficient job management.

CLOUD SOLUTION IMPROVES WORKFLOW

Straightforward communication between engineering, production planning and manufacturing must be ensured to make the entire manufacturing process transparent throughout all the individual steps. That is why the RiPanel Processing Center is designed as a cloud solution. The various machines installed are logged in the Eplan Cloud, together with their respective functions and features. “Following construction planning, we use the RiPanel Processing Center to transfer the finished project via the Eplan Cloud to the Perforex MT Milling

WIRE TERMINAL WT

Fully automated processing of up to 24 or 36 different wires, with cross-sections ranging from 0.5 mm² to 6 mm².

From engineering to machine job with a single click

Engineering
The combination of Eplan engineering tools and Rittal configuration creates the digital twin, which contains all data that is relevant for manufacturing.

Production planning
With its state-of-the-art job management and layout tool, the RiPanel Processing Center ensures straightforward, centralised planning of resources and production jobs for the manufacturing process.

Manufacturing
The systematic use of digital data for machining and wiring offers significant benefits and removes the need for programming on the machine.

Terminal," explains Ortmann. "The machine operator then immediately sees the job and can clamp the appropriate part in place and start machining with a single click. This workflow provides a huge boost to efficiency," he adds. The status feedback function keeps users up to date on the manufacturing status. "We can give the planner and workshop manager a complete overview of resources and thus also achieve a corresponding increase in efficiency," says Freytag.

The RiPanel Processing Center is delivered as a basic package, together with the relevant machines, which means it costs users nothing. As a result, panel builders and switchgear manufacturers have an easy and cost-effective solution for the digital mapping and automation of their manufacturing processes. This cuts throughput times, reduces the number of manufacturing errors and saves on costs. "We are completely satisfied with our new solution," confirms Franco Müller, Managing Director of Müller Schaltanlagen.

"End-to-end data management with the RiPanel Processing Center, including engineering and production planning, provides a huge boost to efficiency that extends all the way to the manufacturing process and also prevents errors."

Lukas Ortmann
Responsible for production planning
at Müller Schaltanlagen

Blue e+ S cooling units from Rittal

EVEN MORE SCOPE

As a general rule, the **"low hanging fruit"** will have been picked long ago. However, industry is constantly on the look-out for other ways to save energy. **The enclosure cooling units from the Rittal Blue e+ S range** are proof that there is still a fair amount of scope for energy savings. Prior to its market launch, the new development was put through its paces in the in-house production at **Diehl Controls,** the Wangen-based electronics specialist.

Text: Dr Jörg Lantzsch

Are there still ways to save more energy when it comes to enclosure climate control? How can condition monitoring be improved?

Design and function – the cooling units have also been redesigned. The most striking design feature is an integrated, coloured LED light strip for indicating status messages.

For industrial companies, the need to reduce their carbon footprint is increasingly becoming a very real economic necessity. "Energy efficiency is one of our key priorities and an integral part of our strategy. We look for ways to improve energy efficiency in every new system and production line," explains Stefan Wespel, Value Stream Manager at Diehl Controls. Based in Wangen im Allgäu in Germany, the company manufactures a range of products, including electronic subassemblies for the domestic appliance industry. Diehl Controls is certainly not the only company looking for solutions to reduce the carbon footprint of its production facility. These solutions need to be both smart and communicative so they can be easily integrated into digitalized manufacturing environments.

COOLING UNITS PUT TO THE TEST

One possible way to save energy in manufacturing processes is to use energy-efficient enclosure cooling units. "Even if this application may appear to be no more than an ancillary process, there's often hidden and unexpected potential here," explains Steffen Wagner, Head of Product Management at Rittal. "To harness this potential, Rittal has been offering its Blue e+ range of cooling units since 2015. These are extremely efficient, resulting in average energy savings of up to 75 per cent." The manufacturer has now expanded its Blue e+ range and is launching its "Blue e+ S" products – cooling units in smaller output classes of 300, 500, 750 (from 2023) and 1,000 watts – on the market. Now, Diehl Controls has conducted trials at its manufacturing site in Wangen to see whether these "little ones" really can keep up with their bigger siblings in the product family when it comes to energy efficiency.

One of the new cooling units has been in place in the manufacturing workshop since summer 2021. The test engineers have fitted an electricity meter to both the new unit and an older one so that power consumption can be recorded over the course of the test period and the figures compared. "During the first six months,

"During the first six months, the new Blue e+ S cooling unit consumed 60 per cent less electricity than the older unit being used for the comparison."

Stefan Wespel
Value Stream Manager
at Diehl Controls

the new cooling unit consumed 60 per cent less electricity than the older unit being used for the comparison," Wespel confirms. Extrapolating this figure to cover an entire year points to energy savings of 140 euros per unit. It's "a fantastic result", as the Value Stream Manager puts it. Since the cooling units in these smaller output classes can be used in large numbers, this could result in excellent savings overall.

STREAMLINED FOR EFFICIENCY

The reason behind these enormous savings is the Blue e+ technology used – a heat pipe combined with an inverter and speed-controlled components (compressor and fan). "As the heat pipe works without a compressor, expansion valve or other regulating elements, it doesn't need any electrical energy," explains Wagner. Depending on the thermal energy in the enclosure that needs to be dissipated and the ambient temperature at the time, cooling can sometimes take place via the heat pipe alone. It's only when a large amount of heat needs to be removed from the enclosure or when the ambient temperature is very high that the additional compressor cooling kicks in. This compressor is significantly more energy-efficient than conventional hardware, too. The compressor and fan feature an inverter-controlled drive, meaning speed can be tailored to requirements. As a result, not only is there less cooling hysteresis, but energy efficiency is much better, too. The excellent energy efficiency is only one of the reasons for the smaller carbon footprint, however. The coolant used for the new Blue e+ S range also has a GWP (Global Warming Potential) that is 56 per cent lower than that of the coolant used in other units. Instead of R-134A, which has been used up until now, the compressor in the new-generation units uses R-513A. This is an important aspect if the coolant escapes into the environment due to a leak.

SMART TECHNOLOGY ON BOARD

The new cooling units feature additional smart functions that are also useful when it comes to the second factor – digitalization. Thanks to a series-standard integrated interface for direct connectivity to the Smart Service Portal, the cooling units can be intelligently monitored in digitalized environments. When it's a case of working in networked, complex production environments, a high level of availability is frequently called for. It's very easy to connect the Blue e+ S cooling units to the new Rittal Smart Service Portal. This optimises the service processes and boosts efficiency thanks to predictive maintenance. Unplanned downtimes that can result in high production costs – especially when it comes to Industry 4.0 processes – are therefore prevented.

The cooling units in the smaller output classes have also been redesigned. The most striking design feature is an integrated, coloured LED light strip. This means status messages from the unit can be quickly identified. A display on the front of the enclosure shows other up-to-date information. The cooling units are also equipped with the familiar NFC interface. This means they can communicate with mobile devices that have the Rittal Scan & Service app installed (now also available for iOS/iPhone).

This provides even more scope for efficiency! At first glance, reducing the energy consumption of units with smaller cooling outputs may not appear to be particularly significant in terms of overall efficiency. Since a huge number of these units are used in practice, however, this nevertheless offers a great opportunity to cut total energy consumption and costs considerably. ■

Simply smart: It's very easy to connect the energy-efficient Blue e+ S cooling units to the new Rittal Smart Service Portal.

In demand

GREATER TRANSPARENCY – MANAGING UNITS REMOTELY

Rittal offers customers all over the world a comprehensive and customisable **service portfolio for enclosure climate control**. We spoke to **Judith Kötzsch,** Rittal Global Service Director, to find out just how far the Rittal service goes

01 Ms. Kötzsch, when it comes to cooling unit service, what do companies expect nowadays?

Kötzsch: In terms of service concepts for cooling units, our customers' key requirements are availability, energy efficiency and sustainability. They want to see their costs going down and, of course, a high level of system availability must be ensured at all times. That's precisely why we offer our Smart Service solution – it meets these needs perfectly.

02 In concrete terms, how do you meet this demand for high availability?

All Blue e+ units that are connected to our Smart Service solutions can be monitored both centrally and remotely. In the event of an operating fault or an upcoming need for maintenance, operators are notified centrally via the Smart Service application – they don't need to be anywhere near the unit at the time. Data-driven recommendations and the option of targeted remote diagnosis ensure rapid troubleshooting and, therefore, the high level of availability that's wanted.

03 Can Rittal take on the monitoring of the units?

Yes, we're happy to offer our customers this additional service. With the Smart Service solution, Rittal can not only perform monitoring for customers, but also carry out troubleshooting and optimally plan and implement targeted maintenance measures. This means users can hand over the maintenance of cooling units to the Rittal service experts, leaving them free to focus on their core business. ■

FIND OUT MORE

www.rittal.com/com-en/Services

Image above:
The browser-based Rittal Smart Service application visualises operational performance and adds useful recommendations to messages. What's more, additional sensors can be added in, too.

Guest article

IN TUNE WITH THE TIMES

After spending 27 years **at IBM,** latterly in the role of Distinguished **Engineer and Global CTO for Industry 4.0**, **Plamen Kiradjiev** is now the new Head of Solution Architects at **German Edge Cloud (GEC).** He is often asked about his reasons for making the move to GEC. His response is that he knew it was the right move.

By Plamen Kiradjiev

Ten years after the introduction of "Industry 4.0", there's still plenty of potential for digitalization. In fact, for many manufacturing companies, it's only now – after they've spent time learning – that things are really getting going. However, when it comes to the digitalization of manufacturing processes, there's still a lot to do. In my view, German Edge Cloud is really in tune with the times here. My decision to join the company in driving forward progress in industry and to get closer to the action in production operations was based on three experiences that could also be described as milestones – striking developments that took place within the context of the partnership between GEC and IBM:

EDGE CLOUD

Finding out it was possible to put a pre-installed Edge Cloud appliance (ONCITE) into operation for an entire production line within just 20 days was one of the experiences. IBM and GEC proved this in the new Rittal plant in Haiger in September 2020. After this short period of time, it was possible to realise orders via SAP and a Track & Trace scenario using the machine data from a production line.

ONCITE.INDUSTRIAL.SUITE

I was really impressed when I got better acquainted with one of the GEC "crown jewels" – the ONCITE.Industrial.Suite – in another joint project. The system comprises a variety of services and makes end-

"When it comes to the digitalisation of manufacturing processes, there's still a lot to do." ***Plamen Kiradjiev***

to-end manufacturing management a real possibility. It is the result of more than 300 years of cumulative experience based on cutting-edge microservices architecture.

GENUINE TRANSPARENCY

I was also won over by the performance dashboards in the Rittal plant in Haiger, which were installed in the manufacturing facility between February and August last year. They depict the processes in the plant in unflinching detail – in situations where Andon dashboards with three figures are often still standard. You have to respect the fact that the new Edge Cloud appliance ONCITE from GEC – the youngest subsidiary in the Friedhelm Loh Group – is being used for the first time at Rittal – the oldest subsidiary – thus making the Group its own reference for future customers. It's a case of "eat your own cookies" – and then they're guaranteed to taste good to others, too!

FRIEDHELM LOH GROUP

However, the thing that has surprised me – and this is something I continue to come across almost every day – is the potential for synergy effects between the Friedhelm Loh Group companies:

- The new Rittal plant in Haiger that manufactures enclosures on the basis of Industry 4.0 principles is the blueprint for an automotive production plant with similar sections, such as the press shop, paint shop and assembly workshop.
- A digital Eplan circuit diagram that incorporates the target parameters right down to the last sensor provides a basis for comparing target and actual values.
- Cideon Enify, the app for innovative service concepts for machines that also enables mechanical engineers and operators to communicate with images anywhere in the world via augmented reality.
- The vertical integration that comes from Stahlo and LKH, which offer further potential to benefit from digitalisation in their value creation processes – such as in steel processing or plastic component manufacture.

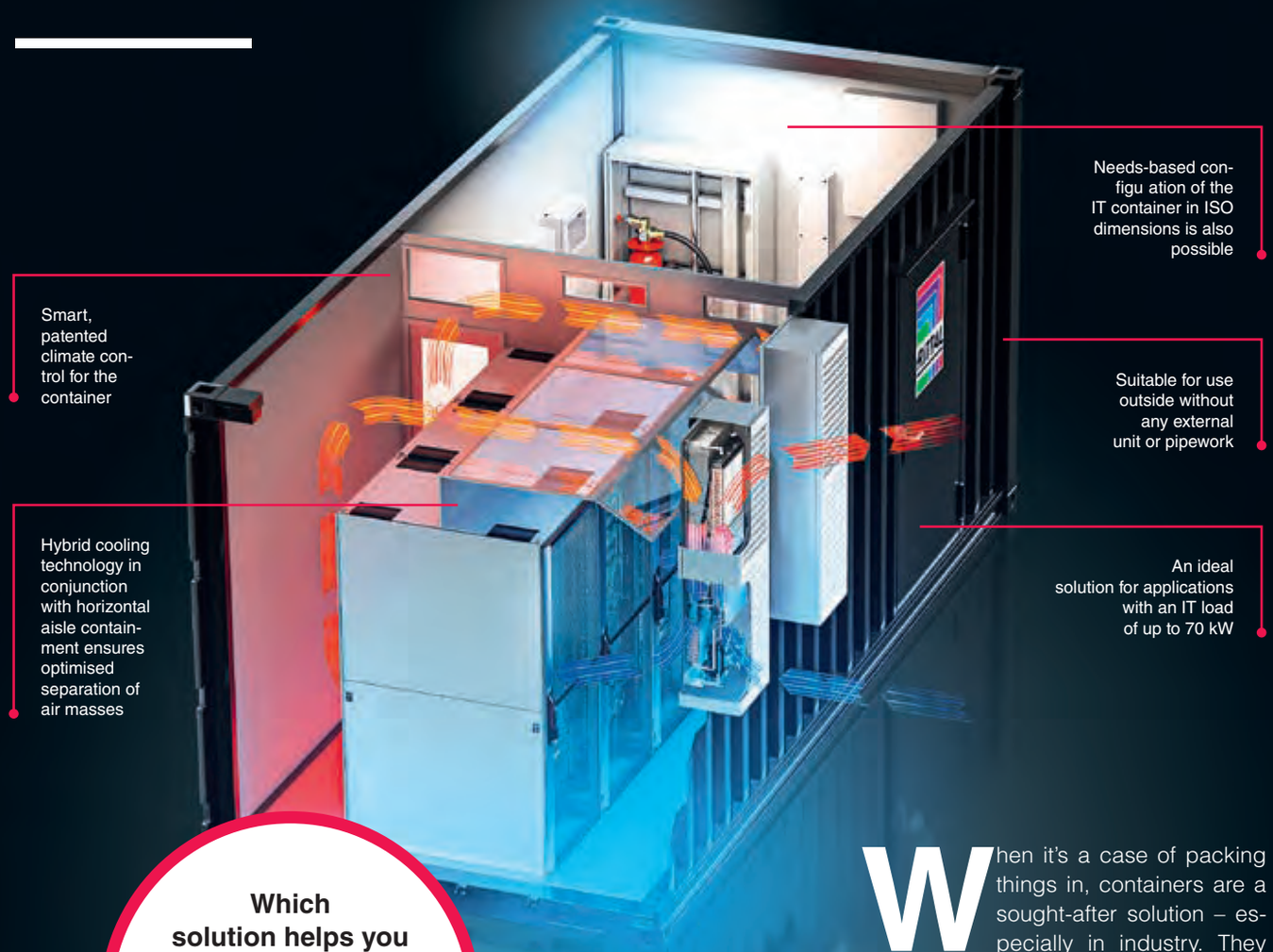
As Head of Solution Architects at GEC, the job that lies ahead of me is an exciting one – taking ONCITE and GEC.Industrial.Suite, with all the aforementioned potential for synergy, and designing and implementing them into a sustainable and stable IT manufacturing architecture as a factory edge for our customers. ■

A new take on data centre containers

SAVING ON SPACE – EASY ON THE POCKET

In **data centres**, every square metre of space and every kilowatt hour of electricity counts. What's needed are **all-in-one solutions** that free up space while also significantly cutting power consumption. Providing proof that both these needs can be met is a **new Rittal cooling solution for IT containers** that is currently in use **at KUKA Industries**. This solution could be described as a real breakthrough.

Text: Michael Siedenhans



Which solution helps you both save space in your data centre and significant y reduce power consumption?

When it's a case of packing things in, containers are a sought-after solution – especially in industry. They can often hold everything that needs protection from harsh environments, such as technology for hydraulic or compressor systems, cold water and cooling water modules, measuring systems, and sometimes quite unusual items, too. This can be the case, for example, when a data centre needs to be relocated to a workshop on

an ad hoc basis due to a lack of space or an urgent need to expand – and this is exactly what happened at KUKA Industries. Since 2021, the mechanical engineering and robotics company has been using an unusual data centre solution right in the middle of one of the workshops (with external ambient air) at its site in Obernburg am Main. It is an IT container with external cooling and is kitted out with server and network racks, along with power supply and safety technology such as an uninterruptible power supply (UPS) and a fi e alarm and extinguishing system.

The data centre inside the container is to serve both the local network and the entire IT infrastructure at KUKA Industries and host local business applications. The former data centre was shut down as planned. So, what was the outcome? "We used the space in the new data centre container to adapt computing performance to our actual current needs in the plant," says Philipp Knorr, Managing Director of KUKA Industries, before pointing out another benefit: "The compact climate control units from the Blue e+ range are an important aspect of our efforts to improve our CO_2 footprint."

