Bystronic

WORLD

The magazine for cutting, bending, and automation

01-2021

A RECIPE FOR SUCCESS

HOW INDUSTRY IS LEARNING TO SHARE

ELECTRICALLY DRIVEN VINTAGE CARS IN THE FAST LANE TWO BAVARIANS WAGE WAR ON AEROSOLS NEW OPPORTUNITIES THANKS TO TUBE PROCESSING

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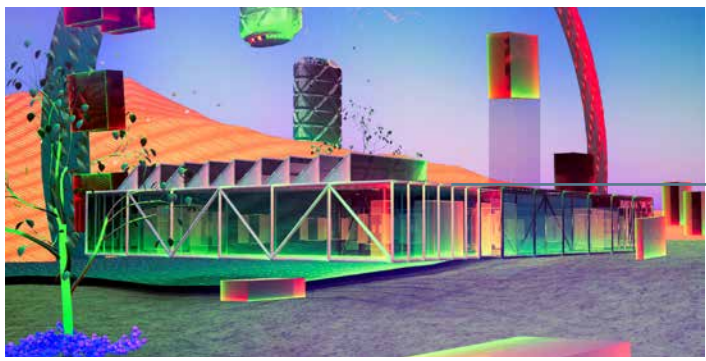

Dear reader,

Are you already sharing or do you still own? This question is gaining importance, and the success of the "sharing economy" is providing answers. Sharing conserves resources: both natural and financial. In industry, we witness the value of the sharing culture on a daily basis. For example, it helps prevent downtime because our customers share their data with us.

But sharing is also a success factor when it comes to refining new solutions. The French family-owned enterprise Badré, for example, put the ByTube 130 tube laser cutting system through its paces and shared their findings with us. The result: a classic win-win situation.

The latest invention from the German company Schnittpunkt also has all the makings of a winner. The entrepreneurs developed an aerosol sterilizer that reliably kills viruses. They are thus making a major contribution toward keeping workplaces germ-free during the pandemic.

The Swiss startup Triamp and the sheet metal processing company Ray-Cut are also helping improve air quality. Together, they converted two vintage Jaguars and a Volkswagen into electric cars.

The stories in this issue show how the sharing trend and innovative solutions are driving our world forward.

I wish you an enjoyable read,

Alex Waser, CEO

IMPRINT

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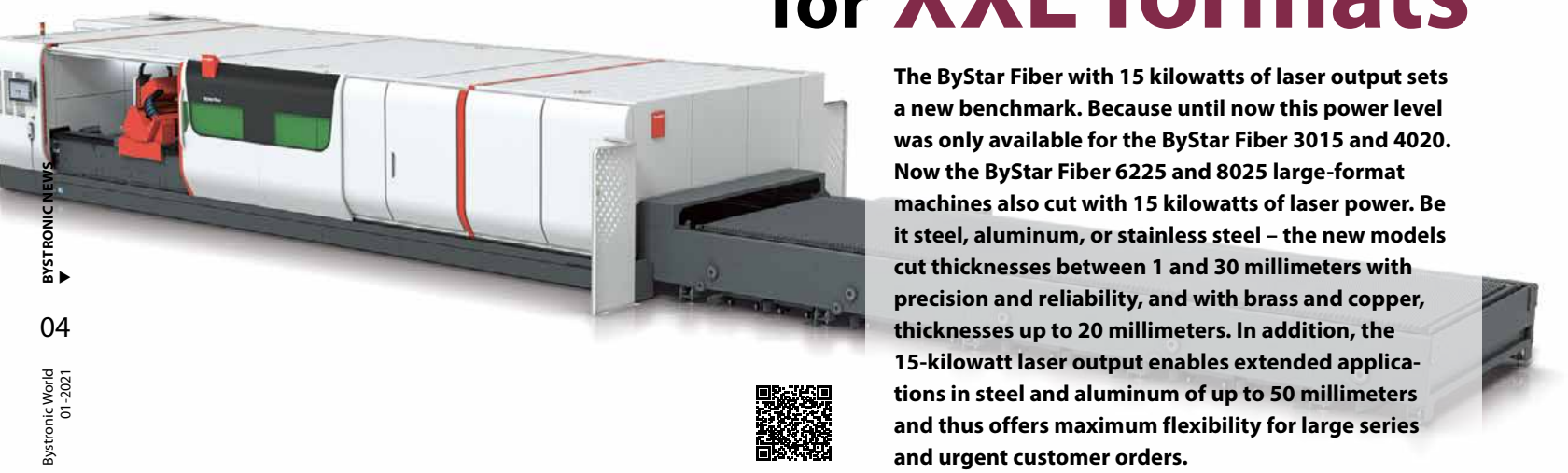
Bystronic

NEWS

15 kilowatts of laser power for XXL formats



The ByStar Fiber with 15 kilowatts of laser output sets a new benchmark. Because until now this power level was only available for the ByStar Fiber 3015 and 4020. Now the ByStar Fiber 6225 and 8025 large-format machines also cut with 15 kilowatts of laser power. Be it steel, aluminum, or stainless steel – the new models cut thicknesses between 1 and 30 millimeters with precision and reliability, and with brass and copper, thicknesses up to 20 millimeters. In addition, the 15-kilowatt laser output enables extended applications in steel and aluminum of up to 50 millimeters and thus offers maximum flexibility for large series and urgent customer orders.

Digital Technology Days 2.0

Bystronic is also a live streaming expert. In February, the second "Digital Technology Days" successfully hit screens around the globe. In attendance: more than 820 participants from 47 countries. The entertaining and informative live event was organized by Bystronic Maschinenbau GmbH. The focus was on product demos in the fields of cutting, bending, automation, and software. In total, four events were produced for customers from Australia, New Zealand, Northern Europe, Great Britain, Russia, and America.

Bystronic acquires Kurago

With the acquisition of the Spanish software specialist Kurago Software S.L., we are expanding our digital expertise and thus strengthening our service portfolio with additional innovative solutions. Within the framework of our growth strategy, we are addressing the growing demand for automation and digital processes in the sheet metal processing sector with new, intelligent software solutions and networking our customers' manufacturing processes. Bystronic CEO Alex Waser: "After successfully collaborating to develop smart factory solutions over the past two years, the acquisition of Kurago marks another milestone in our growth strategy. Together, we will develop intelligent end-to-end solutions to continue to drive forward the digitalization of our customers' production environments."

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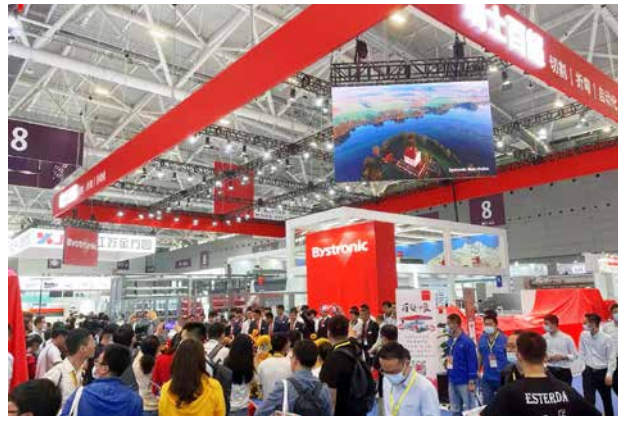
Bystronic Pre-owned:
proven quality, best value.

Bystronic Pre-owned

With "Bystronic Pre-owned", we are breaking new ground in the second-hand machine market: When a customer purchases a new machine, Bystronic submits a purchase offer for their old machine within 24 hours. For the EMEA region, this is made possible by the "Bystronic Pre-owned Center" based in the Netherlands. Follow this link to visit our new "Pre-owned" website. More than 40 machines are currently listed. Each one has passed the rigorous 100-point check.

ITES SHENZHEN



China is holding exhibitions again – an encouraging sign for us. We received photos from the ITES trade show in Shenzhen, China, just before the editorial deadline. Exhibitors from all around the globe are showing their portfolios on a total area of 240,000 square meters. Naturally, Bystronic China was also on board with an impressive range of laser cutting systems, bending machines, automation solutions, and tube processing systems.

