

1 be top

MAGAZINE OF THE FRIEDHELM LOH GROUP

The Power of Data

The industry is working on a European data infrastructure – full decision-making powers and control over data, plus real-time processing. This calls for new solutions.

FOCUS ON SOLUTIONS

Solution maker

Dear readers,

Data is knowledge and knowledge is power. The one who owns the data, has power over processes, economic and political developments, and even people. If you have data, you have the best chance of gaining an edge on your competitors and being successful in business. That is a fact.

Modern businesses need to focus their efforts on data ownership. But that alone is not enough. Just as important as the issue of ownership is the question of how to protect data – and this is where we urgently need solutions. Indeed, these solutions are overdue and an international law for data protection is still a very long way off. That is why businesses and politicians must take action together, and the groundwork for this cooperation has been laid with Gaia-X.

This European project, which the German Federal Ministry for Economic Affairs and Energy launched at the Digital Summit held in Dortmund end of October, presents a huge opportunity. The aim is to make industry more competitive on an international level and establish a European cloud that will support safe and secure digitalization and networking. It will act as a framework for utilising new AI (Artificial Intelligence) applications.

As a strong, midsize international corporation, the Friedhelm Loh Group has helped drive forward Gaia-X from industry's perspective. The reason we decided to turn our attention to issues such as data control and real-time processes is because they are very relevant to us – particularly have just build up a fully digitally integrated plant on a greenfield site.

We have learned from customers and from our own factories that what matters to industrial SMEs is data control, real-time capabilities and connecting to existing cloud solutions. We have contributed this knowledge to the Gaia-X project, and the first solution to come out of these efforts is ONCITE.

You can read more in this issue about the first secure AI-based edge cloud data center for reliable, real-time-capable data processing and intelligent data analysis in the production environment.

I hope you will enjoy reading this issue of be top and get a lot out of it. Take the opportunity to explore the solutions we offer customers who have overcome real challenges and written their own success stories.

I hope you can take some inspiration from this!

Yours,



Professor Friedhelm Loh



Professor Friedhelm Loh

Owner and CEO of the Friedhelm Loh Group

COVER STORY



EUROPE'S DATA FUTURE

The starting gun has been fired for the major digital project Gaia-X, which aims to establish a European cloud infrastructure that will support safe and secure digitalization and networking for industry. At the forefront of the project is the Friedhelm Loh Group, which is launching one of the first applications in the form of the ONCITE edge cloud.

EXPERTISE



THE INFLUENCERS

Sharing, tweeting, posting, liking – experts on digital trends are playing an increasingly important role in the B2B domain as influencers. But how exactly does this kind of collaboration between experts and companies work?

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How Eplan eBUILD makes it easier to generate circuit diagrams automatically.



ELECTRIC VEHICLES THRIVE ON STEEL

Ultra-high-strength steel has a lot of potential in the switchover to electromobility.

40 COOL HEAD, WARM HEART

Sustainability through energy efficiency – in Italy, Rittal is already pursuing pragmatic solutions.

44 STAY COOL

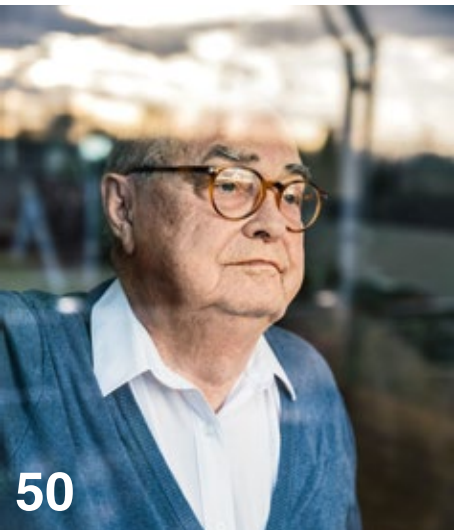
A new EU regulation on refrigerants is coming. Rittal expert Judith Kötzsch explains how companies are keeping a cool head.



THREE LIVES AND COUNTING

Lithium-ion batteries are astonishingly versatile and can be used far more often than you'd think – not just in electric cars.

COMMITMENT



LEARNING TO LISTEN

The problem of addiction often gets overlooked in old age. The Rittal Foundation is helping to train care workers.

EXPERIENCE

54 WORLD-CLASS RESEARCH STATION

A huge particle accelerator in Brazil is aiding research into Parkinson's disease – and enclosure technology from Rittal is on board.



FLYING OBSERVATORY

A research aircraft equipped with an infrared telescope is telling us more about space. The electrical engineering behind the technology is just as exciting.

60 WIRED FOR SUCCESS

Solutions that help panel building and switchgear companies systematically pursue automation.

64 DIGITAL TOOLS FOR MANUAL WORK

A discovery in the basement put a metalworking shop on the path toward digital operations. Its data is processed by Cideon software.

66 A FAR-SIGHTED TRIO

Find out how three forward-thinkers are consistently digitalizing their switchgear company.

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► **Your opinion matters**
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betop@friedhelm-loh-group.com



be top online

Check out the digital version of be top when you're out and about – for all the stories here and more besides.

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



SNAPSHOTS

All sorted

Even today, people still eagerly wait to see what the postman brings. Whether it's a letter to a host family or a postcard from a holiday, sending letters, packages and baggage around the world by plane is a major logistical undertaking. **Siemens Logistics** has established itself as a leading international supplier of sorting technology to the world's largest airports. Since 2016, Siemens Logistics Portugal has been using a specially developed configuration solution based on **Eplan Electric P8** for the end-to-end digital documentation and management of engineering processes and data. The software forms a control interface between the various processes. The transparent and centralised system prevents errors and ensures no delays occur during manufacturing or when servicing the system.


► www.siemens-logistics.com



SNAPSHOTS

The stage is set

It takes a whole lot of painstaking work to get a film ready for its premiere. For over 100 years, film technology company **Arri** has been putting cinema's luminaries in the right light. Equipment from this global, Munich-based company is used in many big blockbuster productions, from Hollywood to Bollywood. Arri is best known for high-quality camera and lighting systems, but is also active in post-production for films and TV series. Digital film and production data needs to be stored in a data center as quickly as possible after filming, as the volumes of data involved place very high demands on bandwidths and latency times. In its new data center, Arri uses components from **Rittal** such as **IT racks, cooling and monitoring systems**. Arri and Rittal also worked together to develop and implement the security concept on site.

 www.arri.com



SNAPSHOTS

Hybrid optimisation

The Great Lakes on the Canada-United States border are a unique natural space and economic region, where the native flora and fauna meet local shipping traffic. To protect the environment and cut the fuel consumption of shipping on the lakes, Canadian company **Canal Marine & Industrial** is developing hybrid drives for ships. Thanks to these drives, new tugs owned by Great Lakes Towing can operate for extended periods with their main engine switched off. To house the new drive technology, Canal Marine & Industrial is using a flexible system with **modular enclosures from Rittal** that can be connected and bayed with each other. What's more, the compact enclosures make optimum use of the tight space on the tugboats and are extremely robust and adaptable.

 www.canal.ca

Global solutions

Success stories. Recycling, mobility, automation – customers around the world are rising to their challenges with the aid of products and solutions from **Friedhelm Loh Group** companies.



AUSTRIA

Efficient recycling

A second life for plastic products – the Austrian company **NEXT GENERATION RECYCLING MACHINES**, based in Feldkirchen, is bringing plastic packaging back into the recycling loop. To achieve this, it manufactures systems that turn reusable materials into a granulate. The company's new monitoring solution uses the Rittal Smart Monitoring System to track energy consumption. This makes it possible to transmit information and schedule maintenance – all in real time.



UK

Digital attraction

ECLIPSE MAGNETICS combines over a hundred years of experience in magnetic technology with the performance of various Eplan solutions. For example, the British company manufactures magnets for lifting tasks and magnetic assembly aids. To make production operations more efficient, Eclipse Magnetics uses Eplan Pro Panel and Eplan Smart Wiring. Both solutions have been integrated into the company's existing processes.



NETHERLANDS

54

VX25 large enclosure systems from Rittal are being used to control nine packaging lines produced by **CPS CASE PACKING SYSTEMS** for one of its customers, a Canadian frozen food manufacturer. The Dutch company chose enclosures from Rittal to house the necessary electrical control components. The CPS development department also works with Eplan Electric P8, having recognised the clear benefits of Eplan solutions.



CHINA

Making the cut

Fast processes and smooth workflows are a must in China's textile industry – and **CHANGZHOU LEHENG AUTOMATION** is no exception. The company focuses on development, distribution and services for the control systems and switchgear used in this sector. In doing so, it has incorporated the Secarex AC 18 cutting centre from Rittal into its manufacturing processes. To fully automate the value chain in engineering, it is also integrating Eplan Electric P8 and Eplan Pro Panel into its IT environment.

INDIA

1,600

product solutions used by the world's fifth-largest car manufacturer, **KIA MOTORS**, are sourced from Rittal. In fact, Rittal solutions are used in all areas of the new Kia production plant constructed under the recent "Q Project". This new facility also utilises over 1,000 Rittal enclosures equipped with Blue e+ and Blue e cooling units, whose outstanding energy efficiency proved a particularly impressive prospect.

AUSTRALIA

Quick charging

As the expansion of the charging infrastructure drives e-mobility further forward, it's vital that this lifeline for electric cars remains robust and reliable over several decades. With this aim in mind, **IONITY**, a joint venture of European car manufacturers, hired the charging solution manufacturer Tritium to build 100 charging stations. The company is using 475 CS Toptec enclosures from Rittal to protect the power supply components in its ultra-fast charging stations from environmental influences.

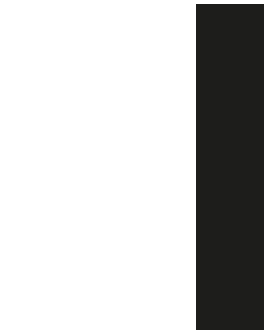


Europe's data future

Data infrastructure. The kick-off for a major digital project – **Gaia-X** – was in late October 2019 at the Digital Summit in Germany. The aim is to establish a European cloud infrastructure that will support safe and secure digitalization and networking for industry. The **Friedhelm Loh Group** is playing a leading role in the project and showcased an already completed application for Gaia-X at the start of October. ONCITE is the first edge cloud for real-time-capable applications based on Artificial Intelligence (AI). The solution has been developed by the sister companies **Rittal**, **German Edge Cloud** and **IoTOS** in collaboration with **Bosch Connected Industry**.

Text: Iris Quirin and Christian Abels





Imagine a 22-digit number – that’s how long the zettabyte unit of measurement is. If we are to believe the predictions of market researchers at IDC in the United States, then the total volume of data produced worldwide is set to increase fivefold in the coming years – from an already staggering 33 zettabytes in 2018 to 175 zettabytes by 2025. Eighty per cent of this immense amount of data is generated by the increasing digitalization of companies and their progressively networked infrastructures. And almost a third of this data will have to be processed in real time in the future.

That is one of the challenges (if not the main challenge) facing German SMEs in the coming years. This is because networked, digitally integrated and automated production will be the standard in the future – and generate a huge amount of data. The masses of data are valuable, but useless if not selected, analysed and used to optimise manufacturing processes. However, when data is fed into this type of value creation, it becomes a key factor in a company’s competitiveness on the world stage. This is a complex issue that raises many questions: How should the manufacturing industry deal with the huge amount of data? How can data be used to create value? How can this data and, by extension, technological know-how be safeguarded at the same time?

Take, for example, the digitalization strategies of VW and BMW. These car manufacturers require their suppliers to keep

data along the entire supply chain and make it transparent. With the help of production data from the suppliers’ facilities, they aim to increase their output rate by up to 30 per cent and identify serial defects at an early stage, with data being exchanged across the entire supply chain via the US platforms Amazon Web Services and Microsoft Azure. Now the suppliers and their 100,000 factories are under pressure – although they don’t want to risk their supplier status, they don’t want to simply give away their valuable data and allow third parties to have unrestricted access, either. After all, US service providers are not subject to the strict EU General Data Protection Regulation; rather, they are governed by the Clarifying Lawful Overseas Use of Data Act. This raises a key point of contention, as the Act entitles US law enforcement agencies to request data from US Internet service providers, even if it is stored on servers outside the United States, such as in Germany.

**DATA CONTROL AS A
SUCCESS FACTOR**

“The existing cloud solutions have one major drawback – our customers are not free to decide to whom they give which data. Nor can they process data in real time and transfer it to an Artificial Intelligence system. This requires a decentralised data processing and analysis concept directly at the site where data is generated,” says Prof. Friedhelm Loh, owner and CEO of the

Friedhelm Loh Group, who has already discussed this with the German government. It’s ultimately about securing the future of SMEs as competitors on the international market. “Industry needs autonomy over its data and a stable, secure IT infrastructure that is available at all times.” This is precisely the unique selling point of ONCITE, the solution that Rittal, German Edge Cloud and IoTOS (companies of the Friedhelm Loh Group) developed in collaboration with Bosch Connected Industry and the Fraunhofer-Gesellschaft and showcased in Haiger, central Germany, in October.

Businesses can use this all-in-one solution to both process and analyse their production data in near real time directly on-site. “Companies remain in control and can decide for themselves whether and how they will transfer the processed data to the various digital production platforms.” ▶

33

ZETTABYTES

of data were generated worldwide in one day in 2018. Measured in bytes, that is 1 followed by 21 zeroes.

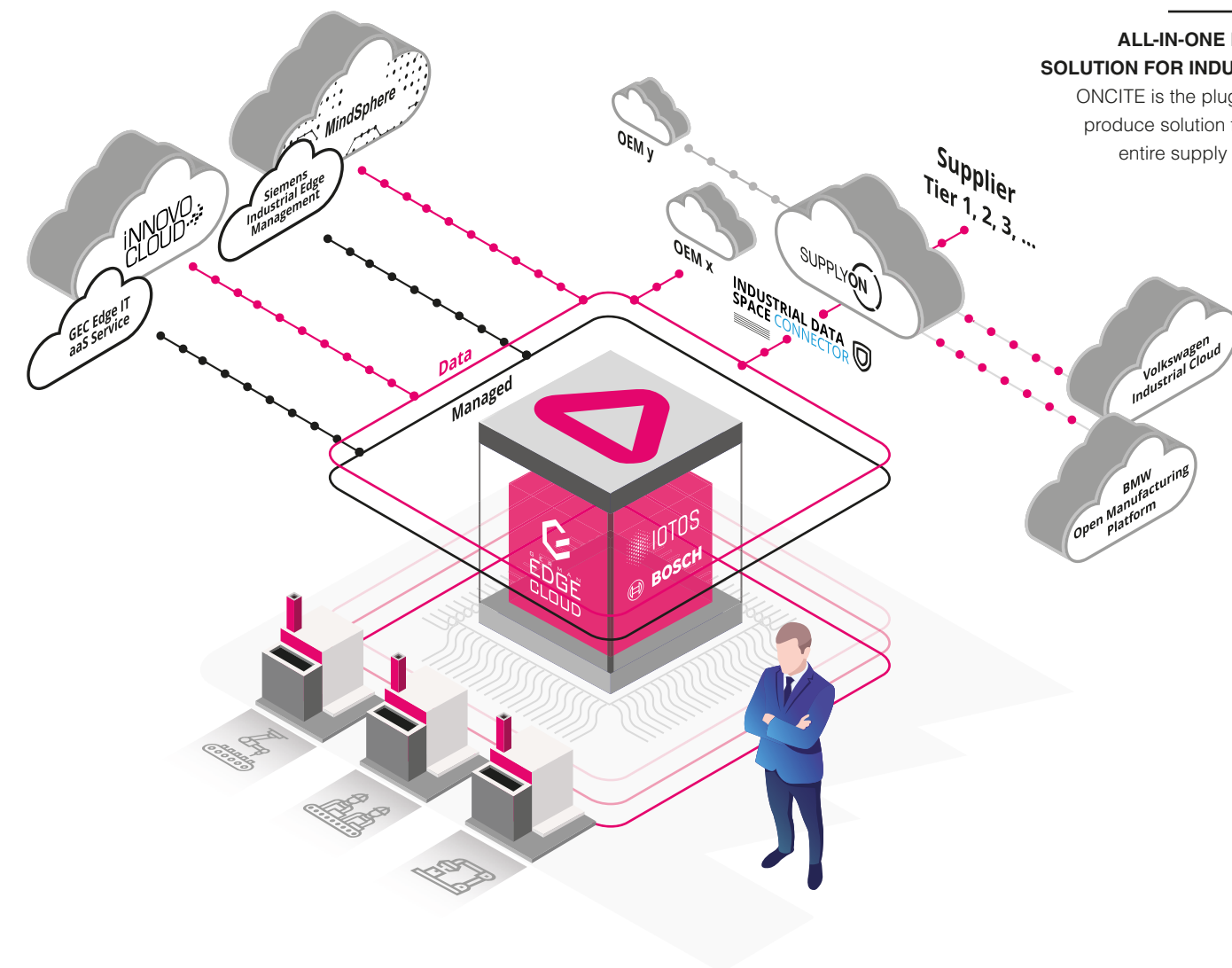
“German industry needs autonomy over its data and a stable, secure IT infrastructure that is available at all times. ONCITE is our solution to meet these customer requirements.”



