01 Bergen op Zoom
No fear of change: digitalization in Dutch

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Often imitated, never duplicated: a tinkerer’s project becomes a brand

02 #2017 COURAGE

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Courage in times of turmoil: the success story of a strong family

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If you dare, you win – innovation management made by TRUMPF
An entrepreneur needs a lot of skills to be successful. Specialized knowledge, a feel for the market, and an understanding of human nature. But what do you do when the economic weather becomes turbulent and you suddenly find yourself sailing straight into headwinds? How can you keep your ship on course in rough seas – or maybe even set an entirely different one? What do you need? **Courage.** Perhaps the most important trait of all for entrepreneurs.
What some people consider courage, others regard as sheer recklessness. In other words, it is almost impossible to gauge courage. Why? Courage requires you to **act on your instincts**, or trust your **gut feeling**. It's important to listen to your intuition – something you can learn how to do. Once you know you can trust your instincts, then you can **confront every challenge courageously**, no matter how risky it might seem.
The essence of courage is to do things that most people wouldn’t dare to do. It’s also about using your courage to help other people—even if helping puts you in dangerous situations. Just think of the intrepid volunteers, the White Helmets, who defy the humanitarian crisis in Aleppo. When we think of them, we feel esteem and, above all, humility.
Is TRUMPF a courageous company?

We certainly are a resolute business that makes clear-cut decisions and single-mindedly sees them through—in time and again as a pioneer. The TRUMPF Bank, venture capital, EUV lithography, additive manufacturing, fully automatic laser machines, the Industry 4.0 factory in Chicago: we have recently brought many courageous decisions to fruition. Without a doubt, our most far-reaching decision concerns digital transformation, which will change the entire company in many ways.

TRUMPF customer Corné van Opdorp (see page 12) is proceeding down this same path. But that is not all. As an association chairman, he organizes fact-finding missions that help many people become fit for the future. Courage takes on many forms. Having the courage of your convictions and exhibiting dedication, for instance. Courage is often deeply personal in nature. Shahla Hashemi-Tehrani at TRUMPF Health Services in Ditzingen is a great example. She chose to work less so that she could apply her language skills to helping refugees. And then there is the Naggiar family in Beirut. They have seen many entrepreneurs leave crisis-ridden Lebanon. Yet the Naggiars are undaunted; they continue to invest in their company and create jobs.

Courage is a big word—and an important one for entrepreneurs. I hope that we can all be courageous.

Simple, unfinished wooden pallets—painted yellow and stacked atop one another. A black surface to top it off, and you have a reception counter. What sounds like inexpensive furniture for students has in fact become a trademark of the software start-up AXOOM. The same goes for the team’s yellow sneakers. Their message is: we are not TRUMPF, even though the machine manufacturer did found our start-up. What are we? Young, headstrong and independent. When you’re different, it takes courage to live life to the fullest. You also need courage to accept that other people are different than you.
... in Gunzenhausen

Unconventional decisions and an unmistakable gut feeling: running a company with heart, drive and understanding opens many doors.

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... in Beirut

Story of a courageous family: why people must stick together to succeed in an economically and politically unstable country.

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... in Ditzingen

Investments require courage and market expertise: how the venture-capital specialists at TRUMPF find ingenious ideas and help start-ups.

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In a time when it has become impossible to imagine life without smartphones, tablets and computers, Corné van Opdorp is taking things to their logical conclusion within his company: comprehensive digitalization. The BOZ Group in the Netherlands has already initiated a process that many companies have not even thought about. This is a courageous step.
At the end of 2008, when Corné van Opdorp took over at the BOZ Group from his father, the company’s founder, there was one thing it didn’t take him long to notice: the printouts of order documentation lying on each machine. “Without these papers, there was basically nothing the staff could do. That was quite simply a no-go for me,” the 37-year-old explains. And since he is not just fundamentally open to change but also very interested in the latest technologies, Corné decided to completely digitalize the BOZ Group and turn it into a smart factory.