Trend NEWS

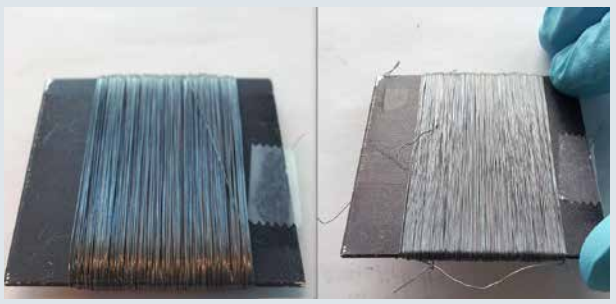
Photo: UZH

Crash-proof drone

If a drone rotor fails, the drone usually crashes. This can result in severe accidents. The problem: The sudden absence of rotor power causes the drone to spin in circles, making it difficult to track its position when the GPS reception is poor. Swiss researchers have now found a solution to this: They equipped their drone with special cameras that allow it to orient itself. This ensures precise control at all times – even in the event of a rotor failure.

Photo: Empa

Smart ropes



Smart fibers before and after exposure to heat.

Ropes save lives, for example those of firefighters, mountain climbers, or construction workers. But if they are exposed to excessive heat due to friction or fire, there is a risk that they could break during a future mission. Researchers at the Swiss Federal Laboratories for Materials Testing and Research (Empa) have now developed a smart coating for fibers that crystallizes when exposed to heat. The color changes from blue to white, thus signaling: This rope is no longer safe.

Researcher Pauline Zamprogno in the Organs-on-Chip Culture Laboratory at the University of Berne. © Adrian Moser

MINIATURE LUNG

Swiss researchers have developed a mini-lung that fits onto a chip. With this artificial organ, the scientists hope to gain insights into the transport pathways of the blood-air barrier in the lungs. Their goal: reduce animal testing, test drugs, and research pulmonary diseases.

Dyed patient cells that were cultured on a second-generation "lung-on-a-chip". © Pauline Zamprogno, ARTORG Center for Biological Engineering Research

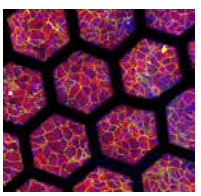


Photo: Carwow

Is an Apple car on the horizon?

In 2020, the tech giant Apple massively ramped up its testing of self-driving cars. Thirty computer-controlled SUVs covered around 30,000 kilometers, doubling the distance covered in 2019. During this time, the safety backup driver had to take control of the car 130 times. The sharp increase in testing has given rise to speculation: Does Apple have plans to start manufacturing its own cars?

Uetliberg tower, Keystone

App against fear

Many people suffer from a fear of heights. For them, standing on a lofty platform is a horror scenario. The new "Easyheights" app is designed to help overcome this fear. Using virtual reality, users can progressively climb higher in preparation for real-life ascents. The reality check shows: The virtual training works! The app actually alleviates acrophobia.

A shared passion for sheet metal: Felix Stoffel, Andreas Weibel, and Simon Jeger converted their vintage cars into electric-powered vehicles. Hannes Obrist and Sven Heukeroth from Ray-Cut produced parts for the conversion (from left to right).

A passion that unites

A trio of automotive enthusiasts at Triamp needed components for the electrification of three vintage cars. These parts were manufactured by the metal processing company Ray-Cut. Thanks to tremendous teamwork, the Swiss car enthusiasts were able to achieve their goal. More than 2000 working hours were required to convert two Jaguar E-Types and a second-generation Volkswagen bus to high-performance electric drives while remaining as true to the original form as possible.

Text: Ralph Hofbauer Photos: Julian Salinas

There it stands, the design icon with its fluid lines, sculpted from sheet metal and chrome. At first glance, the burgundy Jaguar E-Type 2+2, which is on display on Ray-Cut's shop floor today, is entirely original. But if you pop the long hood of this vintage 1969 sports car, you will not find an internal combustion engine. The 4.2-liter in-line six-cylinder engine had to make way for an electric motor. The rest of the space under the hood is occupied by four metal cases filled with battery cells and a computer. Two additional battery packs can be found in the rear, where the spare wheel and fuel tank used to be.

"We invested a great deal of effort into finding the best possible solution," says Simon Jeger. The 26-year-old, who after completing his bachelor's degree in mechanical engineering is currently enrolled in a master's course in robotics at the Swiss Federal Institute of Technology (ETH) in Zurich, launched the Triamp project together with his father Felix Stoffel. The two had been dreaming of tackling a major project together for a long time. Over the years, the idea matured to electrify the Jaguar E-Type – Felix Stoffel's dream car – and not just once, but as a double pack. To expand their know-how, the two brought Andreas Weibel, the owner of a car repair shop, on board. In addition to his mechanical expertise, he also contributed his Volkswagen T2 bus to the project. Thus, Triamp was born.

The Volkswagen enthusiast Andreas Weibel was the one who established contact with the metalworking company Ray-Cut based in the small Swiss town of Lyss. In addition to the sheet metal cases for the batteries, Triamp needed a wide variety of suspension parts as well as a solid steel plate to connect the electric motor to the transmission. For Ray-Cut,

"Our field tests help Bystronic with the further development of their fiber lasers."

Sven Heukeroth, co-owner of Ray-Cut

the project was a matter of the heart: "Every now and then, we produce parts for our friends' cars or motorbikes," Sven Heukeroth says. As his biker gear suggests, the company co-owner and production director is also a proud owner of a Harley. His business partner Hannes Obrist owns a 1964 Autobianchi Bianchina, "a doll's box car", as the sales director himself admits. Hannes Obrist and Sven Heukeroth were instantly hooked on the project, even though they prefer the sound of the original engines: "Without the growl of the motor, the road loses its fun," Hannes Obrist says.

As fast as the original

Triamp's humming vintage cars, however, are in no way inferior to the growling originals. The VW Type 2 has already completed its electric maiden voyage. Thanks to its electric drive, the gray 1979 pick-up has gained speed, and with a range of 400 kilometers, it can compete with modern electric cars. Simon Jeger is confident that the two E-Types will also be able to rival the originals: "Thanks to the constant torque of the electric motors, we will certainly be able to keep up in terms of acceleration," he explains. His goal is to outperform Jaguar's own prototype, with which the British carmaker has revived the E-Type as an electric car. Simon Jeger hopes to achieve a range of up to 350 kilometers. Jaguar only managed 270 and has – for the time being – shelved the series production of the e-replica, which was planned for 2020.

Although the manual gearbox is no longer necessary in conjunction with the electric drive, they did not modify the transmission. "We simply enjoy shifting gears," says Simon Jeger. After all, Triamp's goal was to stay as close to the original as possible. Instead of the filler neck, a power connector can now be found under the filler cap. ▶

Strong partners: Roman Christ (r.) from IPS Integrated Power Solutions contributed his battery know-how to the project.

Ray-Cut's own flexible vintage machine: The Byflex BTL, built in 1994, can also process tubes.

PROFILE **Ray-Cut AG**

Field of business:	Metal processing
Founded:	1989
Employees:	12
Production area:	1000 m^2
Headquarters:	Lyss, Switzerland
Customer since:	1989
Website:	www.ray-cut.ch
Instagram:	@raycut_ag

"There would have been simpler solutions, but we wanted to stay as close to the original as possible."

Simon Jeger, Triamp

"There would have been simpler solutions, but that's the way we wanted it," Simon Jeger notes. The interior of the two E-Types has remained completely unchanged, and the gauges have also been left as original – almost at least. The fuel gauge, for example, now shows the battery charge by converting the digital signal from the on-board computer into an analog signal.

In view of their great attention to detail, it comes as no surprise that each of Triamp's trio of innovators has already devoted more than 700 hours of work to the project. At Ray-Cut, they invested a good two weeks. The parts were cut using a 10-kilowatt ByStar Fiber, which is already equipped with the next-generation cutting head. "Our field tests help Bystronic with the further development of their fiber lasers," Sven Heukeroth reveals, who used to be a Bystronic Service Technician himself. Since the founding of Ray-Cut over 30 years ago, he has relied on "the red ones" from Niederönz, one of which is a true vintage machine: a Byflex BTL manufactured in 1994. "The machine has already clocked up 92,000 hours, and it runs as reliably as on the first day," says the production director. He appreciates the "old lady" for her versatility – in addition to sheets, the machine can also cut tubes.

