

Bystronic

# WORLD

The magazine for cutting, bending, and automation

01-2022

## THE CLOUD IS GROWING THE FUTURE LIES IN THE CLOUD

SOFTWARE FOR THE SMART FACTORY 300 PARTS IN 7 MINUTES  
THANKS TO 20,000 WATTS MACHINE DESIGN WITH A WOW EFFECT

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*Dear reader,*

The data cloud is growing. More and more companies are moving their data from on-premise servers to the cloud. Industry is also increasingly recognizing the benefits: Cloud computing is more cost-effective and enables the seamless flow of information between the shop floor and the top floor.

We want to enable our customers to tap into these benefits. Together with our Spanish company Kurago, we are developing cloud-based solutions for the smart factory. The software developers from the Basque Country share our vision of highly efficient sheet metal processing.

The prerequisite for this are high-performance machines. With an output of 20 kilowatts, the ByStar Fiber 20000 sets a new benchmark. The Swiss family-owned company Herren Frères intends to use this concentrated power to win over new customers in the high-tech segment.

In addition to the inner workings, we have also enhanced the appearance of our machines. This fall, we will unveil the new design at trade shows around the globe. The designer Chris Gaethke explains what makes the new look stand out.

Wishing you an enjoyable read,

**Alex Waser, CEO**

**Bystronic**

**IMPRINT**

Bystronic World – The magazine for cutting, bending, and automation

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# Bystronic

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# NEWS

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## Boosting productivity with power and intelligence



Bystronic's flagship laser cutting machine is now available with an output of 20 kilowatts and an optimized cutting process. Compared to the previous top model with 15 kilowatts, this boosts productivity by up to 40 percent. The new "Parameter Wizard" option simplifies the determination of the optimum cutting parameters. The 20 kW power level is available for the ByStar 3015, 4020, 6225, and 8025.

### Peace of mind thanks to Bystronic spare parts






In a slightly mischievous manner, the new video from the Service Business Unit highlights the benefits of original spare parts: Compared to cheap copies, the original guarantees more consistent and high-quality results. And this definitely also results in peace of mind on the shop floor.



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## New Experience Center for Southeast Asia



Bystronic Korea opens a new Experience Center. In Songdo-dong, located near the South Korean capital Seoul, customers from Southeast Asia can now rely on even more comprehensive support. The services include consulting and sales, a hotline, live demonstrations, and software and hardware workshops. In addition, we offer spare parts service and maintenance.

## Joining forces to combat cyberattacks

The new Bystronic Smart Factory Software Suite links all production and business processes. In order to minimize the risk of cyberattacks in this comprehensive system with numerous interfaces, Bystronic and NanoLock have joined forces to develop secure solutions for smart machines. The Israeli company is a globally renowned cybersecurity solutions specialist.



Partnership

Bystronic



Trend

# NEWS



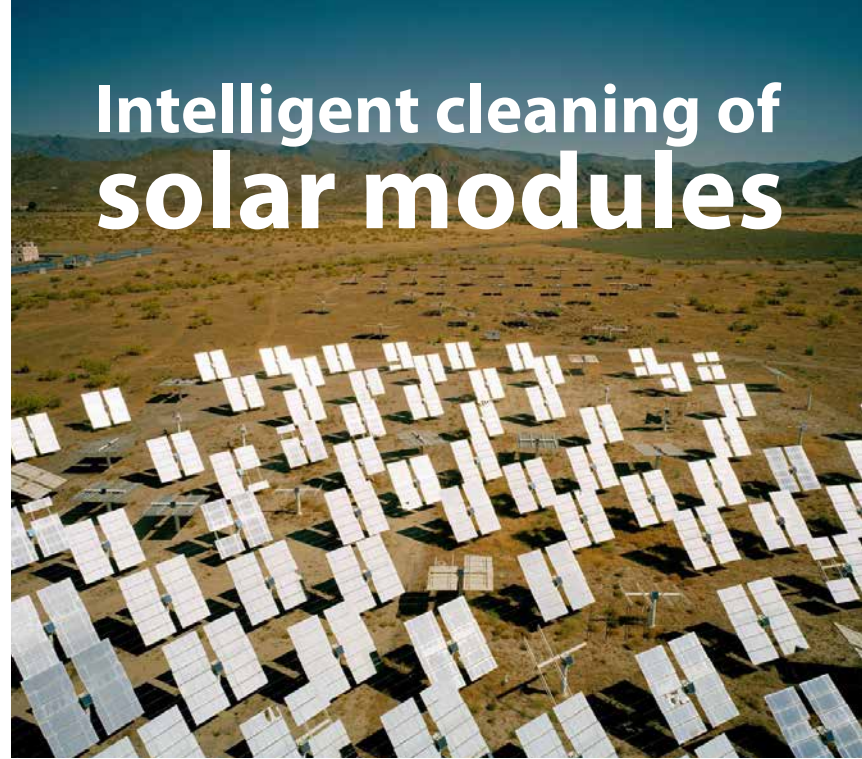
TREND NEWS

06

Bystronic World  
01-2022

## Drones over Antarctica

How fast is the ice melting in Antarctica? This question is of vital importance to coastal communities all around the globe. Due to the inaccuracy of previous prediction models, researchers are now turning to drones equipped with ice-penetrating radar. They will fly autonomously and use artificial intelligence to determine where in the vast Antarctic continent they will find the most valuable data. Researchers believe this will make ice cap research smarter and more efficient.



## Intelligent cleaning of solar modules

Dust on solar panels reduces their output by up to 30 percent. That is one problem; cleaning them is another. Dry cleaning with a brush can scratch the surface, and wet cleaning requires a great deal of the precious resource water and causes wear and tear. Now, MIT engineers have developed a cleaning method that uses electrostatic repulsion to make dust particles bounce off solar panels. Problems solved.





## Robots in the fields

The farmer of the future is likely to spend significantly less time in the fields. In future, robots will be deployed: They will handle sowing, harvesting, or, like the “Robotti” autonomous tool carrier on trial at the “Swiss Future Farm”, perform a wide range of other tasks in the fields. From a technical perspective, a great deal is already possible, but direct human supervision of the machines is still required.



## AI prevents interference

Autonomous vehicles use sensors to collect information about the location and speed of objects in their vicinity. But there are numerous potential sources of interference and environmental factors – for example, speed radars or extreme weather conditions. Now, researchers have developed an AI-based filter that almost completely removes interfering signals while massively reducing the memory requirements of the on-board computer.



# Advances in MS research

Scientists in Basel have created a reference database of a blood marker that can be used to measure the condition of patients with multiple sclerosis (MS). The blood marker indicates whether neurodegenerative processes are occurring and how the damage to the nervous system is advancing. The new database allows diagnoses to also take account of factors such as the patients’ age and weight. This could lead to the development of more targeted therapies.