POWER CONSUMPTION CUT BY A THIRD

Many IT managers are facing similar challenges to those confronting KUKA Industries. They are looking for space-saving, energy-efficient and cost-effective solutions for their applications. This is where the new IT container solution from Rittal comes in. A new outdoor cooling solution based on industry-proven Blue e+ technology is helping to create more space in the data centre container to accommodate ever-growing IT equipment. At the same time, power consumption is being cut by a third compared to conventional rack climate control. This makes it even easier for data centre container operators to reduce both their operating and energy costs.

But what is it that makes data centre containers with external cooling such space-savers? "The cooling units are mounted on the outside wall of the container instead of inside it. This frees up more space for racks inside the container and creates more ways of expanding applications on a fl xible basis," explains Philipp Müller, Director Data Center Solutions at Rittal. And that's not all. They also represent a smart way of saving money. "The cooling units from the Blue e+ range, which have proved themselves time and again in industrial use, are robust, easy to maintain and extremely energy-efficien thanks to their innovative heat pipe technology. They have a smaller CO_2 footprint." According to Müller, this lowers the overall operating costs for the long term: "With the new generation of data centre containers, the total cost of ownership can be cut by almost a third over a ten-year period."

"The compact climate control units from the Blue e+ range are an important aspect of our efforts to improve our CO_2 footprint."

Philipp Knorr
Managing Director of
KUKA Industries

SHORTER MANUFACTURING AND DELIVERY TIMES

All the cooling units come with an IoT interface. Operators can keep an eye on all cooling performance parameters via the web interface, "so they can control consumption with all possible and necessary efficienc ," the data centre expert at Rittal explains. The design of the new data centre container also features another benefit Since the cooling units are now attached to the outside of the container, there's no longer any need for the previously essential raised floo , rack-based cooling technology or pipework inside the container. This reduces manufacturing and delivery times. There's another detail that carries weight with KUKA, too. Service staff are already familiar with Rittal cooling unit technology, because it is already part of the standard equipment in manufacturing. This means it's easy for staff to maintain the units themselves. All in all, the entire package has proved a hit – not least because "the expert advice that helped us find a suitable solution, the concept and the price all impressed us," Knorr explains. ■

FIND OUT MORE

Data centre containers with outdoor cooling

www.rittal.com/com-en/products/Container_Blue-e_plus_Outdoor

KUKA www.kuka.com/en-de

Space-saving, energy-efficient solution or expanding IT infrastructure – a Rittal data centre container with three Blue e+ outdoor cooling units.

NEWS AT HOME WORLDWIDE

Global success. International customers, ever-changing requirements and new technologies: products and solutions from **Eplan and Rittal** are meeting all manner of demands worldwide, and are doing so with optimum time, cost and energy-efficienc .

UNITED KINGDOM

MORE STANDARDS FOR LOGISTICS

Following its use of EPLAN Electric P8, TJ Morris Ltd, parent company of British discount store Home Bargains, is now using **EPLAN Pro Pane**l and **EPLAN Data Portal** to standardise automation in its logistics centres and processes throughout the entire supply chain. This has improved workflows with suppliers and means the company's engineers can now create and coordinate their design drawings digitally.

CANADA

SAVING TIME THROUGH TOOL-FREE ASSEMBLY

Plant constructor **Southpoint Automation**, specialist in automation solutions for mechanical engineering, agriculture and the packaging industry, now relies on **Rittal's RiLine Compact** and the **PLS 800** busbar system. The reason: Toolless assembly reduces the installation effort, streamlines production and thus saves time and costs. The effect: more competitive system solutions for a wide range of markets.

ITALY

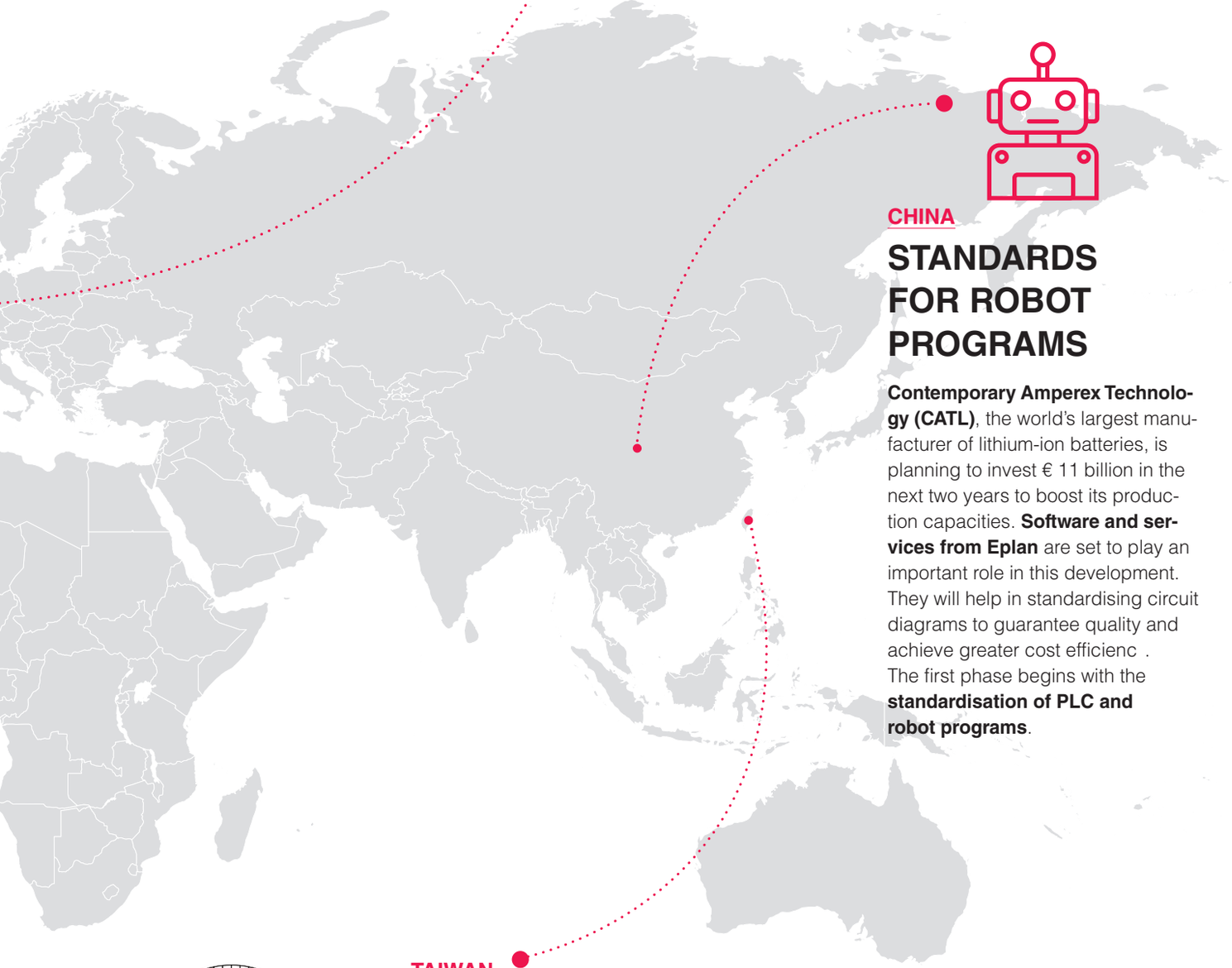
CERTIFIED FOR THE WORLD

Hennecke-OMS, which manufactures machines for processing polyurethane insulating materials, uses the **VX 25 enclosure** at the Verano Brianza location. One reason: It has **certifications and approvals** that are required worldwide to produce and install systems and which help Hennecke-OMS sell its machines globally.

BELGIUM

IT SOLUTION FOR ABBEY BEER

Belgian brewery Alken-Maes brews the world-famous Affligem beer in Opwijk. Howe - er, the information technology there no longer had enough space for the computing power needed. **Rittal Belgium** therefore developed, a **space-saving solution:** together with its partner Simac ICT België. The answer was a completely encased enclosure with 3 kW of integrated liquid cooling. The **LCU (Liquid Cooling Unit)** is installed directly in the rack and doesn't need any space of its own in the server room.



CHINA

STANDARDS FOR ROBOT PROGRAMS

Contemporary Amperex Technology (CATL), the world's largest manufacturer of lithium-ion batteries, is planning to invest € 11 billion in the next two years to boost its production capacities. **Software and services from Eplan** are set to play an important role in this development. They will help in standardising circuit diagrams to guarantee quality and achieve greater cost efficienc . The first phase begins with the **standardisation of PLC and robot programs**.

TAIWAN

ENCLOSURES MEET US STANDARDS

Taiwan Semiconductor Manufacturing Co. (TMSC) is one of the world's leading important semiconductor manufacturers. It is currently building a new microchip factory in the USA. **Rittal Taiwan** has now received an order via its partner AVEX-SG to deliver **485 AE enclosures** to TSMC's new plant in Arizona because: They meet the strict **Underwriters Laboratories (UL)** standards that apply in the US market.

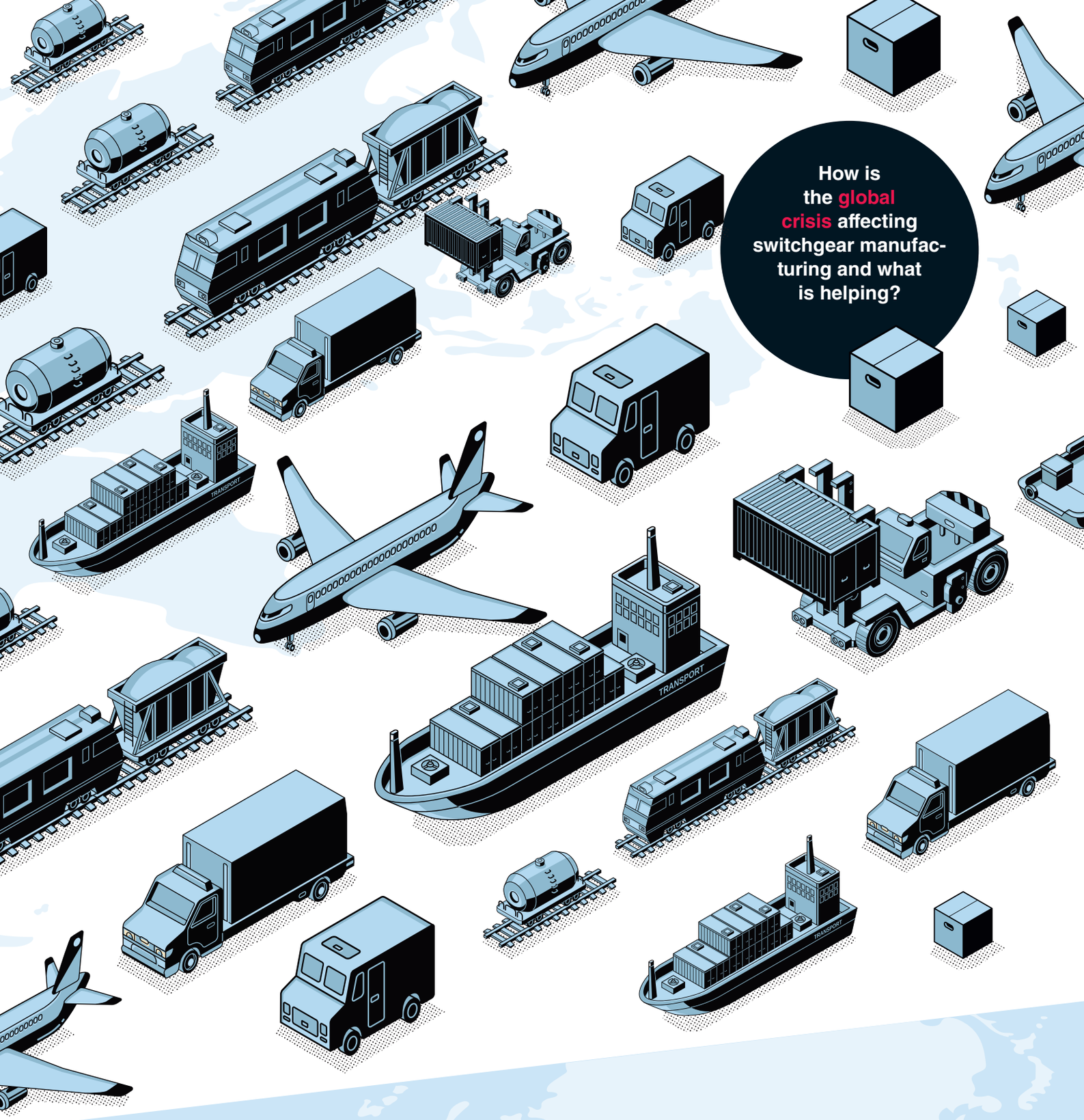
Global supply bottlenecks

WHEN THE GOING GETS TOUGH

Nerves of steel – that's what equipment manufacturers need more than anything right now, because the coronavirus pandemic has thrown **suppliers and logistics chains across the globe into disarray.** Global supply bottlenecks are stalling production processes and preventing entire installations from being delivered on time. How does a company such as **ATR Industrie-Elektronik GmbH** deal with this situation, and what steps is **Rittal** taking to maintain full delivery reliability during this difficult period?

Text: Michael Siedenhans and Hans-Robert Koch

The global supply chain depends on them – container ships, cargo planes, freight trains, lorries and courier vehicles that collect raw materials from the countries where they are produced and deliver them to processors and their customers – but they are in short supply on the global market right now.



The pandemic is really putting the relationship between equipment manufacturers and their end customers to the test. Order books may be full, but supply bottlenecks are hitting the manufacturing industry worldwide. Various factors are responsible for this. Coronavirus is closing ports and businesses in production countries such as China, Malaysia and Vietnam, while their European customers are unable to find enough ships, containers, pilots, dock workers and lorry drivers to collect the raw materials and goods from the countries where they are produced and then deliver them to processors and their own customers in their domestic markets. And that's before we even get onto the subject of rising costs. For example, the cost of transporting a shipping container from Shanghai to Rotterdam has now increased sevenfold.

THE CURRENT SITUATION – EQUIPMENT BOTTLENECKS AND EXTRA COSTS

This situation is also affecting panel builders and switchgear manufacturers such as ATR Industrie-Elektronik GmbH in Krefeld. Specialising in panel building, switchgear manufacturing and enclosure production, this German company is highly regarded in the industry. Just like many other businesses, though, ATR is currently experiencing severe supply bottlenecks. Problems with global chip manufacturing, for instance, mean there simply aren't enough ▸

"ATR has never previously experienced a situation like this. Our production processes are stalled and, in some cases, entire installations can't be delivered."

Timo Amels
Managing Director of ATR Industrie-Elektronik GmbH

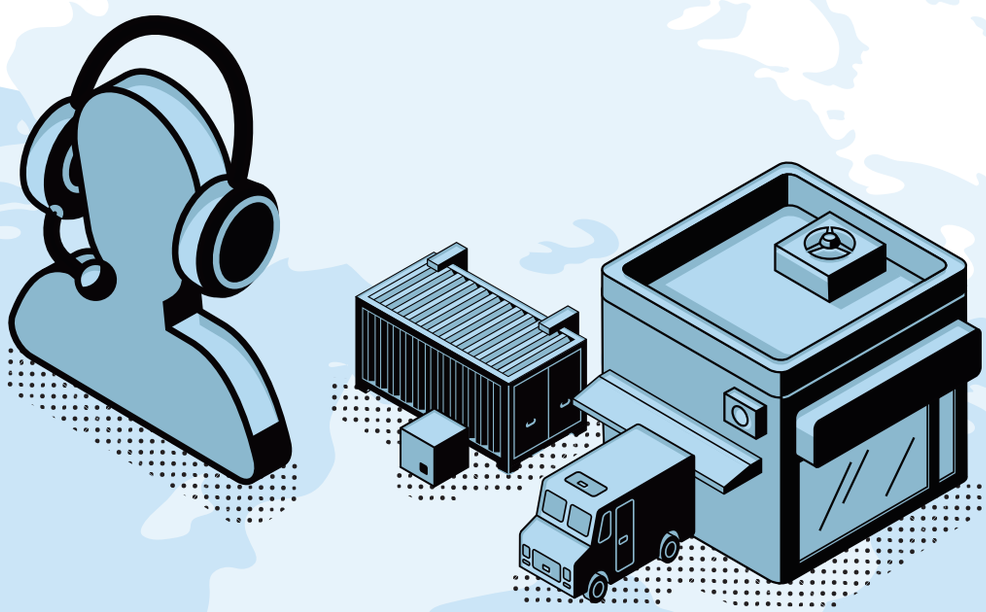
basic electronic components to go round on the market. "We're now having to wait up to 200 working days for components that we used to get in one or two days. ATR has never previously experienced a situation like this," says Timo Amels, Managing Director of ATR Industrie-Elektronik GmbH, describing the current position. He goes on to explain the huge knock-on effects: "Our production processes are stalled, half-finished systems are having to be placed in interim storage and, in some cases, entire installations can't be delivered because individual components are missing. Overall, that creates a lot of extra work and costs for us."

THE STRATEGY – FLEXIBLE PLANNING AND PRODUCTION

So how is the management team responding to this? "Escalation is our only option. We phone all our suppliers on a weekly basis. The only way of obtaining our preliminary materials is to use escalation levels and prioritisation, but that involves a huge amount of effort and a lot of resources," emphasises Amels. He explains that, more than ever before, planning and production now need to be flexible – and that includes departments such as incoming goods. Due to the difficult supply situation, staff are on standby every Saturday so as not to miss a delivery. "Otherwise, we may have to wait another 200 working days," says Amels matter-of-factly.