Success thanks to knowledge sharing

Ray-Cut also relies on their favorite brand for their bending needs. The battery cases and the suspension components for Triamp's electric vintage cars were bent using an Xpert 150. Ray-Cut's team of twelve can handle the entire range of metal processing – from cutting, bending, and welding right through vibratory grinding, threading, and surface finishing. "We see ourselves as a full-service manufacturer. We offer a comprehensive range of services – often at very short notice," says Sven Heukeroth. Among other things, Ray-Cut has manufactured medical technology components, train engine parts, and tunnel construction elements. For private customers, the company also produces one-off objects in a stylish industrial design, such as tables, shelves, or lamps.

In addition to its in-house manufacturing expertise, Ray-Cut also involved an important partner in the project: IPS Integrated Power Solutions, a company from Brügg on the outskirts of the Swiss town of Biel that produces battery packs for forklifts, logistics vehicles, and cleaning robots. With the aid of these e-mobility specialists, it was possible to further optimize the design of the battery cases. "Although this meant that two weeks of my own CAD programming were in vain, we would never have been able to progress so far on our own," says Simon Jeger. His father agrees. A few years ago, Felix Stoffel, who is a Swiss Air Force pilot, restored an old Harley. "When you are tinkering, you always run into new problems," he emphasizes: "And that was the great thing about this collaboration. Together, we always managed to come up with the optimal solution to every problem." ■

1 *A hidden detail in the true-to-the-original interior: The fuel gauge displays the battery charge level.*

2 *The in-line six-cylinder motor made room for three large battery cases and a computer.*

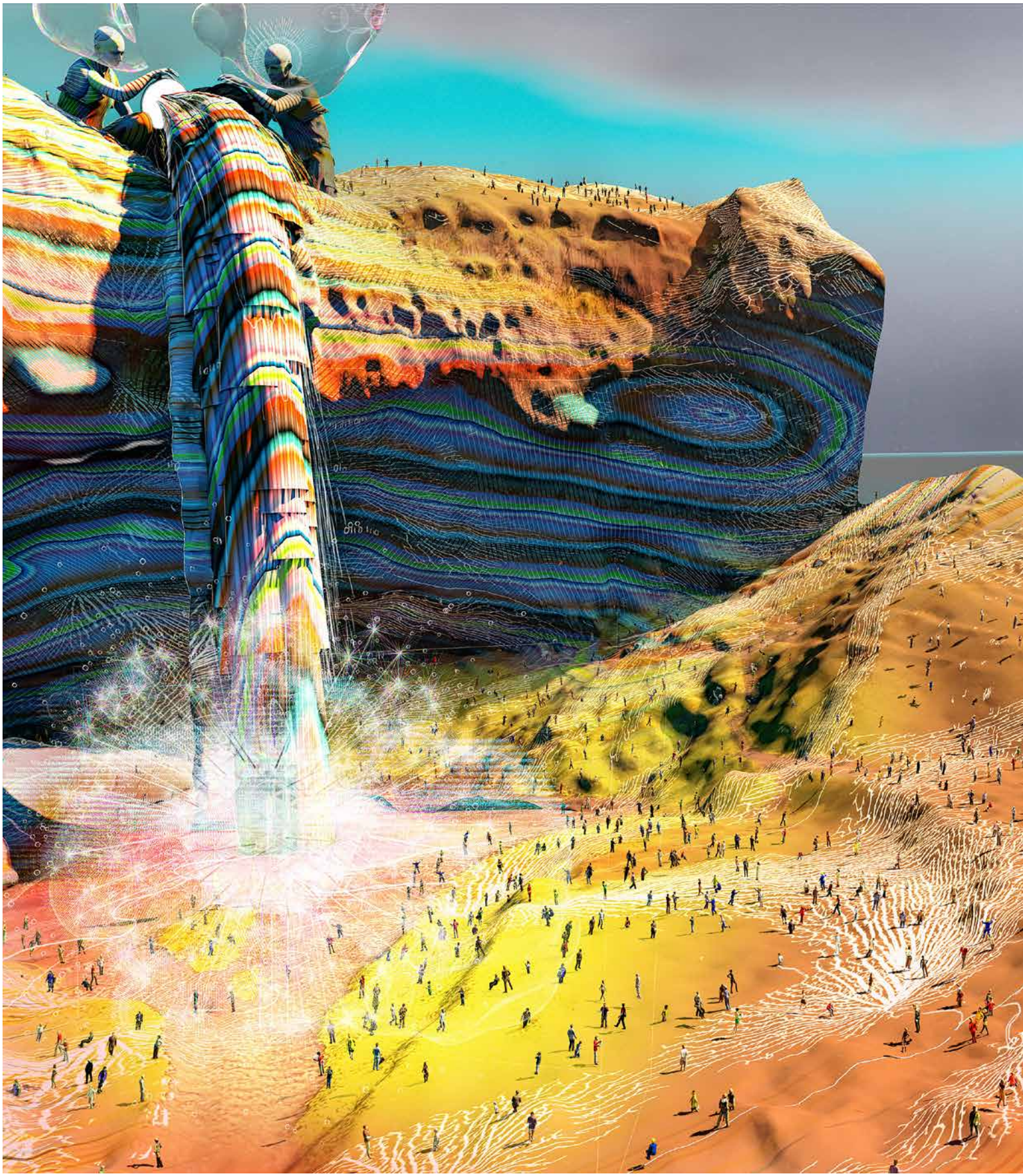
3 *A capacity of 53 kilowatt hours translates into a range of 350 kilometers.*

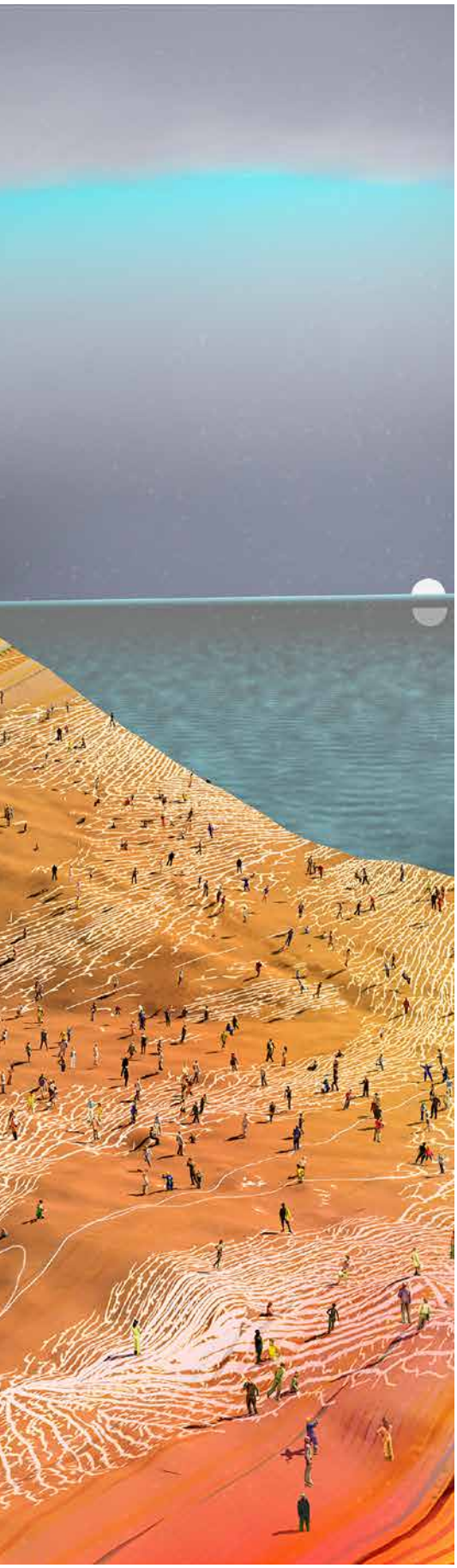
4 *Enthusiasts will recognize it from its headlights alone: This E-Type 2+2 is a "Series 2" model.*

5 *The electric-powered Jaguar is as sporty on the road as the original.*

6 *The second-generation Volkswagen Type 2's electric drive makes it considerably faster than with its old combustion engine.*

7 *The parts for the electric vintage cars were produced using a ByStar Fiber, which Ray-Cut is currently field-testing for Bystronic.*





Sharing: A primal principle as a success factor

Sharing! A megatrend that is generating a lot of noise. However, it is by no means a new idea. Why is it experiencing such a boom right now? And what does sharing offer industry? One thing up front: many opportunities.