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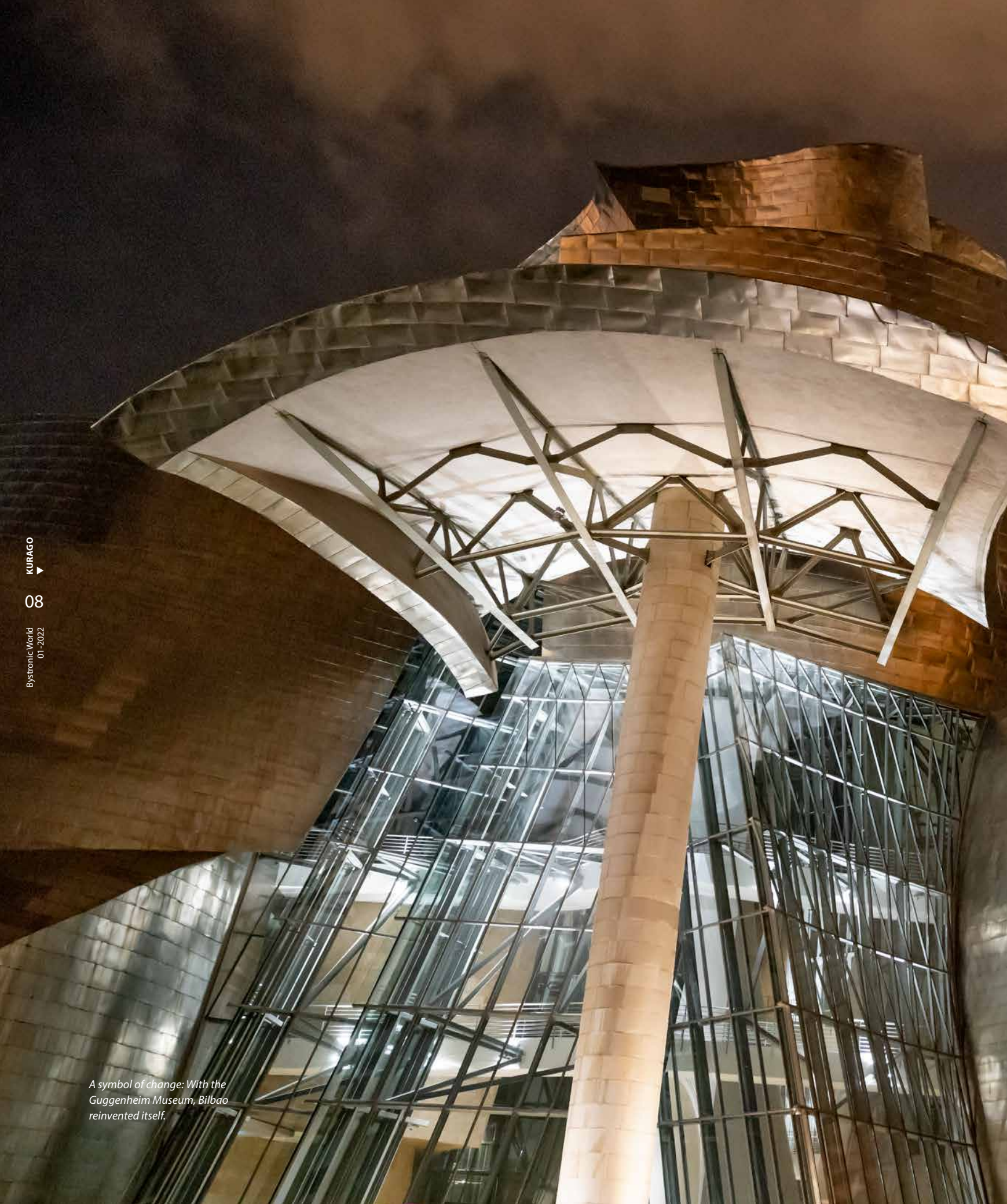
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*A symbol of change: With the  
Guggenheim Museum, Bilbao  
reinvented itself.*

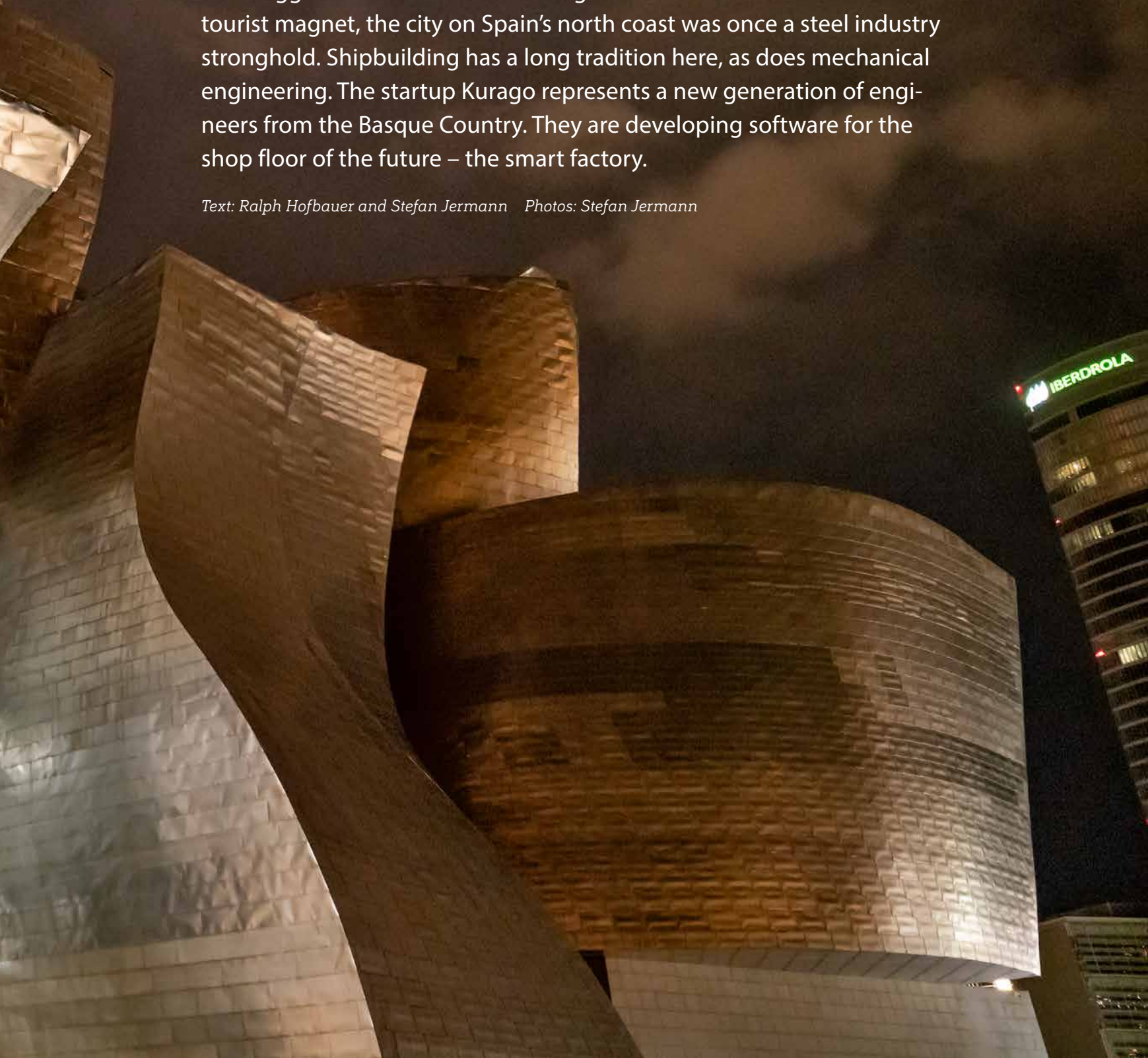




# The courage to transform

The Guggenheim Museum has brought new luster to Bilbao. Now a tourist magnet, the city on Spain's north coast was once a steel industry stronghold. Shipbuilding has a long tradition here, as does mechanical engineering. The startup Kurago represents a new generation of engineers from the Basque Country. They are developing software for the shop floor of the future – the smart factory.