THE PREREQUISITE – SUFFICIENT STOCKS

No Rittal customer has to wait that long. The company's ability to deliver is unusual on the market right now and asks a lot of Rittal, sometimes stretching it to the limit. So how does Rittal manage to deliver within a very short space of time? It's possible thanks to a supply network with permanent suppliers worldwide and the Global Distribution Centers (GDC) in Haiger and Rittershausen, where around 98 per cent of standard articles are always available. That means Rittal can meet its delivery commitment – not just for Germany, but also for its subsidiaries in countries such as Belgium, the Netherlands and Austria. The company can respond quickly to the needs of its customers because the GDC in Haiger, for instance, maintains large stocks of products and goods. Here alone, 55 lorries set off on delivery runs every day and another 70 leave the GDC in Rittershausen. They are loaded up with large enclosure systems, small and compact enclosures, and various accessories. "This ability is unusual for an industrial logistics organisation, but it gives us flexibility, room for manoeuvre and a



To ensure the **equipment manufacturer ATR** doesn't miss a delivery, staff are now also on standby on Saturdays.

competitive advantage," says Executive Vice President Christine van den Berg, who is responsible for global logistics and the associated planning and material requirements at Rittal. To ensure customers can rely on the delivery commitment, sufficient stocks always need to be available. Procurement, Production and Material Planning teams work hand in hand to make sure this is the case. Procurement has the most important task, making certain that the raw materials required for production are in stock.

PROCUREMENT – CONTROLLING AND COORDINATING FLOWS OF GOODS

That's the job of Thomas Weber, Vice President Global Sourcing & Procurement at Rittal, and his team. The global supply bottlenecks are throwing up challenges that the experienced procurement experts never previously imagined would arise. "No sooner has our day started than we're faced with questions such as where is there a shortage of which material, why is this and how much time do we have to do something about it?" Weber explains. It's often preliminary products that have not been delivered and are in short supply. Although insignificant in themselves, they are urgently needed for processing to continue. German customers are waiting impatiently for the finished products. "The coronavirus crisis has shown that we need to be far more involved in the third and fourth tier supply chain," says Weber. In other words, he and his team phone contacts in the Far East several times a day to sort out a supply problem. "And we actually always manage it," he adds.

In its production department (top), ATR Industrie-Elektronik GmbH currently needs to be flexible.
However, one constant remains – the reliability of supplies from its partner Rittal (bottom).

5

different industries are supplied by ATR from Krefeld – automotive, energy, plastic, metal and paper. The company belongs to the global Siempelkamp Group.

THE FOUNDATION – COMBINING INNOVATION AND TRADITION

The 46 staff in the Global Sourcing & Procurement department at company headquarters in Herborn control and coordinate national and international flows of goods – from sheet steel and plastic or cardboard to electronic components. Most of this work is done digitally, using smart software tools that provide early warning of impending supply bottlenecks. Contact and face-to-face meetings with well-established, trusting suppliers are equally important. According to Weber, this combination of innovation and tradition provides the basis for delivery reliability at Rittal. For example, the Procurement team uses a web-based monitoring tool to keep an eye on supply chains and suppliers worldwide and provides immediate notification if a delivery is at risk due to a disaster such as an earthquake, a fire at a chemical factory or an accident involving a ship. It also flags up any financial problems that supply partners are experiencing. This early-warning system makes supply chains transparent. Weber and his team are able to respond as soon as an alert flashes up on the screen. They pick up the phone or type away on their keyboards to rearrange or reroute orders.

RAW MATERIAL MARKETS – IDENTIFYING TRENDS

The monitoring tool helps maintain a constant overview of the supply status of more than 500 key suppliers and producers. These include manufacturers in countries such as Israel or Bosnia and Herzegovina, but also steelworks in India, Brazil or Turkey from

“Contact and face-to-face meetings with well-established, trusting suppliers are important, providing the basis for delivery reliability at Rittal.”

Thomas Weber
Vice President Global Sourcing & Procurement at Rittal

which Rittal obtains quantities of steel in the six-figure metric ton range every year. “The situation on the steel market is stable again following the disruption at the height of the global lockdown. Even when the going was tough worldwide, though, we had fewer problems than other companies because we are known in the industry as a reliable and financially strong customer for large quantities. Not everyone can say the same,” explains Weber, but he also mentions the problematic situation on the global market for plastic granulates and preliminary products for electronics. “At the moment, China is unable to supply any flame-retardant plastic additives,” he reveals. Together with experts from the Research & Development and Quality Management teams at Rittal, Weber is therefore looking for substitute materials and alternatives that meet the company’s quality requirements (more about that from page 60 onwards). The software provides a further service, using the mass of available data to generate

Rittal has control over its ability to deliver – and that includes the United Kingdom, which is supplied by lorries coming directly from Germany.

trends and forecasts for the global raw materials markets. Weber keeps a very close eye on this information. “This glimpse into the future is extremely important if we are to order raw materials and goods in plenty of time to ensure our production always remains stable and we can maintain high stock levels,” he explains.

THE BASIS – LONG-STANDING PARTNERSHIPS

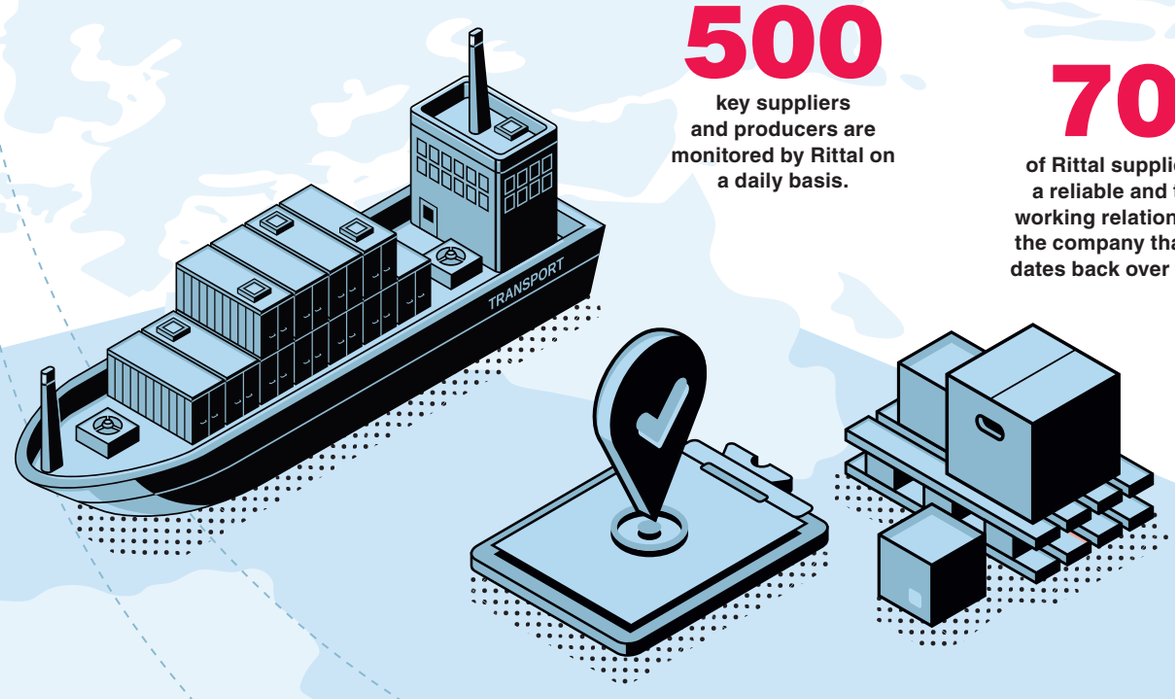
Traditional, long-standing partnerships with suppliers based in Germany and other European countries are a further key factor ensuring Rittal is able to deliver. “Some 70 per cent of our suppliers have a reliable and trusting working relationship with our company that already dates back over ten years. The typical Rittal partner is an owner-managed business with up to 2,000 employees – similar to our company,” says Weber. This, he says, creates mutual trust over the years and, as a result, the partners overcome the current supply bottlenecks together. “We still can’t fully grasp everything that is happening right now – it’s simply unheard of to have to wait for up to 70 weeks for a product,” he insists.

THE PRESENT – PRELIMINARY MATERIALS FROM EUROPE IN DEMAND

That is presumably why products and raw materials from other European countries are in demand. The shorter distances involved mean they can be supplied faster than products from competitors in China. Weber expects this trend to continue. “The demand for products and materials from Europe will grow, because they are more sustainable due to the shorter transport routes and production that is fairer and more environmentally responsible,” he explains. Rittal was quick to recognise this trend, which is one reason why it can currently gear production to requirements and is always able to deliver. One thing that is worrying Weber at the moment is Brexit and its impact on the British Isles. “We are short of drivers there, so we’re supplying our goods and products to the United Kingdom directly from our hub in Germany,” he says.

THE OUTLOOK – FAMILY COMPANIES ARE FASTER

Despite Brexit, British customers can rely on Rittal being able to deliver, but difficulties do sometimes arise. Even in times of global supply bottlenecks, Rittal meets its delivery commitment. Timo Amels is well aware of this. As the Managing Director of ATR has once again clearly seen in recent months: “Family companies have better control over their ability to deliver than other suppliers, and high stock levels mean they are well protected.” As Amels concludes, they plan ahead and are simply faster than the others: “That makes Rittal an important and trustworthy partner – a great help to us, especially in these circumstances.” ■



500

key suppliers and producers are monitored by Rittal on a daily basis.

70%

of Rittal suppliers have a reliable and trusting working relationship with the company that already dates back over ten years.

High performance computing

GREEN COMPUTING POWER AT THE FJORD

Digitalization is giving a real boost to **high performance computing** – a sector that needs to be environmentally friendly, too. Providing lots of computer power, using lots of energy for servers and cooling, and staying in harmony with the environment – it's a Herculean task for companies with ambitious climate targets. **Merecedes-Benz Group AG and Infosys** are now reconciling these needs by transferring particularly intensive data workloads to the **Lefdal Mine Datacenter** in Norway, one of the **largest and greenest data centres anywhere in the world**.

Text: Ulrich Sendler, Hans-Robert Koch

While high performance computing (HPC) may once have been a niche area that was the sole preserve of hyperscalers such as Microsoft, Google or Amazon, that has not been the case for quite some time now. In light of Industry 4.0 and the Internet of Things, companies are facing ever-growing requirements. Nowadays, 3D simulations of future products and processes are part of day-to-day business even in smaller companies. Computer-aided engineering (CAE) – the simulation and calculation of computer models – is ranked third among the applications that generated the biggest income on the HPC market in 2020. Chalking up annual revenue of 1.538 billion U.S. dollars, CAE came in below governmental labs and research institutes, and above biosciences.

RAPID GROWTH – HPC AND THE CLOUD

HPC cloud-based applications are developing particularly rapidly at present. According to calculations by analysts at Hyperion Research – the former IDC HPC specialists – cloud HPC is set to grow by 16.7 per cent between 2020 and 2025, while the HPC market as a whole is "only" growing by 7.9 per cent. Even in 2021, the cloud market share represented approximately 16 per cent of the HPC server market. Hyperion anticipates that this figure will rise to 19 per cent by 2024. The analysts are working on the assumption that almost one in every two HPC users will transfer their on-premises workloads to the public cloud over the course of the next twelve months.

"All the power we use is green electricity – an important milestone on our journey to climate neutrality."

Jan Brecht
Chief Information Office ,
Mercedes-Benz Group AG

The automotive industry provides a good example to help make sense of this development. The expectation is that we will see a rapid switch to electric mobility in this sector. What's more, in addition to "normal" product development, manufacturers are working on sophisticated technologies such as driver assistance systems, with autonomous vehicles as the final step. Mercedes-Benz Group AG is not the only automotive company that has long been using high performance computing as a standard tool for such tasks. The digital twins of the vehicles alone comprise tens of thousands of part models, and when it comes to simulating their behaviour, electronics and software need to be incorporated, too. It is only in advertising videos

A green underground city – a 2 km long acess road leads to 75 chambers with potential white space of 120,000 m² over six levels.

that all this appears to work on a tablet – in real life, everything happens in data centres.

LESS CO_2 – AN ECONOMIC REQUIREMENT

However, assuming that power supply and cooling are handled in the same way they always have been, this dramatic development of data-intensive and storage-intensive applications is completely at odds with the second challenge that industry needs to tackle quickly and rigorously – climate neutrality. A new approach is therefore needed for HPC applications. After all, reducing their CO_2 footprint and becoming both sustainable and climate-friendly is increasingly becoming a very real economic necessity for industrial companies. When it comes to moving high performance computing in a more environmentally friendly direction, Mercedes-Benz Group AG is leading the way. In December, the premium manufacturer collaborated with Infosys, an international provider of digital services and consulting, to relocate its HPC workloads for virtual crash tests and for the development of autonomous driving technologies to the Lefdal Mine Datacenter in Norway.

MERCEDES-BENZ GROUP AG – CLIMATE-NEUTRAL BY 2039

The Mercedes-Benz Group AG has set itself a tough target – "Ambition 2039": "We want to be CO_2-neutral by 2039. We take a holistic approach to climate protection. When setting our objectives, we take all the links in the automotive value chain into account, from development, the extraction of raw materials and production through to the usage phase and recycling."

Why did the Mercedes-Benz Group AG decide on the data centre in Lefdal rather than one of the many competitor solutions that are now available? Jan Brecht, CIO at Mercedes-Benz Group AG, explains the decision as follows: "Not only do we benefit from natural cooling in a cold climate, but all the power we use is green electricity. This initiative is another important milestone on our journey to climate neutrality."

IT DOESN'T GET ANY GREENER THAN THE LEFDAL MINE DATACENTER

The Lefdal Mine Datacenter – a specialist in high performance computing (HPC) – is quite simply one of the greenest in the world and a role model in many respects. In December 2021, it won the ITA award in the "Innovative & Contributing Under- ▸

100 %
green electricity

1.10
PUE

200 MW
capacity

120,000 M²
white space

Ready-to-use infrastructure: The Lefdal Mine Datacenter offers ready-to-use infrastructure with standardised modularity

ground Spaces" category, which attracted nominations from 78 nations. It works with 100 per cent renewable power and the long-term costs are considerably lower than in Germany, for example (4 cents/kWh instead of 18 cents/kWh in 2021). Compared to other data centres, the total cost of operation (TCO) is around 60 per cent lower. Its power usage effectiveness (PUE) is between 1.1 and 1.10, compared to an average of 1.7 in Germany. There are no CO_2 emissions. Located below sea level, the data centre uses the cold water from the fjord at a steady temperature of 8 degrees Celsius for cooling purposes, and the water usage effectiveness (WUE) is also zero. In addition to these extremely green credentials, LMD also has 120,000 m^2 of white space and a capacity of 200 MW. What's more, the data centre is located in a country where European data privacy is enshrined in law.

OT INFRASTRUCTURE – FLEXIBLE AND SCALABLE

The technical solution behind the OT infrastructure was also a key factor for Mercedes-Benz Group AG. Ever since LMD was founded, the Friedhelm Loh Group and its companies German Edge Cloud and Rittal have been on board as strong co-owners – but that's not all. Rittal also supplies the technological framework for successful offerings. The basis is RiMatrix Next Generation (NG), a modular system platform for developing all kinds of OT infrastructure. With this solution, Rittal has taken the standardisation of data centre infrastructure to a whole new level, enabling versatile scalability and flexibility.

"The combination of our data centre and Rittal technology is the perfect match for customer requirements."

Jørn Skaane
CEO, Lefdal Mine Datacenter

Solutions for white space and containers are injecting speed and dependable standards into the OT infrastructure expansion at LMD. In terms of the project with Mercedes-Benz Group AG, Rittal is supplying system solutions for racks, cooling, power supply and security. As Martin Kipping, Vice President Global Datacenter at Rittal explains: "We welcomed a Mercedes-Benz Group AG delegation to our container manufacturing facility in Ewersbach and ran joint workshops in Herborn and Sindelfingen. Mercedes-Benz Group AG was impressed by the standardised modularity of our infrastructure solution. What's more, even though the LMD is fundamentally an open platform, we are its preferred technology partner.

Although Mercedes-Benz Group AG is starting out at LMD with crash simulations and technology development for autonomous driving, there are certainly no technological barriers to including other HPC workloads, too. The modular infrastructure also enables speedy implementation. Instead of taking years to develop and configure the data centre, Rittal standards mean this can be accomplished in just six to eight weeks. The first sections of the HPC

Lefdal Mine Datacenter

Greenest data centre in Europe

All the power used to operate the Lefdal Mine Datacenter is green electricity. Cooling takes place using cold water from the fjord, with no need for additional energy. This results in a PUE from 1.10 to 1.15. Less than 3 per cent of the energy used for the IT is needed for cooling. The entire cooling solution is well ahead of other top designs currently being built or operated across Europe.