Text: Sarah Hadorn Illustrations: Justin Wood

We are living in the age of sharing. Individuals are doing it and so are businesses: They are making their resources available to others. If this happens in exchange for payment, it is known as the sharing economy. People rent out tools, furniture, apartments, or cars via online platforms. Companies share storage space, transport capacities, or machines.

However, it would be wrong to reduce the sharing megatrend to a purely economic perspective. After all, sharing without any money changing hands is also omnipresent. Social media posts, Wikipedia entries, or open source software are just three examples.

SHARING ECONOMY – 3 MODELS

The sharing economy – or shared economy – is much more than Uber or Airbnb. These two business models are examples of peer-to-peer sharing. The three main models of the sharing economy are outlined below:

- **Peer-to-peer:** Individuals rent goods to each other, and a platform coordinates everything.
- **Business-to-customer:** Companies share goods and services with customers – for example car-sharing.
- **Business-to-business:** Companies share their resources with each other.

"Sharing always also has a strategic motivation."

Katja Rost, , Professor of Sociology and Economics at the University of Zurich

"The Internet has changed our social norms"

As topical as sharing currently is, it is anything but new. "Sharing is primal," says Katja Rost, Professor of Sociology and Economics at the University of Zurich. In this interview, she explains what sharing actually means and why it permeates all spheres of our lives.

Professor Rost, why do we humans share at all?
Essentially, we share in order to ensure the survival of our species – that is the primal function of sharing. This is why sharing prevailed in evolutionary terms in the first place. Within a family or small group, the principle of need applies: Everyone receives as much as they need. But we also share with strangers, especially with people in need.

Are there other reasons why we share?
Sharing always also involves a strategic motivation: We share because we expect to receive something in return in the future, either from the person with whom we share or from society. Conversely, we also share in order to give something back to people who have shared with us in the past. Reciprocity plays a big role in sharing.

Are some people more willing to share than others?
Rich people certainly find it easier to give away some of their possessions than do the less rich. Especially since money has a diminishing marginal utility. This means: At some point, I need something other than money to make me happy, recognition, for example, or simply the feeling of doing good.

Currently, sharing is more ubiquitous than ever before. How can this be explained?
The Internet has changed our social norms. The generation of people under the age of 30, who grew up with social media, is particularly willing to share. However, to be precise: Sharing via sharing platforms is actually not sharing in the strict sense. It is an economic exchange: an object in return for rent.

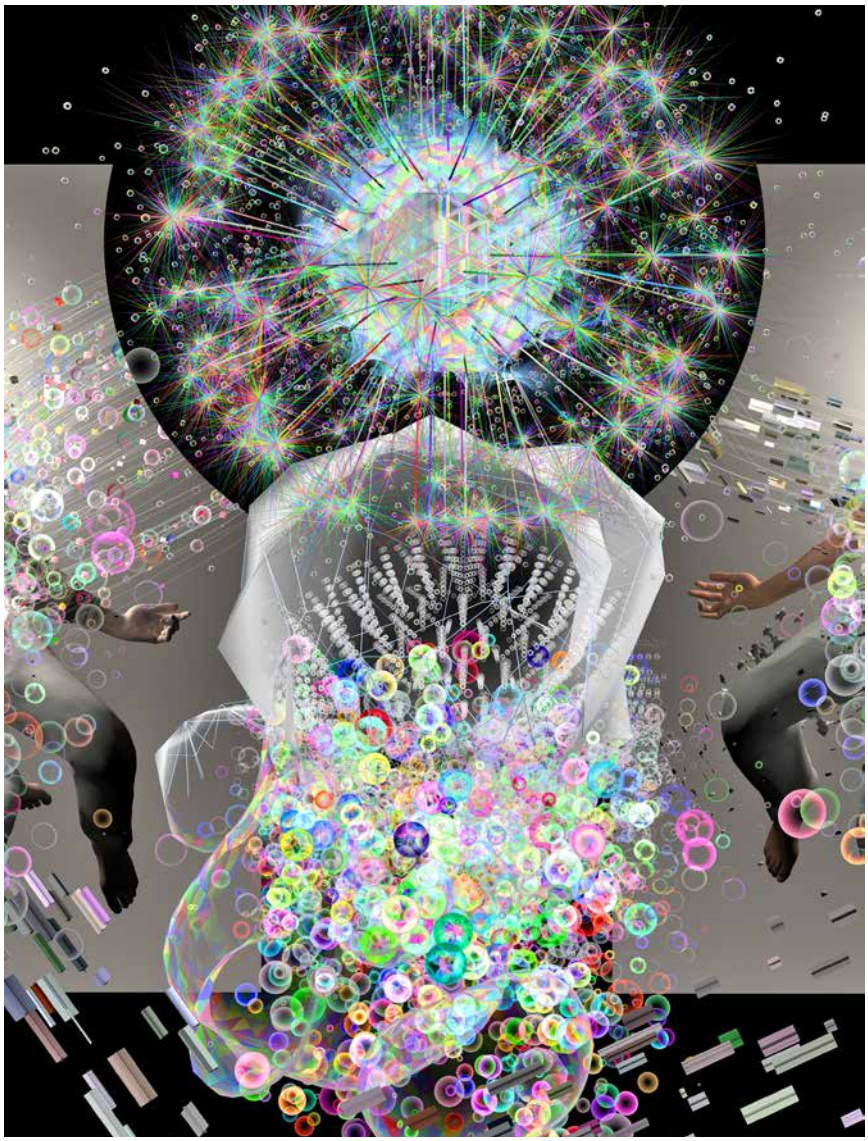
What is the difference between sharing and exchange?
People who share allow others to benefit from their resources without requiring an immediate return – there is no object of exchange. Albeit, it frequently involves certain expectations.

You mentioned the Internet giving rise to new norms. Can you give an example?
Sharing goods has become more natural and is no longer so closely linked to neediness. Even people who have the resources to buy, share instead. Possessions are no longer as important as they were 15 years ago.

And what is the relevance of sustainability when it comes to sharing?
Since the sharing economy is viewed as sustainable, it is very popular among an environmentally conscious audience – especially among younger generations: millennials and the Generation Y.

You said: Sharing* is viewed as *sustainable.
Yes, because it can also have the opposite effect: For example, if a family hires a car instead of buying one and uses the savings to fly off on vacation.

Sharing and industry



Know-how as a competitive advantage

Sharing knowledge is increasingly becoming a success factor. In this regard, industrial companies rely on open source software, cross-industry partnerships, or co-creation. Here, companies involve their customers in the product development process. Because products are becoming increasingly complex. Cars, for example, are no longer just a means of transport – they are computers on wheels. Powerful motors still play a major role, but nowadays it is primarily also a question of software. "Most companies do not have the in-house expertise required to develop such products on their own," says Horst Wildemann. "The days of the lone wolf are over." In practice, however, the management consultant and university professor frequently encounters a problem: Nobody wants to share good ideas. And yet the conditions for this are ideal, especially in industry: "The management of different areas of knowledge in industry takes place by means of domain knowledge," he explains. In other words, very specific application knowledge in one area. "And this knowledge could very easily be transferred to completely different products – even to other sectors."

There are many different reasons to share. When companies share, however, the motivation is usually straightforward: It's about efficiency and growth. "In industry, manufacturers have been relying on shared access to resources for quite some time," says Horst Wildemann, Professor of Management at the Technical University of Munich. After all, not all factories manufacture around the clock. Many companies have downtimes when the production equipment could be shared with other manufacturers. The goal is to optimize machine utilization and thus increase profitability.

Of course, this also benefits the users of the overcapacities: Small and medium-sized companies in particular gain access to new or additional resources: "Pay-per-use allows them to circumvent high investment costs," says Wildemann, who also runs a management consultancy. They can use the surplus resources to improve their products or open up new markets. ▶

Improving products thanks to sharing

In a world brimming with digital business models and AI, the sharing of data is key. Among other things, data sharing allows companies to improve their products or develop new services on the product side. Among other things, Bystronic uses customer data to prevent machine downtime. "We analyze information from the cutting head, and can thus alert customers in good time if a component is behaving abnormally and needs to be replaced," explains Matthias Greuter, Head of Development Cutting. The data analysis can also facilitate the handling of the machines. "Our machines are relatively complex," says Greuter. "With the aid of data, we can help our customers make the most of them." And the optimization of the machines themselves also relies on data sharing – for example, to continuously improve the cutting process. To achieve this, Bystronic intends to introduce an AI system to evaluate images of the laser head. Matthias Greuter: "And the more data that is available, the better the algorithm performs."