*Text: Ralph Hofbauer and Stefan Jermann Photos: Stefan Jermann*



↘ The curved facade of the Guggenheim Museum is reminiscent of a ship hull. The resemblance is no accident. On the banks of the River Nervión, where the gleaming, convoluted building stands, steel used to be loaded onto ships. For a long time, Bilbao was shaped by its steel and shipbuilding industries. In the 1990s, the city reinvented itself with the avant-garde building by US architect Frank O. Gehry. Bilbao's transformation from grimy, clunky industry to clean, sleek design and an economy driven by the service sector is a success story that cities have tried to emulate the world over.

Just ten minutes' walk from the iconic museum, however, everything still revolves around industry. At Plaza Moyúa, Bilbao's navel, a young team is working on the future of sheet metal processing. Kurago is developing innovative software for the factory of tomorrow. Kurago's co-founders, CEO Jesus Martinez and CTO Asier Ortiz, are classic engineers reared on Lego and Meccano sets. At university, they learned to solve complex engineering problems. In the meantime, the duo constructs digital architectures.

*Putting people first:  
CEO Jesus Martinez invests  
a great deal in the corporate culture.*

"Our goal is to equip sheet metal companies with a digital toolbox that allows them to tackle productivity, cost, and sustainability challenges head-on," says Jesus Martinez, a sharp-eyed electronics engineer who earned his spurs in global telecoms. "Simply put, our software enables sheet metal processing companies to make smarter decisions – be it with regard to product design, sourcing, production, order processing, energy, or recycling."

## Time for a fresh mindset

CEO Jesus Martinez enthusiastically explains the benefits of Kurago's solutions. CTO Asier Ortiz joins in with quiet but expressive words. It quickly becomes clear why the two refer to each other as "intellectual fencing partners". Together, they have developed their vision of intelligent software that brings together the diverse threads of the smart factory. It is evident: The two are on fire for their vision. "Since I started working in software, I've always wanted to design and build something of quality, something that surprises the customer," Asier Ortiz explains.

In addition to the high level of user-friendliness and functionality, the solution's extensive interoperability is also set to make life easier for future customers. Kurago's software is capable of integrating both Bystronic systems and those of third-party suppliers. The open solution offers a comprehensive insight into all key factors that determine business success. Ultimately, the end-to-end digitalization accelerates all processes – from quotations and logistics to the individual production workflows.

The current dynamic market environment calls for agility. As Asier Ortiz puts it, it's time for a new mindset: "The way Bystronic's customers work is changing. End-products are processed and ordered more quickly than in the past and the markets they compete in are growing tougher and tougher. We want to be their ally and catalyst in that transition, enabling them to evolve, move forward, and gain in strength."

## The best of two worlds

The melding of Kurago and Bystronic brings together the best of two worlds: One partner contributes its software vision for the industry, the other its profound understanding of sheet metal processing. The result is the BySoft Suite, a complete ecosystem composed of six software families that helps customers master all their business processes.

For the first time, the BySoft tools allow small and medium-sized companies to tap into cloud capabili-



ties. This reduces costs and opens up the comprehensive networking of production. “Cloud solutions for enterprises have been on the market for a while, but they are still fairly new in the industrial sector. So far, software developers in our market niche didn’t have the resources to make the most of the cloud.”

It took a metal sector leader getting together with a tech start-up to make it happen. The pair flew to Switzerland to pitch the idea after a recommendation from Alberto Martinez, Bystronic’s CDO, in August 2019. CEO Alex Waser immediately saw the possibilities, offering the necessary time and financing.

## Gold dust

Fast forward two and a half years and the BySoft Suite is ready. So far, the results with test customers have been impressive. A UK sheet metal processing company is already successfully using the BySoft Business solution – one of the BySoft Suite’s product families. Already during the test phase, they reduced their use of paper for printing, design proofs, and contracts by 50 percent and aim to make their business fully paperless by the end of 2022. In this way, the BySoft Suite helps boost sustainability.

Improving the environmental footprint is just one aspect of what the tools can do, Jesus Martinez explains. He grabs a piece of paper and sketches out the different parts of a metal processing business to illustrate the different tasks: “Without the help of the BySoft system, you can analyze ten potential jobs and create a quote for each of them. But if you can see 1000 orders, their margins, and the supplies you need at a glance because the software does it for you, you

*“Our software facilitates smarter decision-making.”*

**Jesus Martinez**, CEO Kurago

know which ones you need to turn down from the outset, and don’t even have to send an offer. For a small business, this is gold dust.”

Asked about what is special about their software, Asier Ortiz answers modestly: “It is not based on an incredible light-bulb development. Nobody who knows anything about Software would find our

approach astounding. What is new is that we developed an open software specifically for sheet metal processing that not only covers the material flow, but the whole business processes. Nobody has ever done this before. We wanted to develop a solution that was tailored precisely to the needs of the sector.”

## “We enjoy a challenge”

It seems appropriate that this innovative software was developed in Bilbao, a place of constant innovation. Just 30 years ago, the city symbolized the decline of Basque heavy industry until the construction of the Guggenheim Museum marked a turning point. Then the city built a subway network, with stations



## SMARTER WITH EVERY STEP: THE KURAGO PROCESS

### 1. SMART FACTORY VISION:

Kurago’s sales consultant conducts a session for explaining smart factory system concept, do a demo of appropriate BySoft Suite products for that customer.

### 2. DIGITAL MATURITY DIAGNOSIS:

Kurago takes a snapshot of the customer’s current digital setup and capabilities.

### 3. DEEP ANALYSIS:

The team deepens its understanding of the customer’s unique way of working and specific needs, and comprehensively assesses which solution is likely to be suitable.

### 4. SOLUTION PROPOSAL:

The customers receive a proposal, adapted to the client’s digital maturity and requirements, including a sales quote.



Since it was founded three years ago, the startup has rapidly expanded its capacities.

designed by the renowned British architect Norman Foster, and an airport with an elegant winged design by the Spanish-Swiss star architect Santiago Calatrava. In addition, more infrastructure investments were made, such as the tram line, several new buildings, and renewal projects in former industrial areas. Bilbao has also lovingly restored and maintained a wealth of ornate modernist buildings in the district around Kurago's offices, all part of a heritage sprung from iron and steel production in the 19<sup>th</sup> and 20<sup>th</sup> centuries.

"The history of our city shows that the Basque character is drawn to tough tasks that require resilience," says Jesus Martinez, who looks after a team now 65 people strong. With a deep interest in the practicalities of talent management, creativity, and moti-

vation, he describes his role as looking after "how" Kurago operates. Asier Ortiz, on the other hand, is in charge of the "what".

They chose the name "Kurago", which means "courage", for good reason: "We enjoy a challenge and difficult tasks and we are generous in our effort. This is part of our culture," says Jesus Martinez. The CEO attaches great importance to a people-centered work philosophy, which is not a matter of course in the software sector. It is important to him that the team members look out for one another: "If we all do our jobs and only one of us doesn't get to the finish line at the same time, then we all fail. So our challenge is to look out for our colleagues and make sure they are okay. It's not just the boss who has the oversight, it's all of us," Jesus Martinez explains.

### Convincing skeptics of the benefits

Asked what their biggest challenge is, the CEO replies without hesitation: "Coaxing smaller customers to overcome their fear of digitalization and to tackle the smart factory project." Such reservations are unsurprising in an industry that is, patently, based on the physical – the shaping of sheet metal. In such an environment, abstract software has a hard time. Many companies still stick to analogue processes and they do not see why they should change this.

Convincing them is not easy, because it is difficult to demonstrate immediate productivity gains since they depend on how the systems are used, Jesus Martinez explains. It requires a volume of data to have been processed for it to really be visible.

Some companies think that digitalization means huge investments. Others are worried that they lose their uniqueness, if technologies like artificial intelligence are implemented. But Jesus Martinez dismisses this: "Our systems can be utilized to enable companies to further expand their unique selling proposition by means of digitalization. Our aim here is not to convert everyone into clones. On the contrary, we want to help our customers preserve their unique abilities and strengthen them."