Professor Friedhelm Loh
Owner and CEO of the
Friedhelm Loh Group

**ONCITE IN USE**

When running at full capacity, the Rittal smart factory in Haiger will be producing 9,000 enclosures a day from 2020. ONCITE is already testing an analysis scenario at the factory that will enable it to quickly identify cycle time variations in product mixes.

**ALL-IN-ONE EDGE SOLUTION FOR INDUSTRY**

ONCITE is the plug-and-produce solution for the entire supply chain.

explains Dr Sebastian Ritz, CEO of German Edge Cloud. This solution uses the plug-and-produce principle, meaning any manufacturer can set up the mini data center – about the size of a refrigerator – directly in its production operations. It is delivered to customers ready to use, tailored to their particular performance specifications, with a highly customised and scalable cloud-based IT infrastructure and the AI-based applications they need to meet their requirements.

In practice, ONCITE gathers and processes production data right in the factory. There are numerous advantages to this. The data does not end up in the conventional public cloud – one run by an international provider, for example – but rather in the company's own edge cloud, right there where production is taking place. It is recorded, stored, processed and evaluated promptly and locally. An analysis scenario is already being tested by ONCITE at the smart factory Rittal runs in Haiger. At full capacity, 9,000 switchgear enclosures will be manufactured here every day from 2020 onwards. The production line alone has 10,000 data points. "We use only a fraction

of our daily data volume of 18 terabytes for our analysis," explains Dr Karl-Ulrich Köhler, CEO of Rittal International. The analyses enable Rittal, for example, to quickly identify cycle time variations in product mixes or the exact cause of bottlenecks. This means bottlenecks and other problems are detected at the commissioning phase, before they can have an effect on output further down the line during normal operation. The analyses also unveil further potential for future optimization.

COMPLEMENTING EXISTING CLOUD SOLUTIONS

ONCITE is not designed to replace existing cloud solutions, but rather to complement them as a compatible solution that offers the benefits of complete data control, real-time capability and Artificial Intelligence-based applications. Thanks to its open interfaces, the local ONCITE cloud system can be linked up to the large public clouds, which eliminates the need for VPN tunnels, for example, to enable data transfer to other systems. "Companies can manage data and exchange production-relevant

Innovation driver**Blazing the trail for German SMEs**

"German SMEs are known as creators and drivers of innovation. If something doesn't exist, we can make it ourselves," says Prof. Friedhelm Loh. This is a motto that Rittal has lived by since the very beginning. Developed in 1961, AE – the industry's very first standardised, off-the-shelf enclosure – has shaped the electrical engineering sector for decades. However, when it comes to innovation, the Friedhelm Loh Group certainly doesn't rest on its laurels. The customer requirements of tomorrow remain a constant driving force for the Group to this very day.

Through its participation in Innovo Cloud since 2016 and by founding the start-up German Edge Cloud in 2018, the Friedhelm Loh Group has positioned itself as a solution provider for industrial digitalization. The aim is to create a German industrial cloud infrastructure and a solution developed by German industry for German industry with support from the Fraunhofer Institute. And what's next? For the Friedhelm Loh Group, all eyes are on Europe now.



SMALL BUT POWERFUL
The ONCITE mini data center is the all-in-one solution for processing and analysing industrial data at your own production site.

Industrial ecosystem

The ONCITE network

There is a team of strong industry and research partners behind ONCITE. Together, they have developed an industrial ecosystem into an all-in-one solution.

ONCITE is the first cloud-based, turnkey (plug-and-produce) edge cloud data center for Industry 4.0 scenarios. ONCITE gathers, stores and processes data right where it is generated so that companies can retain control over their data when networking with others. The solution uses AI-based analysis, meaning companies can also optimise their production and improve the quality of their products. ONCITE has been developed by a network of strong partners from industry and research.

German Edge Cloud is a start-up belonging to the Friedhelm Loh Group that has developed the first turnkey edge cloud platform with a cloud-based data center that retains full control over data and supports real-time-capable industrial applications. It is offered as a package that includes a scal-

able edge cloud IT infrastructure, an open IoT platform and preconfigured IIoT applications from IoTOS and Bosch Connected Industry.

IoTOS is a start-up belonging to the Friedhelm Loh Group. Based in Limburg an der Lahn, Germany, the company specialises in industrial IoT applications for smart factories. The various components of the IoTOS Suite enable users to transfer data from a wide range of systems – from the top level all the way down to the shop floor – via connectors into a structured industrial track-and-trace data model and make it available for tracking across supply chains.

Bosch Connected Industry: Established in 2018, the Bosch Connected Industry product segment bundles Industry 4.0 software and services under the name Nexeed. The first product to emerge from the Nexeed portfolio is the

Production Performance Manager designed to systematically improve production on the ONCITE SaaS platform – the Industrial Edge Cloud Appliance.

Rittal, the largest company in the owner-operated Friedhelm Loh Group, is a leading global provider of solutions for industrial enclosures, power distribution, climate control, IT infrastructure, as well as software and services. Its system solutions are deployed in over 90 per cent of all industries worldwide.

The company's broad portfolio encompasses innovative IT solutions from data center locations and standalone racks to turnkey edge cloud data centres for Industry 4.0 scenarios. Rittal collaborates closely on these solutions with sister companies German Edge Cloud, Innovo Cloud and IoTOS.



PARTNERS FOR INDUSTRIAL VALUE CREATION

ONCITE – the first all-in-one solution for integrating, harmonising and analysing industrial production data – was unveiled to the public in Haiger in October by (left to right) Dr Sebastian Ritz, CEO of German Edge Cloud, Dr Karl-Ulrich Köhler, CEO of Rittal International, Sven Hamann, Head of Bosch Connected Industry, and Dieter Meuser, Managing Director of IoTOS.

information with customers and suppliers via IoT platforms such as SupplyOn or Mindsphere from Siemens, for example,” says Dr Ritz. Businesses can use the edge cloud for both hybrid and multi-cloud solutions and get the best of both worlds – data control and real-time capability combined with networking with other clouds.

It quickly became clear to those involved in the discussions with the German Federal Ministry for Economic Affairs and Energy that this issue does not just affect Germany. “That was the initial idea behind the European cloud called Gaia-X,” says Prof. Loh. When this cloud was unveiled at the Digital Summit in Dortmund in late October, there was already a blueprint to

build on – ONCITE. After all, this solution is not just an interesting proposition for Germany and the industrial sector. An AI-capable mini data center that offers the advantages of data control, real-time processing and intelligence could conceivably be useful to other industries in the future. Whether it's in the healthcare, banking or retail sectors – large amounts of data are generated everywhere and need to be securely stored and selected so the information can be processed in a way that creates value.

In just five years, the amount of data being generated will be around 175 zetta-bytes – all of which needs to be protected and made usable.



Find out more about how ONCITE helps companies digitalize factories: www.uncite.io/en



European cloud network for data control

Gaia-X as a digital alliance that unites politics, industry and research

TOP REPRESENTATIVES

The Digital Summit organised by the German federal government was attended by key decision-makers from across Europe, who came together to launch the major digital project. Prof. Friedhelm Loh and Dr Sebastian Ritz represented the Friedhelm Loh Group.

“Who owns data?” That was the key question at the Digital Summit organised by the German federal government in October 2019. After all, data control is becoming a crucial success factor in international competition. In a bid to strengthen industry and encourage solutions to the challenges faced by European companies, German Federal Minister Peter Altmaier officially launched the Gaia-X project at the Digital Summit. This collaborative project, which is being led by the German federal government, representatives from the worlds of business and science, and other European partners, seeks to network decentralised infrastructure services such as cloud and

edge instances to form a single homogeneous and user-friendly system. The Gaia-X data infrastructure aims to combine the existing resources of European companies into an open network and scale them up to a cloud that respects data protection and data control. The project is paving the way for edge and cloud computing in small and medium-sized industrial companies, and the all-important success factors are data control, real-time capability and connection to existing cloud solutions. The Friedhelm Loh Group, a strong, medium-sized, global business, is one of the founding industry members of the large-scale Gaia-X project.

Strong voices at the Digital Summit

In their speeches at the Digital Summit in Dortmund (Germany), representatives from the worlds of politics, industry and research took a clear stance on the future development of a European data infrastructure. The key speakers all agreed that Gaia-X is hugely important and must be taken forward as a top priority. Below are some of the most important statements at the Digital Summit:

MAINTAINING THE LEAD

“Gaia-X is one of the most important digital projects for helping the German and European economies defend their leading international position.”



Anja Karliczek
Minister of Education and Research of the Federal Republic of Germany

ESTABLISH SOVEREIGNTY

“This infrastructure will help us regain our digital sovereignty. It can serve as the basis for a digital ecosystem in which data can be made available, combined and shared.”



Peter Altmaier
Minister for Economic Affairs and Energy of the Federal Republic of Germany

TIME IS PRESSING

“We have to do it now. We must create examples in German industry. Gaia-X has to be a success!”



Professor Friedhelm Loh
Owner and CEO of the Friedhelm Loh Group

TWOFOLD SOLUTION

“Gaia-X unites the edge and the cloud – storing data in the cloud and processing it on-site in the midst of production.”



Dr Sebastian Ritz
CEO of German Edge Cloud

EXPERTISE



SOCIAL COMMITMENT

Prof. Friedhelm Loh was awarded the LutherRose for his social responsibility and entrepreneurial courage.



Award

Commitment honoured

The International Martin Luther Foundation has awarded Prof. Friedhelm Loh the LutherRose in recognition of his commitment to the common good.

For more than 30 years, Professor Loh has "dedicated his personal and professional life in an exemplary way to the reformatory tradition of freedom and responsibility for the common good", said the International Martin Luther Foundation, explaining its decision. The award was presented at the LutherConference in Berlin on 16 November 2019 by Reinhard Quast, President of the Federation of German Construction Companies (ZDB), who also highlighted the 73-year-old's varied range of activities. He is not just the Owner and

CEO of the Friedhelm Loh Group but also honorary president of the German Electrical and Electronic Manufacturers' Association (ZVEI), Chairman of the Foundation for Christian Media (SCM) and a member of the council of the Foundation for Christian Values. These activities symbolise his sense of responsibility as a Christian and entrepreneur, Quast said in his speech. The International Martin Luther Foundation awards the LutherRose once a year to German and international business people.

Even former Federal Minister for Economic Affairs and Energy, Sigmar Gabriel, also gave a speech at the official award ceremony and talked about the entrepreneur's achievements.

This is not the first time Professor Loh has been commended for his work. Over the years, his commitment to wider society and business achievements have already been recognised with an honorary professorship from the state of Hesse and an honorary doctorate from Chemnitz University of Technology.

IN BRIEF



OCP Regional Summit

Open dialogue

The theme of the regional summit of the Open Compute Project (OCP) held in Amsterdam at the end of September was "Open. Together". In addition to intensive dialogue, the event also provided a forum for potential cooperation arrangements and new solutions. Rittal offered participants tailored product information in two presentations. For further information, visit:

www.rittal.com/it-solutions/en/solution/ocp-open-compute-project



German Innovation Award 2019

Truly innovative

The VX25 enclosure system from Rittal has won the German Innovation Award 2019 in the "Excellence in Business to Business/ Machines & Engineering" category. The award, presented by the German Design Council, honours pioneering innovations that are having a lasting impact. For further information, visit:

www.rittal.com/com_en/vx25



Edge computing

Rising star

Rittal has won the Rising Star Award in the Information Services Group's Edge Computing category. The award is presented once a year and given to manufacturers that have made major advances in developing solutions. The group predicts high market potential for the edge portfolio from Rittal. For further information, visit:

www.rittal.com/it-solutions/en/solutions/edge-solutions

Staff news I

New Managing Director at Rittal



Dr René Umlauf was appointed Managing Director at Rittal on 1 June 2019. He is responsible for International Sales, Service, Internal Sales, Planning and Operations. "I'm looking forward to working in such a resilient family-owned business," says Dr Umlauf (54). He was previously Managing Partner of Römheld & Moelle Eisen-giesserei GmbH and an independent management consultant.

Staff news II

Oliver Sonst takes Stahlo into the future



Oliver Sonst took over as Managing Director of Stahlo Stahlservice on 1 October 2019. "Mr Sonst is an experienced executive with an outstanding reputation," says Prof. Friedhelm Loh, Owner and CEO of the Friedhelm Loh Group. Sonst is keen to realign the company for the future. He was previously Managing Director at Welser Profile GmbH.

Technology centre

New Eplan headquarters in Austria

At the start of August, Eplan Austria moved into its new headquarters in Ardagger Stift. Part of the Heitec technology centre, the HQ offers ample space for the 35 Austrian employees of Eplan and Cideon as well as three state-of-the-art training rooms, all on an area of around 1,200 square metres. "By moving into the technology centre, we're laying the foun-

datations for our growth plans in Austria," says Martin Berger, Managing Director of Eplan Austria. However, the benefits for customers also played a key role in the restructuring. As a long-standing partner and user of Eplan, Heitec is bringing the digital value chain to life – from machine development and engineering to production and maintenance.

The influencers

Purchasing decisions. Sharing, tweeting, posting, liking – experts in digital trends are playing an increasingly important role as influencers.

They set the tone, operate independently and can take whole trade fairs by storm while offering advice on a uniquely personal level.

How can companies put influencers to good use in the B2B domain?

Text: Lars-Thorben Niggehoff

#influence

Knowledge creates trust –
turning experts into influencers.

#trust

Trust makes many things easier –
such as attracting loyal followers.

SHARE AWAY

Nowadays it's commonplace to let others take part in events by sharing interesting photo or video statements on social media channels.

product after seeing it used by an influencer. Companies in the B2C domain have been making good use of this effect for quite some time – actively sponsoring Internet stars or sending them their products to test. Above all, the cosmetics and fashion industries invest large amounts of their marketing budget in influencer-based advertising. A benchmark report compiled by the Influencer Marketing Hub calculated that influencers accounted for 1.7 billion U.S. dollars in sales in 2016, with the figure apparently set to rise to six billion this year. In the B2B domain, different things are required from influencers. These men and women are far removed from candy-coloured videos presenting make-up tips. They are experts who reach an audience of hundreds of thousands in social networks with a keen interest in their field, and they have a major influence over what does or doesn't catch on in the sector. They can be the CEOs of billion-dollar conglomerates or professors in a relevant discipline.

INFLUENCERS IN B2B

Five years ago, Ahmed Banafa's audience was still very limited. The American had a network of 27 on LinkedIn and his followers on Twitter were mainly acquaintances and work colleagues. But then the electrical engineer, who teaches at several universities in the U.S. state of California, started publishing articles and posting about his specialist subjects – Artificial Intelligence, the Internet of Things (IoT) and Blockchain – on the professional network LinkedIn. Today, Banafa has more than 38,000 followers on LinkedIn, which named him the most influential expert on technology and the IoT in 2016. He has published two books and is regularly asked to appear as an expert on TV shows in the United States. For those in the technology sector, Banafa is currently one of the voices they listen to, someone who can have an impact – an influencer. The main reason for this lies in his credibility. "I have been in the business for 25 years. I attend lots of conferences and events. People know me, particularly in Silicon Valley."