Exchange in industry – and beyond

But data sharing is not the only thing on Bystronic's agenda. "We no longer implement any projects entirely in-house," says Matthias Greuter. Instead, Bystronic exchanges ideas with partners in the sheet metal sector, but also, for example, in the software industry and with universities. Matthias Greuter: "Nowadays, it is no longer possible to know everything." He sees further potential – both at Bystronic and in the industry as a whole – when it comes to working with customers as co-developers. "It's a change of mindset: You present a half-finished product to the customer – that still feels a little strange. But we have to learn to think of the customer as a co-creator."

"We have to think of the customer as a co-creator."

Matthias Greuter, Head of Development Cutting, Bystronic

Sharing empty warehouse space

Machine sharing is particularly attractive in sectors that rely on expensive machinery with a long service life – for example, the construction industry. The US market research institute Grand View Research predicts that the global rental market for construction machinery will grow to almost 85 billion dollars by 2022.

Sharing also has potential in the logistics sector. On the US online platform "Flexe", for example, industrial companies can rent and lease empty warehouse space. And on "Floow2", even materials can be shared – as well as manpower and all other assets along the entire supply chain.

The digital sharing revolution

Sharing in industry is admittedly not a new phenomenon. But the advance of digitalization is set to make it vastly more convenient. Rapid access to excess capacities via smartphones and app-based platforms is just the beginning. IoT, robotics, and blockchain technology are taking sharing in manufacturing environments – the heart of industry – to the next level: Machines are becoming more flexible and no longer need to be manually retooled between jobs. And precise charging for the actual services used has become much simpler.

Horst Wildemann has no doubt at all about the feasibility of all this: "In Germany, for example, the sensor manufacturers and a solid industry are pushing the technological envelope." One area where the mechanical engineer and business economist sees a challenge is in the free exchange of data. "To enable attractive digital pay-per-use models, robot manufacturers, for example, have to share their data with insurers – who need this information to cover users against operational downtime," explains the Director of the Research Institute for Corporate Management, Logistics, and Production at the Technical University of Munich. "In Europe, however, we still tend to be quite restrictive when it comes to sharing business data."

"The days of the lone wolf are over."

Horst Wildemann, Professor of Management at the Technical University of Munich and Managing Director of a business consultancy

Sharing data while maintaining sovereignty

Many companies are concerned about their data sovereignty. However, there are innovative solutions for this issue; for example, the International Data Spaces Association (IDSA) reference architecture. Developed under the leadership of the German Fraunhofer Institute for Software and Systems Engineering, the model addresses the security needs of companies: Their data sovereignty is safeguarded thanks to clear terms of use. In addition, the information is not stored centrally or by third parties: The data is transmitted directly from provider to customer – with end-to-end encryption and in real time.

According to Horst Wildemann, this is very good news. He is convinced: "If we can find solutions that allow us to exchange data securely and fairly, nothing will stand in the way of sharing." ■

SHARING IN THE SMART FACTORY

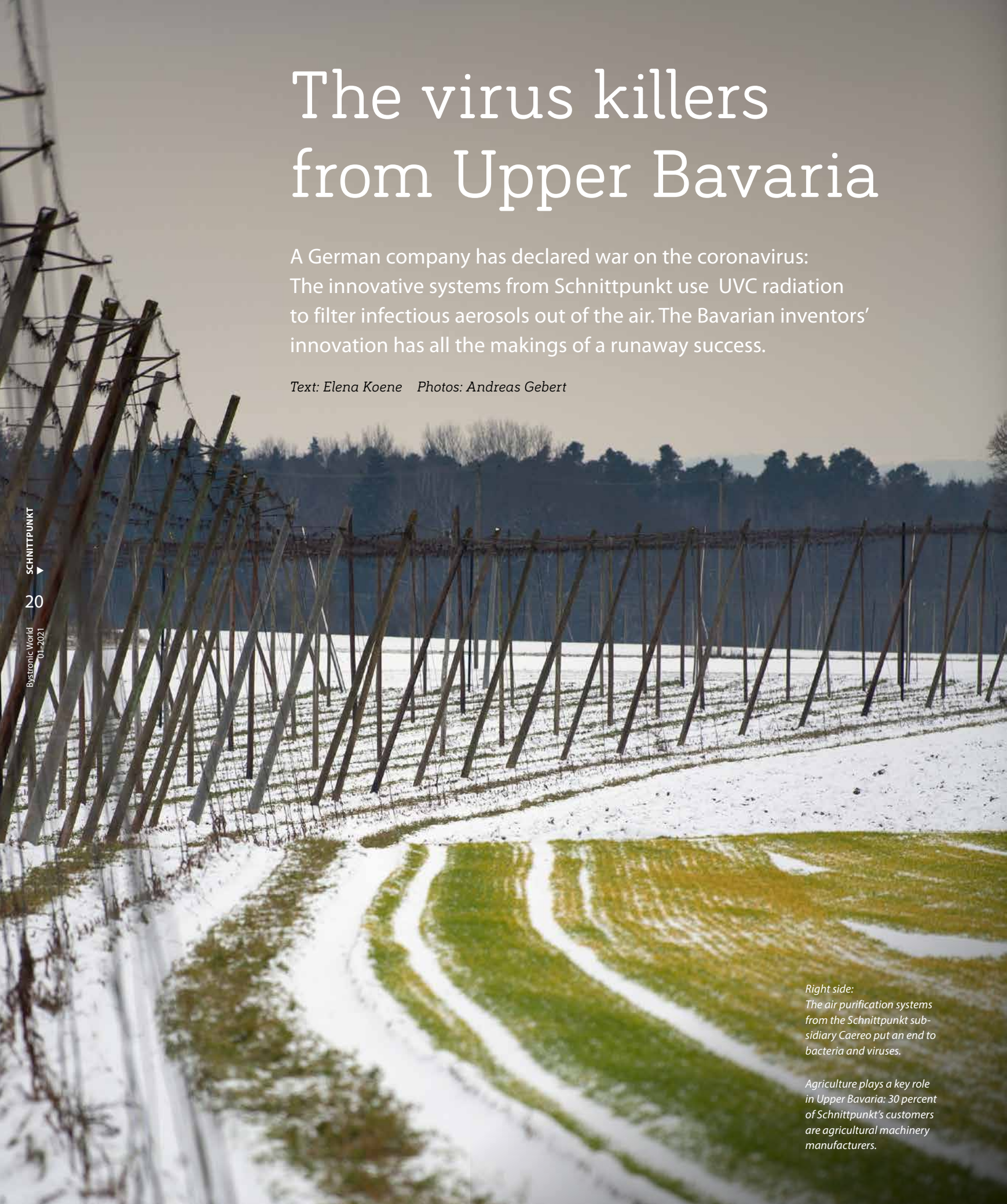
The more interconnected, intelligent, and flexible factories become, the easier it is to share production systems with other manufacturers. The smart factory – the vision of Industry 4.0 – thus offers ideal conditions for sharing. "Open IoT standards and IT systems will, for example, allow partner companies to directly access shared equipment," says Dominic Gorecky, Head of the Swiss Smart Factory. Already today, the Center of Excellence for Industry 4.0 at the Switzerland Innovation Park Biel/Bienne is testing how sharing can be facilitated in a number of projects. Gorecky: "We are making our production resources available to external parties, and are investigating what networking, automation, and IT security must look like in concrete terms to make this possible."