So what will it take for skeptical minds to adopt the smart factory? "You just have to talk to sheet metal processing professionals and listen carefully to what they have to say," Jesus Martinez replies. "Then it frequently turns out that planning is one of the main challenges – and that's where we can help. You end up embracing change, not because you are obliged to, but because you see that it gives you a competitive edge." ■

## PROFILE **Kurago**

<b>Founded:</b>	September 2019
<b>Fields of business:</b>	Software engineering; design, creation, development, and implementation of software systems and solutions for the sheet metal processing industry
<b>Employees:</b>	65
<b>Business locations:</b>	Bilbao, Vitoria



KURAGO

*Two minds, one vision:  
Jesus Martinez (left)  
and Asier Ortiz, the  
founders of Kurago.*

# The smart factory awaits in the cloud

We all use it every day: the cloud. Dropbox and Google Docs simplify data sharing, and cloud-based software is already in wide use. What is already commonplace for many of us in our everyday lives is also making its way into the infrastructure of industrial companies. However, moving data to the cloud involves a number of challenges.

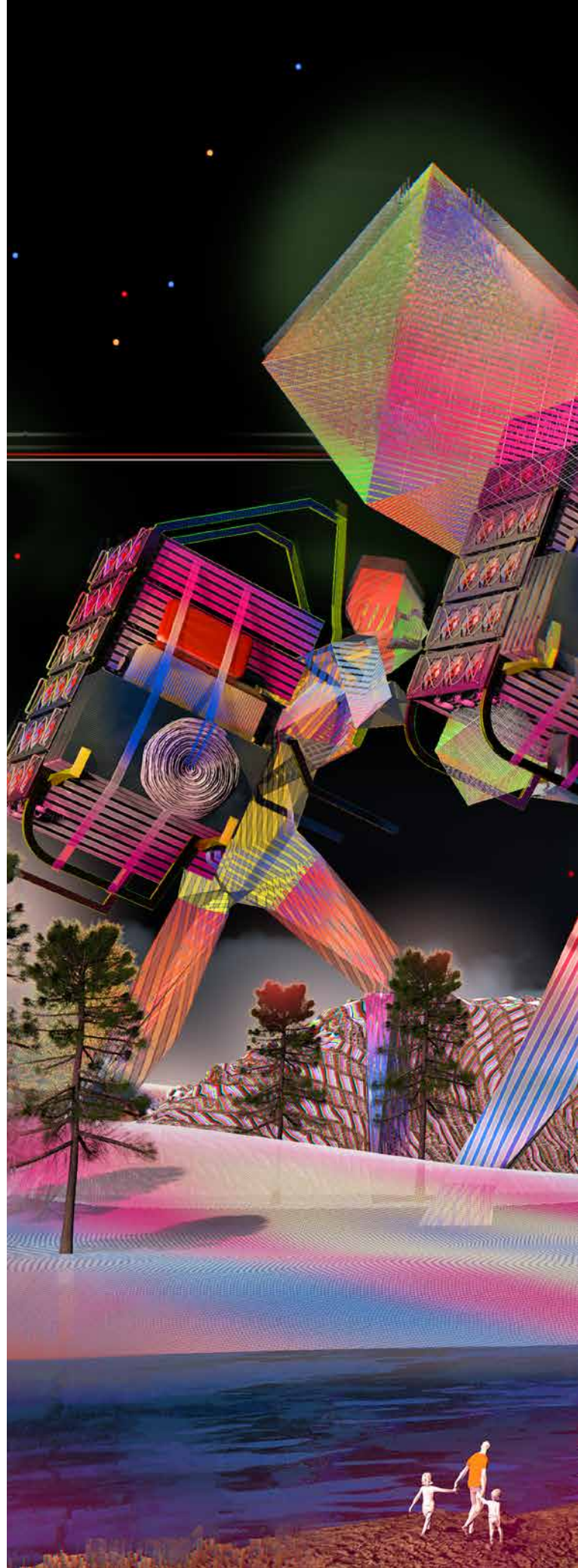
*Text: Daniel Stehula and Ralph Hofbauer  
Illustrations: Justin Wood*

↙ Moving to the cloud is really only an option if you trust big tech. Just a handful of US companies dominate the market: Amazon, Microsoft, Google, and IBM have all created a lucrative business segment for themselves with cloud solutions for businesses. In the final quarter of 2021 alone, market leader Amazon generated almost 20 billion US dollars in revenue with cloud computing.

There are virtually no alternatives to the big players. And sooner or later, cost pressure will force most companies to put their data in the hands of the tech giants. After all, cloud-based solutions are more cost-effective than conventional on-premise solutions with local servers, because they allow companies to streamline their IT. Pay-per-use models ensure that customers only spend as much as they need to cover their data requirements.

## Transformation progresses

In addition to potential savings, the pressure to innovate is also driving a rethinking of IT. In order to digitally represent complex business processes and to network supply chains within an ecosystem, flexible and scalable IT resources are required. This also applies to industry: Companies that want to leverage the capabilities of the Internet of Things (IoT) in their production environments and to implement the vision of the smart factory, have no choice but to turn to the cloud. Cloud computing is the prerequisite for the direct flow of information from the shop floor to the top floor. ▶





Many companies, in particular service providers, switched to cloud solutions a long time ago. However, the transformation is not progressing at the same pace everywhere. In Europe, Scandinavia is leading the way: In 2020, 75 percent of Finish companies and 67 percent of Danish companies with more than 10 employees were already using cloud subscription solutions. At 33 percent, Germany is in the middle of the pack. According to the survey by Eurostat, the statistical office of the European Union, Greece, Bulgaria, and Romania are trailing behind with rates between 10 and 20 percent.

Today, these rates are likely to be considerably higher, since the Corona pandemic significantly boosted the transformation. According to KPMG's Cloud Monitor 2021, 82 percent of companies in Germany with more than 20 employees are already in the cloud. Industrial companies have also started to outsource their data to the cloud. A survey conducted by the labeling specialist Nicelabel, for example, shows that 18 percent of the manufacturing companies surveyed in the US, UK, Germany, and France have transferred their entire IT infrastructure to the cloud.

## Public or private cloud?

But not all clouds are equal. Essentially, companies have a choice between two types: When a company uses a cloud exclusively for itself, it is called a private cloud. A public cloud, in contrast, is used by multiple companies at the same time, whereby the cloud provider ensures that the individual users can only access their own data.

Due to the standardized architecture, public clouds are more cost-effective than private clouds, which are customized for the individual users. If, on the other hand, the decisive factor is not the costs but individual requirements, such as particularly high security requirements, the private cloud is the better choice.

There are also different approaches to the cloud infrastructure. For example, many companies use several clouds at the same time. Hybrid clouds and multi-clouds network the individual cloud solutions. The hybrid approach enables different types of clouds to be brought together. This is a particularly good solution for smaller companies that want to proceed step by step, since it also allows conventional on-premise

# CRITICAL FACTORS WHEN MOVING TO THE CLOUD

## SECURITY

Cloud computing means that data leaves the company and is processed on a third-party server. Nevertheless, the cloud solutions of the major providers are generally considered to be secure. What is vulnerable, however, are the transmission channels. Here, security precautions such as two-factor authentication or a rigorous e-mail policy are crucial.

## COST CONTROL

According to a recent study by the market analysts Gartner, companies are paying up to 70 percent too much for cloud services. To prevent this, a cloud manager is required who monitors user numbers, budgets, and storage space, and reviews the providers' pricing models.