Influencers are people who have a large following in social media networks. Everything they post online is seen by hundreds of thousands, if not millions, of people. They influence what others – particularly young people – decide to buy. Around 40 per cent of all social media users profess to having at least once bought a

"In the consumer domain, some influencers are developing an increasingly dubious image. However, influencer marketing in B2B works in a completely different way," explains Michael Schmitt, owner of the communications consultancy firm schmitt kommuniziert, who has specialised in digital B2B communications and worked as a business consultant in this field for years. He attributes the growing importance of influencers to demographic change in many companies' procurement departments. In 2015, a study by Google found that by now 46 per cent of researchers and purchasers in the B2B domain are millennials and thus entirely in their element in digital media. Two thirds of purchasers are also open to influence via these channels when it comes to procurement decisions – due in part to the many experts and advisers who now move in digital circles. "These consultants and experts are not a new phenomenon per se," explains Thomas Pleil, Professor in Public Relations at Darmstadt University of Applied Sciences and spokesperson for the Directorship of its Institute for Communication and Media (among other things). Trade journalists, professors and satisfied customers have always been important advocates for products. "They have always been on the conference circuits and in high demand. The same goes for specialist media. This analogue world is

Who is he?

This man talks technology. Ahmed Banafa is an expert in digital trends such as Artificial Intelligence, Blockchain and the like. He studied at Massachusetts Institute of Technology and Harvard University in the United States.

READING TIPS

on the digital revolution: “Secure and Smart Internet of Things (IoT): Using Blockchain and AI” and “Blockchain Technology and Applications”. Both from River Publishers.



“If a company asks me to do so, of course I’ll happily evaluate their product. But I would never take any money for that.”

Ahmed Banafa
Influencer and expert in digital trends



By posting and presenting his thoughts, influencer Ahmed Banafa has become a strong voice on digital technology topics.

backed up by the digital dimension these days,” he explains. As such, the digital networks in principle act as an auxiliary channel to the familiar lines of B2B communication.

THE CHANNEL HAS TO BE RIGHT

However, it goes without saying that not every analogue influencer automatically makes a good digital one. For starters, it’s important to choose the right channel. While Instagram is indispensable to B2C influencers, for example, B2B influencers don’t use it that much. Instead, they prefer professional platforms such as LinkedIn or, if they’re German speakers, Xing. “That’s where you need to have a high profile,” influencer Banafa himself says. And while cosmetics influencers can advertise products without any qualms, the same approach can quickly cause problems for B2B experts. Pleil, who has published a study into B2B influencing, warns: “The most that’s acceptable is appearing at a stand during a trade fair.” Banafa considers independence to be one of his major advantages. “If a company asks me to do so, of course I’ll happily evaluate their product. But I would never take any money for that.” He says he’s willing to put people in touch with one another every now and again, and that he also advises start-ups as they get up and running. “However, I am very cautious in this respect. You don’t want to misuse your connections under any circumstances.” At the same time, though, influencers experimenting with new channels frequently attract greater attention and publicity as a reward. Someone who’s already successful in a certain channel also attracts interest in another medium. For example, success on Twitter can then lead to a career as an expert on TV, as Banafa confirms. “To start with, the TV producers stumbled across me simply via hashtags in social media.” Once influencers have appeared on TV, they are invited back time and again. In turn, their presence there generates more interest in their own social media channels, which they can promote during their appearances.

Fundamentally, utterly conventional media still play a major role in influencers’ long-term success. Besides television, books also reinforce their own brand. Banafa has now published two. Guest articles in newspapers and magazines also help. With all these activities on the go, however, even the most accomplished experts can trip up – making false predictions

or burning their fingers on a product recommendation that backfires. While a mistaken tip offered by a B2C influencer is perhaps not all that big a deal, they can be hazardous in the B2B domain if not handled correctly. “You should respond pro-actively and, if at all possible, immediately speak out if you’ve slipped up,” Banafa cautions. After all, the public is also well informed and will spot the mistake whether the influencer confesses or not. Another type of influencer to have emerged is CEOs. Many bosses have a strong presence on social media – in Germany, too. Siemens CEO Joe Kaeser, for example, has more than 25,000 followers on Twitter. “CEOs are influencers, whether they like it or not,” Schmitt says. And they can become more effective by exerting their influence via social networks.

INFLUENCERS AND COMPANIES

Companies now have to start thinking about how they can integrate digital influencers effectively into their marketing activities. SAP is a best-practice example of B2B influencer marketing. The group had developed a new platform called Leonardo to enable customers to tap into the latest technology trends such as Blockchain, Machine Learning and Big Data. The team in charge of the project was keen to showcase Leonardo at SAP’s SAPHIRE conference.

But it’s a massive event. How were they supposed to make the Leonardo platform rise above the flood of announcements and news to capture the right people’s attention? The solution cropped up in the form of a trend that, until then, had been shaking up mainly the B2C world – influencers. SAP drummed up no fewer than 32 prominent B2B influencers in the technology sector. They were all tasked with describing the effects Big Data, Machine Learning and the like will have on our future. Their statements were posted online under the heading “The Path to Digital Innovation”, and the influencers shared the interactive website with their followers. In the end, the site notched up 21 million hits, reaching an enormous audience, the like of which could surely never have been topped by a straightforward talk at the SAPHIRE conference. The simplest way to effectively implement B2B influencer marketing is actually for a company’s own staff to be influencers. However, this is difficult to stimulate artificially. “It’s not something you can insist on, as they have to do this of their own accord,” Pleil points out. It’s a long, drawn-out process. Home-grown influencers need to maintain an ongoing presence in social media and also be prepared to engage with their fans and followers. And the danger always lurks that ultimately something might slip out that doesn’t fit the image the company wants to convey. “Politics, for

46
PER CENT

of researchers and purchasers in the B2B domain are millennials. They are completely comfortable with digital media.

2/3
OF PURCHASERS

are influenced by social media when it comes to purchasing decisions.



Column

Eminently #credible

WHO IS SHE?

Tijen Onaran (34) is an entrepreneur, event host and the founder of Global Digital Women. She acts as a consultant on diversity, communication and networking and actively promotes women's visibility and networking in the digital sector.

I remember a time – not that long ago – when professionals who posted a lot in social media and had their own blogs were considered a bit strange. These people are utterly devoted to their specialist subject and share their experiences and expertise. Nowadays, the talk is of influencer hype – and they are certainly gathering serious momentum in the B2B domain, with many companies climbing on board.

But what is inspiring this trend? Why does this kind of networking work so well? The points of contact between the expert and the customer are personal. Behind every influencer is a person. For me, this simple – and basically self-explanatory – fact is important, as it reveals why influencers and B2B sales processes harmonise so well. Anyone who wants to understand the workings of marketing in social media must always bear the principle in mind that people

follow people. A network emerges between experts, people with an interest and businesses – and that is extremely valuable for all parties.

Customers who are satisfied with the service and appreciate quality and expert knowledge will stay on board. They trust influencers' opinions. And they value their expertise. It's important to note that promoting one product today and switching to another tomorrow will tarnish an influencer's credibility. Followers stay loyal if products, brands and recommendations appear repeatedly on their channel, demonstrating their benefits.

Why do people trust B2B experts at all? Because they have common interests, influencers are approachable, and people value their authenticity and knowledge. It's important to remember that genuine people with genuine motivation are credible.

example, is always a prickly subject," Pleil says. The concept of B2B influencers is still in its infancy, particularly in Germany. "In the USA, it's far better established, but that's also due to cultural reasons," says Schmitt, adding that the technology sector is also already much further ahead in this respect than others.

ENORMOUS POTENTIAL

The potential in Germany lies primarily in the highly specialised segments of mechanical engineering. They are usually small-scale, but for that reason the limited number of experts is already very well known and could certainly become future influencers. There have already been some initial attempts, albeit in a somewhat different form than imagined. "A drinks machine manufacturer set up a closed community for users of its equipment, which was then

managed by an expert," Pleil explains. "This already made him an influencer of a sort." In the long term, it's likely that only a few companies will be able to get away without using marketing concepts like these at all. "I'm quite certain that the importance of B2B influencers will keep on growing," Pleil says. German SMEs in particular still have great potential in this regard, with many of them serving small, specialised niches where they are absolute experts, such as manufacturers of screws or beverage dispensing machines.

California-based Banafa allowed plenty of space for his influencer status to evolve – transitioning from a simple observer to a matchmaker in his field. "Just recently, I helped a group of South Koreans establish contacts in Silicon Valley," he says. He doesn't consider any of this a nuisance. "When you love doing something, you're happy to do it – your whole life long." ■

Who is he?

Michael Schmitt has specialised in digital B2B communications and worked as a business consultant in this field for years. He attributes the growing importance of influencers to demographic change in many companies' procurement departments.

“CEOs are influencers, whether they like it or not. And they become more effective by exerting their influence.”

Michael Schmitt
Expert in
B2B communications



Influential characters

Influencers come in different shapes and forms. Here, be top outlines the seven most important kinds of influencer and how they interact with their followers.



Craig Brown

Independent consultant and expert in digital technologies

Followers: 737,000 (LinkedIn)



Ann Handley

Chief Content Officer at MarketingProfs, author

Followers: 450,000 (Twitter)



Stephan Grabmeier

Independent consultant for new work and innovation

Followers: 7,000 (Twitter)



Elon Musk

Founder and CEO of Tesla, founder of SpaceX

Followers: 29.2 million (Twitter)



Kevin Keelen

Former CIO of Green Dot Business Schools

Followers: 370 (LinkedIn)



Pawel Dillinger

Expert in market communications at Telekom Deutschland

Followers: 3,500 (Twitter)



Susie Wolff

Boss of the Formula E team, brand ambassador for Mercedes-Benz

Followers: 371,000 (Facebook)

The Expert

Channels

YouTube, blogs, specialist magazines, TED platform, LinkedIn

Character

“Experts” sparkle with knowledge and tips for users. Followers value their leads and trust their opinion.

Appeal

Impartial, opinionated, authentic

Post

6 September 2019 on Twitter
WATCH: How Marketplaces Are Disrupting B2B Tech Buying And Selling: The idea of online marketplaces is not new. Especially on the consumer front. Yet in the enterprise IT world, they have developed with fits and starts. But... <http://bit.ly/2MY2Ruf>
#BigData #AI #DataAnalytics

www.twitter.com/craigbrownphd/status/1170028278146404352

The Explainer

Channels

TED, YouTube, blogs, LinkedIn, books

Character

“Explainers” don’t just enjoy talking about their field of expertise at work. They also demonstrate prowess as speakers at events and online.

Appeal

Authentic, laid back, explanatory

Post

4 September 2019 on Twitter
@ahaval breaks down what even b2b companies can learn from celebrity lifestyle brands like @goop & the Kardashians. **#CMWorld**
www.twitter.com/annhandley/status/1169312152169136135

The Innovator

Channels

YouTube, Instagram, Twitter, own blog

Character

“Innovators” are constantly trying out new trends, as well as setting them. They consider it equally important to address people personally as to stay up to date.

Appeal

Enthusiastic, personal, opinionated

Post

15 August 2019 on Twitter
No one needs to use Google as their search engine anymore – @Ecosia shows how businesses can work digitally and respect the environment. Ecosia plants a tree every 0.8 seconds in response to searches; on average, every 45 searches I conduct add a new tree
#mindopeners #SDGs #1o5C

www.twitter.com/trill_stephan/status/1162243574282379265

The Entrepreneur

Channels

LinkedIn, Twitter, YouTube, Facebook

Character

Successful right across the board, “entrepreneurs” use various channels to represent their company. Fields of interest: Strategy, politics, competition and employer issues.

Appeal

Authentic, opinionated, political

Post

24 August 2019 on Twitter
If you’re a utility or public utilities commission, please consider using the Tesla Megapack. Better for the environment & usually lower cost than fossil fuel peaker plants!
www.twitter.com/elonmusk/status/1165371975528640512

The User

Channels

Twitter, YouTube, own website

Character

“Users” offer product info, recommendations and user knowledge to help followers decide what to buy. Recommendations can stem from independent testers or reference customers.

Appeal

Opinionated, personal

Post

31 January 2016 on YouTube
Keelen posted a video on YouTube that was produced with Time Warner Business Class, showing him using this service.
<http://youtu.be/6D2DmeaS0NI>

The Employee

Channels

Twitter, Instagram, YouTube, Facebook, LinkedIn

Character

What comes across better than an enthusiastic employee? Many companies use influencers from their own ranks for authentic marketing.

Appeal

Authentic

Post

5 September 2019 on Twitter
As #IFA19 kicks off today in Berlin, @DeutscheTelekom is set to #TAKEPART across the board. So everyone can **#TAKEPART #Telekomwall #LoveMagenta #everyonecounts #prideinwork**
www.twitter.com/dillinger4010/status/1169843905526784001

The Brand Ambassador

Channels

Twitter, Instagram, YouTube

Character

The personal touch can’t be topped – that’s the motto of these influencers, who show off their knowledge primarily at events. Of course, digital reports of these events also do the rounds.

Appeal

Motivating, infectious

Post

12 April 2019 on Twitter
On stage with FIA Smart Cities & She’s Mercedes. We need to ensure that we have role models in every sector within the motorsport industry showcasing what’s possible for the next generation. Performance is power. If you’re good at what you do, gender quickly becomes irrelevant.
www.twitter.com/Susie_Wolff/status/1116748946381135874

7

Tips on how to get influencers up and running in your own company.

1

Devise a strategy

Develop objectives, messages and the content strategy that influencers are to communicate to the outside world.

2

Give them space

Lay down the ground rules – but don’t monitor every post or tweet. That stifles authenticity and credibility.

3

Volunteers only!

You can’t force pride in the company. Corporate influencing thrives on free will.

4

Count it as work

Allow influencers to devote time to this task – spreading your message is work, not play.

5

Set a focus

Relevance raises your profile! Companies need different ambassadors according to target group and occasion.

6

Transparency is a must

Influencers must be up front about their employer – but speak for themselves. Corporate communications are the job of senior management or the PR team.

7

Provide efficient support

Control? No. Support? Yes. Up-and-coming influencers could benefit from assistance provided by mentors or be aided with content produced using tools such as Sociabble or Smarp that they can post voluntarily on their social media accounts – from tweets to images for headers. This saves time and helps them stay on track.

How to reach the top

Automated engineering. For many companies, taking the necessary steps towards automation feels like an arduous uphill trek. **Eplan** eBUILD – the cloud-based solution designed to automatically generate circuit diagrams – makes taking those first tentative steps towards the summit a whole lot easier.

Text: Sonja Koesling

Copy and paste – plenty of people use it when generating circuit diagrams, and it seems pretty simple and effective. However, once you’ve copied and pasted the wrong thing once, you can find the error gets passed on from one project to the next. One of the benefits of automating engineering processes is that it can help companies ensure errors do not occur in the first place. The “Engineering 4.0” study conducted by Eplan and the European 4.0 Transformation Center at RWTH Aachen divides the transition from manual to fully automated engineering into five stages, known as “e-levels”. It also unveils the enormous potential that going up one or more levels can have for companies. For instance, compared to traditional methods of creating circuit diagrams, using a circuit library for product functions (level three) can deliver a time saving of 50 per cent, while semi-automating the process

(level four) can result in a 75 per cent saving. These are certainly compelling prospects – but “levelling up” also means first having to put effort into standardising processes. Nevertheless, according to the study, this is a worthwhile endeavour for most companies – even up to higher efficiency levels.

CLIMB HIGHER WITH EPLAN EBUILD

In practice, however, many companies see the journey to automated engineering as a mountain they need to climb, with a great many unanswered questions to clarify with users along the way: What exactly does automating the creation of circuit diagrams involve? How do we consolidate all the associated work steps and processes? What support is there to fall back on? Software solutions that use configurators as a basis for automatically generating circuit diagrams can provide vital support. These configurators usually need to be created in the first place by experienced electrical engineers using pre-defined partial circuits (also known as macros), with the end result that circuit diagrams can then be generated practically at the touch of a button.

Eplan eBUILD is part of the Eplan ePULSE family, which aims to unify cloud-based engineering data, projects, disciplines and engineers from all over the world in a single network. “Using ePULSE as a

Engineering system

Up, up and away with Eplan ePULSE

This open, cloud-based engineering system brings data, projects, disciplines and engineers together in a single network – expanding the Eplan platform to include perfectly customised cloud services.