www.sipbb.ch

The virus killers from Upper Bavaria

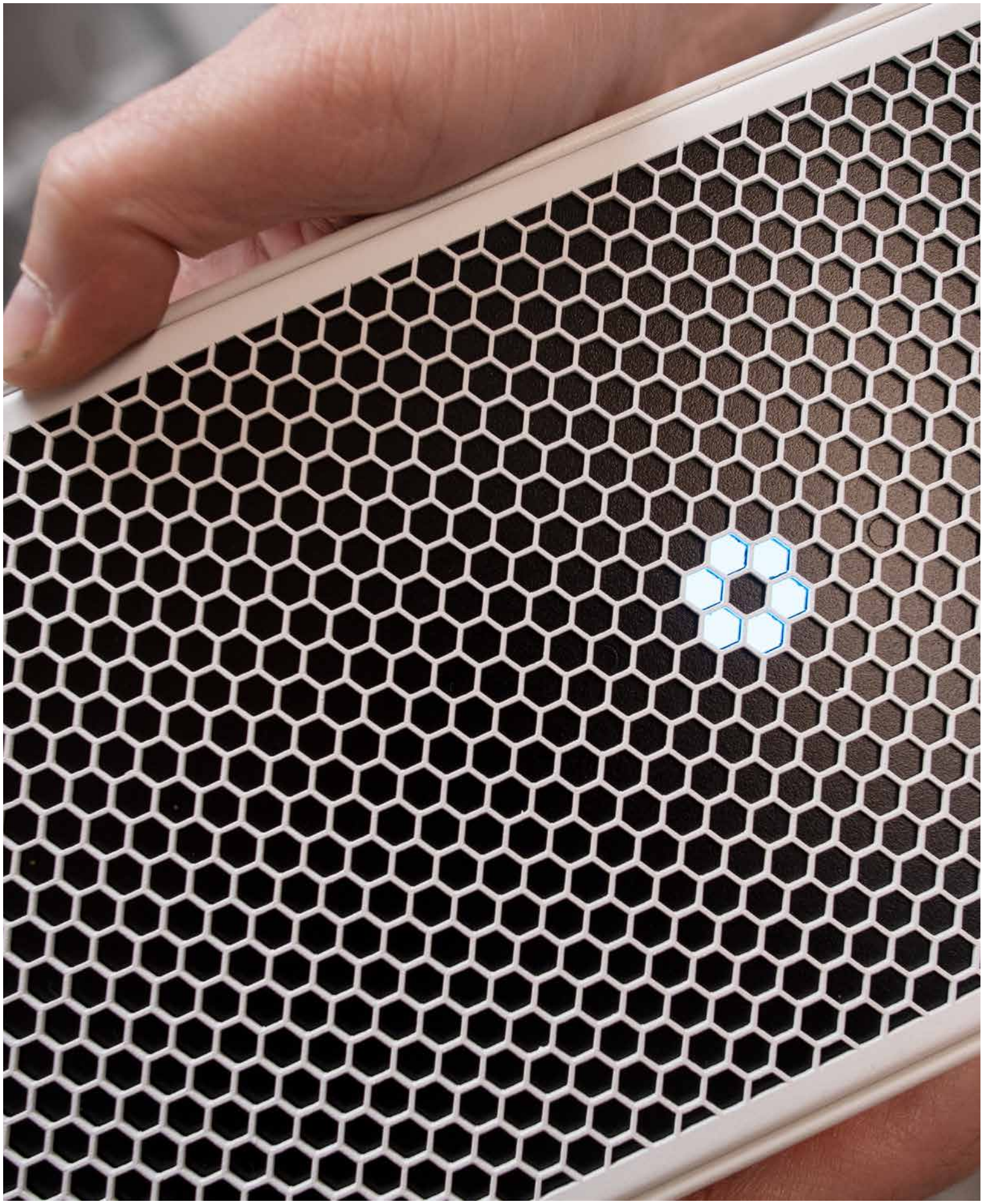
A German company has declared war on the coronavirus: The innovative systems from Schnittpunkt use UVC radiation to filter infectious aerosols out of the air. The Bavarian inventors' innovation has all the makings of a runaway success.

Text: Elena Koene Photos: Andreas Gebert



Right side:
The air purification systems from the Schnittpunkt subsidiary Caereo put an end to bacteria and viruses.

Agriculture plays a key role in Upper Bavaria: 30 percent of Schnittpunkt's customers are agricultural machinery manufacturers.



"We particularly appreciate the flexibility of the machines."

Erwin Stuiber, Managing Director

Work is in full swing in the little break room at Schnittpunkt GmbH Laserschneidtechnik. Over the past few months, the room's 30 square meters have been transformed into a development center: The walls are lined with shelves filled with sheet metal housings and tubes, and a large table is located in the center of the room. On it sits the latest invention of the job shop from Geisenfeld in Upper Bavaria.

"We had to make room to develop our idea," explains Olaf Rautner, one of the company's two managing directors. While looking over the shoulder of an electrician who is soldering two wires together, he adds with a shrug: "Currently, our employees are not allowed to spend their breaks together in such a small room anyway."

The thing still looks like a shoebox made of white sheet metal. Wires run in and out of it. But once it is up and running, the box is intended to help contain the coronavirus. "We produce air sterilization systems here," Olaf Rautner explains. "The devices suck the room air upwards. Inside the enclosure, ultraviolet radiation is used to kill the germs, whereupon the germ-free air is exhausted toward the ceiling. This prevents infectious aerosols from spreading through the room in the first place."

Necessity is the mother of invention

Using ultraviolet radiation to kill bacteria and viruses is not a fundamentally new concept. What is known as UVC disinfection has been used to sterilize surfaces for quite some time. Until now, however, this technology has never been used in public spaces because it can be harmful to human health. "Our devices are absolutely safe, though," Olaf Rautner emphasizes. "We have several independent test certificates confirming that no radiation of any kind can escape from our devices." The air sterilization modules are available in a number of versions: as a stand-alone hanging module, integrated into a design luminaire, or as a monitor stand for the workplace.

The 50-year-old managing director, who today is wearing a striped shirt and jeans, is visibly proud of his company's innovation: His eyes twinkle behind his rimless glasses, his broad grin spreads well beyond his face mask. The idea came to Olaf Rautner shortly after the pandemic broke out, when he first read that aerosols could be playing a role in the spread of the coronavirus. "That got me wondering about how to get the viruses out of the air."

The father of two started scouring the Internet for answers. He read all the technical papers he could lay his hands on and also discussed the issue with his friends and family. "My goal was to come up with something that we are able to produce in-house and that will help us during this COVID crisis and beyond," he emphasizes.

Olaf Rautner's resourcefulness infected his partner Erwin Stuiber. "I loved the idea of air sterilization units and immediately agreed to pursue it," the 49-year-old recalls.

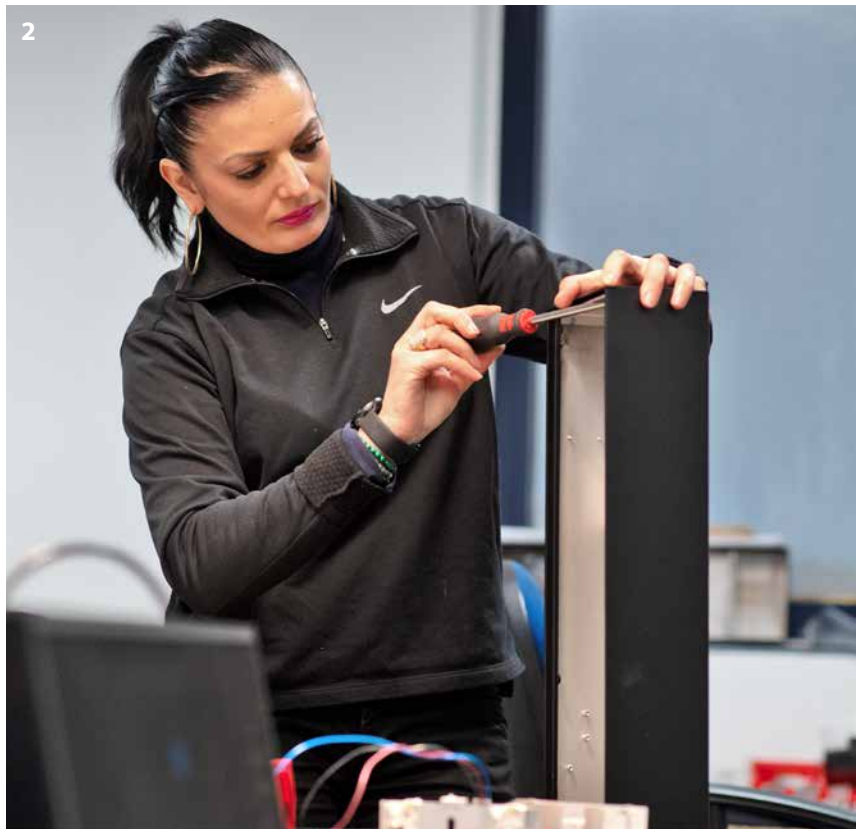
Flexible prototyping

The two partners, who decided to found Schnittpunkt 20 years ago during a 15-minute coffee break, did not hesitate to found the sister company Caereo. Apart from countless hours of dedicated work, the two did not have to invest much to begin with. After all, the machines required to manufacture the air sterilization modules were all on hand, as were most of the raw materials.