## DATA MIGRATION

Migrating data to the cloud can be compared to moving house. Many companies take more with them than is really necessary. This results in the use of unnecessarily high storage space and puts excessive strain on the IT department's resources. Therefore, it is essential to plan the migration carefully in advance, to systematically harmonize the formats of all data, and to subsequently phase out old systems.



solutions to be integrated. A multi-cloud, on the other hand, combines different clouds of the same type.

## Industry faces a particularly difficult challenger

However, choosing the optimal solution and the appropriate infrastructure is not the only challenge when making the transition to the cloud. For industrial companies, the transformation is particularly demanding. After all, manufacturing companies have to link the two very heterogeneous worlds of information technology (IT) and operational technology (OT).

The main difficulty lies in the integration of older OT systems. Digitalization has frequently not progressed at the same speed in all production operations: Some systems lack interfaces and the data is available in differing formats. The strict requirements in terms of operational reliability and data protection must also be taken into account. Due to this complex situation, it is understandable that the manufacturing industry is somewhat lagging behind the service sector in the transition to the cloud.

## Industrial companies invest in the cloud

In spite of these obstacles, cloud computing is also making inroads in the manufacturing sector. Some industrial companies have already implemented the vision of the smart factory, which would be inconceivable without the cloud. Flagship projects include Siemens' factory in Amberg, Germany, and Hitachi Energy's factory in Lenzburg, Switzerland. The latter was implemented by the industrial company ABB in a joint venture with the Japanese electronics group.

However, leading industrial companies are not only moving their IT and OT to the cloud, but also expanding their own portfolio with cloud-based solutions. ABB, for example, is launching a tool to plan the charging of electric vehicle fleets. Their partner is Amazon Web Service. The tire manufacturer Continental is also collaborating with the leader on the cloud market. The German company is planning a cloud-based software platform for self-driving cars. The examples demonstrate: Even in European industry, nothing works without the US cloud giants. ■

# BENEFITS OF THE CLOUD FOR INDUSTRIAL COMPANIES

## LOWER COSTS

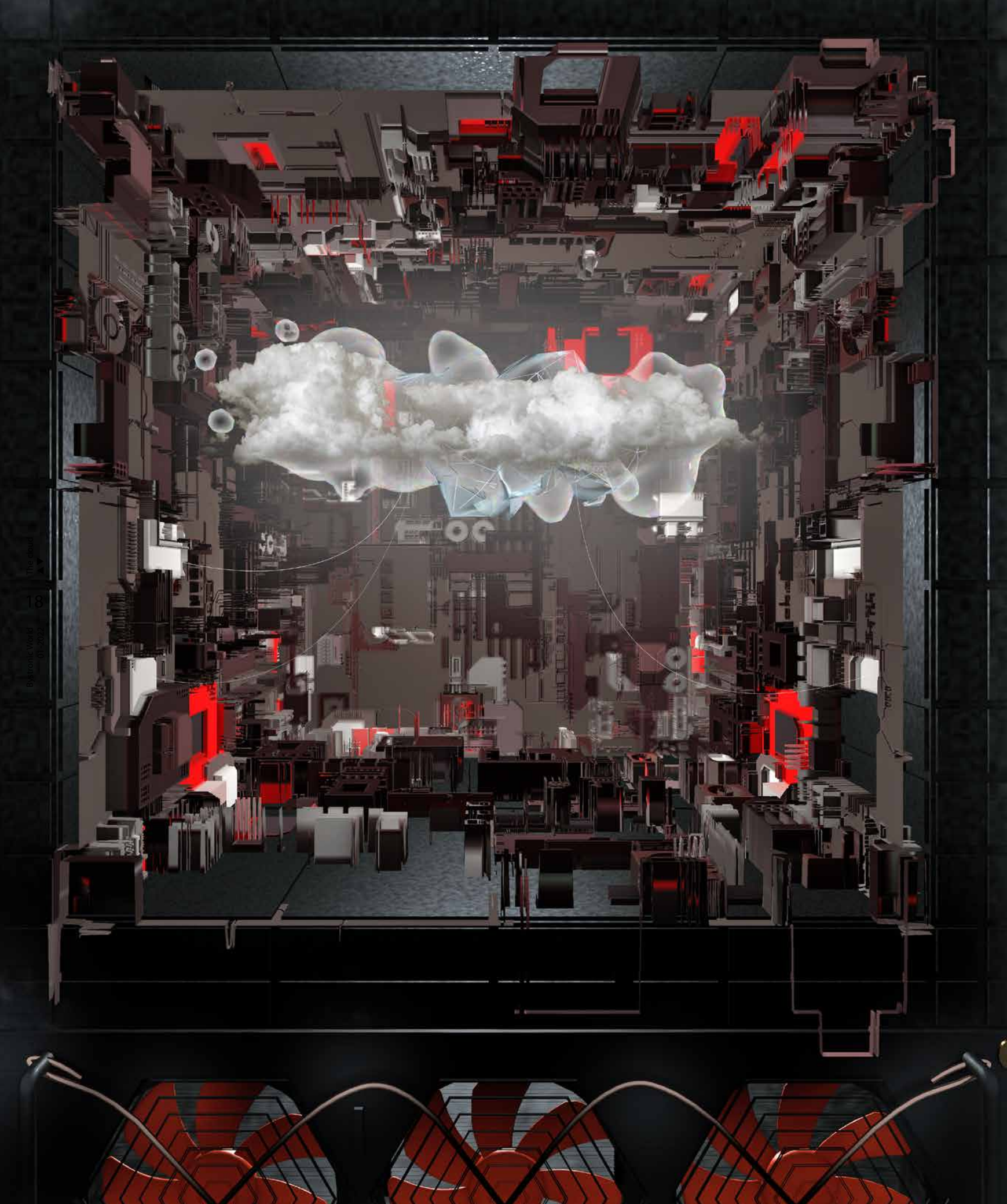
Cloud-based solutions are more cost-effective than conventional on-premise solutions. On the one hand, the cloud eliminates the costs for acquisitions, licenses, and maintenance. On the other, pay-per-use models minimize costs because users only pay for what they actually use in terms of services.

## ENHANCED PLANNING AND CONTROL

Since all systems in a cloud-based production environment feed their data to a central information layer, production processes can be monitored on the shop floor as well as the top floor. If the data is also processed using advanced analytics, the machines can learn as they go, increasing efficiency and reducing error rates.

## SPEED

Cloud-based solutions are capable of quickly and economically producing small batches. Networked production accelerates the exchange of data, its analysis, and ultimately the time-to-market for new products.



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## INTERVIEW

# “THE CLOUD ITSELF IS SECURE, THE RISKS LIE IN THE TRANSMISSION CHANNELS”

**You research the field of smart factories and help companies to digitalize. Where do you begin in this process?**

Basically, you start by looking at the business models and production processes. Unfortunately, most companies want to immediately focus on technologies such as the Internet of Things (IoT) or cloud-based applications. But that is definitely the wrong approach.

**Why?**

You have to start at the root and consider: What production processes do we have, and what can be digitalized? First of all, you have to clarify how your customers and your own company are to benefit from digitalization. Then you analyze the processes to make them suitable for digitalization. An example: A foundry wants to reduce the number of scrap parts it produces. Their systems record data, but do not share it. The goal is to network the devices with each other and correlate them in order to be able to predict casting faults.

**That brings us to the concept of the smart factory.**

Yes. The smart factory requires a special architecture for the logistics, production, and IT systems. All the data from the systems come together at a central location. There, databases, dashboards, or computer processing units are connected to utilize the data. We recommend starting small with the transition and then expanding later.