Eplan eVIEW

This programme is used to make the engineering projects created in the Eplan platform available in the cloud. This means users can view project data anywhere and at any time. Production staff and service technicians can use the redlining function to record change information in the circuit diagram.

Eplan Data Portal

The Eplan Data Portal provides web-based access to high-quality product catalogues from numerous component manufacturers. The option to simply drag and drop the available components into the documentation reduces the amount of project planning needed and increases the quality of the machine and system documentation.

Eplan eBUILD

Eplan provides free template libraries in Eplan eBUILD, which enables users to put together circuit diagrams in just a few clicks.

Register for Eplan ePULSE now at:

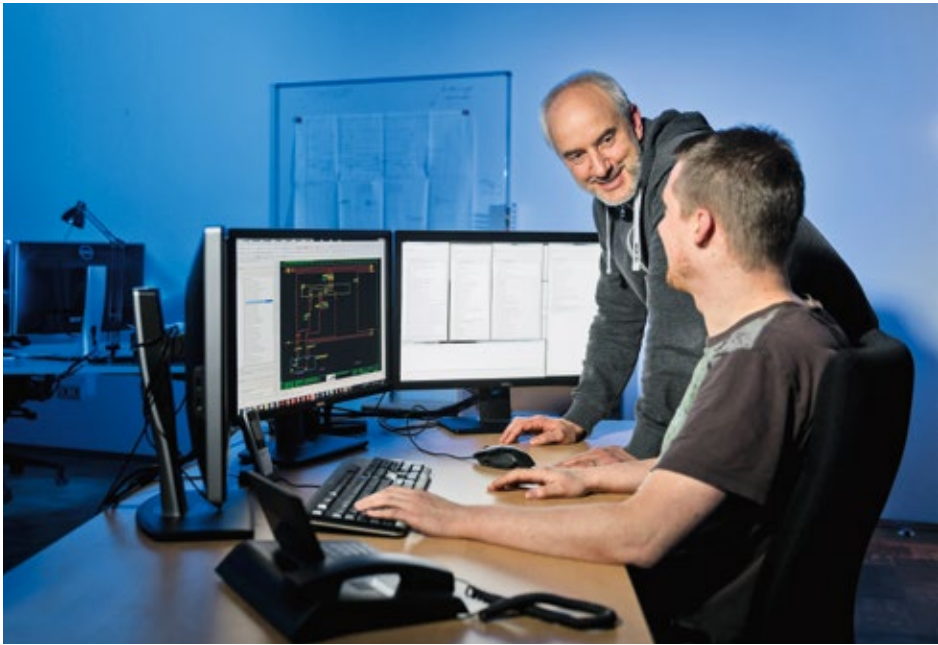
www.epulse.cloud

basis, we’re providing free circuit diagram libraries in Eplan eBUILD this year that will make it easier for anyone interested to get started with automated engineering,” explains Thomas Michels, Senior Director of Software Cloud Business Software at Eplan. After all, Eplan eBUILD comes with prefabricated configurators. “The libraries provide templates for simple controls that enable users to be productive right away,” says Michels. In other words, eBUILD is based on a new engineering methodology that can be continuously expanded by adding new template libraries from well-known manufacturers in Eplan ePULSE.

NEW OPPORTUNITIES IN THE CLOUD

According to a recent study by the International Data Corporation, the cloud is already an integral part of the IT or corporate strategy of German companies. Ninety per cent of the organisations surveyed claimed to have set out a cloud strategy. That said, they do have their reservations. “Many companies worry their data could be lost in the cloud,” says Michels. “But data centres are in very safe hands with the big cloud providers nowadays. They have to go through certification processes that require the highest level of security.” Eplan uses Microsoft Azure for its ePULSE solutions and has secured access to the data using a sophisticated rights and roles concept. As a result, the benefits outweigh any potential concerns.

Companies that have been using Eplan solutions for some time now are also open to new cloud-based approaches. For instance, Bernd Mähns, Managing Director of Hanseatic Power Solutions GmbH (HPS), emphasises that “the cloud offers new collaboration opportunities that everyone can benefit from. For example, our customers can access all documentation online – no matter where they are or what device they have to hand.” What used to be done on paper can now be edited digitally. “The aim is to enable our customers to share their changes with us while also leaving a clear audit trail. Overall, projects can be processed faster and more efficiently,” says Mähns.



SUCCESSFUL TOGETHER The Hamburg-based control technology company HPS is boosting its efficiency with Eplan solutions – here we see two colleagues discussing a circuit diagram they are creating.

Electric vehicles thrive on steel



Electromobility. The automotive industry is facing the biggest upheaval in its history. In the transformation of drive technologies from combustion engines to electric motors, steel offers enormous potential thanks to the development of high-strength and ultra-high-strength grades. **Stahlo Stahlservice** is ideally prepared for the future.

Text: Markus Huneke

If they hadn't already done so, alarm bells must have rung loud and clear for steel manufacturers by the time the D2 model of the Audi A8 was launched. With over 90 per cent of its bodywork made of aluminium, this model – on the market since 1994 – threatened to displace steel as the undisputed number one material for cars. Even back then, requirements for safety, comfort and cost-efficiency and the growing role of environmental factors were making vehicles increasingly heavy. By using aluminium, a significantly lighter metal, manufacturers were able to make compensatory weight savings. Steel producers were put on their guard – and kick-started their research and development operations. This paid off, as the high-strength steels that were developed were far lighter and stronger than conventional steel grades, while also exhibiting outstanding formability. Automotive manufacturers were back on board.

With a 90 per cent market share, steel is the dominant construction material in automobile production today. It is a vast market, with just over 19 million cars produced in Europe alone last year. Since lightweight automotive construction was first introduced, the situation has intensified further. The debate about climate change is becoming much more controversial. To stop the environmental impact from getting worse, emissions are being more tightly regulated by legislators. This also affects cars. By 2020, the emissions limit for new cars in the European Union (EU) will be a maximum of 95 grams of carbon dioxide per kilometre – and that limit is to fall by a further 37.5 per cent by 2030. The pressure to pursue lightweight construction has thus increased once again.

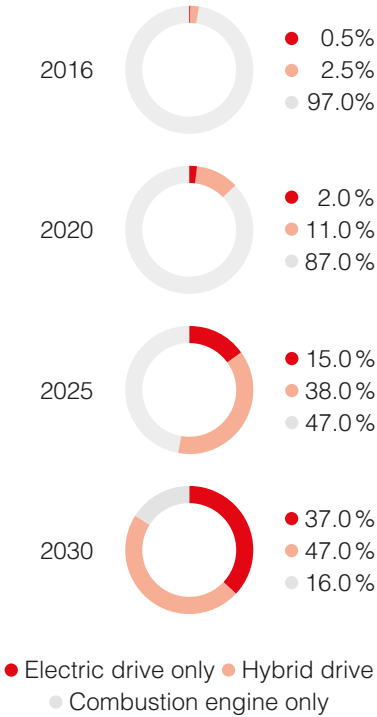
BENEFITS OF STEEL – COST-EFFECTIVE AND SOUND ENVIRONMENTAL CREDENTIALS

Once again, steel producers have an answer – ultra-high-strength steels. These exhibit a strength of up to

1,900 megapascals – a figure that was considered utopian just ten years ago. High-strength and ultra-high-strength steels offer car manufacturers a group of materials that boast exceptional mechanical properties and a comparatively good carbon footprint in production while also ensuring cost-effectiveness. However, greater material strength makes steel processing increasingly demanding. High-performance and reliable partners such as Stahlo Stahlservice are becoming more and more important for the automotive industry. By constantly developing its processing expertise and making continuous investments, the steel service centre – part of the Friedhelm Loh Group – has become a valuable partner for carmakers that is able to keep up with developments and reliably process high-strength and ultra-high-strength steels. Stahlo has underlined this commitment with its plant in Gera, which has just been completed and is equipped with the latest technology. Besides the existing systems, the new facility now also houses a second contour-cutting machine with a pressing force of 800 metric tons and an additional slitting line that can process coils in these steel grades with an external ring diameter of up

The future of mobility

Projected car sales in the EU up to 2030 by drive type
Sources: PwC, Der Spiegel, Statista



to 2,100 millimetres and up to 60 strips in a single operation.

LIGHTWEIGHT CONSTRUCTION TREND
WANING – GOOD NEWS
FOR THE STEEL INDUSTRY

Electromobility is throwing supplier markets in particular into disarray. The move away from combustion technology is presenting automobile production with the greatest challenge in its development and thus numerous uncertainties. Experts largely agree that electric and hybrid drives will make up a high proportion of vehicle production in the foreseeable future. Consultancy firm Pricewaterhouse Coopers (PwC) predicts that one in three new cars in the EU in 2030 will be electric – over six million vehicles. Electric cars also eliminate the most important reason for pursuing lightweight automotive construction – cutting emissions. “The trend of reducing weight at any price is receding with electromobility,” says Kerstin Hirsch, Technical Applications Consultant at Stahlo Stahlservice. This paradigm shift is not having a serious impact on the use of steel. Quite the opposite, in fact. Although taking the drive



“The trend of reducing weight at any price is receding with electromobility.”

Kerstin Hirsch
Technical Applications Consultant at
Stahlo Stahlservice

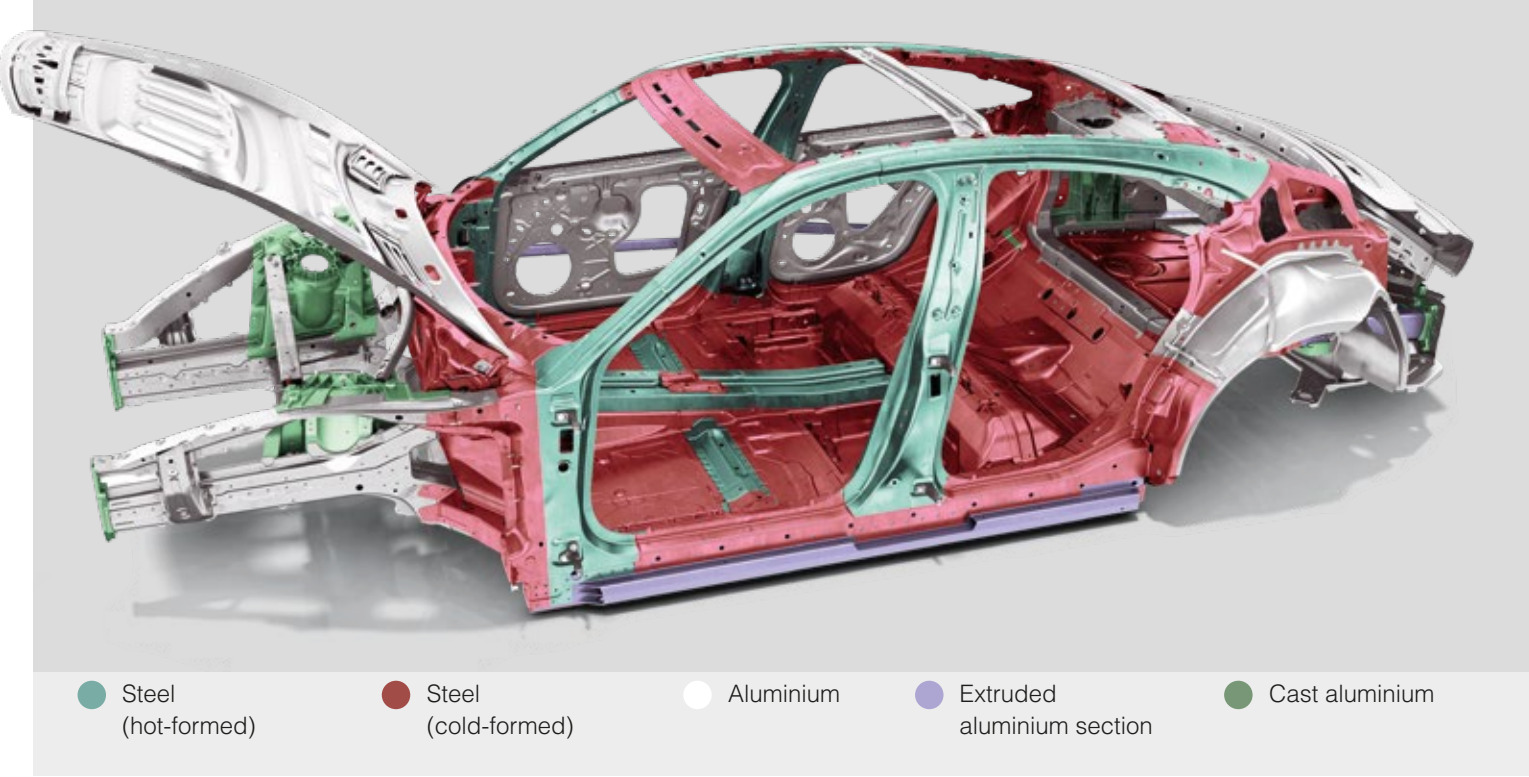
Investment in the future

With its highly skilled employees in technical application consulting, Stahlo Stahlservice is ideally prepared for the future. The company has invested in state-of-the-art processing machines and has expanded capacity to 400,000 metric tons per year at the Gera site alone. It has invested a total of 45 million euros in the site, thereby increasing the company's overall capacity for high-strength and ultra-high-strength steels, stainless steel and aluminium by 50 per cent to 800,000 metric tons. Stahlo has invested in a future that will continue to be shaped by steel.



Intelligent mix of materials

The fully galvanised bodywork of the Porsche Taycan, the first fully electric sports car from Zuffenhausen, comprises a mix of materials, primarily consisting of aluminium and steel.



train out of the equation disposes of an assembly that uses steel, the material could actually benefit from electrification in the end. Besides being used for crash-relevant bodywork parts, steel is also the ideal material for completely new products that will be needed in future. One example is the battery box – a new key assembly that protects the battery. “Only high-strength steels can be considered for the battery housing. No aluminium or carbon-fibre-reinforced plastic can provide the necessary crash safety,” says Prof. Hermann Lücken from the Faculty of Vehicle Technology at Esslingen University of Applied Sciences. All in all, according to calculations by a number of experts, ten per cent more flat steel is used in the manufacture of each electric vehicle, compared to conventional drive technologies. Experts also predict increasing cost pressures for the automotive industry in the future. The importance of material know-how is thus expected to become even greater in the years ahead.

Cool head, warm heart

Sustainability. Climate change is undoubtedly sweeping across the political agenda. Enough said? Not necessarily: “The need to protect the environment is not up for debate – but the question of how to do it is.” Finally, Nicola Salandini speaks truth to what has become a heated global debate.

Text: Ulrich Kläsener



STRONG BELIEVER

In environmental protection: Nicola Salandini, Plant Director at Rittal in Italy.

As the Plant Director at Rittal in Italy, Nicola Salandini sums up the situation in an impressively simple way. Common sense is called for – the circumstances are too disparate, and the media debate too highly charged. With Fridays for Future embracing radicalism, tactical decision-makers adopting more of a visionary position, and technocrats hiding behind guidelines and directives, only one thing seems clear at the moment – someone ought to keep a cool head. And that is exactly what Salandini and his 430 colleagues at the northern Italian site in Via degli Imprenditori in Valeggio sul Mincio are doing.

The workforce at the Rittal plant south of Lake Garda has its own response to the global climate issue – industry-tested solutions that are cutting energy consumption and CO₂ emissions by 75 per cent here and now. Blue e+, the latest generation of chillers, has been manufactured in Valeggio sul Mincio since 2015: “With the Blue e+ series, Rittal has succeeded in creating a classic win-win situation,” explains Marco Villa, Managing Director of Rittal Italy: “Users benefit both economically and environmentally – in turn, Rittal can excel as a front runner in green cooling technology.”