The future is paperless

“Of course, there’s no way to deliver comprehensive change overnight. But we’ve already achieved a whole lot,” Corné says. The company’s success speaks for itself: the BOZ Group is one of the Top Three sheet metal processing companies in the Netherlands, with a workforce that is now over 100 strong. Its factory in Bergen op Zoom produces parts for the high-tech sector, for medical technology and for the food industry. During the day, the focus is on smaller jobs; bigger batches are processed at night and on the weekends. The Dutch company specializes in thin sheets up to six millimeters thick. It was also among the first to adopt laser welding for sheet metal processing and to purchase a TRUMPF panel bender. This means the BOZ Group not only serves customers throughout the sheet metal process chain, but also supplies correspondingly complex components.

Corné is convinced that digitalization has to proceed step by step at his company. This will keep the degree of adjustment manageable for everyone. “Our first milestone was to ensure every order can be programmed offline, to make work even more effective and efficient,” the CEO reports. “We no longer program on the machines themselves; instead, programming is done at a desk during our main production hours. That lets us make much better use of the machines.”

This is particularly important given that all the machines in BOZ’s production facilities are connected to form a network, meaning they can be monitored and controlled centrally. This network includes the STOPA storage system, with its 571 storage locations and connected robot. Any problem reports can for instance be sent by text message or e-mail directly to an engineer’s smartphone. The Dutch company already makes very little use of paper – and the future is paperless. In practice, this is achieved using 2D codes, which the laser machinery marks onto the sheet metal parts. Each code contains information on things like the subsequent process step. TRUMPF calls them Dot Matrix Codes and has worked with BOZ to modify them so they meet the specific requirements in Bergen op Zoom.

No change without knowledge

Employees are learning about this digital transformation little by little. “That way, nobody feels overwhelmed,” Corné says. To make the transition as uncomplicated and as pleasant as possible, the CEO regularly has his managers and staff complete external training courses. After all, as his father taught him long ago: “You cannot think only of your own company; you need to go one step further and see what else is out there in the world.”

The younger Van Opdorp likewise lives by this motto. That explains why he is active not only within the BOZ Group but also as chairman of the Dutch sheet metal processing association. This role is something of an honorable tradition for Corné – his father founded the association many years ago. Members meet three times a year in the offices of one of the member companies, plus a fourth time for a fact-finding mission. The most recent such trip took

“We were very quick to make the move towards the smart factory, which is why we had to be very resourceful ourselves. But it was worth it.”
Working with a welding robot is more demanding and more challenging than the work I was doing previously – I like it!

Jianbin Lin (20 years old), production employee

Nowadays, Corné is known in the Netherlands as one of the most influential ambassadors for Industry 4.0. This is perhaps surprising, given his non-technical background: he studied business management, and sees numbers and processes as his greatest strengths. Presumably it is precisely this comprehensive outlook that helped him implement his own vision for his company with such courage and dynamism. Simply because he believed in it.

His father, too, took a bold risk when he founded the BOZ Group at the age of 28. The company came full circle when Corné took up the mantle of CEO – also aged 28. But he is nothing like his father and has a very different management style, as his employees can attest. Some of them remember their current boss romping
Corné van Opdorp (37 years old), CEO

"I’m a processes guy, my father is the technical guy."

around in the factory as a young boy. This close contact is very important to Corné, which is why he spends at least an hour every day on the shop floor talking with a broad spectrum of staff. "I’m interested in each member of the workforce as a person. And I’m interested in the work each of them is currently doing. I want people to know that." A glance at how the BOZ Group handles succession planning is enough to show that these are not just empty words. Jianbin Lin and Peter Quist are two good examples. Both were offered exciting opportunities for career development within the company – and they have gladly taken them up. Peter had a free hand in setting up the IT infrastructure, while Jianbin had a chance to really get to grips with the details of laser welding with robots. Many of their colleagues will be given similar opportunities in the future – because courageous and qualified employees are essential to making digitalization a reality.