**How wide is the bandwidth for this?**

A cost-effective and simple solution is to link a system to an industrial computer that collects and analyzes data. In a more advanced stage, devices are capable of making faster

decisions on the basis of the data. This results in a system that responds intelligently. If you want to go one step further and need more computer processing power, you connect it to a cloud. This allows complex algorithms to analyze the data and optimize operations.

**Hybrid clouds enable conventional on-premise solutions and cloud services to be combined. For which companies is this approach of interest?**

The hybrid approach is suitable for companies that collect data locally but have no means of analyzing the data using, for example, AI. Because this requires considerable short-term processing power. With a hybrid cloud infrastructure, companies can use, for example, SCADA or EDGE systems at the level of the shop floor to collect data and perform simple analyses. For processes that require a great deal of computing power, they can subsequently upload this data to the cloud. The cloud returns the results, which can be used to make their production environment smarter.

**In addition to public clouds that are shared by multiple businesses, companies can also set up their own private cloud. Is this worthwhile?**

It comes down to the size of the company. Private cloud solutions are considered more secure, but they are very cost-intensive. Smaller companies generally cannot afford them. That's why most turn to public cloud solutions.

**How big is the demand for the cloud?**

Many logistics companies tell me that they could no longer function without cloud technology. Other companies fear the risk of data



**Markus Krack is a professor for the smart factory at the University of Applied Sciences and Arts Northwestern Switzerland (FHNW). He initially studied mechanical engineering and now conducts research in the field of digital twins within the Industrial Engineering and Management degree program and is head of the “Supply Chain & Production Management” field of specialization and the “CAS Digital Industry” course.**

theft. However, the cloud itself is secure, it's the transmission channels that are at risk.

**How long does the transformation take?**

It takes one to two years before the first systems are converted. Overall, time is the most important factor, because with an investment as low as 5,000 to 8,000 euro in hardware, you can technically achieve the first steps. Digitalization and cloud technology enable manufacturing companies to produce small batches in a cost-effective manner, reduce the number of scrap parts, and gain planning reliability. This opens up new possibilities – and much more is possible. We are only in the early stages of this new development. ■



*More speed: Alexandre Herren intends to boost productivity by a factor of five.*



# A crazy trio: craftsmanship, high-tech, and 20,000 watts

From 6,000 to 20,000 watts: Thanks to this quantum leap in laser cutting, the Herren Frères company intends to become even more attractive to customers in the high-tech segment. Innovation has a long tradition in this family-owned enterprise in the French-speaking part of Switzerland. Now, the company is once again playing a pioneering role.

*Text: Denise Lachat Photos: Cyril Zingaro*

↘ The technician slides the doors of the ByStar Fiber 20000 shut, taps on the start button on the touchpad, and warns the photographer: “Get ready! It will all be over very quickly.” Immediately the bundled LED light of the laser beam flares across the sheet metal. Sparks fly, tinted green by the filter that protects the eyes of bystanders. With a rhythmic “chug, chug”, the laser beam advances rapidly, cutting squares out of the two-millimeter-thick stainless steel sheet.

“How many meters per minute are we running at?” the entrepreneur Alexandre Herren asks. The technician checks the display and replies: “54”. That’s two miles per hour, or 300 parts manufactured in just seven minutes. The Managing Director is enthusiastic: “This machine will transform our lives.”

## A little crazy

We are touring the shop floor of Herren Frères in the town of Yverdon-les-Bains, where Switzerland’s very first 20 kilowatt fiber laser cutting system has been undergoing operational testing since this January. The facade of the factory in the Les Uttins industrial district is inconspicuous. There is nothing to indicate that it conceals one of the fastest laser cutting machines in the world.

Alexandre Herren, co-owner of the long-established Swiss SME and head of the “Industrial Sheet Metal Processing” business unit, welcomes us in casual clothes. Exuding down-to-earthness, he personally prepares the coffee for his visitors and talks so passionately about the components being produced during the tour that you wouldn’t be at all surprised if he were to start operating the machines himself. The mischievous smile on his round face betrays him as a bon vivant. But no matter how relaxed the Managing Director comes across, talking to him makes it clear that when it gets down to business, Alexandre Herren sets a very high bar.

Alexandre Herren describes himself as a “crackpot” – and he may well be right. Maybe you have to be a little crazy to pursue your fortune as a sheet metal processing entrepreneur in, of all places, a high-wage country like Switzerland. But during a tour of the shop floor, it quickly becomes clear what drives Alexandre Herren – enthusiasm for technology and a wide range of materials. We cannot help but be amazed: Here, eight-millimeter-thick steel is being bent like butter under the 150-ton force of a Bystronic Xpert 150. There a waterjet cutting system is cutting crisp circles out of rubber. In addition to the massive parts for industry, there are filigree figures made of wood, ▶

leather, copper, and acrylic glass that would not be out of place in the display cabinet of a jewelry store. This is actually where some of them are now located.

Alexandre's 27-year-old son Guillaume picks up a finely engraved medallion that a jewelry manufacturer from the region commissioned for one of his creations. Father Alexandre bustles over with the Herren Frères sample sheet, points to the variety of colors and materials, and with eyes twinkling with pride, he says: "We know no limits."

### Pioneering forefathers

The courage to push boundaries runs like a central thread through the history of the company, which is which is already in the third family generation. In 1984, Alexandre's father Robert, who had laid the foundation for the company as a tinsmith and plumbing contractor in the basement of his private home in 1955, purchased Switzerland's very first CNC punching machine. He thus ushered in the digital age at Herren Frères. "We absolutely cannot afford to miss this bandwagon," he warned at a time when the first personal computers were only just making their way into offices.

And his father was to be proven correct: The CNC system enabled a huge leap in productivity, as Alexandre

Herren recalls. He joined the company in 1985 and also introduced an innovation. "When we opened up our production facilities to a customer from the robotics industry, our shop floor suddenly became home to men in white coats," he says. This caused some turmoil within the family, but the critics were mistaken: The company did not fall into ruin, quite the contrary: Business developed extremely well.

Today, the diverse clientele and the wide range of products offered by Herren Frères are two of the company's strengths. The parts manufactured in the sheet metal processing plant are shipped throughout Switzerland and in some cases to neighboring countries to customers in the pharmaceutical, mechanical engineering, construction, food, and medical technology industries, as well as the advertising and design sectors. In addition to sheet metal processing, the SME's fields of business cover plumbing, heating and sanitation, solar technology, and real estate.

### More than metal

A company that wants to fulfill the needs of a broad range of demanding customers requires the appropriate tools and systems. Here the systems from Bystronic play a key role: In 1992, Herren Frères – as one of the first customers in the French-speaking part





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*“This machine will transform our lives.”*

**Alexandre Herren**, Managing Director Herren Frères



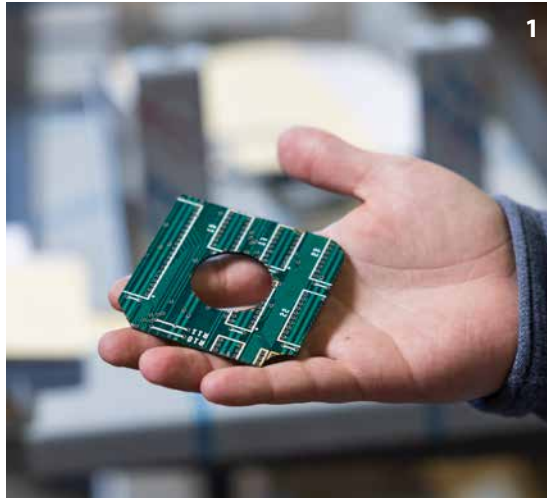
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**1** Herren Frères cuts virtually any material – even leather and wood.