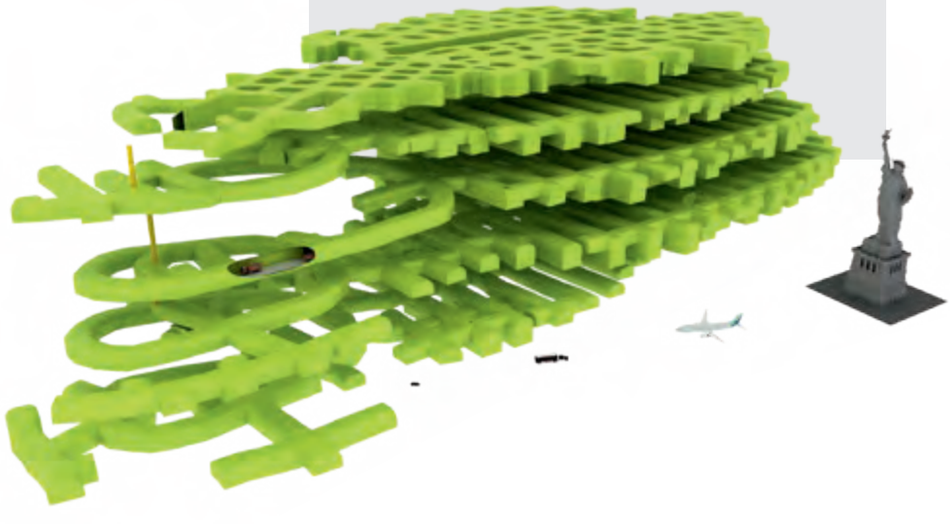
What about the waste heat? All the warmed water is fed through pipes that are installed in the fjord and have a diameter of 50 cm. It is piped to Sjørmatstaden, three kilometres away, where it is all used in a factory there.

- Year-round access to unlimited cold sea water at a temperature of 8 °C
- The mine is situated just below sea level, so no energy needs to be consumed by drawing water up
- Cold fjord water and a heat exchanger in a closed water circuit
- Inline cooling of up to 50 kW/rack, and up to 100 kW/rack with direct liquid cooling
- Cooling solution with a PUE from 1.10 to 1.15, making it 20 – 30 per cent better than other data centres in Europe.
- Customised tier level (I to III)
- Certified by IBM/CH2M Hill

data centre that Mercedes-Benz Group AG is relocating to LMD are to go live in early 2022. Jørn Skaane, CEO of LMD comments: “The combination of our data centre and Rittal technology is the perfect match for customer requirements. That doesn’t just apply to our customers in industry either.” He is referring to the acquisition of another major customer in late 2021, namely Sigma2, owner of Norway’s national supercomputers and storage facilities. Through the Norwegian research infrastructure services (NRIS), Sigma2 also has close links to the Universities of Oslo, Tromsø and Bergen as well as to NTNU, the Norwegian University of Science and Technology.

The data centre located in the former mine is winning major and experienced customers right now specifically because of the flexibility and scalability that LMD is able to offer in partnership with Rittal – for everything from a ready-to-use data centre container through to white space that can be developed in any way at all. “These aspects mean that, in the future, we will also attract many smaller companies and organisations that are increasingly recognising how cloud and co-location in green Norway can really benefit their own data centres,” Skaane says. ■

Proportions: Building an above-ground equivalent of these underground facilities would require enormous plots of land and involve huge construction costs. LMD, with five underground levels, contains 75 chambers with up to three tiers and a total surface area of 120,000 m².



Digital transformation at Lenze

1 FROM 10^{32} IN SECONDS

Is the digital mapping of products with 10^{32} – that is to say 100 quintillion – **variants** even possible and, when faced with this almost infinite range of solutions, can you find the rig **solution in seconds?** It sounds impossible, but the answer is yes! **Lenze** is a prime example of the amazing results that digital transformation can achieve. The automation specialist has developed a digital workflow for its p oducts – from configuration and o dering,and from engineering and manufacturing, to operation – with the experts at **Eplan** and **German Edge Cloud** becoming “colleagues” along the way.

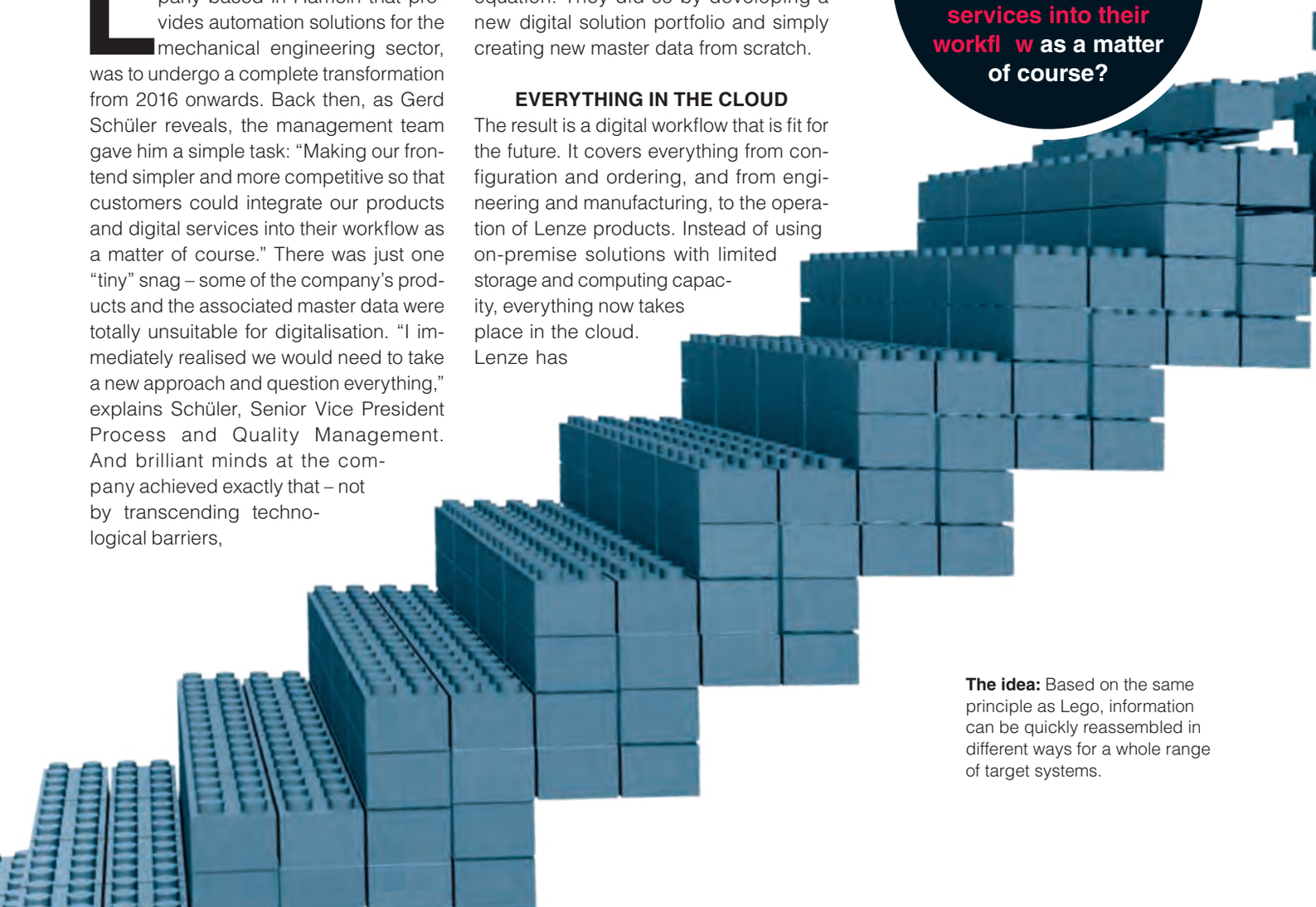
Text: Ulrich Kläsener

How can the frontend be made simpler so that customers can integrate products and digital services into their workfl w as a matter of course?

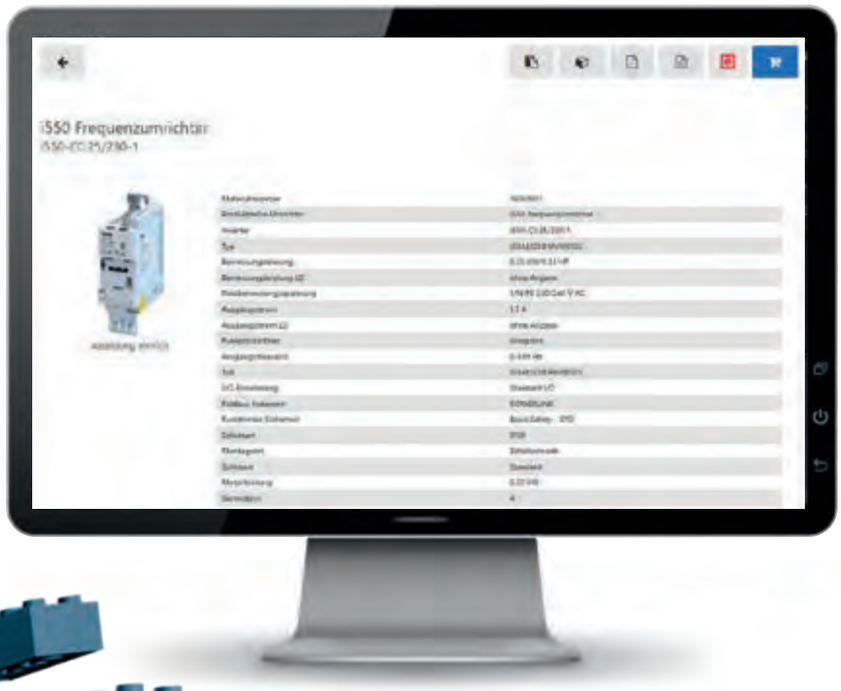
Lenze, a German family-run company based in Hameln that provides automation solutions for the mechanical engineering sector, was to undergo a complete transformation from 2016 onwards. Back then, as Gerd Schüler reveals, the management team gave him a simple task: “Making our frontend simpler and more competitive so that customers could integrate our products and digital services into their workflow as a matter of course.” There was just one “tiny” snag – some of the company’s products and the associated master data were totally unsuitable for digitalisation. “I immediately realised we would need to take a new approach and question everything,” explains Schüler, Senior Vice President Process and Quality Management. And brilliant minds at the company achieved exactly that – not by transcending technological barriers, but by completely removing them from the equation. They did so by developing a new digital solution portfolio and simply creating new master data from scratch.

EVERYTHING IN THE CLOUD

The result is a digital workflow that is fit for the future. It covers everything from configuration and ordering, and from engineering and manufacturing, to the operation of Lenze products. Instead of using on-premise solutions with limited storage and computing capacity, everything now takes place in the cloud. Lenze has



The idea: Based on the same principle as Lego, information can be quickly reassembled in different ways for a whole range of target systems.



Configuration:
The direct link between the Lenze product configurator and the new Eplan platform means customers very quickly find the product they are looking for.

switched to using selected units of information with stored rule sets instead of static product data management that involves continuously preparing new data sets and maintaining countless variants. Not being dependent on the platform solutions of individual software providers makes it possible to utilise a variety of target systems as desired and required, and to "orchestrate" information intelligently.

ALL INFORMATION CREATED FROM SCRATCH

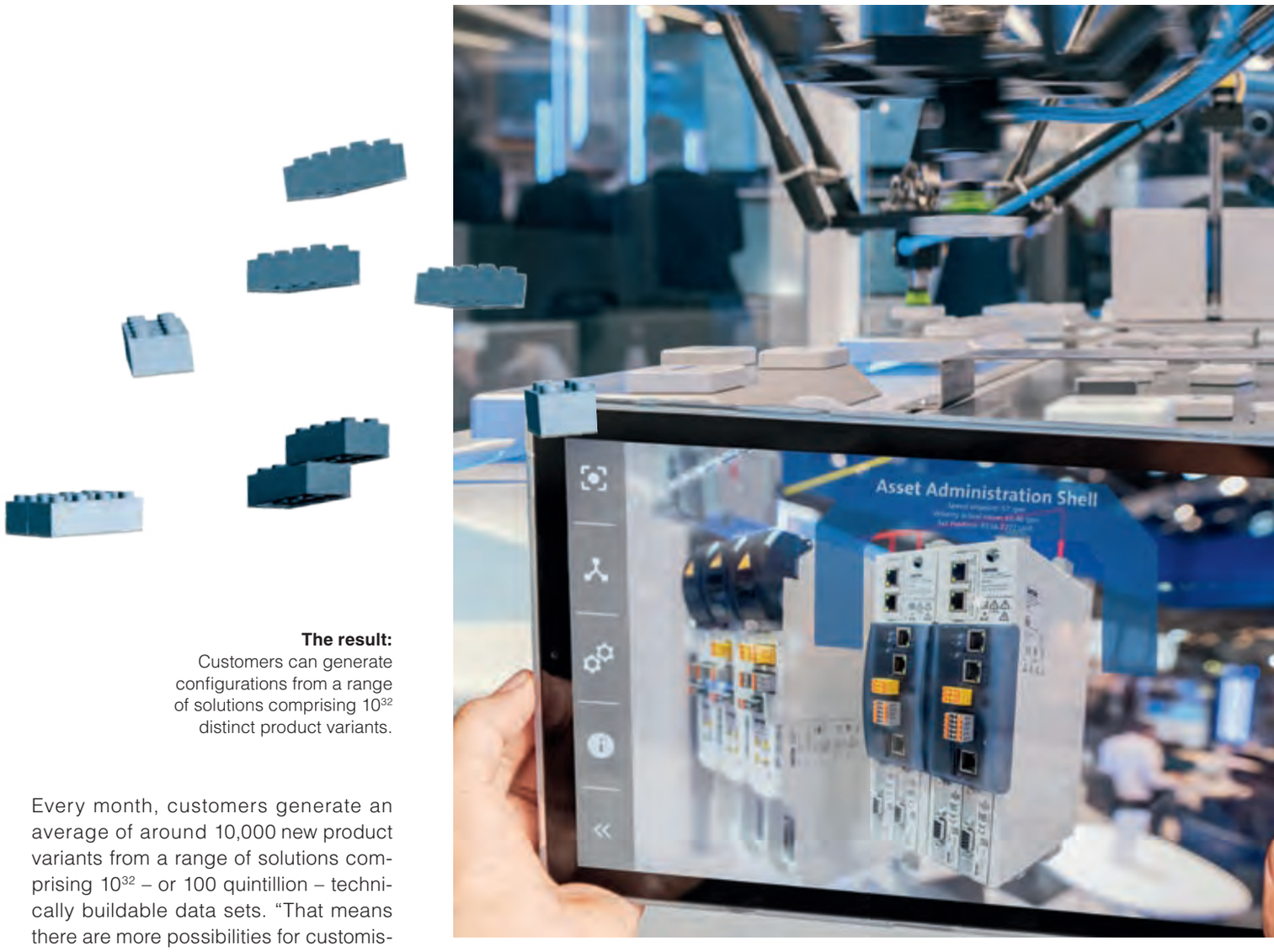
When it came to the new start at Lenze, the IT infrastructure was not the primary focus. "There's no lack of IT. You can buy anything you want. IT solutions are just tools," says Schüler. He goes on to explain that suppliers and customers only get faster when data is understood as a standard in structural terms and reused extensively. That meant having to recreate, reorganise and restructure technical product data and SAP master data and make it as streamlined as possible.

"There are more possibilities for customising Lenze products than there are stars in the Milky Way."

Gerd Schüler
Senior Vice President Process and Quality Management at Lenze

BUILDING BLOCK CONCEPT WITH INTEGRATED RULE SETS

But how do you approach something like that? Schüler explains: "Simply breaking down a drive unit into technical units, making them small and changing the way they are managed on a structural level speeds things up. Once I have my Lego bricks, as it were, I can quickly reassemble the product data in different ways for a whole range of target systems." If you combine that with rule sets and coordinate it with variant configurations, product data can be created in seconds to help customers with their decisions. "As the provider, we ourselves no longer need to create master data – we actually just administer and manage the small data blocks and rule sets. The rest happens automatically," continues Schüler – and it's faster than before. Whereas it used to take an average of two hours to generate a data set, this has now been cut to just two seconds and involves no manual intervention.



The result:
Customers can generate configurations from a range of solutions comprising 10^{32} distinct product variants.

Every month, customers generate an average of around 10,000 new product variants from a range of solutions comprising 10^{32} – or 100 quintillion – technically buildable data sets. “That means there are more possibilities for customising Lenze products than there are stars in the Milky Way,” reveals Schüler. “So, in principle, we’re moving towards infinity. As a manufacturer of variants rather than a mass producer, it therefore also made less sense for us to store everything in the Eplan Data Portal in the traditional way with fixed material numbers. For one thing, the potential product variety makes it technically impossible and, for another, it would be of very limited benefit and is therefore not worthwhile,” he adds.

THE SECRET STAR

The Easy Product Finder (EPF) now generates the new component data. It’s the secret star of the various Easy Engineering Tools. The EPF is an online tool that can be used to search products, configure solutions, request quotes and place orders for Lenze products. It is fed with technical data, including stored rule sets. That paves the way for an infinite number of variants, without having to repeatedly prepare new data sets and maintain them. Complete Eplan data sets that can be created in seconds give customers extra added value. To remove any dependence on server-based platforms and limited hardware, Lenze has transferred EPF operation to a cloud. The configurator is operated in the cloud of German Edge Cloud (GEC), a sister company of Eplan. Another advantage of the cloud solution is that Lenze is networking its products with the rest of the world.

FROM ONE CLOUD TO ANOTHER

The EPF is incorporated into the Eplan Data Portal, which contains fully comprehensive article data and the product catalogues of numerous component manufacturers. A single click is all it takes for anyone coming across Lenze solutions to automatically jump from one cloud to another – that is to say from Eplan to the EPF environment on the Lenze website. “The direct link between our product configurator and the new Eplan platform means customers very quickly find the product they’re looking for. There’s no longer any need to trawl through long lists, and customers soon home in on an appropriate article,” explains Bernd Spiegel, Director of Team Processes and Data at Lenze. Another advantage is far easier maintenance of the configurator content on the Eplan platform. The EPF also makes life much simpler for design engineers, because complete Eplan data packets (EDZ file) can be generated for every equipment variant.