GRANDCHILDREN-FRIENDLY AND EFFICIENT

In the case of Rittal Blue e+ chillers (1 – 6 kW recooling systems) that are also manufactured in Valleggio sul Mincio, it is DC inverter technology that is the real game changer when it comes to the much talked about “irreconcilable differences” in the climate debate. As speeds are infinitely adjustable and an electronic expansion valve automatically regulates the cooling output to match the load profile of the application, only as much power is generated as is needed. On top of that, the microchannel heat exchanger uses 55 per cent less refrigerant – a further welcome boost. For decades, Rittal has been committed to measures that have a rapid impact rather than mere declarations of intent. Marco Villa adds: “We should remember that Rittal was one of the first to switch to CFC-free refrigerants as early as 1992 with the ProOzone initiative. And even 20-year-old Rittal units comply with the new regulation on fluorinated greenhouse gases that will come into force throughout the EU in 2020. Environmentally friendly products thus make

economic sense, too.” To ensure everyone in the domestic Italian market also gets the message, the 54-year-old manager has a simple goal: “I want every technical office to have a Rittal catalogue on their desks.” Villa is confident that, one way or another, Rittal has a fantastic standing in Italy: “Rittal has a reputation that money can’t buy – we’re synonymous with quality and expertise.” One hundred per cent sales growth since 2003, a 35 per cent market share for large enclosures, and around 6,000 registered customers in 2017 and 2018 alone speaks for itself. Making what’s good even better is the new delivery promise from the first quarter of 2020 onwards: “Whether it’s two or 50 products, we guarantee next-day delivery for orders placed by 2 p.m.” – up to 100 kilometres south of Rome.

THE INDUSTRY 4.0 MARATHON

Villa sees the real boom regions in Italy as being north of the capital, such as Lombardy, Emilia Romagna, Venice and Tuscany. Panel builders and switchgear manufacturers in these regions want perfect enclosures and efficient cooling solutions for industrial use in mechanical and plant engineering, the oil and gas sectors and food and beverage applications. Industry 4.0 and the future are not just buzzwords at the Rittal plant in Valeggio, they are actually being put into practice in very specific ways. “Take Blue e+ chillers,” Salandini explains: “The most important element – the option of IT-based networking with other machines – is already in place thanks to their intelligent interfaces. The integrated monitoring sensor technology that is essential for predictive maintenance is also built in.” Since 2011, every corner of the Valeggio sul Mincio plant has been a showcase for the step-by-step implementation of Industry 4.0 in the company’s own production operations. The now standard pick-to-light system in the warehouse, the automated guided vehicles in production, the fully automatic quality testing at one of the six test stations and the semi-automatic packaging of cooling units are just a few examples. Initially it was about the human factor. “We shifted mindsets towards lean processes,” Salandini explains: “It has been a marathon, but now we’ve already achieved maximum transparency and are making full use of standardised workflows.” Salandini should know. He’s probably more familiar with the plant than he is with the back of his hand. With the company since 1993, the 47-year-old MBA graduate started in production before moving to design

Rittal Italy

The plant in figures

6

trucks loaded with energy-efficient products leave the plant each day to make their way to the central Rittal warehouse in Haiger, Germany. Deliveries are also made to the Rittal warehouse in Roncello near Milan on a virtually daily basis.

212,000

green cooling technology products left the plant in 2018. Since 2011, production has tripled. Each day, 900 units are assembled.

430

staff work at the Rittal plant in Valeggio sul Mincio, including 265 in production.

500

standard designs and 2,000 variants make up the product portfolio – besides the new Blue e+ generation of chillers, these also include recooling units, chillers, heat exchangers and thermoelectric coolers.

2

new, highly automated production lines have been in operation for assembling the new generation of Blue e chillers since October 2019. Assembly capacity: 16 units a day

14,000

square metres of space at the plant in total, with 9,000 square metres for production on two levels. In the warehouse, six new vertical lifts will be simplifying order picking of small parts by the end of 2019.



“Environmental awareness always begins at home.”

Marco Villa
Managing Director of Rittal Italy

and then assuming responsibility for the Technical Department. In 2011, he became an Operational Manager and was finally appointed Plant Director in 2014.

WHEN MACHINES SERVE HUMANS

The integration into the international Rittal network continues to fascinate him: “Virtually every step in assembly is determined in close consultation with the Manufacturing Engineering department at the Rittal headquarters in Herborn.” This is also where the decision was made to launch a modular production system so that new assembly lines could be quickly set up for new series. “The semi-autonomous group work has also proved a definite success,” Salandini says: “Specific teams monitor the chillers from the start of assembly through to completion.” As a result, the act of handing over semi-finished units to other employees – as well as responsibility – has become a thing of the past. Production capacity has actually tripled in the last eight years.

Salandini is truly proud of the systematic digitalization in production. “We’re building a physical and a digital production line in parallel for the assembly of Blue e+ units.”



- 1 Among the products manufactured at the Rittal plant in Italy are Blue e+ chillers. The water-based cooling of the devices, for example, tempers the spindles of machine tools, for instance.
- 2 At Valeggio sul Mincio in Italy, Rittal manufactures efficient cooling solutions for industrial use that cut energy consumption and CO₂ emissions by 75 per cent on average.

On a practical level, large touchscreen displays guide staff through assembly work. Eplan Smart Wiring, for example, is used here – a software solution from Rittal sister company Eplan. This visualises the wiring, including all wiring routes and assembly steps. As soon as a connection has been wired correctly, it turns green as part of a traffic-light system. The digital display in EPLAN Smart Wiring references the 3D layout of the virtual model in EPLAN Pro Panel (engineering software for 3D designs for control enclosures, switchgear and power distribution systems), which continuously enables target-actual comparisons. The end result is that something Industry 4.0 pioneers have always envisioned is finally coming to fruition. Whereas humans previously served machines, the relationship has reversed – machines are serving humans.

NEARLY ZERO-ENERGY BUILDING

End-to-end data integration for collaboration between people, physical components and IT – parallel processing scenarios – highly automated processes – the availability of digital twins at every stage of manufacturing: Looking at the basic ingredients of every Industry 4.0 recipe, the close collaboration between Rittal and Eplan at the Valeggio sul Mincio plant makes perfect sense. The same is true of the decision to share the new Italian headquarters in Pioletto near Milan. Covering an area of 4,800 square metres, since May 2019 the site has offered the more than 100 employees space for offices, a showroom, technical training and interactive demonstrations of Rittal configurations and Eplan planning software. It’s good to know that the building was designed according to nearly zero-energy building criteria. A 23.4 kilo watts peak photovoltaic system, an automated irradiation control system inside and an external sun protection solution ensure low energy consumption and outstanding sustainability. Marco Villa: “Environmental awareness always begins at home.” And when he comes up against people who are determined the world is doomed, he has no qualms about making a stand: “I’ve got three children, so I’ve got no choice but to be optimistic.”



Click here to learn about the essential features of Blue e+ chiller: www.bit.ly/blue-eplus-chiller-en

“Stay cool”

CO₂ reduction. From 2020, stricter provisions will apply to the operation of cooling technology. Judith Kötzsch, Director Business Development Service at **Rittal**, explains how companies can make their systems fit for the future while also saving money.

Interview: Felix Enzian



Ms Kötzsch, why is the F-gas regulation such an important issue for industry?

The next stage of the F-gas regulation isn't just introducing additional service costs and increased maintenance outlay for many cooling system operators. In some cases, production could even grind to a halt. This is because, from the beginning of the new year, it will be illegal to sell specific partially fluorinated hydrocarbons as refrigerants or to top them up in the event of a leak. All companies must check to what extent their cooling units are affected by the provisions and then take appropriate steps.

Which cooling units do companies need to take a close look at because they are affected by the F-gas regulation? The regulation applies to the use of cooling technology in industrial plants and climate control in buildings. Our expertise at Rittal is focused on cooling units and chillers in panel building and switchgear and production processes.

Are users of Rittal products affected and do they need to worry about the approval of their refrigerants?

Rittal customers can stay cool in the truest sense of the word. Rittal enclosure cooling units and chillers will still be approved after 2020, as they use a hermetically sealed cooling circuit and because the refrigerants

in question (R134a, R410a and R407c) have a GWP value of less than 2,500. This applies to all equipment that Rittal has sold over the last twenty years. We started pursuing the highest standards in environmental protection early on.

What exactly does GWP value mean?

GWP stands for “global warming potential” and is a measure of how much a specified quantity of a greenhouse gas contributes to the greenhouse effect. Carbon dioxide is the benchmark. Companies can use the F-gas calculator to determine the CO₂ equivalent of their refrigerants. This involves multiplying the quantity of the refrigerant used by its GWP value.

What service does Rittal offer companies that are having to review and service their cooling technology because of the F-gas regulation?

Firstly, we take a look at their equipment and offer recommendations. As a certified service partner, we can carry out and document the prescribed inspections and leak tests. However, our consulting service, which covers equipment from all manufacturers, doesn't just analyse the impact of the F-gas regulation – we also calculate the energy efficiency, cost-effectiveness and reliability of the cooling units currently used. It might be worth companies investing in state-of-the-art and eco-friendly units that are not affected by the F-gas regulation. We can also replace cooling technology, dispose of old units, and set up and commission new cooling units.

Rittal has carried out environmental management services and efficiency checks like those at Voith and Ford. How exactly did that work? Staff from the Rittal Manufacturer's Service Team analysed the enclosure climate control used in Voith and Ford plants. They comprehensively docu-

Checklist

Finding a climate strategy

These **five steps** give companies the best opportunity to prepare for the F-gas regulation.

1. Get an overview

Get an overview of the types of cooling systems you use. The type and quantity of refrigerant are shown on the system's rating plate. Keep a written record of everything as it currently stands.

2. Use the F-gas calculator

The online F-gas calculator can be used to check whether a refrigerant is affected. If the GWP value is over 2,500, special maintenance measures need to be carried out. The F-gas calculator offers practical recommendations about this.

3. Commission servicing

Maintenance and leak tests must be expertly performed and documented. The Rittal customer service team also helps companies that do not use any Rittal products.

4. Review investments

Investing in state-of-the-art cooling units that are not affected by the F-gas regulation may be worthwhile.

5. Obtain subsidies

State funding programmes are available for investing in eco-friendly chillers and cooling units for enclosures. Rittal offers recommendations about this.

mented the existing situation regarding climate control for each machine examined and recommended whether it would make sense to replace the cooling unit, which unit was suitable as a replacement and how much energy could be saved by installing a replacement unit. The two companies opted to switch to more energy-efficient cooling units from the Blue e or Blue e+ ranges for a large number of systems.

Are there subsidies available to finance environmentally friendly investments like these?

Yes, funding is available in the form of grants and loans. We've identified a number of programmes in the German government's Bundesförderung für Energieeffizienz in der Wirtschaft (federal funding for energy efficiency in the economy) scheme that cover enclosure cooling units and chillers. The relevant funding level is calculated on an individual basis for each unit based on the cooling output, the type of cooling system and how it is used. We offer practical tips about this through our consulting service.

What will happen if legal provisions on the use of cooling technology are tightened up even further in the future?

That's possible, but there will certainly be appropriate transition periods so that companies can plan their environmental management cost-effectively. Here, too, it's important to stay cool. ■



More information on the F-Gas Regulation and an F-Gas Calculator can be found here www.bit.ly/F-gas-calculator

Three lives and counting

Energy storage systems. The functionality, range and thus the acceptance of electric vehicles are all heavily dependent on the quality of the batteries used. But even before and after being used as energy sources for electric cars, batteries can make an important contribution – as flexible energy storage systems.

Text: Markus Wessel-Therhorn

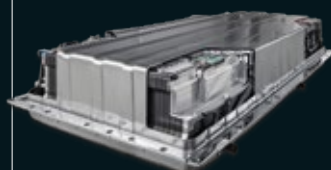
Batteries for electric cars can do a lot more than just act as a clean power source for five to ten years. In fact, they offer huge potential when it comes to using energy wisely – and that includes before and after they are installed in an electric car. But how? The answer lies in the three different stages of an electric car battery's life.



Strength training

Lithium-ion batteries can serve as flexible energy storage systems even before they are installed. Daimler and the energy service provider Enercity from Hannover have demonstrated what this "first life" can look like. Their large storage system combines some 3,200 brand-new battery modules for the e-smart. "Instead of just storing future replacement batteries, we seize the opportunity to use our virtual power plant

as a kind of fitness programme. For instance, we sell the storage capacity on the market for primary balancing power, help to stabilise the European power grid and put the batteries through a kind of strength training. We charge and discharge (cycle) the batteries so carefully that they remain in mint condition," explains Thorsten Winter, project engineer at Enercity at the Hannover-Herrenhausen site.



Road mileage

When batteries are installed in electric cars, they begin their "second life" as an energy storage system for electromobility, supplying vehicles with electricity for an average of five to ten years. This is a very demanding task, because not only do the batteries have to store and release energy reliably, they must also be able to cope with an average of about 1000 charging cycles. "The batteries' performance will usually diminish at some point, so they can only store 70 to 80 per cent of the power supplied," says Winter. "That will sound familiar to anyone who has a smartphone." They are usually replaced whenever they exhibit such a dip in performance.



Network operations

The batteries are then either sent to a recycling plant – just like laptop and smartphone batteries – or they start their "third life", forming part of yet another energy storage system. Coupled with power distribution modules, enclosure technology, cooling units and other components, they can continue to be used as energy storage systems for the public grid, for example. They are also an indispensable asset in industry, when it comes to capping peak loads, providing reliable emergency power, etc. "This form of recycling makes it possible to lower the costs of batteries or offer new parts at cheaper prices," says Winter. But that's not the end of the story.



Regardless of whether they're new or used – if electric batteries are combined to form energy storage systems, they can make a vital contribution to the energy and mobility revolution. Systems also lower overall energy costs. With the right storage systems, electricity can also be purchased in advance when prices are reasonable. Tesvolt is a prime example of how this can work in practice. Connected to renewable energy power plants, the solutions of this battery storage system provider ensure industrial companies, service providers and even mountain lodges run by the German Alpine Club can depend on a reliable power supply. Tesvolt is also building on its partnerships with other companies, offering consulting expertise in addition to key system components.

Experts such as Andreas Zühlcke, Vice President for Vertical Market Management at Rittal, believe that energy storage is finally about to break through into the mass market. This is also confirmed by a recent study by the Bank of America, which found that prices for electricity storage systems will halve over the next five years. "This also creates brand-new opportunities for companies with specialist expertise that can provide the technical infrastructure necessary for the battery energy storage systems," says Zühlcke. "What's more, it is the perfect chance to prioritise and influence the expansion of the e-mobility infrastructure with charging stations, while also setting appropri-

ate standards." This is because batteries and other energy storage systems can only achieve their full potential if the charging infrastructure is developed alongside the storage technology. ■



"We treat the batteries so carefully that they remain in mint condition."

Thorsten Winter
Project engineer at
Enercity



For an infographic on the future of e-mobility, visit:
www.bit.ly/be-top-mobility-en

COMMITMENT



"Imagine Light" solar project

Lighting up the world

The Berlin-based aid organisation Love for Life e.V. is helping indigenous peoples in Latin America establish stable power supplies. And at the heart of everything is the AE from Rittal.

Whether in Ecuador, Colombia or Costa Rica, a great many indigenous peoples in Latin America still live in very remote locations. One example is the Waorani people, whose homeland is the rainforest in the west of the Amazon Basin in eastern Ecuador. The biggest threat to them is the exploitation of mineral resources – most notably, oil. By the end of the 1960s, their waterways and soil had been polluted and the very basis of the Waorani way of life had been permanently destroyed. The Berlin aid organisation Love for Life e.V. is keen to offer the local community fresh opportunities, and the Imagine Light solar project is how it is trying to do just that. The project gives indigenous people sustainable ac-

cess to clean energy and thus ensures they are economically independent. Now, instead of spending money on fuel, they're investing more heavily in books and schooling for their children. "In developing the solar systems, we didn't just need to consider the needs of local people, we also had to take into account the challenges posed by the tropical climate," says Thomas Hilker, programme manager at Love for Life e.V. This is another reason why the company opted to place the AE from Rittal at the heart of the systems. "The workmanship and reliability of the AE are perfectly tailored to our needs. We're very grateful for the generous support we've received from Rittal."

Solar systems installed
300
Metric tons of CO₂ saved
150,000
Hectares of forest protected
2,319,166



Social Day

Packages of hope



Each year, employees from Rittal Canada help out a good cause by spending a day doing a job they wouldn't normally do. This year, they tried their hand at working as packers. They put together the items required, sorted hundreds of packages – and enjoyed their roles to the full. "Social Day is the perfect opportunity for us at Rittal to give back to our community," says Sandra Abuwalla from Rittal Canada. Rather than packing Rittal solutions, the team put together aid packages to support charity work led by World Vision Canada. The packages contain many essential everyday items for children who are involved in World Vision aid projects. By the end of Social Day, the volunteers had sorted, cleaned, prepared, allocated and carefully packed 361 pairs of rubber boots alone. It was an outstanding achievement and an experience that the team is determined to repeat. "We've sent children packages of hope."