**2** The family enterprise also puts its trust in Bystronic for bending.

**3** Managing Director Alexandre Herren with his son Guillaume.

**4** The ByStar Fiber 20000 is ushering in a new era at Herren Frères.



of Switzerland – purchased a Bystronic laser cutting system, with an output of 2500 watts and the capability of cutting both sheet metal and tubes. At that time, Herren Frères was still suffering from the shock of the economic paralysis triggered by the Gulf War. Nevertheless, the SME dared to invest.

“Others in our industry called us foolhardy. But it was clear to me that we needed a new, innovative technology to be able to fill our order books,” Alexandre Herren explains. He never regretted the decision. For the company that had previously mainly produced parts made of steel, stainless steel, aluminum, and copper, laser technology opened up “the entire world of materials and shapes”, as Alexandre Herren puts it. Acrylic glass, polyethylene, polypropylene, cardboard, Corian – the list fills an entire column in the company’s brochure.

Since 1995, a waterjet cutting machine from Bystronic has been making it possible to process

even more materials, both soft and hard. In 2011, the company invested in a Bystronic laser cutting system with an output of 6000 watts. Herren Frères is “part of the family” and has purchased virtually every type of machine Bystronic offers, says Fred Weber, Bystronic’s Area Sales Manager. He thus touches on another strength of the family enterprise. They can handle all production steps in-house: from development and programming to cutting, punching, bending, and welding.

### Craftsmanship plus high-tech

Alexandre Herren attaches great importance to the craftsmanship and expertise of his staff, but also to meticulous maintenance and the sensible utilization of the machines. Thus he was a little sad when the CO<sub>2</sub> laser cutting system he had purchased in 1992 was finally retired. It was still working flawlessly after 30 years. Nevertheless, he decided to replace the system. After all, it was becoming increasingly difficult to obtain spare parts, and a visit to the Blechexpo trade fair in Stuttgart convinced him: The time had come for a fiber laser.

Herren Frères intends to remain at least one step ahead of the competition, and Bystronic has the technology it takes. Alexandre Herren expects the



## PROFILE **Herren Frères & Cie**

*Bystronic Customer since:* 1992

*Fields of business:* Sheet metal processing, laser and waterjet cutting, and services in the plumbing, tinsmithing, solar technology, and real estate sectors

*Production locations:* Grandson and Yverdon-les-Bains (Switzerland)

*Number of employees:* 85

*Production area:* 1250 m<sup>2</sup> in Les Uttins (Yverdon) and 1500m<sup>2</sup> in Les Tuileries (Grandson)



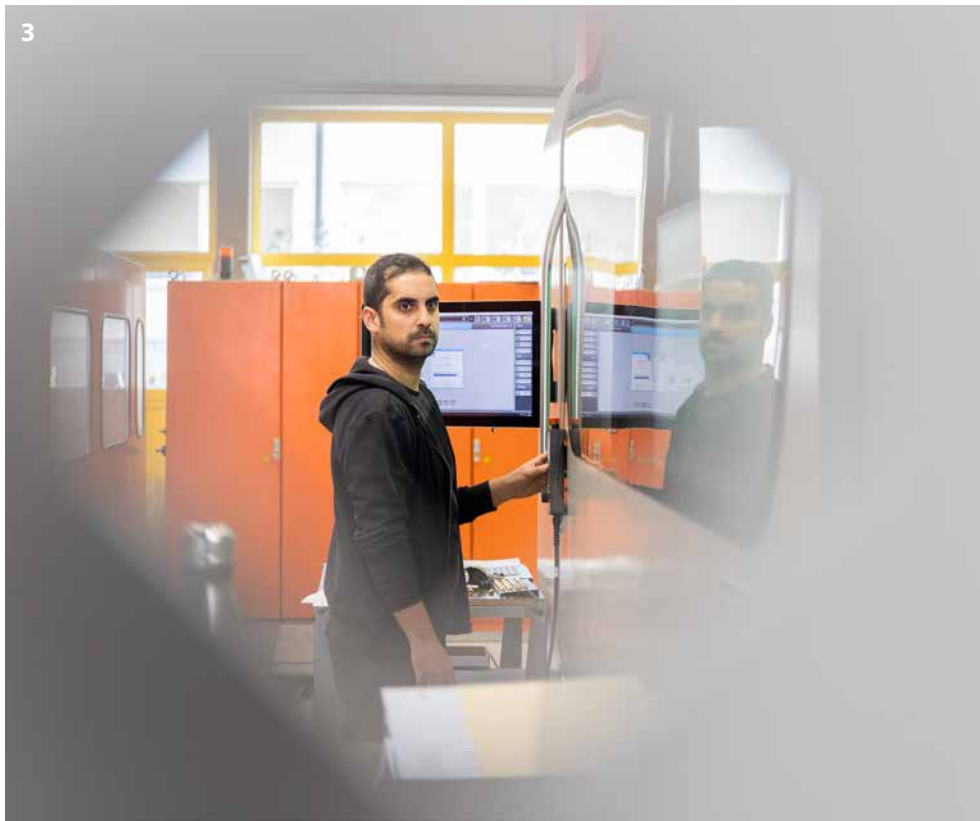
cutting head of the ByStar Fiber 20000, which focuses LED light to generate the highest power, to increase productivity by a factor of five. The system can handle sheets measuring up to 1.5 by 3 meters, and its two cutting tables move in parallel. Thanks to Bystronic's ByTrans Extended, the production process can also be automated. The parts are automatically removed and stacked, since the 20 kilowatt system runs at such a speed that a human operator could simply not keep up. Cutting can be made even faster and also more cost-effective using the new MIXGAS application, which is available as an option for the new fiber laser.

## Automation as an opportunity for Switzerland

The test production phase has convinced the Managing Director: "The new technology is ready." For Herren Frères, the ByStar Fiber heralds a new chapter in the company's development. Previously unattainable cutting speeds and high material thicknesses: For Herren Frères, this means, for example, being able to cut tiny holes with a diameter of five millimeters in a 40-millimeter-thick aluminum sheet in a single pass. This has the promise of reducing production costs while simultaneously opening up the ability to produce even more complex parts.

Thanks to the higher degree of automation, the production hours in the factory are to be increased from today's nine to at least eleven hours, and a part of the manufacturing process will be shifted to the evening or night. Alexandre Herren vigorously disagrees with the notion that this will result in job cuts. In his view, automation is not a job killer; on the contrary, it maintains the competitiveness of Swiss high-quality industry and frees up manpower for other tasks. In Yverdon, for example, for programming, bending, and welding. Alexandre Herren is convinced that payroll costs are not the decisive criterion on the market. "Technology makes all the difference when it comes to the price."

With the Bystronic ByStar Fiber 20000, Herren Frères wants to establish itself as the "VIP of laser cutting specialists" and attract those customers in the high-tech segment who expect the highest quality at the best possible price – while continuing to provide excellent service to existing customers. This definitely sounds like a promising outlook after weathering two years of the Covid-19 pandemic. This is maybe one of the reasons why the Managing Director himself puts the alleged eccentricity of sheet metal processing specialists into perspective: "If you have a clear vision, you immediately appear less crazy." ■



**1** With the new machine, the company is setting its sights on high-tech customers.

**2** Delicate ornaments bear witness to the utmost precision.

**3** For its current job, the ByStar processes 300 parts in just seven minutes.



*Chris Gaethke uses  
virtual reality to bring  
his designs to life.*



# Chris Gaethke and the wow effect

For the past eight years, Chris Gaethke has been making his mark on Bystronic's machine design. The designer has become part of the family and accompanies the product development from the vision to the prototype and all the way through to series production. We visited him at the PROJECTONE design studio in Austria.