SPEEDING UP WORKFLOWS

Schüler refers to the provision of component data that can be used to generate multiple variants as “a basic requirement of our customers.” He explains that the Eplan data sets therefore need to be available for engineering prior to or when selling the relevant products. “You will otherwise drown in costs or lose customers,” he emphasises. “Data is used and combined to reach better decisions with a view to lowering life cycle costs. That requires a precise description of the asset. Eplan is the best environment for this, because the circuit diagram maps every relationship between all the assets in a machine,” says Schüler, explaining why this is so important to Lenze. “Numerous leading mechanical engineering companies make use of our services. They simulate the commissioning, operation, optimisation and mainte-

FIND OUT MORE

www.lenze.com/en

Lenze

nance of a machine before it even physically exists," he continues, adding that it's not just digital twins that are needed for the various engineering environments, but also accompanying services that speed up the workflows. This includes data exchange formats that can be used directly in the customer's process environment.

TECHNOLOGICAL BREAKTHROUGH

Lenze has achieved a technological breakthrough with the EPF. "By the end of 2023, we will therefore be incorporating all the ranges of our entire portfolio into the EPF," says Spiegel. "These days, all I'm picking are lots of small blocks of information and their rule sets, because it can all be tested and checked and is much simpler. That's why we're now so fast," he continues, adding that the impact on in-house operations has also been huge. Customer configurations and orders are generated automatically in the EPF via an interface to SAP parts lists and work schedules. The principle is, he says, always the same: "Services are based on information keys that we move back and forth between various target systems. It doesn't matter what is located in which cloud – things only seem to get more complex. In reality, they don't."

THE NEW "COLLEAGUES" AT EPLAN

All this is achieved using a cloud solution. "We really have found a robust architecture. In any case, we didn't want licences – we wanted availabilities. That's the right strategy at the right time," says Schüler. By using the GEC hosting solution, Lenze has not just eliminated the frustrating limitations of hardware and software, but has also placed end-to-end implementation of the EPF in particular in experienced hands. "It's worked exceptionally well, because Eplan has the domain knowledge for generating the CAE data. The experts know how things can ultimately be processed," explains Schüler. "Eplan has achieved many successes and is some way ahead of the competition. Customising, training and response times – everything is great. The fact that our Eplan contacts now feel more like colleagues is far from typical. It's remarkable!" adds Spiegel. ■

Five steps to a fully digitalized variant portfolio

1. **Intelligent product configurator**
   The product configurator being used – the Easy Product Finder (EPF) – is an online tool to search for, configure and order Lenze products. It is based on selected units of information with stored rule sets. That paves the way for an infinite number of variants, without having to prepare new data sets and maintain them.

2. **Digital interaction**
   The EPF offers the possibility of creating and downloading a complete Eplan data set for each equipment variant.

3. **Cloud services**
   The EPF is located in a cloud, which means Lenze is not dependent on limited hardware.

4. **Connectivity**
   Lenze is networking its products with the rest of the world. Cloud hopping from the Eplan Data Portal to the EPF cloud is a prime example.

5. **Wealth of know-how**
   Lenze's comprehensive digitalization is safeguarding the company's know-how on a long-term basis, with IT-supported management of its process and product knowledge in a cloud.

Automated driving at the BMW Group

PIT STOP FOR 16 TB OF DATA

How is Rittal helping the BMW Group develop automated driving technologies?

Adaptive cruise control and lane assist are two functions devised by automotive developers some 20 years ago that have long since become standard features in all new cars. However, countless further test drives will be required and huge volumes of data will need to be evaluated before **automated driving truly becomes a reality.** That's the goal towards which the **BMW Group** is working, collecting **data during numerous test drives** and processing it in a **Rittal IT container**.

Text: Patricia Späth

It's a cold, sunny morning in February. On an industrial estate north of Munich, the barrier at the exit of the BMW Group's plant goes up and down by the minute. Vehicles that are not yet available to buy, some with striking prototype paintwork, leave the German car manufacturer's site one by one. Each driver's mission is to thoroughly test the car's wide-ranging functions and their interaction. The future of automated driving is anything but trivial for the manufacturer. Does the car detect a cyclist and brake as a precautionary measure? Does it correctly identify road signs and speed limits? And is there a warning signal if drivers remove their hands from the steering wheel or if their eyes close due to fatigue? If not, the technology needs to be optimised and subjected to further tests. All the results are recorded during the drive. This produces masses of data that first needs to be stored safely and then evaluated. But where can this valuable data be kept?

A passion for collecting: During test drives, data is stored on a solid-state drive.

1 GB

of data per second is produced during test drives. By the end, the 16 TB hard drive is full.

A transparent car: Numerous sensors record all manner of parameters during the test drives, also documenting absolutely all errors and faults.

SEEING THINGS THROUGH CUSTOMERS' EYES

When test drivers are collecting data, they always step into the shoes of the person who will ultimately be behind the wheel. They run through various standard driving scenarios such as the driver approaching the vehicle, getting in, starting the engine and making phone calls. The focal points of the test runs are defined at the beginning of each week and the routes are adapted accordingly. If, for example, the focus is on telephony functions, the cars are routed through areas with relatively poor network coverage.

BMW Group test drivers always start off by opening the boot and inserting a solid-state drive the size of three VHS video tapes. Their aim for the day is collecting data, data and more data. There's no space for lots of shopping in the boot of the car, because it contains numerous measuring devices

The day's work is done – the hard drive is inserted into one of the three copy racks.

and sensors logging everything that happens during the drive. With every second that passes, 1 GB of data is generated. The hard drive, which has a capacity of 16 TB, is 75 to 100 per cent full by the end of the shift.

THE EASY WAY TO "PARK" DATA SAFELY

The day ends just as it started, with drivers opening the car boot, removing the hard drive and inserting it into a copy rack. Following an initial automatic preselection, almost 25 per cent of the data collected is transferred directly from the rack to the main data centre in Munich via two 100 GB lines. During post-processing, the measurement results are evaluated and the functions optimised. When looking for a secure "garage" for three copy racks, the BMW Group opted for a turnkey IT infrastructure solution that meets all physical safety, climate control and power supply/backup requirements. Given that there wasn't enough space for a secure server room in the buildings at the test site, the experts decided on an outdoor IT container solution that could be set up quickly and also has very practical benefits. Almost as if making a pit stop, the drivers of the test vehicles can drive right up to the data centre to insert the data storage devices for the readout process.

TURNKEY IT CONTAINER

The technical solution consists of a turnkey Data Centre Container from Rittal that is equipped with racks, cooling and an uninterruptible power supply that simply has to be plugged into the mains. One striking feature inside is that an aisle containment solution divides the data centre into two sections. For security reasons, drivers can only access the front part of the racks, where the data carriers can be inserted easily and conveniently and where the input functions for data transfer are located. The rear part of the racks is enclosed and locked, which means only authorised personnel have access. It also protects the area containing sensitive technology if it happens to be raining or snowing. Once the test drivers have deposited the day's data in the Data Centre Container, their work for the day is done. ■

"We're delighted our IT infrastructure is playing a role in developing automated driving technologies."

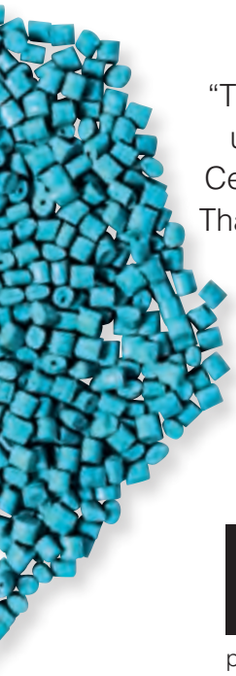
Michael Scholl
Key Account Manager Automotive International at Rittal

FIND OUT MORE
Video

What alternatives are there to conventional plastics – especially when procurement becomes difficult?

Plastics in the procurement crisis

Materials expertise gets it done



"The order books are full, but the **shortage of materials** is stopping companies ramping up their production accordingly," explains Klaus Wohlrabe, Head of Surveys at the Ifo Center for Macroeconomics and Surveys. This is especially true of the **plastics industry.** Thanks to its rigorously tested procedures for **substituting materials**, **LKH** opens up new ways out of the **procurement crisis.** Supply chains are safeguarded as a result.

Text: Meinolf Droege

In the past, it was typically cost cutting or new technical requirements that prompted companies to investigate and then use alternative plastics as a solution. Particularly since the start of the pandemic, that picture has changed. Many plastics have limited availability – from basic grades to specialties – and this is increasingly leading to supply interruptions. The option of switching material offers greater flexibility and thus security for the supply chain. Using higher proportions of recycled materials and bioplastics also makes it possible to lower the carbon footprint of more and more applications.

ADJUSTABLE "RECIPES"?

In almost every application, the plastics to be used are specified with great precision. Exact descriptions of everything from the "recipe" to the name of the supplier are defined before series production begins, and only this version is sampled and approved by the customer. The material can therefore only be changed with the agreement of the customer and after another inspection. Especially when it comes to more complex requirements such as high dielectric strength, special surface effects or critical mechanical performance data, getting subsequent approval for more materials generally involves lengthy, complex processes. Speeding these up massively while still arriving at an effective outcome is one of the specialities of plastics processor LKH, based in Heiligenroth. "Since the start of the current crisis, we have implemented more than 20 material requalifications in efficient, largely standardised processes, thus safeguarding the deliverability of around 150 articles for our customers," explains Volker Hindermann, Managing Director at LKH.

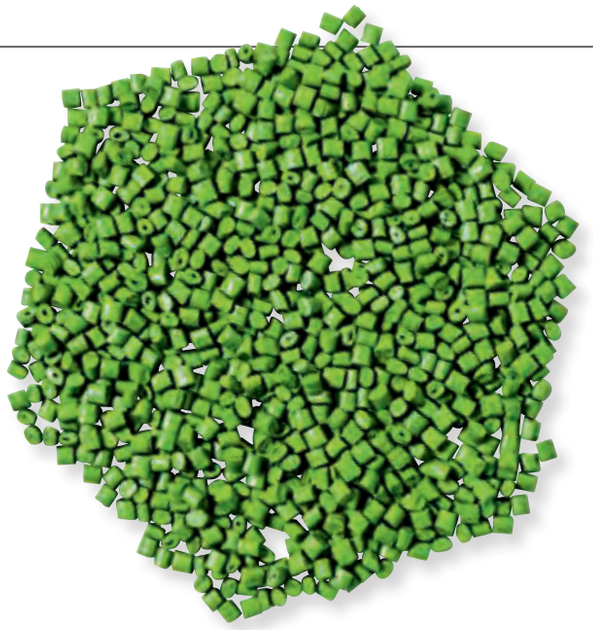
The company's particular materials expertise is the ace up the sleeve here. Unlike typical plastics processors, LKH has long been making intensive use of the materials market in complex conversion projects with high technical requirements – since well before the pandemic. "On the one hand, our expertise includes wide-ranging knowledge of plastics chemistry. On the other hand, and partly based on our own experience, we have built up a database for simulations and therefore comprehensive design and mould know-how. We put all that to good use when it comes to working with customers and suppliers on material specification. This also applies to the use of recycled plastics," says Thomas Ritter, Head of Engineering at LKH.

CARBON FOOTPRINTS – WHAT IS LKH DOING?

Markets are increasingly placing two requirements on distributers of plastic products. First, more and more customers want to buy products with a clear conscience. Carbon footprints are increasingly a factor when it comes to purchasing decisions. Companies that are able to boost the profiles of their products in this way gain a significant market advantage.

“Since the procurement crisis hit, we have requalified more than 20 materials, safeguarding the deliverability of around 150 articles for our customers.”

Volker Hindermann, Managing Director of LKH



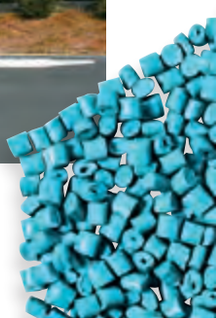
On top of that come more stringent statutory requirements. For example, the German Packaging Act that came into effect in January 2022 stipulates that the proportion of recycled materials in single-use beverage bottles must reach at least 77 per cent by the end of 2025, and 90 per cent three years later. It is already clear that other sectors will likely also be obliged to increase the proportion of recycled materials they use in the future.

LKH proactively made this a priority and developed a practical, fully tested package of measures. Using recycled materials is a complex matter. Depending on their type, mechanically critical parts, for example, typically require that the anticipated characteristics are tested in advance. Particularly exacting demands for surface quality can also pose a challenge. Through its bioplastics, LKH offers another way of improving environmental credentials and decreasing dependence on plastics based on mineral oil. These bioplastics are created using renewable raw materials – either completely or in part. Some of them are also industrially compostable. LKH is already manufacturing the first components to have a much smaller carbon footprint thanks to this approach. The new “paper injection moulding” procedure uses no plastics at all. As a result, production facilities can be completely independent of the plastics raw material market, cutting carbon emissions hugely.

Plastics experts: In Heiligenroth, Germany, LKH develops and manufactures a broad range of plastics for customers in the automotive, electronics and electrical engineering, factory equipment and transportation packaging markets.

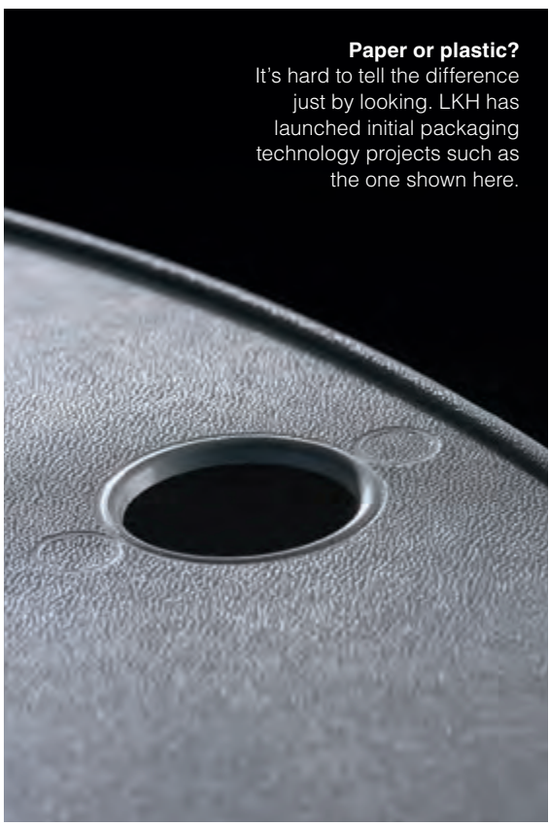
SWITCHING BETWEEN MATERIALS FASTER

Whether for technical reasons or because of an interrupted supply chain, switching a product to a plastic other than the one originally selected is a complex procedure, especially for more demanding products. Typically, these kinds of products are specified and approved for just one particular type of plastic from one manufacturer. Even before the current crisis, LKH had developed a stringent process for switching products to other materials faster and reliably. The procedure has been tested in lots of projects and can also be used to shrink a product’s carbon footprint, navigate supply bottlenecks or cut costs. ■



Bioplastics et al.

Which **bioplastics** are really bio? What is meant by **“true” recycling** and **what is regranulating?** What advantages does paper injection moulding have over conventional **plastic injection moulding**? Questions upon questions. We will give you a little overview.



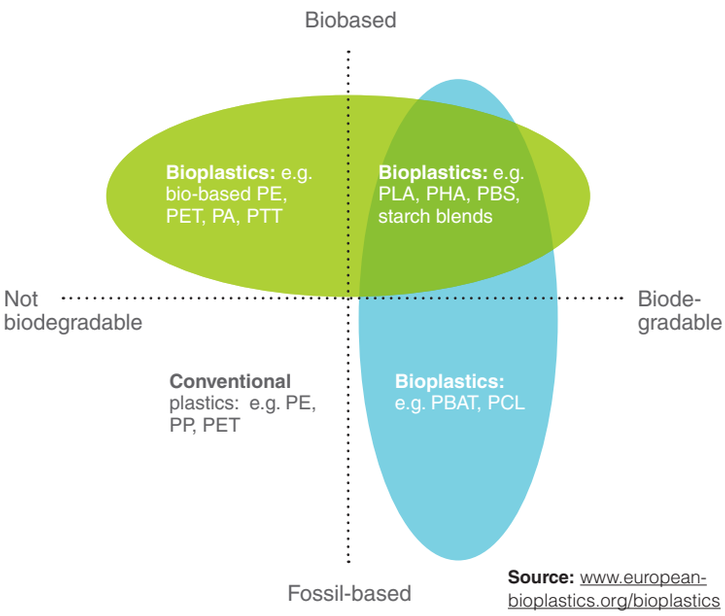
Paper or plastic?
It’s hard to tell the difference just by looking. LKH has launched initial packaging technology projects such as the one shown here.

PAPER REPLACES PLASTIC

Cellulose and natural admixes such as chalk, starch and biological dye pigments are the ingredients for an emerging new variant of injection moulding, commonly just called paper injection moulding. It can be used to manufacture products that look and feel as if they are made of plastic, but can nonetheless be disposed of in the household composting bin after use. Other benefits include its antistatic properties and particularly low weight. LKH has already taken initial packaging technology projects quite far. Experts anticipate paper injection moulding will achieve a carbon footprint around 85 per cent smaller than that of standard plastics.

Bio doesn’t necessarily mean eco!