"We cut all of the roughly 30 sheet metal parts for the devices in-house," Erwin Stuiber says. "The big advantage during development was that we were capable of fast prototyping." As soon as they realized "that's not the

"We had to make room to develop our ideas."

Olaf Rautner, Managing Director



way to do it", says Erwin Stuiber in broad Bavarian, they put their laser cutting systems to work on the next generation. The company owes this flexibility with regard to the cutting of the sheet metal to technology from Bystronic – more precisely to a BySprint Fiber 3015.

The BySprint is one of four Bystronic fiber laser cutting systems located at Schnittpunkt's business location in Geisenfeld with its six production halls. In addition they have two CO_2 lasers and seven press brakes. Some of the machines are leased, the rest purchased, whereby the company was able to benefit from government incentives due to the exemplary energy footprint of the fiber lasers.

Olaf Rautner and Erwin Stuiber have been relying on laser technology from Bystronic ever since they founded their company. "We particularly appreciate the flexibility of the machines," Erwin Stuiber explains. "After all, we are a job shop and many things are cut on demand. Here we count on configurations that are reliably adaptable at short notice."

7000 tons of steel per year

Standing in one of his production halls, Olaf Rautner holds one of these short-term jobs in his hand as he explains what the laser machines are used for – when they're not cutting sheet metal for the air sterilization units. "These are anchor discs used to tension wires for growing hops," Olaf Rautner says. "It's a typical job from this region where hops cultivation is widespread."

In addition to local customers like this, Schnittpunkt has a worldwide customer base. The Bavarian company's 130 employees cut around 7000 tons of steel a ▶

1 *The systems are available as stand-alone hanging modules, but can also be integrated into monitor stands and ceiling lights.*

2 *The innovative product consists of around 30 metal components, which are manufactured and assembled entirely in-house.*

Work in spite of the crisis: With their new business idea, the job shop was able to compensate for the slump in orders during the COVID-19 crisis.

year, plus 300 tons of stainless steel and some 200 tons of aluminum. Depending on the customers' requirements, the sheet metal is also bent or welded at the 6000 square meter production site. 30 percent of their customers are agricultural machinery manufacturers, another 20 percent come from other mechanical engineering sectors, and the rest are active in the electronics engineering, precision mechanics, or steel construction industries.

So far, the company has weathered the crisis quite well, Erwin Stuiber says. Naturally, the order situation has suffered, but the company switched from three to two shifts, applied for subsidized reduced working hours for some employees, and devised new business ideas. In the meantime, the company has found its first customers for the innovative air sterilization module. Several hundred units have already been sold. The customers include offices, medical practices, retail stores, and fitness centers. In the future the company also intends to supply schools, but the Bavarian Ministry of Health still has some reservations. "We produce roughly 20 units a day, but could easily ramp up our output to one hundred," Erwin Stuiber says.

New beginning with a new laser cutting shop floor

The currently somewhat chaotic loading and unloading situation in the production halls will soon be a thing of the past. "Since we have grown continuously at our current site, the lasers are distributed throughout, the material is usually stored next to them, and the parts often have to be moved crisscross through the various shop floors." Accordingly, the company plans to completely restructure – at a new location in Mainburg, some 15 kilometers away. "Then we will have a dedicated laser cutting shop floor with a central material warehouse around which the lasers will be positioned like satellites," says Olaf Rautner.

In two years, the startup Caereo will also move to the new site. By that time, a small break room will most likely no longer be sufficient for the production of the sterilization modules. ■

1 The high flexibility of the latest-generation fiber laser cutting systems made prototyping a lot simpler.

2 An impressive fleet of machines: Schnittpunkt owns six laser cutting machines and seven press brakes.

3 Twenty units are produced a day. If sales develop well, the company plans to ramp up production.

4 For the customers in its core line of business, parts are often also welded.

5 Ceiling light with integrated filter modules: Offices and medical practices are among the first customers.

PROFILE

Schnittpunkt GmbH Laserschneidtechnik

Field of business:	Contract manufacturing of sheet metal parts
Founded:	2000
Employees:	150 (2019), currently 130
Revenue:	approx. EUR 19 million (2019)
Headquarters:	Geisenfeld, Germany
Customer since:	2000
Website:	www.caereo-luftentkeimung.com www.laserschnitt.de

Industry in the midst of an idyllic landscape: The villages in the French part of the Ardennes mountain range make a living from tourism, but also from the sheet metal industry.

Digital foresight: A company with a long tradition reinvents itself

The Ardennes are a mountain biker's paradise and, at the same time, a sheet metal processing stronghold. Metal processing has a long history there. At the French family enterprise Badré, the fourth generation is now embracing the digital future while simultaneously conquering the third dimension: with the ByTube 130. This machine is ensuring full order books.

Text: Laurina Waltersperger, Caroline Lattard Delaveau Photos: Philippe Legorre

The village of Les Hautes-Rivières in northern France is known for two things: its spectacular mountain bike trails in the surrounding hills and its traditional iron industry. For more than 120 years, iron has been processed in this idyllic rural setting close to the Belgian border. But the industry is changing. Digitalization is gaining ground and disrupting business models – and this is also the case at the metal processing company Badré.

Théo Badré is tasked with leading the long-established company into the digital future. It was for this purpose that his father, Stéphane Badré, brought him on board at the beginning of this year. "Digitalization will change all aspects of our business," says the 25-year-old with conviction. Théo Badré has supported the digitalization process in several companies. Now he wants to apply this know-how to his family's business.

Broader manufacturing spectrum

A milestone on the path towards the company's digital future is the ByTube 130. A new workshop was set up for the 3D laser cutting system last September. It is also home to the materials warehouse. "The short distances increase our productivity," Théo Badré explains.

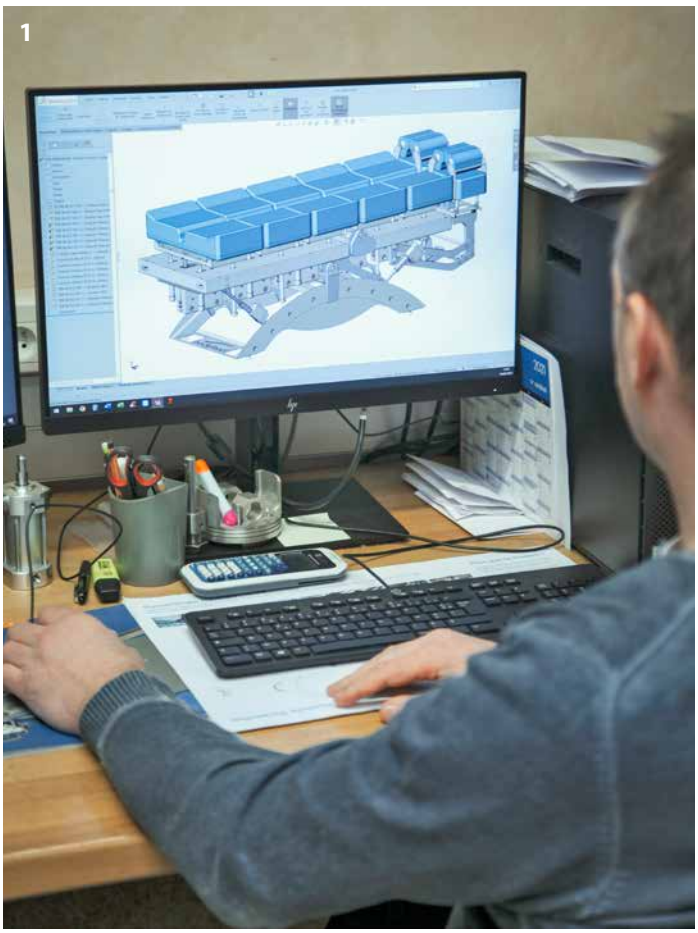
With profile processing, the company is expanding its manufacturing spectrum. Tubular parts will attract new customers, and Théo Badré has set his sights high: In just two years, he wants to quadruple the production volume. For sheet metal cutting, the company relies on a 6-kilowatt BySprint Fiber, which has been increasing productivity in combination with a ByTrans Extended automation solution since 2017.