*Text: Thomas Peterhans Photos: Stefan Jermann*



“Good design is when nothing is superfluous.”

Chris Gaethke, designer at PROJECTONE

1 Chris Gaethke fine-tuning the new design of the Bystronic machines.

2 The new look is streamlined and purist.

3 The designer is fascinated by the future, but also has a soft spot for vintage cameras.

When Chris Gaethke talks, one expression comes up quite often: “super cool”. For example, when he speaks about new technologies such as 3D printers, VR glasses, and the metaverse. Or about sustainable materials in the automotive industry. But he also uses “super cool” to describe the memory of his experience on the Great Wall of China. And the feeling when one of his customers is impressed by a design from his studio.

The fact that many things in Chris Gaethke’s world are “super cool” is attributable to a variety of reasons. The most important of which is: The product designer has an inquisitive mind. “I am magically drawn to everything that has to do with the future and progress,” he says. He is fascinated by opening up new doors, daring to experiment, and a mindset that always has one foot in the future. He enjoys “creating something new”. And ultimately, he is also grateful for the opportunity to pursue the line of work that he always dreamed of.

### Timeless design

The 42-year-old was born and raised in Magdeburg, near Berlin. “I initially trained as an engineering draftsman and later studied industrial design,” Chris Gaethke says. Following various stations in Germany, he now lives and works in Dornbirn, Austria.

“Vorarlberg is an incredibly dynamic region. In addition to globally active companies, there are many innovative startups and creative professionals who have established strong networks,” he says.

Sharing ideas, networking, and working together to seize opportunities – for Chris Gaethke, these are crucial factors. He is outgoing and open-minded when it comes to jointly initiating projects. He shares his office and workspace with various freelancers and creative professionals, such as a performance marketing agency, photographers, and graphic designers. The building is located on a quiet residential street, and the view through the window overlooks the green idyll on one side and the Swiss mountains on the other.

The interior is characterized by exposed concrete, glass, and wood. The ambiance is bright and friendly, the furniture functional. Black, white, and gray dominate. The only touches of color come in the form of a bouquet of flowers made of Lego bricks and a green bench from Vitra. “Its timeless design is super cool, and the fact that I discovered it hidden in the attic of a junk store a few years ago still gives me pleasure today,” Chris Gaethke says.

### Food served by robots

We go to lunch at “Shao Kao” in Dornbirn, a Chinese restaurant where Chris Gaethke is a regular. The designer enjoys eating here. On the one hand, because he likes Asian cuisine, and on the other, because of all the creative people and entrepreneurs he encounters there. “The people here know each other,” he says, waving to a friend who’s a photographer. In addition to the restaurant’s carefully designed interior, he is also thrilled by the new waiter robots, which maneuver confidently and quietly among tables. They deliver

the food and return empty plates to the kitchen. "It is certainly quite futuristic," Chris Gaethke says. His fascination with the autonomous waiter robots is obvious.

Chris Gaethke's fascination with the future is not limited to his role as a designer; he is also a sci-fi fan. "We live in an age where some of the visionary things we know from Star Trek and the like can actually be realized." One example is the "Communicator", the comms device used by the crew of Starship Enterprise. It has long since become reality in the form of the smartphone. And the realization of other visions is drawing ever closer: "Today we have reached the point where we are developing flying cars," Chris Gaethke says.

### Innovation calls for unusual ideas

Chris Gaethke's relationship with China goes beyond his regular lunches at "Shao Kao". In his role as a designer for Bystronic, he has been there several times, visited Shanghai, Shenzhen, and Beijing, and even stood on the Great Wall of China. "That moment up there was a super cool experience. I would never have thought that my work would ever take me so far around the world," Chris Gaethke says.

His technical background is also an asset in his collaboration with Bystronic. It allows him to talk to the design engineers at eye level. "They know that I don't simply present colorful pictures, but also deliver concrete technical solutions," Chris Gaethke says. That is why he is usually at the table from the outset when new projects are being developed. This was also the case with Bystronic's new machine platform, which forms the blueprint for the entire range of fiber laser machines of the near future.

The product development cycles have accelerated considerably in recent years. Today, the development



of a new product takes only one to two years at the most. During the concept phase, Chris Gaethke deliberately submits a number of designs that are radically and unexpectedly different. Naturally, he knows that a great deal will change during the development process. Either for reasons of workability, technical aspects, or to meet certain specifications relating to manufacturing costs. He explains: "The final product only achieves the wow effect if you venture beyond the usual specifications every now and then and question previous approaches."

And the wow effect is important: The design must communicate the performance and value of a machine. The inner workings usually remain hidden. Chris Gaethke is convinced: "If there is virtually no difference in terms of performance, the customer will choose the machine with the higher visual quality. The emotional purchase decision must not be underestimated." Bystronic machines deliver the highest quality and precision, and therefore the customers' expectations regarding their design are also justifiably high.

These demands have not changed in recent years. In contrast to the appearance. "Bigger, brighter, louder – this is definitely no longer a thing," Chris Gaethke emphasizes. Today, minimalism is the order of the day in product design – also with sustainability in mind. True to the motto: Good design is when nothing is superfluous. This not only reflects Chris Gaethke's style, but also Switzerland's. "Restraint is a trademark of Swiss design: authentic yet contemporary." ■





# “WE SCRUTINIZED EVERY WELDED SEAM”

Bystronic's machines are receiving a visual update. The new design is the brainchild of Chris Gaethke, who as a designer is responsible for much more than just the look. His work reaches deep inside the machine.

***Bystronic's machines are being given a new design.***

***What is changing?***

The new machines have a drastically streamlined design. There are now barely any curves; the look is much more clean-lined and thus distinctly more modern.

***Does streamlined also mean more uniform?***

Yes, the look is new and uniform across all product lines. This is important in view of the smart factory. In future, all our solutions throughout the cutting and bending process chain will fit together perfectly, not only technically but also visually.

***What was the biggest challenge during the redesign?***

Our challenge was to develop a completely new machine frame concept that can be scaled as required. This means: It has to work for various lengths and widths and thus accommodate the modular design of the machines. In addition, the design had to be distinctly different in the gold and silver segments. With the new machine platform, we have succeeded in meeting both requirements.

***What distinguishes the gold segment?***

In terms of color, premium remains light gray. This creates a sophisticated and calm effect. But the black-tinted windows and minimal red highlights create a super-modern look. The added value of the gold segment is clearly underlined: new features, higher performance, fresh design.

***What role do costs play in the design process?***

They play a role everywhere. For the new platform, we scrutinized every welded seam and questioned whether and where there was potential for optimization. After all, the fine art is to deliver an appealing design at the targeted price.

***So far, we have talked mainly about forms and colors, about what is visible. But as a designer, don't you also help shape the inner workings?***

Yes, that's true. My work reaches deep inside the machine. You always start by developing a framework concept. You think about modularity, the maintenance process, ergonomics, ventilation, safety, or part sizes in order to ensure the assembly process is as efficient as possible. Even transport, packaging and, to some extent, the UI/UX design of the software play a role.

***Software?***

Precisely. I always confer with the UI/UX designer. He is responsible for the user interface and user experience design and thus for the communication between the operator and the machine. Together we determine which elements of the exterior design can be mirrored in the user interface.

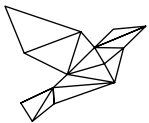
***What appeals to you most about the new design?***

The new design is more timeless and purist. I'm convinced it will endure for a long time and will cause a stir when the new, uniformly designed products are unveiled at EuroBLECH 2022. ■

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