En route to paperless manufacturing

Corné van Opdorp and his company are among the first to blaze the trail of paperless manufacturing. He is benefitting from TRUMPF’s assistance and Industry 4.0 solutions. Available under the TruConnect name, these offerings are always precisely tailored to customer requirements. The tools described below are just some of the TRUMPF solutions that pave the way to paperless manufacturing.
En route to paperless manufacturing

Part separation

The graphical separation of parts helps the operator sort a laser-cut sheet. Thanks to part separation, all parts pertaining to an order will be color-coded and corresponding data displayed in a special mask. This minimizes the need for order documentation.

Dot Matrix Code

Another feature is another step toward paperless manufacturing: a Dot Matrix Code specifies which parts are associated with which jobs, and other information. The Dot Matrix Codes also ensure that this information and the part are inseparable. Relevant information is stored in a standardized, 2D industry code – or data matrix. A laser flatbed machine needs mere seconds to mark a part with the code. A code can contain information on things like the subsequent steps in the sheet metal process chain. The operator can use a scanner to read the standardized code.

The Dot Matrix Code on Youtube: www.trumpf.com/id/a308y5

TruTops Fab App

This app is the mobile version of the production-control software TruTops Fab. It grants the user an overview of production – anywhere, anytime.

For example, users can remotely view information on part separation or scan a Dot Matrix Code to access information at any time.

About the customer

BOZ Group
Managing director: Corné van Opdorp
Workforce: approx. 100
Bongamansweg 8
4812 PL Bergen op Zoom, The Netherlands
Phone: +31 (0)164 240910
boz@bozgroup.nl
www.bozgroup.nl

Product range

- Laser welding
- Sheet processing
- Powder coating
- System assembly

Machinery

- TruBend Center 5030
- TruBend Cell 7000
- 2x TruBend 5085
- 2x TruBend 5170
- TruBend 7036
- TruBend 5130 + BendMaster
- TruMatic 6000
- 2x TruLaser 3030
- 2x TruLaser Robot 5020

Interesting fact

BOZ is home to one of the largest STOPA storage systems in the Netherlands, it boasts 571 storage locations and a connected robot.
He doesn’t look at all like a stereotypical entrepreneur. No suit, no tie – just sneakers, baggy jeans, and a brown and green workwear jacket with Heizomat printed on it. It’s obvious at a glance that Robert Bloos is a hands-on kind of guy. The TRUe team traveled to Bavaria to get to know the man behind Heizomat.

His welcome matches his look: a firm handshake and then a relaxed chat sitting in the rustic-style foyer, which feels more like a cozy dining room. Robert – we’re soon on first-name terms – is lounging on one of the heavy wooden chairs and talking about his company, his son and his father. All three share something essential: their first name. “My father was the one who started it, and I kept it up. It just turned out that way.” says the 30-year-old. But he shares more than just a name with his father: Robert Bloos Senior has a pivotal role in the company – he is the inventor of Heizomat.

It all started 35 years ago. As a young truck driver, Robert Bloos Senior didn’t like coming home to a cold house after a twelve-hour shift at the wheel. So he did something about it. With a big stockpile of wood at home, he didn’t want to use heating oil. He tinkered a bit, trying to find a way to automate his wood-fired heating system. And he succeeded, too: a wood fire that tends itself. Over time, more and more of his friends and acquaintances showed an interest in his unusual heating system. This DIY project has since become a globally active company that employs 245 people: Heizomat.

Hello biomass, goodbye fossil fuels: Heizomat presents its corporate philosophy at the entrance to the barracks grounds.

There’s only one street in Maicha, near Gunzenhausen, in deepest Bavaria. A house with rooms for rent. A farm. And Heizomat. At least, that’s what it feels like. No matter where you turn in this rural idyll, the family-owned company is there. Robert Bloos has built himself a little empire – in the middle of nowhere.
The principle is simple: the Heizomat system is powered by wood chips – in other words, biomass. This makes it not only an inexpensive but also an environmentally friendly alternative to fossil-fuel heating systems. So far, over 35,000 units have been sold in more than 29 countries – from Germany to Spain to New Zealand. And all this has been achieved without abandoning Gunzenhausen as a manufacturing location: 80 percent of parts are manufactured at the company’s sites in Maicha and Heidenheim, also in Bavaria.