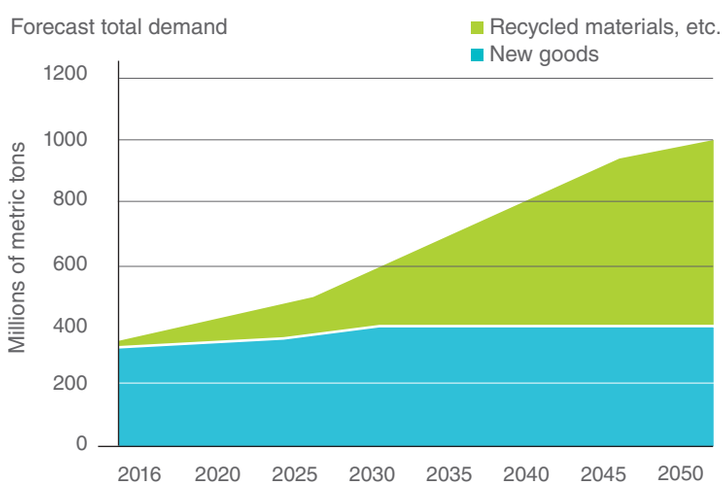
The material coordinates system provides an overview.



Source: www.european-bioplastics.org/bioplastics

Global demand for recycled material growing

The proportion of recycled materials will increase dramatically in the future – in the plastics industry perhaps even faster than the global average. LKH has already established and tested the processes required for this.



(Image source: McKinsey)

Biobased plastics are made of renewable raw materials ...

... unlike **conventional plastics,** which are made of mineral oil.

What is recycled material?

"True" recycling means that used plastic is reused in products to the same or at least a similarly high level as the first use.

30% RECYCLED

LKH has wide-ranging experience with using various recycled materials and qualifying them for existing and new products. An efficient waste management system also constantly monitors the proportion of recycled material and thus delivers data to help calculate the carbon footprint. An average of around 30 per cent of the material used at LKH is recycled, and that number is rising. Here are two examples:

Corner bracket (left): The corner fastening element for enclosure bases has to take a lot of strain. In collaboration with Rittal, it has been developed using 100% recycled granulate. This has reduced the need for new plastic by the same amount.

End plate (right): The complex, intricate design keeps the weight low despite a high level of rigidity. The product was developed in conjunction with a film manufacturing customer, and consists to 100 per cent of reclaimed and ground material. Its carbon footprint is around 70 per cent lower than when using new material.

GROUND MATERIAL

LKH grinds the start-up parts or sprues directly in its production facility and this ground material is then generally fed back into the production process immediately in a custom-defined proportion. It replaces new material to a high percentage. This cuts costs in production and makes the new materials that are so hard to acquire in the current crisis go further.

REGRANULATION

Regranulation is often a suitable option for other production waste, used plastic parts or even plastics from household recycling schemes. Specialist service providers melt down these plastics and use additives to bring them back up to the quality of new material. It is also possible to give plastics created in this way new characteristics. Regranulated material is traded in the same way as new plastic or produced for a specific customer.

Large-scale production and classification of green steel – how are the prospects looking?

Salzgitter and Stahlo – strategic partners for green steel

REVOLUTIONISING STEEL PRODUCTION

The steel industry is on the brink of the **biggest transformation in its history.** The aim is to revolutionise the existing steel production process to make it as environmentally friendly as possible. This is a mammoth task for **Salzgitter AG,** a leading international steel producer. The transformation will pose many challenges along the way. What's more, steel users are also seeking clarity and guidance when it comes to **green steel. Stahlo** is now offering support in the form of the first **transparency label on the steel market.**

Text: Markus Huneke

The heavy-duty crane slowly approaches and places the giant steel coil into the prepared storage space with pinpoint precision – 30 metric tons of high techsteel, one coil next to the other. The shimmer of the coils is still visible through the protective packaging – and with the matt sheen and clean edges, there's no mistaking that this is a genuine precision product. Steel coils of this kind are generally destined for use in the automotive industry or other sectors such as the household appliance industry, which also rely on the high-quality flat steel produced by Salzgitter Group company Salzgitter Flachstahl GmbH.

What's not obvious from looking at the coil, however, is all that's gone on in the background before it was picked up by the crane – the technical production revolution that is shaking up the industry, complete with repercussions for the entire downstream processing chain.

Recycling: At the electric steel plant belonging to the Salzgitter Group company Peiner Träger GmbH (image top right), scrap is melted down into liquid steel in the electric arc furnace and processed further.

FIRST DIRECT REDUCTION IN FOUR YEARS

When presenting the new “Salzgitter AG 2030” corporate strategy at the start of the year, Gunnar Groebler, CEO of Salzgitter AG, again made no bones about the fact that the timetable is an ambitious one. Instead of aiming to switch completely to the hydrogen-based production of high-quality steel by 2045, the steel production company, based in Lower Saxony, now wants to achieve this target a full twelve years earlier. The company is aiming to be the first steel producer to make the switch, replacing all three of the Group’s blast furnaces with direct reduction plants – which run on natural gas and hydrogen instead of coal – by 2033. The first direct reduction plant is to start operations in 2026.

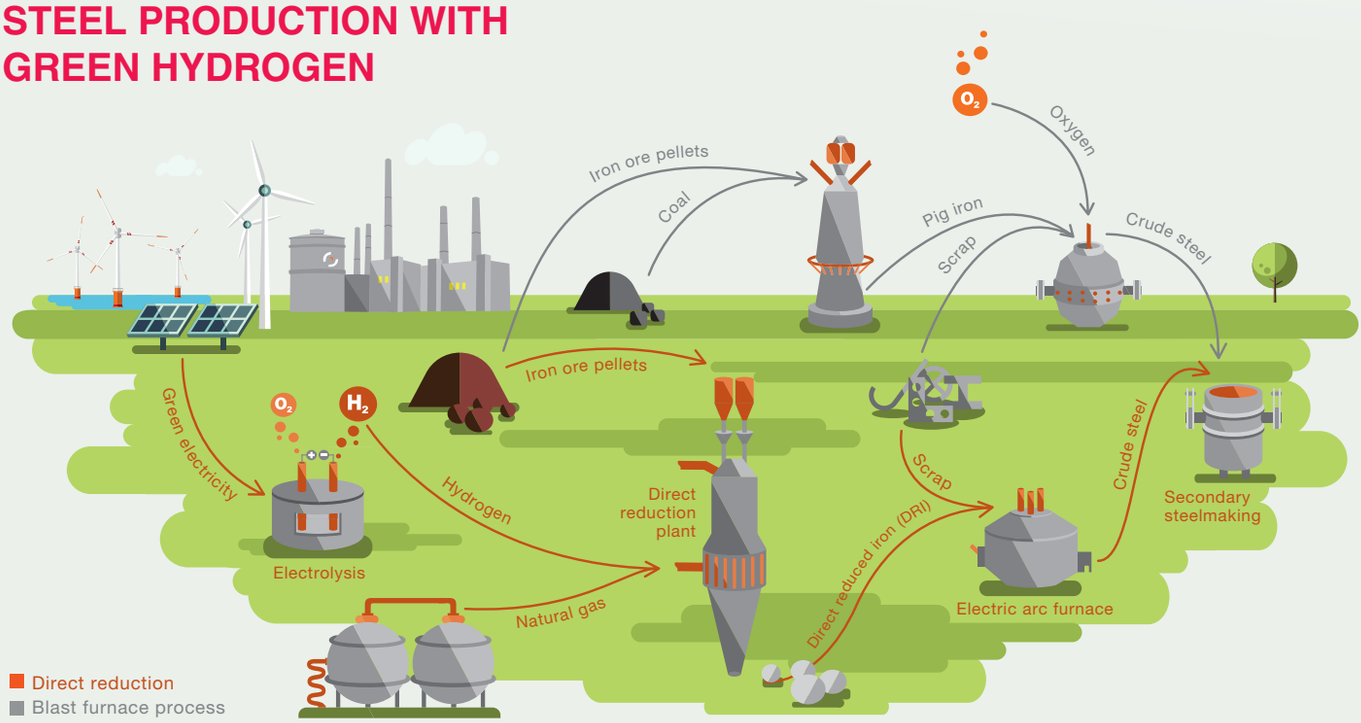
A GRADUAL TRANSFORMATION

This is no trivial matter. Switching over production – that has already been taken to the very limits of technical process development – to the new technology is a major challenge, even for one of Germany’s biggest steel producers with an annual output of some six million metric tons. “Using the direct reduction process to produce pig iron from iron ore is completely different to the blast furnace method,” explains Phillip Meiser, Sales Director at Salzgitter Flachstahl GmbH. “That’s why the transformation will run in stages up to 2033. This way, we can maintain continuous operations and avoid any supply issues for our customers.”

Even though the Salzgitter Group is one of the most efficient steel manufacturers in the world, its processes still produce around eight million metric tons of CO_2 each year. As Groebler was keen to point out, Salzgitter AG has decided to strike out in a new direction and shake up its production to meet both its social and environmental responsibilities.

In the future, instead of using coking coal and a blast furnace to turn iron ore into pig iron, it will use hydrogen. This new process takes place in direct reduction plants, which emit water instead of CO_2. Thanks to this process, steel production can genuinely become green.

STEEL PRODUCTION WITH GREEN HYDROGEN



At present, pig iron is produced in coal-burning blast furnaces – a process that emits CO_2. In contrast, direct reduction involves using hydrogen to reduce iron ore. The hydrogen reacts with the oxygen in the iron ore (iron oxide) directly in its solid state, converting it into direct reduced iron – an almost pure iron also known as sponge iron. Instead of emitting CO_2, this process produces water (H_2O), which is then reused. To process direct reduced iron further, the porous material is finally melted with scrap steel in an electric arc furnace.

95%
reduction in carbon emissions to be achieved in steel production

€ 3–4 bn
is the cost of switching to carbon-neutral production

2026
is when the first direct reduction plant at Salzgitter AG is to enter service

Low-carbon steel grades are currently already being produced in the Peine electric steel plant in conjunction with the steel mills and galvanising plants in Salzgitter. They are attracting great interest.

GREEN HYDROGEN NEEDS GREEN ELECTRICITY

A key requirement is hydrogen that is sufficiently green – in other words, produced without carbon emissions. In turn, green hydrogen needs green electricity – power generated using renewable energy sources. One of the approaches taken by Salzgitter AG has seen the company recently entering into a strategic partnership with the Danish power company Ørsted, a green market leader in the planning, construction and operation of offshore wind farms. “If we’re going to use hydrogen to produce steel, we need enough energy. Offshore wind farms can produce and supply us with all the green energy we need,” Meiser explains. “However, that’s going to call for a whole new infrastructure, too.”

Infrastructure expansion is a critical aspect that could have a major impact on the speed of the transformation. Just like the entire industry, which is undergoing the same transformation process, Salzgitter AG

needs support – not only for setting up a new infrastructure, but in terms of the necessary investment, too. “Switching to carbon-neutral production will cost around three to four billion euros in total. Salzgitter AG cannot cover these costs on its own. We need public funding for this project, too,” comments Meiser.

INDUSTRIAL USE – A MAJOR CHALLENGE

For some time now, the company has been actively paving the way for low-emission production through its SALCOS (Salzgitter Low CO_2 Steelmaking) project. “We’re going to be able to cut our emissions by more than 95% compared to today’s figures – and will therefore come close to emission-free production,” emphasises Maik Lintl, Sales Director at Salzgitter Flachstahl GmbH. Despite all the innovations and the necessary technologies already being available, these are still separate elements. The main challenge is therefore to combine these and scale them up to a production volume which has never been seen before. In technical terms, the prospects for success are looking good. However, the technical elements are just one side of the coin – the markets are the other. Will they buy steel that has been produced using the direct reduction method with almost no carbon emissions? “We are seeing a high demand for green steel. However, there’s no doubt that steel produced through direct reduction will be more expensive to begin with,” Lintl explains.

INITIAL SIGNS OF A SWITCH ON THE MARKET

If the transformation is to succeed, it’s not just the technical production processes that need to change – the markets have to change, too. The initial signs of this are already emerging. For instance, Mercedes-Benz AG and Volkswagen AG have recently placed orders with Salzgitter Flachstahl GmbH for green steel, as has household appliance manufacturer Miele. However, the steel is not yet being produced in direct reduction plants, but instead in an electric furnace at the company’s site in Peine. This furnace uses electrical power to melt scrap steel down into crude steel, which can then be processed to make new products.

Another look at the Salzgitter Flachstahl GmbH coil storage facility reveals the challenges facing steel processing companies on the other side of the production chain. The green label on the carefully packaged coils identifies them as LOW CO_2 products. If it weren’t for the plastic film, nobody would be able to tell the difference between “normal” and low-CO_2 steel. In other words, steel processing companies need to be able to rely on the information provided by manufacturers and suppliers about the steel product they have ordered. They then have the extra step of comparing this information across different manufacturers and suppliers.

“With the CO_2 label, we want to make it easier for our customers to get to grips with the whole subject of green steel now.”

Oliver Sonst
Managing Director of Stahlo

Carbon emissions: Stahlo is already emitting less than 3.6 kg of carbin dioxide per metric ton of steel at its largest site in Gera (GHG Protocol scope 1+2).

HOW MUCH CO_2 IS REALLY ASSOCIATED WITH DIFFERENT PRODUCTS?

While, for some manufacturers, such as Salzgitter AG (in the future), green steel will be the result of the genuine transformation of the entire steel production process, other companies will use certificates to offset emissions and others again will produce steel exclusively from scrap by means of an electric process. Each of these approaches is equally valid – there is more than one solution. However, the variety of approaches and concepts makes life difficult for steel processing companies. How much CO_2 is really associated with different products? In the future, steel processing companies will be looking for answers ▸

"Stahlo is an important strategic partner for us – and that applies to green steel, too."

Phillip Meiser
Sales Director at Salzgitter Flachstahl GmbH

to this question. The Stahlo steel service centre, which is part of the Friedhelm Loh Group, can now supply an initial answer. Stahlo and Salzgitter Flachstahl – already partners of many years' standing – are now collaborating strategically in relation to green steel, too. Stahlo was quick to recognise the strategic importance of the green transformation of steel production – and to start thinking in specific terms about what a rising demand for green steel would mean for both the market and its customers. "Stahlo is one of the key independent steel service centres in Germany and an important strategic partner for us – and that applies to green steel, too," says Meiser.

Shaped blanks: Stahlo supplies shaped blanks with an exceptional surface quality specially for the automotive industry (image on the right).

NEW CO_2 LABEL GIVES CUSTOMERS AN OVERVIEW

Stahlo is the first and only steel service centre to have developed a label for classifying steel products in terms of their associated CO_2 emissions in a very straightforward way. Similarly to the well-known scheme used for household appliances, this system for steel also has seven categories – from A = best emissions class to G = worst emissions class. The different classes are colour-coded, so it's easy to see at a glance where exactly the steel stands in terms of CO_2. "In introducing this label, we're not trying to pre-empt any official classification system," explains Oliver Sonst, CEO of Stahlo. "However, until such time as there is an official system of this kind, we want to make it easier for our customers to get to grips with the whole subject of green steel now."

In addition to the system's seven emissions classes, twelve visual icons provide information about how a particular steel has been made. A stylised leaf represents use of green electricity, for example, while a flash of lightning stands for an energy mix, and so on. The system therefore makes it easy for customers to understand the combination of raw materials and processes that have been used to produce the steel. The label, which the company produced itself, drawing on its wealth of experience and large network, is not intended to provide any form of legal certification – it is merely intended to give customers some quick guidance. "Using just twelve elements, we are providing our customers with an overview that they could otherwise only get by studying the relevant documents in detail. This saves them a lot of time and effort," Sonst explains. "At the moment, Stahlo is therefore one big step ahead of the market. What's more, the response from our customers tells us we've struck a chord here – the feedback has been unbelievable," emphasises the Managing Director of Stahlo.

Products with the Salzgitter AG C label – in other words, less than 500 kg of CO_2 per metric ton of steel – are already available from Stahlo this year. It is expected that the Group's A+ products will be available from 2026, once the first direct reduction plant has been started up successfully. ■

Coils upon coils: Stahlo offers the complete range of steel grades and dimensions, from structural steel to ultra-high-strength special steel grades of both EU and non-EU origin.

"We are seeing a high demand for green steel. However, there's no doubt that steel produced through direct reduction will be more expensive to begin with."

Maik Lintl
Sales Director at Salzgitter Flachstahl GmbH

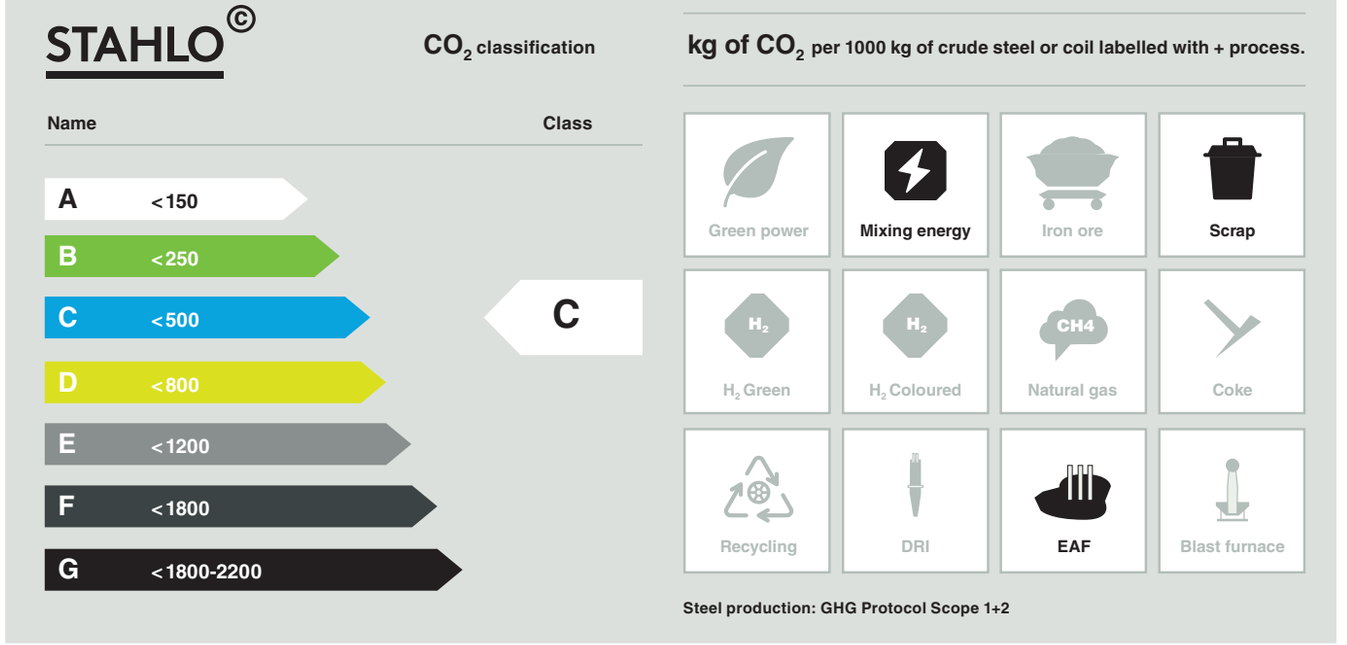
CO_2 CLASSIFICATION LABEL

The raw material and mix of processes used to produce the steel can be traced and classified. A quick glance at the Stahlo classification label reveals the emissions class associated with the production of the steel. Moreover, the icons that are highlighted provide information about the materials used, the process steps involved and the energy consumed. The classification labels from A+ to G can be found on the Stahlo website. Classification C is shown here as an example.