Training

Crowning glory

At the end of August in Herborn, 16 Bachelor's and three Master's students on cooperative-education programmes and 30 apprentices at the Friedhelm Loh Group celebrated the successful completion of their studies and training. The students had completed an innovative cooperative-education programme at the Central Hesse Technical University (THM). The trainees were able to gain international experience in China and India. Managing Directors Uwe Scharf and Dr Thomas Steffen presented the certificates and congratulated the recipients on the successful start to their professional careers. Eighteen of the 19 students and 27 of the 30 apprentices are staying with the Group. For more information on the Friedhelm Loh Group as an employer, go to

www.friedhelm-loh-group.de/en/karriere

Top German Employer

Outstanding employer

For the eleventh year in a row, the Friedhelm Loh Group has won recognition for the dedication it shows towards its employees, with the Top Employers Institute declaring the Group one of Germany's top employers. "To be recognised yet again as a top employer fills us with pride," says Andreas Huck, Managing Director for Controlling, Finance, IT and HR at the Friedhelm Loh Group.



Learning to listen

Dependency. Loneliness, illness or financial worries – there are many reasons why the odd tipple at lunchtime can turn into a constant companion for the elderly. Addiction often goes unnoticed to the outside world. The **Rittal Foundation** supports Wetzlar Addiction Aid’s efforts to alert care workers and families to the tell-tale signs.

Text: Sophie Bruns

It’s 6 p.m. – time for supper. Hermann Müller* is sitting at the table and looking forward to a glass of wine to go with his cheese sandwich. But the care workers have to deny him this wish. The 88-year-old has been dependent on alcohol for years. However, because he has been suffering from dementia for some time now, he doesn’t understand why he’s not allowed to drink wine. So they don’t have to disappoint him every day, the care workers and his family give him grape juice instead.

The case of Mr Müller has stuck in the mind of Tatjana Arnold, an expert in addiction prevention at Wetzlar Addiction Aid Centre. “Everyone pulled together in that case,” she recalls. “But, unfortunately, not everyone in need of care has such an attentive and stable environment.”

The sip of schnapps to ward off rheumatic pain, a glass of sherry before bed or too many pain killers – addiction amongst the elderly is becoming an increasingly serious issue in our ageing society. The situation is further compounded by additional risk factors. Days often lose their fixed pattern, there’s no one else at home since the death of their partner, and the children have moved to a different town for their work.

“The sense of loneliness after entering retirement can act as a catalyst for addiction,” Arnold explains.

Not only that, but illnesses and their treatment also present a risk. Often, different doctors treating the same patient don’t confer with one another. If the worst comes to the worst, interactions between prescribed medications and doses can harm the elderly person.

THE IMPORTANCE OF PAYING ATTENTION

Another problem lies in our body’s diminishing ability to metabolise addictive substances. “The tolerable levels of alcohol and medication decrease. When we get old, our body processes these substances very differently to the way it did in our youth,” as Martina Schäuflé, a gerontologist at the University of Mannheim, explains. This is exacerbated by the fact that older generations were often taught to keep personal problems to themselves as they were growing up. If family members only rarely see their parents or grandparents, it’s difficult to assess how they really are. However, regular visits often aren’t possible because many relatives live far away due to increas-

ing professional mobility. Furthermore, care workers are frequently not sufficiently trained to deal with addiction issues.

Faced with these facts, Wetzlar Addiction Aid (Suchthilfe Wetzlar e. V.) was one of the first organisations to address the issue of addiction prevention amongst the elderly. With support from the Ministry for Social Affairs and Integration, it devised a training plan for care workers. “Despite being on the rise, there isn’t enough awareness of this problem in Germany. My aim is to make this issue part and parcel of initial training, so that professionals can spot the risks of addiction and dependency in old age,” Arnold says.

The concept, which uses standardised work aids and seminars, has now also become an established component in further training for staff already working in care and support of the elderly. The collaboration efforts by partners in public administration, aid agencies and institutional organisations have forged a supportive network, which is one of the reasons why Wetzlar Addiction Aid approached the Rittal Foundation when the Ministry’s funding for the project expired at the end of 2017. “We’ve donated around 20,000 euros during the past two years to support the work of the addiction aid centre. Addiction prevention amongst young people has long been a focus of our work. However, it’s not only youngsters who can succumb to addiction, but the elderly, too,” says Friedemann Hensgen, Chairman of the Rittal Foundation.

Wetzlar Addiction Aid has adopted two aims for the years ahead. The first is to raise awareness in care for the elderly and doctors’ surgeries; the second is to help friends and family recognise the warning signs. “Many people are ashamed to fall foul of addiction and try to keep it a secret.” On the other hand, it’s not easy for family members to spot the tell-tale signs. If grandparents start to shy away from company, become less mobile or suffer frequent falls, this doesn’t necessarily indicate addiction, Arnold explains. They might be suffering from depression, dementia or the side effects of medication.

To meet its objectives during the year ahead, the Addiction Aid team aims to raise its profile at public events and offer staff development courses, such as with the Haushalt und Familie Hessen e. V. social facility. The hope is to increase the number of positive interventions akin to that with elderly Mr Müller. “You have to keep a watchful eye on the elderly and be honest with them to be able to take preventive steps,” Arnold says. ■

*Name changed by the editors, representative image.

EXPERIENCE



Eplan EEC Forum

From working to networking

This year's EEC Forum trained the spotlight on automation solutions from Eplan. The event focused on increasing value creation within the context of Automated Engineering 4.0.

From 23 to 25 September, around 200 participants from all over the world got together in Cologne for this year's Eplan EEC Forum to find out more about Automated Engineering 4.0 and share information and ideas. Presentations, workshops and examples of practical engineering applications gave the visiting professionals an opportunity to discover the many different ways Eplan automation solutions can be used. Besides Eplan Engineering

Configuration (EEC), the focus was also on Eplan Cogineer. Keynote speeches from high-profile international companies such as Lenze, Geiss, Danfoss, SAP and Rockwell Automation were a special highlight of the event. Yet there was still enough time for individual questions. "It is precisely because every company has its own IT structures, objectives and challenges that openly sharing experiences with like-minded people can provide that

all-important stimulus for successful complex automation projects," explains Achim Potthoff, Head of Business Sales Management at Eplan: "The basic challenges are often more similar to each other than you'd initially suspect." That was another reason why the EEC Forum kicked off with a joint visit to the Rittal Innovation Center, enabling participants to see value creation in Industry 4.0 for themselves.

Strategic collaboration

IoT data processing in real time

Atos, Siemens and Rittal are working in a strategic collaboration to develop smart edge data center solutions.

From individual racks to turnkey data center containers, Atos, Siemens and Rittal are pooling their resources to develop intelligent edge data centres for the Internet of Things (IoT). Their intelligent edge data center offers maximum configuration options and enables companies to process even large volumes of data in real time. The data center does this by combining technical infrastructure components from Siemens with IT infrastructure from Atos and operational technology infrastructure

from Rittal. As a result, it provides a secure, highly standardised and industrialised solution that can be operated autonomously. Since the solution is also available in various performance classes, it doesn't just benefit companies specialising in smart industries, smart cities and smart retail, but also those in the energy and supply fields and the public sector. For further information, visit:

www.rittal.com/it-solutions/en/solutions/edge-solutions



Innovation Award 2019

Award-winning manufacturing technology from LKH

LKH Kunststoffwerk in Heiligenroth, Germany, has been honoured for the first time with the renowned GKV/TecPart Innovation Award. As has become customary, the award was presented at the launch of the K trade fair – the world's leading plastics industry trade show – at the booth of the German Association of Plastics Converters (GKV) in Düsseldorf on 16 October 2019. LKH, which joined the premier league of automotive suppliers in 2019 with offerings such as precision air suspension components made of filled, technical thermoplasts, was recognised for outstanding innovative technical products and solutions and manufacturing finesse. The Innovation Award has been presented every three years for the past 45 years by the German Association of Manufacturers of Engineering Plastic Products (TecPart), which is part of the GKV and represents the leading suppliers of plastic engineering components in Germany.

Industry Innovation Days

A showcase of added value

Participants at the Industry Innovation Days were able to see for themselves the integrated value chain from Rittal and Eplan in seven German cities during summer 2019. Eplan and Rittal used the jointly organised events to present their perfectly coordinated solutions for panel building and switchgear and showcase the opportunities of-

fered by end-to-end value creation processes. The first of the Industry Innovation Days focused in particular on producing virtual enclosures using solutions from Eplan and Rittal. Just how this can look in practice was shown by examples such as Herrenknecht. For some time now, the company has been successfully using virtual

enclosures in its operations. Wus-Tec, a wire processing service provider, also uses the integrated value chain from Eplan and Rittal. Finally, an overview of Rittal Smart Services was presented. Around 40 participants attended each of the seven events in central and southern Germany.

World-class

research station

Brain research. The state of São Paulo is home to the **Brazilian Synchrotron Light Laboratory** – one of the largest scientific projects in the country. One of the many goals of the research work conducted in the laboratory's particle accelerator is to study the human brain to learn more about Parkinson's disease. Enclosures from **Rittal** are used in the process – for a very specific reason.

Text: Christine Wollowski

Viewed from above, this gigantic circular structure with a silver shine to it looks like a flying saucer that has just landed. Spanning 68,000 square metres, the futuristic 15-metre-high building is as big as the Maracanã football stadium. It's a researcher's dream come true. Here in Campinas, in the Brazilian state of São Paulo, one of the world's largest particle accelerators is currently being built as part of Project Sirius. "Sirius is taking modern-day engineering technology very close to its limits. It will be churning out world-leading research for at least a decade," predicts physicist Antônio José Roque da Silva, who is the Director General of the Brazilian Center for Research in Energy and Materials (CNPEM), which is based at the site, and is in charge of Project Sirius. According to his estimates, experiments that currently take ten hours to carry out will be completed in ten seconds when using Sirius, a fourth-generation accelerator.

November 2018 marked the first milestone, with two of the three accelerators and the building reaching completion. Since then, the people of Brazil have elected a new government and the country continues to suffer from a financial crisis. Yet nothing is stopping South America's largest country from driving forward this ambitious project. In fact, the Brazilian Ministry of Science, Technology, Innovation and Communication has allocated around four million euros to the research centre to allow scientists from across the globe to carry out truly innovative experiments.

RESEARCH AT THE SPEED OF LIGHT

All three particle accelerators, which are connected in series, have now been installed. The first electron beam circulated on 8 March 2019 – a breakthrough in the construction of the CNPEM research centre's synchrotron radiation generator. Synchrotron light forms when the pre-accelerated particles almost reach light speed at the final stage and their trajectory is diverted by magnetic fields at approximately 600,000 revolutions per second. This light makes it possible to take high-resolution images of different organic and non-organic materials and processes, including viruses, rock, proteins, plants, metal compounds and human body parts.

Mateus Fonseca (28) is thrilled. The CNPEM researcher has spent years studying neurodegenerative disorders, in particular Parkinson's disease, which currently affects six million people worldwide. "With the synchrotron light Sirius generates, I can

examine a human brain in a single analysis – with millimetre precision and on a nanometric scale," Fonseca explains, adding: "I can also use it to analyse the brain in its entirety. Until now, specimens couldn't be any larger than seven millimetres." Making use of this and the greatly improved image resolution, Fonseca hopes to discover how and where exactly the disease forms so that treatment can be administered in that very area. In his opinion, Project Sirius is breaking new ground in the world of research. "Perhaps we'll discover ways to cure previously incurable neurodegenerative diseases! I am extremely proud that this machine has been built by Brazilian researchers," he says.

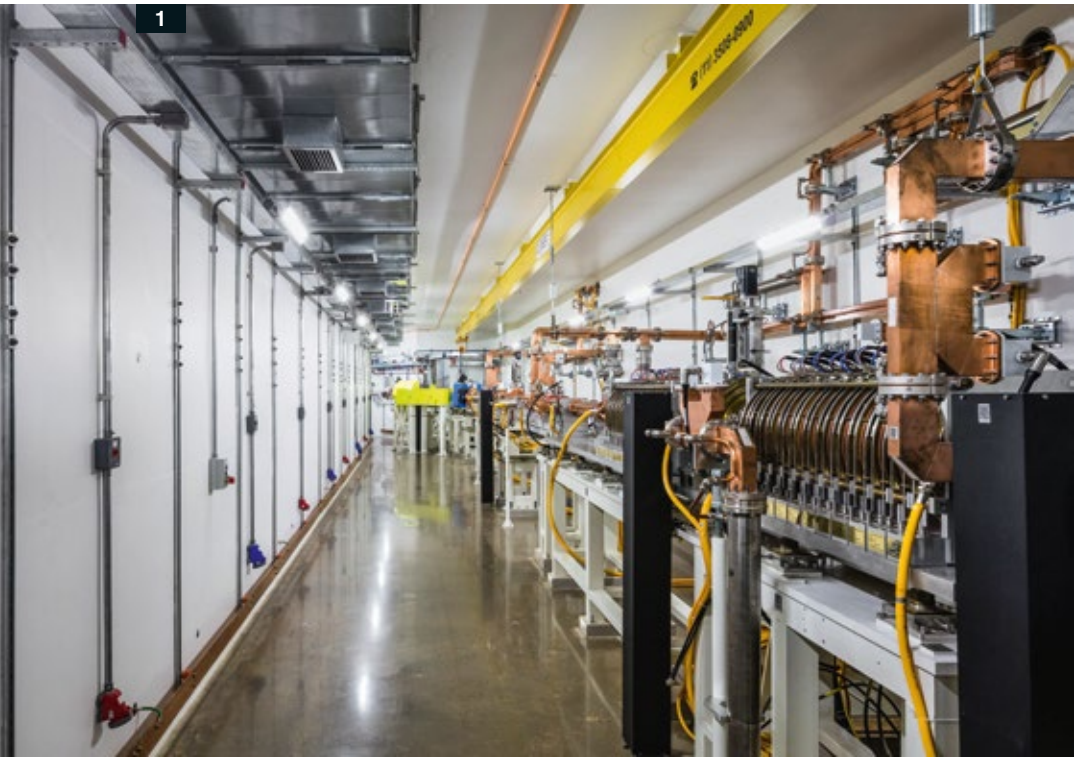
PIONEERING DEVELOPMENT WORK

The person in charge of assembling the particle accelerators is engineer James Citadini (37). Millions of electronic and other parts are included in the three particle accelerators that together form the fourth-generation accelerator. And all of them, even those weighing tons, had to be put in place with millimetre precision. Every day for the past few years, Citadini has felt his adrenaline surge at work. "Time and

again, we realised there were no ready-made solutions for certain challenges. We constantly had to invent new ones," he recalls. Many of the components used in Sirius were therefore built from scratch, which presented one of the biggest challenges the project team faced. "We've used high-field permanent magnets, for instance," the engineer says, adding: "At the time, experts at every conference and trade fair voiced their scepticism, claiming it would never work the way we had planned – but now our model is seen as a benchmark!"

Attempts to commission exclusively Brazilian suppliers proved to be another challenge. "At times, we had to convince small companies to develop new parts especially for us that could only be tested out after they were made – and that potentially might not work," says Citadini. Some 85 per cent of the investment in Project Sirius has stayed in Brazil. One of the very few exceptions are enclosures from Rittal. The Herborn-based company is the world leader for enclosures and cooling systems and has been operating in Brazil since 1996.