The latest investments mark the beginning of a new chapter for the company, which has been operating as a job shop for more than 60 years. The technical upgrade means that all the relevant data is available in aggregated form in real time – also accessible from a smartphone. This allows the company to achieve more effective control of production and make everyday processes easier and more efficient for its staff.

New generation at the controls

If Théo Badré has his way, the digital transformation cannot move forward fast enough. But sometimes his father puts the brakes on. "We don't always have the same priorities regarding where the focus of the company's future development should lie," says the son, who represents the fourth generation in the family enterprise.

When it comes to realigning the strategy, however, both generations are in agreement: In the past, their company primarily supplied sheet metal parts to ▶



1 *Innovative design: Together with a medtech startup, the company developed an innovative treatment table for patients suffering from back conditions.*

2 *The ByTube 130 expands the manufacturing spectrum. Tube processing opens up new opportunities to serve the customer.*

3 *New target groups in sight: Tubular parts are in just as high demand among agricultural machinery manufacturers as they are in the construction industry.*

agricultural machinery and train manufacturers, and to the construction industry. With the ByTube 130, they now have more to offer their customers: "The demand for tubular parts is growing rapidly among our customers," Théo Badré says. What is more, Badré's customers increasingly require small and medium-sized production runs. Here the machines from Bystronic offer the necessary flexibility, especially for small batch sizes.

However, there is also a growing demand for profile processing in other industries. Badré plans to win new customers in this field – and this increasingly also with their own products. For example, they are currently working on customizable, mobile metal stairs that are commonly used in factories and the construction industry. Other products are in the pipeline, Théo Badré reveals.

In order to tap into new target groups, the family business is now also increasing its focus on partnerships with other companies. Badré has been collaborating with Body Feed, a local medtech startup. It has developed an innovative treatment table for patients with back conditions. The table is used therapeutically to relieve pain in patients, offering an alternative to surgery. Badré contributed its expertise to the design of the table.

Supporting development as a test customer

For Théo Badré, sharing knowledge is key to entrepreneurial success. This was one of the reasons for the decision to invest in the ByTube 130 and become a test customer, he says. During the pilot phase, he explains, Badré worked closely with Bystronic in order to implement mechanical and software-related refinements – and to adapt the machine to the company's own needs. Badré and Bystronic can look back on more than 20 years of partnership. "We appreciate the quality of the machines," Théo Badré emphasizes: "They are reliable, well designed, and easy to operate." The successful cooperation with Bystronic is also attributable to his own team, he adds, who demonstrated great commitment during the pilot phase and who were always on hand. "The whole team is thrilled to work with our new state-of-the-art machine," Théo Badré says.

Bystronic, in turn, also appreciates the fruitful collaboration. During the six-month test phase, the two companies maintained a weekly exchange of ideas. "The feedback on the technical hurdles with the ByTube 130 was very valuable for us, allowing us to further develop the laser cutting machine and speed up the path to series production," says Davide Rebessi, Product Owner at Bystronic. In addition to Badré, three other companies in Luxembourg, Germany, and the Czech Republic are currently testing the ByTube 130. They can also rely on Bystronic's support. "This exchange of expertise means that our team is always up to date on the latest developments in the industry and can quickly incorporate this knowledge into the further development of our solutions."

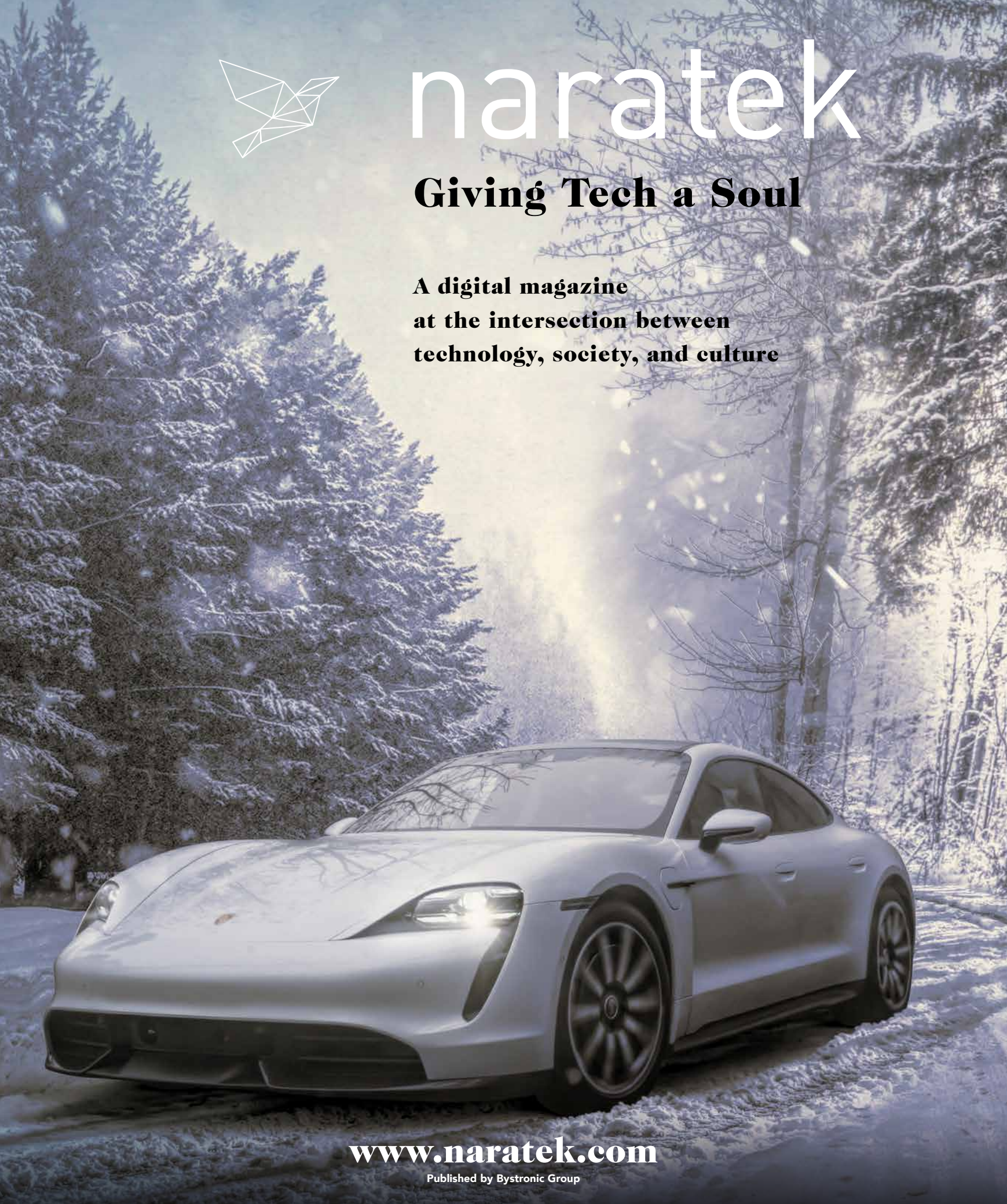
Théo Badré wants to push ahead with his company's modernization in the coming years. He has plans for additional investments in order to keep up with the rapid technological progress. In this way, the company with a long heritage aims to enter the age of Industry 4.0 as quickly as possible. "We are fortunate to be able to count on a young and motivated team that contributes their own ideas and improvements to our digital transformation – enabling us to move forward together into a new era for our company." ■

PROFILE

Etablissements Léon et Jean Badré L.J.B.

Fields of business:	Supplier to mechanical engineering companies in the agricultural, rail transport, construction industry, and special machinery sectors
Employees:	13
Annual revenue:	EUR 2.5 million
Founded:	1955
Production area:	4000m^2
Headquarters:	*Les Hautes-Rivières, France*
Customer since:	2000

Stephane Badré and his son Théo. The 25-year-old wants to lead the family business into the digital future.



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