FIND OUT MORE

CO_2 classifications

www.stahlo.de/en/classification-label



Cideon UpSpace

REFERENCE VISIT? **VIRTUALLY!**

Where can mechanical and plant engineers discover the enormous potential of digitisation?

Digitisation in mechanical and plant engineering is accelerating rapidly. It calls for a lot of knowledge – and that as quickly as possible. But how is it possible in times of Corona? Cideon has the answer: the virtual reference customer, presented at the new **Cideon UpSpace in Düsseldorf**. Curtain up: on an entirely new user experience.

Text: Michael Siedenhans

Ralf Werker, Vice President of Operations at allmineral Aufbereitungstechnik GmbH & Co. KG, takes off his VR glasses. He is impressed: Martina Craft, Managing Director of "Craft Future Tecc" and her colleagues have just spent 30 minutes showing how they digitised their company with the help of solutions from Cideon: She was accompanied by Stefanie from Technical Sales, Design Manager Gerhard from the Engineering Division and Ingmar, the production manager. However, the four women and men do not exist in reality, in fact they are avatars in a virtual space where real people such as sales representatives, engineers or managing directors can visit all stages of the value chain. During the virtual tour of the company, these real people can gain access to every corporate area of "Craft Future Tecc" – from Sales to Purchasing and Logistics, and from Engineering and Assembly to Service – and learn how work

At the Cideon UpSpace in Düsseldorf visitors with VR glasses and a manipulator can interactively run through the processes at “Craft Future Tecc”, the virtual customer.

Discovery workshop: This is where the exchange of ideas with Cideon’s experts and system integrators takes place to discuss the next steps towards digitisation and to define fields of actio even before the initial steps are implemented.

FIND OUT MORE

The reference customer “Craft Future Tecc” on the Internet:

steps have been automated with the aid of digitisation and how huge potentials could be leveraged.

VISITORS IN VIRTUAL SPACE

“Craft Future Tecc” is Cideon’s new digital reference customer. Now, it can be visited at the brand new Cideon UpSpace in Düsseldorf every day. There are for two reasons why it is being presented virtually: Recognising the potential for digitalisation – this is one of the central challenges that also worries the mechanical and plant engineering sector. To do this, knowledge and expertise must be accumulated – as quickly as possible. But how exactly can one get started? Best practice applications, which can be experienced live during a reference visit, are an ideal option. However, this is currently difficult; on-site visits to reference customers are hardly feasible in times of Corona. That’s why developers and sales staff from Cideon came up with the idea of making themselves independent of real reference customers with the help of digitisation and virtual reality. This is how the idea arose of developing and presenting the story of a virtual customer who uses Cideon’s skills as a system integrator to make his company fit for the future – consistently and across all areas. Visitors to the Cideon UpSpace can take a virtual peek over the shoulders of the employees as they work, intervene in what is happening and thus experience the benefits of the digital solutions at first-hand. For example, with Vernon Appenzeller from the Service Department. There, Cideon Enify has succeeded in correcting customer malfunctions in real time – this is possible worldwide and is just one of many examples showing that digitisation increases the innovative power of machine and plant constructors, as well as improving the quality of their products and services.

EXPERIENCING, DISCOVERING AND DEVELOPING DIGITAL PROCESSES

After half-an-hour, the compelling journey through the virtual world is far from over for Ralf Werker. He has many questions in his head that he would like to put to Cideon’s experts and system administrators. That’s no problem either. The virtual reference customer visit is part of a discovery workshop, so Werker can talk to Gerhard Wulff, Principal Solution Manager at Cideon, for example, about the next steps in digitisation, and define fields of action for his company. For instance, he wants to know how to increase the order rate in technical sales through 3D quote layouts, reduce engineering costs through efficient CAD use, or organise data management so that departments work together across departments. Werker has question after question that Wulff and his colleagues answer proficiently and which highlight Cideon’s expertise in engineering and as a system integrator. At the end of his visit, Werker already has the first ideas in his head for further digitisation processes in his department. These ideas arose through the completely new user experience and the VR-based learning of references. This was all made possible by Cideon UpSpace and the virtual “Craft Future Tecc” company. And the VR glasses also gave him an insight into the new digital world! ■

“With the help of Cideon UpSpace, I’ve been able to discover a huge amount of digitisation potential.”

Ralf Werker
Vice President Operations allmineral Aufbereitungstechnik

Digital transformation at the Scheuch Group

A FRESH BREEZE IN THE WORK-FLOW

The Scheuch Group from Aurolzmünster in Austria has joined forces with **Cideon** on the road to a digital future. The journey starts in the "heart of the company": in **engineering.** Processes are automated by intelligent models known as "assets". This way, an offer is created in next to no time. When the order is placed, **the designers use the digital model as a template** for creating the detailed design. This also speeds up engineering considerably.

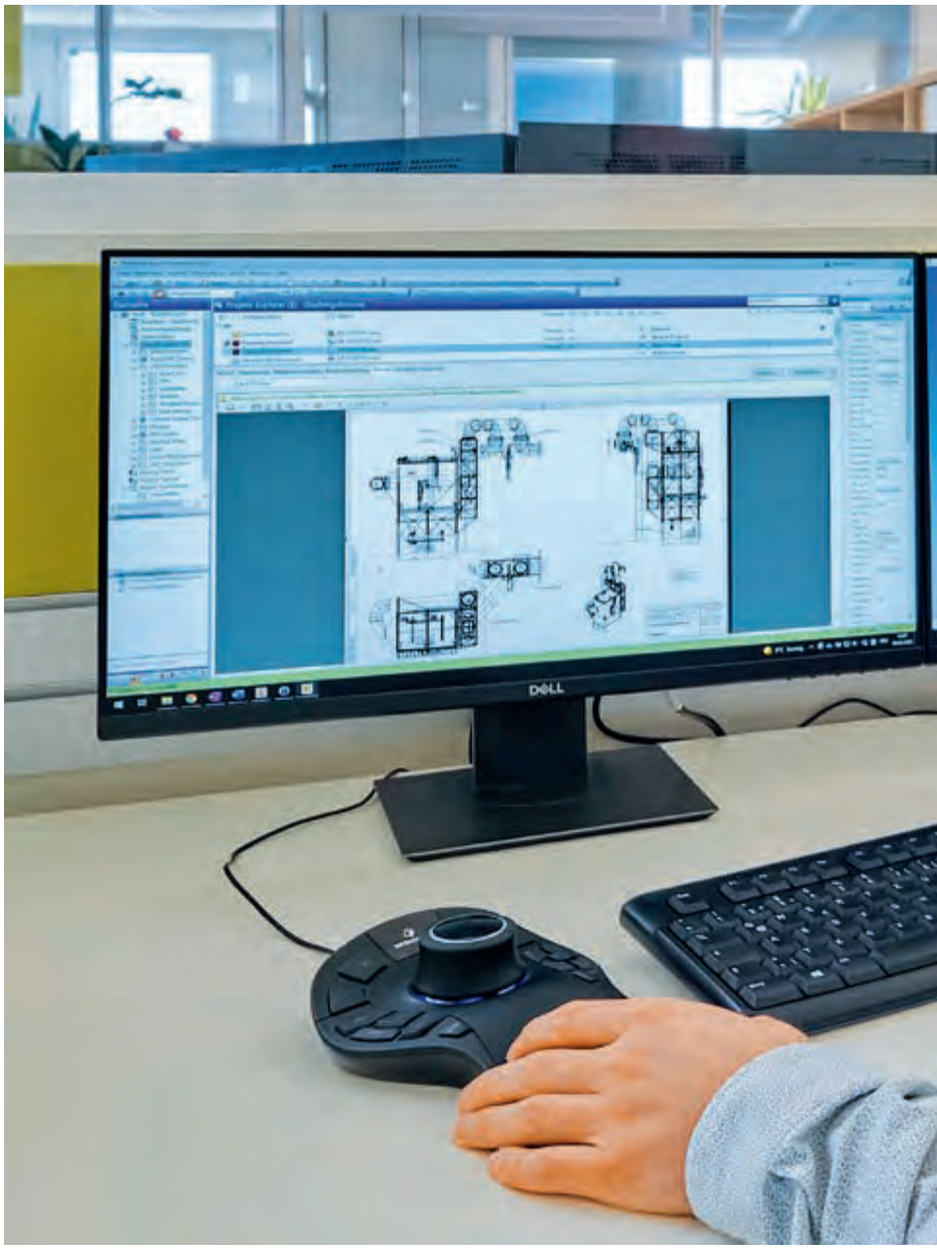
Text: Ralf Steck, Birgit Hagelschuer

Faster access to the offer through optimised processes: Scheuch, a competence leader in innovative ventilation and environmental technology, has achieved this goal with the help of Cideon. Project planners at the Austrian company can now easily assemble an environmental system with digital assets from a library in project engineering. "Since the assets contain far more than the geometry, we are laying a comprehensive digital foundation for the later processes," explains Manuel Eitzinger, Team Leader for technical IT

Teamwork: Manuel Eitzinger (left), Technical IT Team Leader at Scheuch, and Dr. Harald Schrenk, Managing Director of Cideon Austria.

"Thanks to Cideon, we are getting ever closer to our goal of generating more sales with the same team."

Manuel Eitzinger
Technical IT Team Leader at Scheuch



at Scheuch. Among other things, the assets contain all the possible configurations of a mechanical assembly, including the corresponding rough geometry with projecting edges, connecting flanges and hole patterns. The variants possess internal logic, so that, for example, when selecting a pressure stage, all the parameters and geometries that depend on it are automatically correctly defined.

Manuel Eitzinger says: "The range of assets extends from simple pipes with diameters of 63 to 2,800 millimetres to complex industrial cleaning systems to filter dust and gases. Each asset has a type of 'user interface'through which the project planner enters the parameters needed. These entries define the required variant, and the rough geometry can be entered in the system layout – then a price type is generated. The most accurate quote possible can be created very quickly from these price types."

ASSETS ENSURE FAST DESIGN

Creating an asset calls for a great deal of knowledge about products. What areas of geometry are important? Which variants exist and how can they be mapped? Here, Scheuch needed support from Cideon. "Implementing these models is more complex than it appears at first," Eitzinger interjects. "It starts with the fact that a planning asset for a fan, for example, consists of a single solid model, while the same fan – during the design stage – is a highly complex assembly with many individual parts. Here we are working closely with Cideon to find efficient solutions." Among other things, the Cideon 'Manage Components' tool is used, which makes it easier to reuse components.

Eitzinger continued: "Cideon has now worked its way through our product range extremely well. This has made our work much easier; we have created the most widely used assets ourselves and could leave the mapping of the less frequently used components to the colleagues from Cideon. This has saved us lots of time over the last two years!" Another important point from Cideon's perspective: For the overall model to remain usable, individual assets must not be accompanied by too much data or involve dependencies. Since, in project planning, the system consists almost entirely of intelligent assets, it is guaranteed that all the elements meet the specifications and fit together. This permits large systems to be designed free from errors – and fast.

THE PLAN: IMPROVED ADDED VALUE THROUGH THE DIGITAL TWIN

"We are accompanying Scheuch along the product lifecycle to enable the use of the data in other areas," explains Dr. Harald Schrenk, Managing Director of Cideon Austria. "We are opening the silos and

Full speed ahead in engineering: When the order is placed, the Scheuch Group designers use the intelligent planning model (asset) as a template for creating the detailed design.

developing a genuine digital value chain, which should ultimately lead to a digital twin that contains sensors, circuit diagrams from Eplan, documentation and service information, and which can also be used by the customer, for example, for spare parts management. Marketing is already working with the planning models to create visualisations, and other departments will also gradually benefit from the data."

This benefit is already being exploited to the full: When the order is placed, the designers use the intelligent planning model (asset) as a template for creating the detailed design. Cideon and Scheuch are currently working on intelligent design models that automatically generate the appropriate detailed geometries, drawings and other data based on the planning model's parameters. Material masters and other information will also be transferred via the link to the ERP system, which is also from Cideon.

HIGHER SALES WITH THE SAME TEAM

Schrenk looks back: "In 2014, during the evaluation, company owner Stefan Scheuch said that "We know where we want to go – can Autodesk and Cideon follow this path?" The evaluation was accordingly detailed. The broad Autodesk portfolio, which offers a lot of room for expansion, finally convinced us. Cideon was also able to impress with intelligent solutions and a detailed implementation strategy. Alongside the ongoing issues, we are currently looking towards an actively shaped future for Scheuch with PLM and many other business cases."

Manuel Eitzinger concludes: "Cideon has played an important role by providing expertise and services that have enabled us to move forward quickly. Thanks to Cideon, we are getting ever closer to our goal of generating more sales with the same team through gains in efficiency." ■

Complete coverage – through Autodesk, Cideon, Eplan and Rittal

Scheuch currently uses 260 workstations of the Vault Professional PDM system, as well as Autodesk's Product Design & Manufacturing CAD solution. A variety of Cideon toolboxes are also installed on all the workstations. The Cideon interface "Vault to SAP" ensures connection to the SAP environment. The "Architecture, Engineering & Construction Collection", which includes Revit, creates the connection to the construction sector. Fusion 360 is an innovative design tool that enables the use of the Eagle PCB development tool, among other things. Cideon has linked many of these Autodesk solutions to SAP, so that the entire inventory management system is integrated into the engineering process. Scheuch uses ten licences from Eplan for electrical engineering development and, of course, the system controls are installed in Rittal enclosures.

MORE ON THIS

Websites:
www.scheuch.com
www.cideon.de

NEWS

Career support. The scholarship that Rittal awards in Canada aims to support women in technical careers.

RITTAL CANADA

Women in Tech

Career dreams. Every year since 2019, the Canadian subsidiary of Rittal and Electro-Federation Canada have awarded the "Women in Tech" scholarship to deserving women to help them realise their career dreams in the electrical industry. In 2021, the recipients of the scholarship were Anqi Xu, from the University of British Columbia and Aliya Dube, from the University of Manitoba. "Both these women performed outstandingly well in their engineering studies and have also shown commitment to the cause of women in the STEM sector and in society more widely," explains André Bousette, President of Rittal Systems Ltd. Anqi Wu adds: "The scholarship gives me more time to get to grips with every aspect of engineering and become even more involved in extracurricular activities." Aliya Dube, the other recipient of the scholarship, says: "Although I have fallen in love with my chosen career, the scholarship means I can invest more time in developing my skills through practical experience, which also means I can become a better student and a better engineer."

FRIEDHELM LOH GROUP

41 young talents ready to launch into a bright future

Training and studies. Some 20 bachelor's students from the Friedhelm Loh Group celebrated their graduation from university at the Rittal site in Herborn in January. "With your graduation today, you are taking a major step into the rest of your life. Your great journey of discovery starts now," said Prof. Friedhelm Loh, owner and CEO of the Friedhelm Loh Group, addressing the new graduates from bachelor's courses in business studies, engineering, software technology and industrial engineering. Some 21 apprentices and trainees from the Friedhelm Loh Group also received well-deserved applause on completing their training. Speaking at the certificate presentation ceremony, this was the message Dr Marc Sesterhenn, Managing Director International Production at Rittal, had for the newly qualified industrial clerks, mechatronics engineers, technical product designers, industrial mechanics and electronics engineers for operating technology: "Now it is time for you to start gathering experience and above all, to start choosing new paths."

FRIEDHELM LOH GROUP

Top employer for the digital future

Award. For the 14th time in a row, the renowned Top Employers Institute has awarded the Friedhelm Loh Group the status of "Top German Employer". This award recognises the ongoing commitment of the family-owned and -operated business to sustainable employee opportunities created by addressing the challenges of the digital workplace and working intensively to make a positive contribution to the working life of its staff. "We are delighted about this award, which also represents an obligation for us. We would like to continue working on ways to offer our employees ideal framework conditions in the future, too," says Kerstin Sänger, Head of the HR Processes and Recruiting Department (image above).

THE WAR IN UKRAINE

€ 600,000

OF AID FOR UKRAINE

The refugees arrive in Haiger: The Rittal Foundation is providing hotel accommodation and will support them in their new lives.