"We wanted to house the electronic systems in compartments in the inner concrete wall," Citadini explains. "More than 200 large enclosures are used there at the same time, right next to the research stations." The enclosures need to be constantly cooled to the exact same temperature – as silently as possible. Their climate-control systems consist of fan-and-filter units that use the climate-controlled ambient air for cooling purposes. This is another area where the extremely quiet and fail-safe fan-and-filter units from Rittal won over the Brazilian scientists. The team also required a standardised enclosure design that could nonetheless accommodate very different components and perform extremely varied functions. "Thousands of electronic components of various sizes all need to fit into the same enclosure system," says Citadini. Marcelo Adolfo from Rittal Brazil adds: "It's also imperative to prevent any kind of vibration to avoid adverse effects on the researchers' experiments. The enclosures need to run without any disruption whatsoever, too." Eager to take up the challenge, the specialists from Rittal set about developing prototypes for a model that would be perfectly tuned to the extreme degree of precision required by the laboratory conditions. The experts in Campinas then compared the prototypes built by Rittal against alternatives from two Brazilian suppliers. The Rittal products came out on top. "To keep vibration to a minimum, we reinforced



- 1 Inside the particle accelerator: It is forbidden to use the huge building's corridors while the particle accelerator is switched on. However, the same corridors become busy thoroughfares when staff are busy assembling or testing components.
- 2 The image shows laboratory staff installing the vacuum system in one of Project Sirius's particle accelerators.


the sheet steel, increasing the thickness from the usual 1.5 millimetres to three millimetres," recalls Adolfo. Besides the effective air circulation in the enclosures, Citadini also appreciates how easy the enclosure system is to assemble. The punched sections, for example, speed up the interior fit-out at the German manufacturer's end as, instead of being awkwardly screw-fastened, they click into place in a practical arrangement. "When you've got around 200 enclosures with countless electronic parts, that saves you a great deal of time," he says. The result of the joint development work is a collection of six different models with a consistent visual design. Rittal technicians built a prototype for each of these models in Campinas. In total, the laboratory uses around 200 large enclosures in the particle accelerator, with another 40 already in use in one of its two data centres. In future, up to 40 research stations for scientists from the world over will be set up at the Sirius facility. Every single one of them will require another eight to ten enclosures. "We expect demand to remain consistently high," says Citadini, "and since we're only using enclosures from Rittal, we're above all benefiting from excellent quality."

STILL AIMING FOR THE TOP OF THE WORLD


Project Sirius has been his life for years. "I must walk 20 kilometres up and down these halls every day! At the start, I oversaw the magnet group and now I'm coordinating the entire installation. I practically live here," he says with a grin. "We celebrate every achievement. In March, we had an electron beam circulate here that was 50 times thinner than a strand of hair – that in itself is a great success." Rittal products will also be needed in the future. Soon, Citadini plans to get together with a few members of his team to think about upgrades for Sirius. After all, although the world's most advanced particle accelerator is only expected to be fully operational in 2020, the goal is to retain its world title for as long as possible. ■

Overview

Rittal in Brazil




Some 67 employees at the São Paulo production site work on steel and stainless steel products and plastic parts.



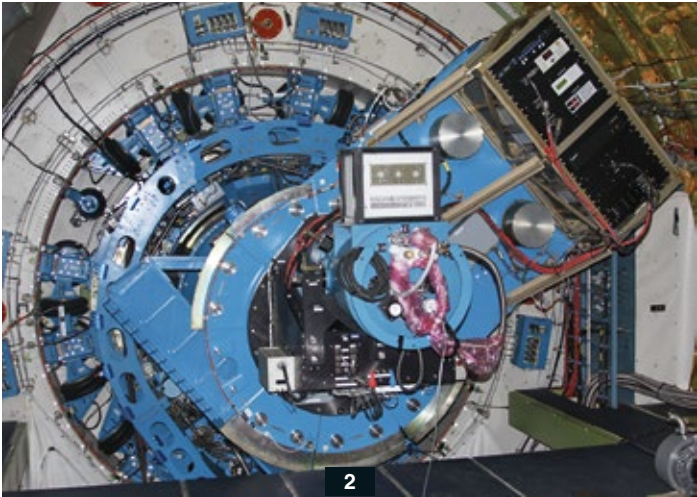
The Rittal factory in Brazil was opened on 15 May 1996.



The three most important sectors for the site are the automotive, mechanical engineering and food industries.

 You can find out more about Project Sirius here:
www.inls.cnpem.br/en

Flying observatory



Science. The SOFIA research aircraft records infrared radiation to keep a close eye on space. A solution from **Eplan** is now being used to provide the complex electrical engineering.

Text: Birgit Hagelschuer

The higher up you are, the more you can see – and the same goes in astronomy. If you want to explore the universe in the infrared spectrum, you won't find out much if you're working from ground level, which is why – back in 2010 – the National Aeronautics and Space Administration (NASA) and the German Aerospace Center (DLR) launched what was at that time the world's only flying observatory.

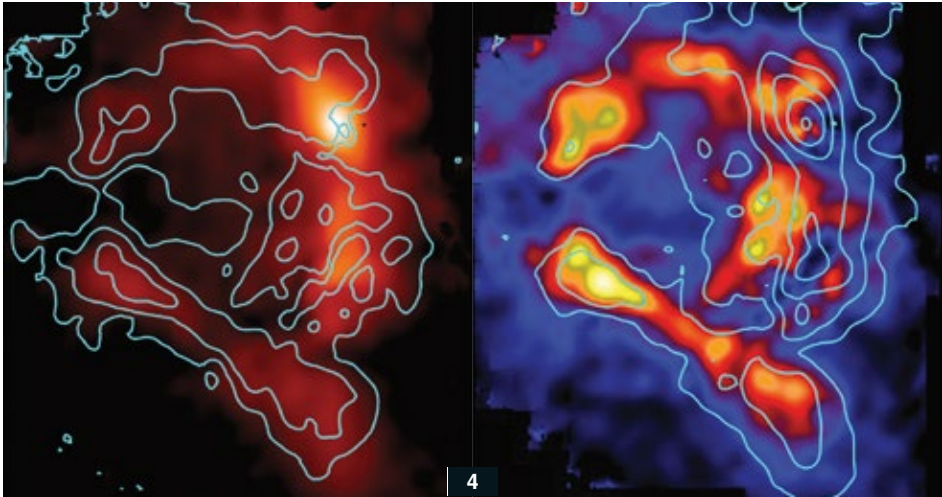
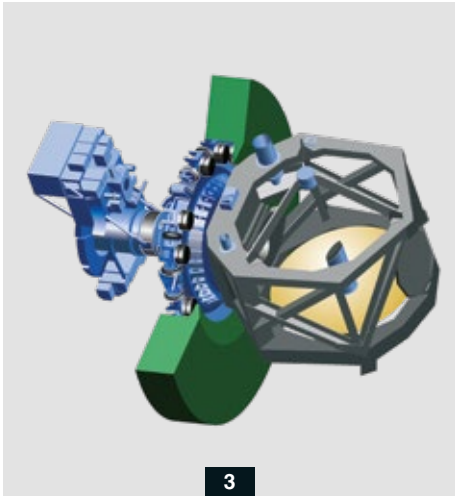
A Boeing 747SP was fitted with a 17-ton telescope incorporating a mirror with a diameter of 2.7 metres for in-depth insights at altitudes of between 12 and 14 kilometres. The aircraft is known as SOFIA (Stratospheric Observatory for Infrared Astronomy) and takes off several times a week from Palmdale, California, in the United States for research flights. Scientists have already detected several previously unknown molecules and can study the formation of stars in detail.

SOFIA's infrared telescope was manufactured in Germany and is a masterpiece of mechanical and instrument engineering. "It can be aligned with an accuracy of 0.2 arc seconds and is mounted with such precision that the weight of approximately eight tons can be moved in three dimensions with just a finger," explains avionics engineer Simon Beckmann, who is jointly responsible for telescope electronics at the German SOFIA Institute (DSI). But what does 0.2 arc seconds actually mean? "To give you some kind of idea, the telescope is capable of using a laser to locate a 1 cent coin from a distance of 16 kilometres while in flight – all in hurricane-like conditions, travelling at an airspeed of 800 kilometres per hour," continues Beckmann.

The tasks involved in operating SOFIA are very strictly divided. NASA and the Universities Space Research Association are responsible for flights and the aircraft, the

SOFIA Science Mission Operation Center at the NASA Ames Research Center in Mountainview, California, takes care of scientific operations, and the University of Stuttgart's DSI is in charge of the telescope's maintenance and ongoing development. The majority of the approximately 50 DSI employees work in Palmdale, where they also prepare for and take part in new research flights.

If a fault or even an irregularity is detected on the telescope, the team immediately takes action. In the past, if the telescope's electronics had been affected, the team would have had to consult printed schematics stored in a whole wall of files. "Developing the individual telescope systems some 20 years ago involved many specialist companies using different ECAD systems. Keeping track when troubleshooting was always a challenge," reveals Beckmann. The envisaged new basic concept, he



- 1** SOFIA on a test flight with the observatory door open and the infrared telescope in use. The Boeing 747SP is based in Palmdale, California.
- 2** The telescope is permanently installed in the aircraft. Its weight of 17 tons and mirror diameter of 2.7 metres mean the Boeing has a heavy load.

- 3** A system consisting of 24 air springs arranged both axially and radially isolates vibrations and keeps the 17-ton infrared telescope in exactly the right position.
- 4** Infrared images like these ones of the Orion constellation shed light on the development of star systems and the formation of new stars.

says, was to build a DSI-specific ECAD system comprising three equally important tools. Based on Eplan Electric P8, the system was therefore anything but an off-the-shelf solution. The software was extensively adapted to the specific application. TPO Engineering Services GmbH in Crailsheim, Germany, was tasked with implementing the project. This involved not only converting heterogeneous engineering data into standard Eplan documentation, but also incorporating general and special requirements.


The first of the three Eplan-based tools is used to modify and redesign the electrical and electronic components of the telescope system and testing equipment. The second tool is a maintenance and repair solution centred around the harness master diagram, which provides an overview of the entire telescope. The third and final tool focuses on quality assurance, providing

proof of documentation for all the telescope's cabling.

Beckmann explains why the Eplan option module is so important: "When the telescope was provided, no replacement units existed. We currently develop and make these in-house at DSI or have them rebuilt by manufacturers. Since the technology changes a lot, improvements of course become incorporated into any replicated components. Replacement units therefore may have the same interface to the telescope, but a completely different internal structure. The option module ensures that the DSI team can act quickly in the event of an error and that SOFIA always takes off for the next mission with the latest documentation status." This solution is also used for tasks such as airworthiness approvals and revision management monitoring. The very different documents originally provided by the telescope component suppliers posed

a challenge for the SOFIA team when the software was being rolled out. "We couldn't just transfer the documents 1:1. Each document had to be adapted and undergo some reassignment within the structure. In some cases, documents were missing or couldn't be clearly portrayed, so we had to check the system functions and, if unclear, our colleagues in California checked them during maintenance work," explains Beckmann.

Everyone involved in the 18-month project was passionately committed to transferring the highly complex documentation into Eplan – a major team effort. ■

 More exciting infrared images from NASA can be found in the online magazine: www.bit.ly/betop-sofia-en

Wired for success

Wire processing. Automation is a burning issue among panel builders and switchgear manufacturers today. **Ripploh Elektrotechnik** is an SME that sets a shining example of what can be achieved with the latest technology. Among other things, it uses a Wire Terminal to process wires on a fully automated basis. The company is already working on robot-assisted wiring, too.

Text: Dr Jörg Lantzsch and Hans-Robert Koch

Imagine you've just stepped into a large, well-kept workshop containing numerous enclosures and mounting plates that are waiting to be processed. A handful of staff members are focused on fitting-out and wiring work. Another thing that strikes you is the complete absence of paper – there are no folders stuffed with circuit diagrams and no job slips, either. Is this what the future of panel building and switchgear manufacturing looks like? At Ripploh Elektrotechnik, which is based in Ostbevern, Germany, this future is already a reality.

Since it was founded in 1995, the medium-sized company has evolved from a small contract manufacturer with four employees into an end-to-end supplier that doesn't just build panels and switchgear, but also takes care of all the engineering work involved. "Nowadays, we have a long list of customers from industries such as the mechanical engineering sector who focus on engineering their machines and only tell us what type of installed components and IOs they want," says Andreas Ripploh. "We then plan the entire control and switchgear installation from scratch and manufacture it at our own workshop."

All processes at Ripploh are highly automated, starting with the early quotation phase. "To a certain extent, putting together a quote is a kind of 'preliminary engineering' process, and we have to invest some of our expertise in that step," Ripploh explains. That is why the company offers the UNIT-E enclosure configurator for pre-determined and configurable assemblies. Customers can use this solution to get an immediate quote based on the information they provide. Downstream of the configurator is the Eplan Engineering Center, which initiates a detailed planning process after conducting a plausibility check. Within 24 hours, the customer receives a complete circuit diagram containing all relevant information. "Our ERP system is closely linked to Eplan for the quotation process," Ripploh explains, adding: "We maintain all component data in our ERP system's database and enter it directly into the Eplan database." Ensuring the data is of high quality and maintaining a data format with a uniform standard are a key challenge for the company – and there is still a great deal of work to be done. "Clean datasets are more important for panel building and switchgear manufacturing than many people think."



WIRE PROCESSING
is fully automated at Ripploh, thanks to the Rittal Wire Terminal. The advantage is that the machine continues working overnight, so employees can start installing the processed wires as soon as they come into work.



EFFICIENT WIRING Using the Rittal Wire Terminal, wiring sequences can be precisely planned and specified, ensuring optimum system utilisation and an ideal workflow in the workshop.



A SPACE-SAVING WONDER The compact Rittal Wire Terminal easily fits into small production environments.



A PAPERLESS WORKFLOW All job slips at Ripploh are digital. Tablets provide employees with all the information they need for a job.

Development partnership

Put through its paces – and honed

The newly developed Wire Terminal from Rittal was first showcased at the 2018 SPS IPC Drives automation fair. To test it under real panel building and switchgear manufacturing conditions, it was subjected to a beta test at Ripploh Elektrotechnik in 2019. Refinements were made to the wiring machine with the plant engineering company's support. "We are delighted that we were able to persuade Andreas Ripploh, a valued long-standing customer and member of the customer advisory council, to come on board in the early beta test phase so we could take the necessary practical steps together. The innovative strength of his company has helped us take wire processing to an even higher level and ensure its reliability," says Tim Kramer, Director of Rittal Automation Systems at Rittal.

At Ripploh, the data generated in the engineering department is used seamlessly to manage processes in the workshop. "The 3D planning in Eplan Pro Panel, for example, provides the data for the CNC machine used to machine panels and for fully automated wire processing." The Wire Terminal from Rittal Automation Systems takes care of cutting, sheath-stripping, crimping and labelling the wires.

FOUR TIMES FASTER

Over the course of an eight-hour shift, this new machine can process up to 1,500 wires. And since there's no longer any need for operator intervention once a job has been started, the Wire Terminal produces the exact same volume overnight. "Employees can remove the wires from the machine in the morning and set about installing them straight away," says Ripploh. Productivity in wire processing operations is around four times higher compared to the old solution. There's no need to have a member of staff on duty at all times to operate the machine, either.

The company's Managing Director believes the Wire Terminal offers yet another key advantage. "We can now stipulate the sequence in which the wires are processed and deposited onto the rails." This functionality is very important for ensuring the efficiency of wiring operations. If, for example, the company is tasked with wiring a small series of ten enclosures, it can choose a sequence to ensure the relevant member of staff fits the same wire in every enclosure, one after the other. Since the staff member knows what he or she is doing after completing the step on the first enclosure, the work on the rest of them goes much faster. However, if a connector with five cables is to be mounted, it might be more appropriate to first fit all five cables in one enclosure before continuing to the next one. "We can therefore stipulate exactly how wiring work is to be done, which makes the process more efficient," says Ripploh. The Wire Terminal thus seamlessly integrates into the workshop's sophisticated workflow.

DIGITAL ORDER PROCESSING

What is more, rather than issuing work orders in the form of paper job slips, Ripploh equips each of its employees with an iPad that provides them with all their jobs and the information they need. The enclosures, picked components and now also the magazines with the wires assembled using Wire



"We are completing significantly more jobs with the same number of staff."

Andreas Ripploh
Managing Director at
Ripploh Elektrotechnik GmbH

Terminal are all provided with QR codes. Employees scan this code on their iPad and can then start the job. "This ensures the connection to the ERP system and the engineering department is constantly updated," Ripploh explains, adding: "Staff can only begin wiring, for example, if the approved plans are available on the server." On their screens, employees can see the routing paths for the wiring, among other things. This not only ensures high efficiency and speed; it also greatly reduces the likelihood of errors. Using a stylus, staff can enter changes – which can be necessary despite careful planning – directly into the PDF file of the circuit diagram on their iPad. This corresponds to the traditional redlining method, which involves marking changes on a printed circuit diagram in pen. Thanks to digitalization, however, it is now possible for any changes made to find their way back into the engineering workflow, thereby ensuring the finished enclosure and the updated circuit diagram are a perfect match.