Donations and assistance. "The escalation of the conflict between Russia and Ukraine has hit us all hard on a human level. We are witnessing a war unfold in Europe. The situation unsettles us all, and throws up many questions that we simply can't answer at this point," Prof. Friedhelm Loh, owner and CEO of the Friedhelm Loh Group says of current developments in Ukraine. The two Rittal sites and the software house Digital Technology Poland have now closed due to security concerns. "Our employees in both these companies are experiencing a high level of fear and shock. They are frightened for their own lives and those of their families," says Prof. Loh. Together with the staff of the Friedhelm Loh Group, he therefore launched a donation campaign, and tripled the amount raised. The resulting grand total was 600,000 euros! Over the past few months, the Friedhelm Loh Group has thus donated more than 1.5 million euros to people in urgent need, e.g. for flood victims.

Debora Loh, wife of Prof. Friedhelm Loh, greeted the 38 Ukrainian refugees at the hotel and assured them of our complete support and solidarity.

TRANSFER TO SAFETY

Thanks to the intervention of our owner and CEO, Rittal Sales, Rittal Poland, the Rittal Foundation and the Mayor of Haiger, the families of our staff members were brought to safety in Germany in March. Some 38 people – primarily women and children – travelled in small groups to the Polish border where they were met by employees of Rittal Poland before going on to Warsaw. From there, the Rittal Foundation organised their transfer to Germany, where they have found refuge from the war in a hotel in Haiger.

FLEEING FROM WAR

Many of them only had the absolute essentials with them when they stepped off the bus at the hotel. Women hugged little children closely to their chests or tightly grasped the hands of older ones.

There were very few men in the group. Most of them had to stay behind in the warzone. "It is my wish that you are able to get some respite here in this place and regain your strength," Debora Loh, wife of Prof. Friedhelm Loh, said to the people who had arrived in Haiger at the end of a journey lasting over 14 hours.

HELPING EVERYWHERE

Every single helping hand for Ukraine matters right now. The Rittal subsidiaries in Poland, Romania, Hungary and Slovakia are conducting staff fund-raising activities of their own. Young employees who work in the junior company "Big Little Rittal" are also helping out. They are auctioning the promotional gifts accumulated at the site in Herborn among the staff. The money they raise will be donated to selected aid organisations. Another example is employees from Haiger and Eplan in Monheim am Rhein, who hired buses to pick up refugees from the border.

Helping out in the flo ded areas

LOOKING FORWARDS

One year ago, Germany experienced one of the biggest catastrophes of its history – the **flooding in the Ahr valley**. The country responded with **overwhelming solidarity**.The Friedhelm Loh Group raised the **record sum of 930,000 euros**, giving the victims strength and confidence. After all, when it comes to rebuilding their lives and livelihoods, they are facing a **long road**.

Text: Peter Nederstigt

It is now a good nine months since the disastrous flooding of the summer of 2021. Still, I don't think we will ever get those images out of our heads. The floods in the Ahr valley and parts of North Rhine-Westphalia cost 184 people their lives. Thousands more lost their homes from one day to the next. The Münchener Rück insurance company estimates that 33 billion euros of damage was caused in Germany alone. It will take years to make good the material damage caused by the 100-year flood. It was a catastrophe the likes of which our country hadn't seen for 60 years – not since the storm surge of 1962 in Hamburg.

In the summer of 2021, the images and reports showing the suffering of the people affected triggered an unprecedented outpouring of support. Within the space of just a few weeks, the employees of the

Helping out with the rebuilding: Shortly after the flood, the medieval town centre of Ahrweiler was a picture of destruction (main image). The Boeselager Realschule was also flooded. Nonetheless, headmaster Timo Lichtenhäler (top) is optimistic about the future. He used the donation from the Rittal Foundation to buy iPads for use in lessons, among other things.

Friedhelm Loh Group and their owner, Prof. Friedhelm Loh, also raised 930,000 euros for the flood victims. The Rittal Foundation was tasked with distributing the donations, supporting projects in the three areas of education, church-based welfare work/social responsibility, and culture and science.

By the end of February, the Foundation had paid out around two-thirds of the funds to initiatives in the affected areas (see box on page 81). “Our goal was to provide aid quickly to places where it could be used immediately, while still improving the situation for the long term. To this end, we maintained close contact with victims and initiatives in the affected area from the start,” says Rainer Reissner, who has been Managing Director of the Rittal Foundation since autumn 2021. Together with Friedemann Hensgen, the former Chairman of the Foundation, Reissner visited some of the initiatives in the Ahr valley and Euskirchen that had received support from Rittal, including the Boeselager Realschule. The two men were keen to see first-hand how the aid they had provided had been put to use and where there might be a need for further support.

Among the aid workers they met on their trip was Guido Henseler, Chairman of Spenden-Shuttle. Although he was barely affected by the flood personally, the father of three has been helping the victims of the flood any way he can ever since. In Dernau and other affected communities in the Ahr Valley, the hydraulic engineering expert started by establishing a temporary drinking water supply system. Henseler even took out a loan of 50,000 euros before a friend collected 130,000 euros in donations for his work.

“That’s when I realised helping out was a lot of fun!” That’s what he told his two visitors in mid-February. They were standing together in a large tent on the banks of the Ahr in Ahrweiler, where the association had recently opened “KinderpAHRadies”, an indoor play area for children affected by the flood. It is a place where they can leave the stress of their everyday lives behind them for a couple of hours. The effects of the flood are still plain to see everywhere in the Ahr ▸

“I can’t change the world in big ways. But I can do little things, and I hope that we will be able to do that for a long time yet.”

Guido Henseler
Chairman of Spenden-Shuttle

valley. “Many employees of the district authorities are affected themselves, and are really feeling the strain. Sometimes, it is leisure activities for children that take the hit as a result. We aim to plug that gap,” says Henseler. His employer gives him one day of paid leave a week to help. The Rittal Foundation has provided 25,000 euros in aid to his project. In addition, money from previous fund-raising campaigns is also still available.

“Our financing is secure at the moment,” says Henseler. What he is concerned about is the cost of heating the tent – up to 14,000 euros a month in the winter. Thus far, the association has been receiving heating oil from the emergency supplies set aside for the aid work in the Ahr valley. “However, if and when the time comes that we have to pay a bill, things could get tight.” He would rather use this money to employ staff so he can expand the help on offer. The play area is already very popular. Around 600 children came in the first few weeks. A caterer who had to close his café provides chips, pizza, etc. The Caritas charity is planning to set up a mobile advice centre for flood victims in the tent. Despite the threat of the heating costs hanging over him, Henseler isn’t even considering giving up. “If a few hundred children can come here and have some fun, then it is worth it.”

A couple of hours of normality: In the “KinderpAH-Radies” set up by the charity Spenden-Shuttle, children who have been affected by the flood, like Jana, can put their daily lives behind them. Chairman Guido Henseler told Rainer Reissner, Managing Director of the Rittal Foundation (top right) about the situation in the Ahr valley.

“The donation from the Rittal Foundation was a real blessing. It enabled us to change our plans. We’re making progress now, and we are feeling positive about the future.”

Stefan Feld Managing Director, Bethesda-St. Martin gemeinnützige GmbH

DROP-IN CENTRE FOR THE MENTALLY ILL

In Bad Neuenahr, the next town along from Ahrweiler, the Bethesda-St. Martin Foundation ran a community mental health centre (GPZ) until the flood hit. This also included a day centre that was attended by as many as 20 mentally ill adults from the local area each day. Many of them received additional outpatient support in their homes, too. The centre was also home to the offices of this outpatient service. “On the night of the flood, the day centre and the offices were under a metre of water, even though the building was almost 200 metres from the riverbank. The vehicles of our outpatient service also fell victim to the flooding,” says Stefan Feld, Managing Director of Bethesda-St. Martin gemeinnützige GmbH.

In the weeks that followed, Feld’s staff were only able to offer mobile care to their patients. The flood-damaged premises are unlikely to be fit for purpose again before the beginning of 2023 at the earliest. As a result, the day centre and the offices temporarily moved into a building in Vettelhoven, a town above the Ahr valley, in November 2021. “The services we offer are more important than ever right now,” says Feld. The Rittal Foundation has donated a total of 45,000 euros. This has been used to buy an electric minibus for the outpatient service and a kitchen and

other furniture for the day centre, among other things. “There’s still a lot to do, but we have a lot of committed staff in our ranks,” says Feld. The donation from the Rittal Foundation is just one of the reasons he is able to be confident about the future.

PROSPECTS FOR THE LONG-TERM UNEMPLOYED

Martin Jost, Chairman of Caritas Euskirchen, welcomes the visitors from the Rittal Foundation in a former cinema in the centre of the district town, which was also badly affected by the flooding. Previously, this was a place where people could find cheap used furniture, fixtures and fittings. However, now it is simply a storage space. “Unfortunately, it got badly damaged in the flood,” Jost says. On the whole, the goods were donations that were awaiting pickup by participants in a project for the long-term unemployed. However, a flat-bed trailer used for transporting the goods was lost in the flood. “Without a vehicle, we can’t provide our service,” Jost explains. Thanks to the donation of 20,000 euros from the Rittal Foundation, he has now been able to purchase a replacement. “It is important that unemployed people still have something to do. They are delighted by the prospects this offers,” he adds. With the help of the Rittal Foundation, he is aiming to buy a new vehicle to provide day care for the elderly.

Fund-raising walk: Rittal employee Dirk Heupel (right) already hiked 130 kilometres non-stop from Dillenburg to Dernau in October to raise funds. He’s planning to do it again in the summer.

Fully furnished: Thanks to a donation from the Rittal Foundation, Caritas Euskirchen once again has a vehicle that unemployed people can use to transport furniture – enabling them to take a step back onto the job market (bottom).

“The rapid assistance with buying replacement vehicles for our projects with the unemployed has been a real help.”

Martin Jost
Chairman of the Caritas Association of the Euskirchen district deanery

Here’s how your donations have been used so far

Area	Number of projects	Total funds
Immediate aid	4	€ 175,000
Social projects	9	€ 157,500
Children’s day care	6	€ 145,000
Youth projects	4	€ 70,000
Schools	5	€ 51,500
Children’s play areas	2	€ 50,000
Relief organisations	3	€ 23,000
TOTAL	**33**	**€ 672,000**

As at: February 2022

EMPLOYEES WALK THE SOLIDARITY WALK

Numerous Friedhelm Loh Group employees decided it wasn’t enough to just make donations – they also rolled up their sleeves to help out with the rebuilding themselves. Among them is Dirk Heupel, who has been a building services employee with Loh Services for many years. In the first few weeks after the flood, he joined thousands of other volunteer helpers to remove bucket after bucket of mud from houses in the Ahr valley. Since August, the trained fitter has been spending almost every weekend helping a family in Dernau rebuild their house. “I am following the example of our owner and my co-workers, for whom helping others is something that goes without saying,” says Heupel, who has worked for the Group for over 30 years. Accordingly, he received three days of special leave in 2021 and the company provided him with a vehicle. When the anniversary of the flood comes round in the summer, he is planning to hike from Dillenburg to Dernau for a second time to raise money for the family he is helping. He draws his energy from the gratitude of the people in the Ahr valley. “Their greatest fear is that people outside the flooded areas will forget them.” ■

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Real works of art

Steel service. Centrotherm Systemtechnik, a specialist in exhaust technology, not only supplies the automotive industry but also the “who’s who” of heating system OEMs. The company from Brilon in Germany requires special grades of sheet metal to produce its flue pipes for external façades. Only material that fully meets the quality requirements and specifications can be reliably bent into outer pipes and laser-welded on Centrotherm's automated production line. “To do this in the quality demanded is really an art,” says Centrotherm Systemtechnik’s Sebastian Gerold. The partnership with Blech-Service Nordhausen, a Stahlo company, has proven to be a good choice. For four years now, there has been successful collaboration between the two companies, which is paying off – especially now in the current steel procurement crisis.

Find out more in the next issue of be top!

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PUBLISHER
Friedhelm Loh Stiftung & Co. KG
CEO: Prof. Dr.-Ing. e.h. Friedhelm Loh
Rudolf-Loh-Strasse 1, 35708 Haiger, Germany
Phone +49 (0) 2773 924-0
E-mail: betop@friedhelm-loh-group.com
www.friedhelm-loh-group.com

RESPONSIBLE EDITOR
Dr Carola Hilbrand

EDITOR-IN-CHIEF AND COORDINATION
Hans-Robert Koch, Patricia Späth, Peter Sting

REALISATION AND DESIGN
TERRITORY GmbH
Brüsseler Straße 89–93
50672 Cologne, Germany
Phone +49 (0) 221 998 051 311
E-mail: territory-koeln@territory.group
www.territory.de

EDITORIAL STAFF
Peter Nederstigt, Michael Siedenhans, Susanne Häfner (editing of the German edition)

AUTHORS
Meinolf Droege, Birgit Hagelschuer, Markus Huneke, Plamen Kiradjiew, Ulrich Kläsener, Hans-Robert Koch, Dr. Jörg Lantzsch, Steffen Maltzan, Peter Nederstigt, Ulrich Sendler, Michael Siedenhans, Patricia Späth, Ralf Steck

ENGLISH TRANSLATION
LInguatext Ltd, Martin Planer, John Wilkins

PHOTOGRAPHY
Michael Koch, Digital Fotogroup GmbH

ART DIRECTION
Alexandra Gavrilova, Britta Massholder, Petra Nienstedt

PRINT AND LITHOGRAPHY
Druckhaus Kay GmbH
Hagener Str. 121
57223 Kreuztal, Germany
Phone +49 (0) 2732 5946-01
E-mail: info@kay.de
www.kay.de

PHOTO CREDITS
Adobe Stock: p. 6 (AdobeStock/Amgun), p. 8 (AdobeStock/Freer), p. 4, p. 10 (AdobeStock/Halfpoint), p. 16 (AdobeStock), p. 32 – 33 (AdobeStock/Andreas Prott/Mathias Weil), p. 37 (AdobeStock/ipopba), p. 44 (AdobeStock), p. 76 (AdobeStock/Maxim Grebeshkov); **almineral Aufbereitunsgtrechnik GmbH:** p. 71; ATR: p. 45; Diehl AKO Stiftung & Co. KG: p. 34; **Digital Fotogroup/ Michael Koch:** p. 3, 4, p. 5, p. 14, p. 15, p. 17, p. 29, p. 31, p. 33, p. 34, p. 35, p. 40, p. 44, p. 45, p. 46, p. 56ff, p. 62, p. 78ff, p. 82; **Eplan GmbH & Co. KG:** p. 22, p. 25; **Freepik:** p. 28, p. 30, p. 41, p. 42 – 43, p. 44 – 45, p. 60ff, p. 76; **Friedhelm Loh Group:** p. 3, p. 4, p. 5, p. 6, p. 7, p. 9, p. 20-21, p. 23, p. 24, p. 25, p. 26 – 27, p. 28 – 29, p. 30 – 31, p. 35, p. 38, p. 39, p. 47, p. 61, p. 63, p. 67, p. 68, p. 69, p. 71, p. 76, p. 77; **German Edge Cloud:** p. 6, p. 15; **GettyImages:** Titel, p. 5, p. 11 (GettyImages/shulz), p. 8 (GettyImages/Nitat Termmee), p. 9 (GettyImages/Ian.CuiYi), p. 20 (GettyImages/Thanapol Mongta/EyeEm), p. 26 – 27 (GettyImages/Nerthuz), p. 52 (GettyImages/ Rebecca van Ommen), p. 53 (GettyImages/hudiemm), p. 70 (GettyImages/ Westend61), p. 76 (GettyImages/Monty Rakusen), p. 83 (GettyImages/Teera Konakan); **GM-W Agentur für technische Kommunikation:** p. 18 – 19; **Hennecke Group:** p. 40; IBM: p. 36; Kuka Industries: p. 39; **Lang GmbH:** p. 27; **Lefdal Mine:** p. 48 – 48, p. 50ff; **Lenze:** p. 52 – 53; **Mercedes-Benz Group AG:** p. 48; **Pixar:** p. 77; **Rittal Belgium:** p. 41; **Salzgitter AG:** p. 5, p. 64 – 65, p. 66, p. 68; **SchulerGroup:** p. 12 – 13; **Tesvolt GmbH:** p. 24; **TJMorris:** p. 40; **TÜV Nord:** p. 25; **WEKA Fachmedien GmbH:** p. 9; **Wolfgang Fürst:** p. 72ff.

NEW SERVICE FROM EPLAN FOR THE ENGINEERING PROCESS

Making your own article data – that was yesterday!

Eplan Data Portal Request Process. Finding the right article data that is as standardised as possible – that is now the buzzword in day-to-day project life. The article data for millions of components is therefore stored in the Eplan Data Portal. However, it may also happen that a necessary component is not stored in the portal at all. Previously, the missing data had to be created or adjusted by users themselves. This is time-consuming and cost-intensive – a medium-sized mechanical engineering company invests up to 15 working hours per month in the task. With the new Data Portal Request Process users can now transfer this task to Eplan. It saves a lot of work when creating individual component data and ensures correct, standardised data. If a user now needs device data that is not displayed in the portal during everyday project work, they send their individual request for the creation of article data to Eplan. A team of developers from Eplan then creates the required article data in accordance with the data standard within a few days. This significantly provides relief to worldwide companies in the engineering process.

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GROUP

Friedhelm Loh Stiftung & Co. KG
Rudolf-Loh-Strasse 1
35708 Haiger, Germany
Phone +49 (0) 2773 924-0
Fax +49 (0) 2773 924-3129
E-mail: info@friedhelm-loh-group.com

www.friedhelm-loh-group.com

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