By implementing automation and digitalization across the board, Ripploh has achieved a great deal. According to the

company's Managing Director: "Today, we can complete significantly more jobs than just a few years ago with the same number of staff." This is a crucial advantage, particularly given the lack of qualified skilled workers on the labour market. Since the workshop activities are now strictly laid down as a result of end-to-end digitalization, certain tasks can be entrusted to semi-skilled employees.

Ripploh believes that automation in panel building and switchgear manufacturing still has a long way to go. "The next step will probably be automated wiring." Since the Wire Terminal places the processed wires into its storage unit in a defined sequence, it is conceivable that it could pass them on to a robot to carry out the wiring. "We are already working on this and are confident that in two years or so our wiring operations will be robot-assisted," says Ripploh.



For more information about the Rittal Wire Terminal, visit: www.bit.ly/rittal-wire-terminal-en

Digital tools for manual work

Digitalization. Luxforge achieved the near-utopian feat of evolving from a small metalworking shop into a digital business that acts as a role model. The company's brilliant strategy is taking it into the digital future.

Text: Thorsten Leyens

customer's premises," recalls Dahner. He started development work but hit an obstacle when it came to data processing. "At this point, we were not yet able to process the data obtained from the scanner in the old CAD system," he explains. Dahner spent three months testing various 3D CAD systems without making a breakthrough before Cideon recommended the Autodesk product ReCap.

It soon became clear that this reality capture software was ideal for the application in question. The product generates intelligent 3D models from the laser scanner's data and adds them as a reference during CAD planning. This enables 3D models of the actual installation environment to be generated at the customer's premises and designers can validate their ideas whenever they like in a context that reflects reality. "Digital measurement now seamlessly documents the customer's actual situation. This means the new procedure generates added value for both Luxforge and the customer," explains Dahner.

PERFECTING THE WORKFLOW

In addition to ReCap, Luxforge also relies on other digital solutions from Cideon. Its staff were able to use Autodesk Configurator 360 to create a web configurator app and realise a long-held dream of 48-year-old Managing Director Dirk Treinen. "I always thought there must be a way of organising things so customers can order basic railing segments, window grilles and canopies from us online with just a few mouse clicks and have our production team working on the order an hour later," he says. The app worked, but there was a hitch – the lack of a supporting framework. Specific efforts were made to find a sustainable, consistent database that could help operate the web configurator and serve as a milestone on the way to a new digital workflow. Consultation with Cideon led to PRO.FILE being identified as a suitable solution. "PRO.FILE is a multi-CAD, multi-ERP compatible tool used within the product engineering process. We were aware Luxforge is planning further launches in this area, so we were confident this tool is the ideal solution for the company," explains Ralf Pressler, PRO.FILE Technical Sales Manager at Cideon. As a product data backbone, PRO.FILE meets all the metalworking shop's requirements, including placing orders with just a few mouse clicks.

A discovery in the basement was to shape the future of Luxforge in Troisvierges, Luxembourg, turning the company from a simple metalworking shop into one of Luxembourg's leading suppliers of customised metal structures. The key to this success first had to be re-discovered, though. When master metalworker and CAD designer Jean-Claude Dahner started working at Luxforge, he came across a dust-covered Faro 3D laser scanner and immediately realised this device could mark the start of a new era.

Luxforge produces customised metal products for private and business customers. However, inaccurate on-site measurements taken at the customer's premises regularly cause major problems. For a metalworking shop, getting the right measurements is the basis for all subsequent tasks. Inaccuracies lead to incorrectly dimensioned components, reworking and frustration for fitters and customers alike. "It immediately occurred to me that 3D laser scanning was the ideal solution to ensure measurements are taken correctly at the



A PERFECT FIT

Luxforge's digital transformation started with the discovery of a 3D laser scanner. Steps now dovetail perfectly – from digital measurement using 3D laser scanning ① and data processing ② all the way through to the model and, ultimately, the finished product ③.



"The new procedure generates added value for both Luxforge and the customer."

Jean-Claude Dahner
Master metalworker and CAD designer at Luxforge

The combination of Autodesk and PRO.FILE, which is loaded with the latest data for each new order, is a perfect fit. "Fast copying, fast saving and full integration are exactly what we need, saving the company valuable time," says Dahner.

PERFECT COORDINATION FOR ENHANCED EFFICIENCY

PRO.FILE is now an integral part of all Luxforge orders. On receipt of an enquiry, the costing function prepares a quotation. If an order is placed, a project manager and workflows are defined, and the documents are filed in PRO.FILE for the first time. Following on-site measurement using 3D laser scanning and after a detailed discussion with the customer, the workflow really gets going in both digital and physical terms. "At least 90 per cent of all questions have been resolved at this point, the project is activated in PRO.FILE and design work can start," says Dahner. Digital support has


made the production process far more efficient. It used to take ten working days to get from the planning stage to the installation of a conventional steel staircase, but this has been reduced to just six days in the digital era. Time is also saved at the preparatory stage, because staff no longer need to constantly go back and forth between drawing office and machine but simply hang the finished plans on the wall. "The process has also become more reliable," reports Treinen.

He and Dahner credit two factors with ensuring a smooth process flow. Firstly, Autodesk and PRO.FILE come from a single source, which makes for efficient processes. Secondly, staff from Cideon provided intensive training before the programs were used at the company to help create the necessary level of expertise. Luxforge is now keen to pass on its knowledge to smaller metalworking shops and workshops in the region to help them move into the digital future.

A far-sighted trio

Digitalization. Machine and switchgear specialist **Bauer Systeme** is a prime example of how small businesses can also benefit from the opportunities offered by digital advances. With help from **Rittal** and **Eplan**, the company is digitalizing and automating its processes – without any compromise. We decided to introduce the trio behind this transformation.

Text: Dr Jörg Lantzsch and Hans-Robert Koch

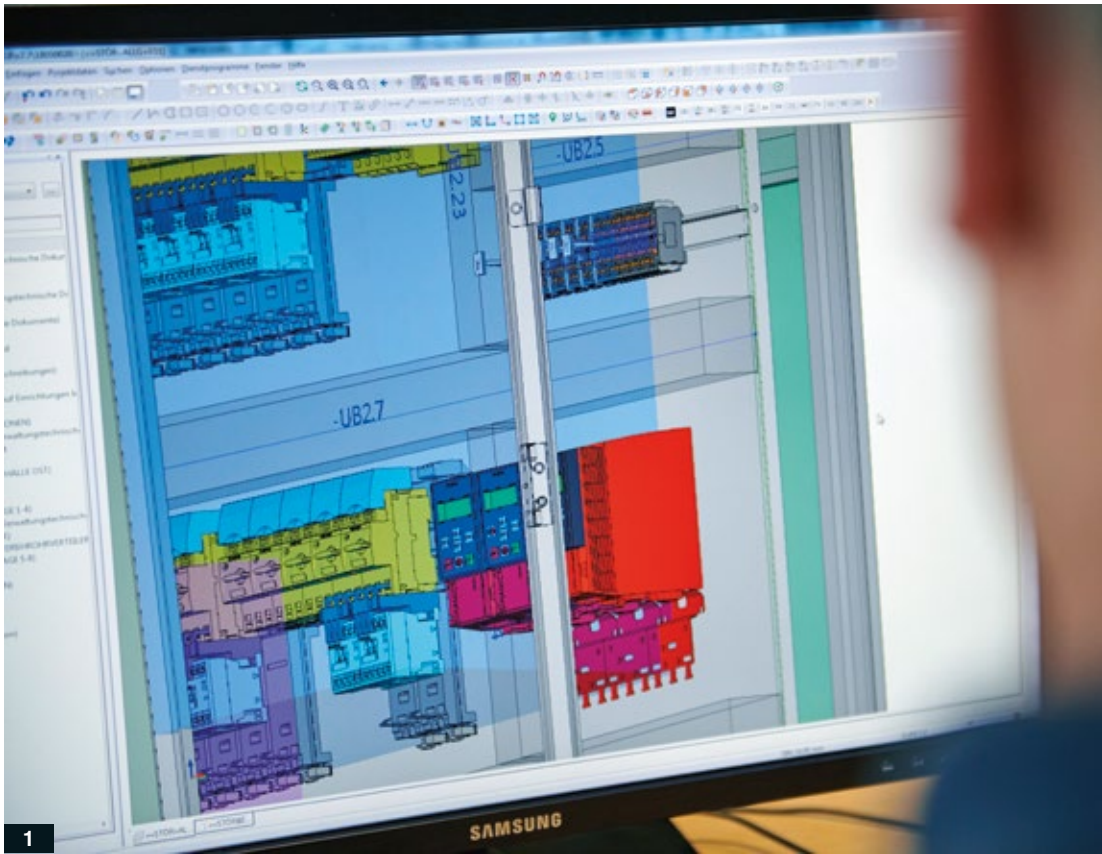
Hartmuth Bauer certainly had his finger on the pulse when, back in 2004, he anticipated just how important having an automated value chain would become. Trusting his intuition, he made the momentous decision at Hannover Messe to order a CNC machining centre that his three workshop employees could use for enclosure parts. The Managing Director was convinced that his company had to have a machining centre like that if it were to be taken seriously in the marketplace. He felt that efficiently automating and regulating workflows was the only way to ensure the business would survive in the market. Back then, the term “Industry 4.0” hadn’t even been invented yet. Nowadays, there’s hardly a single company that isn’t faced with the challenge of digitalizing its work processes. When Bauer founded his company in 1999, he originally specialised in developing handling systems and controllers for the timber industry. “Yet as time went on, we found we were supplying more and more customers with enclosures incorporating control technology,” recalls Bauer, adding: “So it was only logical that we rename the company and change strategy. We were eager to do it properly from the start.” Today, Bauer Systeme GmbH has a workforce of 

- 1

To keep its database in order, the company uses the Eplan Data Portal, Eplan Electric P8 and Eplan Pro Panel software solutions.
- 2

(From left) Oliver Martin, Hartmuth Bauer and René Alldinger have devised a digitalization strategy to take Bauer Systeme into the future.
- 3

The mechanical engineering and electrical workshops at Bauer Systeme have no need of printed wiring plans. Pictured is the Perforex BC machining centre from Rittal Automation Systems.



around thirty. Based in the southern German town of Bretten, the SME offers a comprehensive portfolio of solutions developed by professionals for professionals. “We see projects through from electrical and 3D configuration planning to production in our workshop and commissioning,” says René Alldinger, who has been a member of the Management Board since 2005. “Our role as a full-service provider gives us a major competitive edge.”

Bauer and Alldinger have secured this advantage by rigorously digitalizing their

value chain and thereby enabling the business to find the optimum way to implement complex projects. In other words, even large orders are completed swiftly and efficiently – according to schedule and without wasting resources. Given the acute shortage of skilled workers on the job market, Bauer Systeme is turning to automation to stay competitive.

“We lay the foundation for automation during the engineering process,” explains Oliver Martin, Head of Electrical Design at Bauer Systeme. The data generated at this

stage forms the basis for all other processes, with both the workshops and the other departments – from purchasing to production planning – using the very same data. “The Eplan database is the key to our engineering process, which is why we take such care to maintain it,” Martin points out. As the entire production process uses the same database, the quality of the end product very much depends on the quality of the data.

Also responsible for database maintenance at Bauer Systeme, Martin ensures



“The data provided by Rittal in the Eplan Data Portal is of very high quality, which makes design work in 3D applications much easier.”

Hartmuth Bauer
Managing Director at
Bauer Systeme

the quality of the data is impeccable. “We have a set way of storing data,” he explains. “The data has to be complete. If it’s not, we need to do more work on it,” he adds. According to the expert, incorrect or incomplete data very quickly leads to errors further down the line. “The data provided by Rittal in the Eplan Data Portal is of very high quality, which makes design work much easier, particularly when it comes to 3D applications,” says Bauer, who is also very impressed with the solution. “With the new VX25 enclosure, even the mounting points for buying connectors are designed in such a way that the components automatically clip into place when they are correctly positioned.”

MECHANICAL ENGINEERING ROOTS

The company uses Eplan Electric P8 for electrical planning, taking care of 3D configuration planning in Eplan Pro Panel. “We use the software to generate a virtual prototype,” says Martin. Both the electrical plans and the virtual prototypes are very detailed and therefore pretty extensive. “They form the basis of all subsequent work steps. Generally, the more detailed the planning is, the more efficient production operations are,” he explains. The digitalization of working processes has led to some tasks in the workshop being outsourced to the planning office. “This enables us to carry out projects even if we have limited human resources.”

The company’s mechanical engineering roots serve it well, as its employees are now experts in both that sector and in panel building and switchgear manufacturing. That is why Bauer Systeme can offer integrated solutions that utilise end-to-end data management. 3D models from mechanical engineering are imported directly into Eplan, where they are seamlessly put to further use.

Next in line for automation besides electrical planning and production are mechanical engineering and the connection to the ERP system. The extent to which the company has already gone digital becomes quite evident upon entering the mechanical engineering and electrical workshops – neither of which now use printed wiring plans. But Bauer Systeme has in no way finished pursuing digitalization. The Managing Directors are in complete agreement: “We are always open to innovations – but only if they offer us genuine added value.” ■

5

Tips for Panel Building and Switchgear Manufacturing 4.0



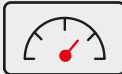
1. Analysis

Analyse your current situation and look at all your processes as a whole.



2. Experts

Search help from our experts and draw up an in-depth status analysis in order to find out what precisely along your process chain can be improved.



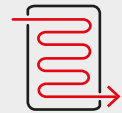
3. Potential

Personalised solutions tailored to your processes help you to reap the benefits of improvements.



4. Prototyping

Rely on virtual prototyping as the central link in your end-to-end process chains right through to manufacturing.



5. Automation

Identify the automation solutions that suit your requirements in order to boost productivity and quality.



Do you need help?
Visit the Rittal Innovation Center and experience the option of end-to-end digital transformation of your value creation processes within your company.
You can reach our experts at:
+49 (0) 2773-924-1544
innovationcenter@rittal.de

ISSUE 01 | 2020

Go-getter

As an entrepreneur, you need determination and vision – qualities that are clearly demonstrated by Dominic Löscher from Reichenbach in Germany's Vogtland region. The young electrician had been working for himself for only a few years when his father advised him to invest in a state-of-the-art CNC machining centre. By mustering a great deal of courage and purchasing a Perforex from Rittal Automation Systems, **Löscher** succeeded in automating his business, which now handles even complex orders quickly and efficiently.

FIND OUT MORE IN THE NEXT ISSUE OF BE TOP.



This is Dominic Löscher. Find out more about him and his clever ideas in the next issue.

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315 million

followers make Instagram's own account the world's most popular – even ahead of football star Cristiano Ronaldo with around 188 million followers and musician Ariane Grande with 166 million.

World changer

On 9 November 1989, Harald Jäger changed the course of history with a single decision. The deputy head of the passport control unit at East Germany's Bornholmer Strasse check-point disobeyed orders and raised the barrier, opening the Berlin Wall.

Totally top!

Outstanding achievements aren't just being made in technology and industry – humans and nature are also making great strides, proving that they too have quite a bit to offer.

International understanding

With over three billion speakers, the Indo-European family of languages is the largest in the world. Due to their common origin, the languages belonging to this family – such as French, German, English and Persian – have significant similarities when it comes to vocabulary, inflection and grammatical categories.

Children of the sun

Some people think horoscopes are nonsense, but according to a study by New York's Columbia University, there is a link between the month a person is born in and increased risks of illness – it all comes down to different levels of UV radiation.

Shopping for singles

China Singles' Day falls on 11 November. Originally celebrated only at the universities in Nanjing, it is now the world's biggest online shopping day. On this day alone, for example, the Alibaba Group sells more than double what it does on Cyber Monday, Black Friday, Thanksgiving and Amazon Prime Day put together!

Forest man

Jadav Molai Payeng has one single goal – saving Majuli, the world's largest river island, from the consequences of global climate change. To achieve this, he has been planting a tree every day for around 40 years. Nearly six square kilometres of the sandbanks are now covered with trees and bushes, providing a new home for apes, Bengal tigers and rhinos.

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