But Robert Bloos Senior is a tinkerer through and through, so of course Heizomat heating has been joined by other products over the years: the Heizotruck truck, the Heizogreif log gripper, the Heizohack wood chipper. The “Heizo-” prefix is the golden thread running through them all, and it stands for more than just a company. Heizomat has become a strong brand.

“Interest in alternatives to fossil fuels has grown exponentially in recent years, and the transition to a new energy economy is now a household topic across Germany,” Robert says. Most of his customers are farmers, but the Heizomat system is also popular with private households, industry and commerce, or wellness hotels.

“In my opinion, every company should look into automatic wood-burning heating systems because wood and cardboard waste is unavoidable. Our products can cut up this waste and use it as valuable heating fuel. That reduces both heating and waste-disposal costs,” Robert eagerly explains. The young CEO and his team – which includes his two sisters, his brother and their spouses – remain committed to Robert Boos Senior’s philosophy: “Every Heizomat is put together in a way that allows anyone decent with their hands to operate it.” For Robert and for anyone who has grown up in the country, that goes without saying.

Robert greets each of his staff by their first name and he’s always ready with a joke. He patiently explains to us how each machine works, and even when you can see the pride in his face – for instance when he talks about the Heizotruck, a modified vehicle with a monster-truck makeover – he never brags.

Robert is down to earth and conscious of tradition. At the same time, he makes remarkably courageous decisions. Rather than sticking to a business plan, he prefers to follow his gut feeling. Just as his father has for decades. One example is the family’s relatively spontaneous decision a few years ago to expand their manufacturing capabilities by buying the old Hahnenkamm barracks in nearby Heidenheim. There, on 370 hectares of land with several adjacent buildings, stands a factory that is a mind-blowing 350 meters long.

We get into his car and drive the 9 miles (15 kilometers) from headquarters to the barracks, through the giant cast-iron gates, and along a seemingly never-ending driveway through the forest. Robert tells us that all this is part of the grounds: “Out to the horizon.” The decision to buy the barracks – which is so big that staff use bicycles – definitely paid off. Business, as they say, is booming. But that wasn’t the only time Robert demonstrated entrepreneurial courage.

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Someone who knows what he wants

As we walk across the expansive, snow-covered barracks grounds, which are covered with stockpiles of wood, the boss of Heizomat is open about the future of his company: “We want to grow, obviously. And we have a whole lot of creative ideas as to how.”

Healthy growth relies not only on innovative strength but also on making the right investments. For instance, in new machinery that will keep pace with the company’s future. That’s exactly what Robert found at Euroblech in October 2016. All he had intended to order was the TruMatic 7000, but as soon as he laid eyes on TRUMPF’s latest revolutionary innovation, he changed his mind on the spot: “When I saw the TruLaser Center 7030, it just blew me away. The TRUMPF experts explained all the new developments to me – from the brush table and the hybrid machine concept to the ingenious flow of materials and the automatic programming. And I could tell straight away: this was the solution to all my problems in 2D laser cutting!” And then he bought the machine, turning down the offer of a tailored profitability analysis: “I had understood the principle behind the machine and I knew what it meant to my production. So I let my father know – he was abroad at the time – and then I signed on the dotted line.

We’ll be getting the machine in November, and we’ve already chosen a spot for it in the factory.” By the way, he went ahead and ordered the TruMatic 7000 anyway – on top. He tells us that quick decisions are part and parcel of running a family-owned business, and that he nearly always listens to his gut instinct. That perfectly characterizes Robert Bloos and helps explain the Heizomat success story: a healthy mixture of professionalism, common sense and gut feeling.

TRUMPF unveiled something truly revolutionary at Euroblech 2016: the TruLaser Center 7030. Robert Bloos was not the only person who was duly impressed. This machine is packed with pioneering innovations – here’s a look at three of them.
**Brief and concise**

**TruLaser Center 7030: some of the key benefits**

1. **SmartGate for complete assistance with parts**
   - The new support solution with brush tables and SmartGate ensures that parts are handled securely and safely. The intelligent support traverses in sync with the cutting head and completely supports the parts during cutting. As a result, it is no longer necessary to tilt and weld workpieces or use microjoints.

2. **Hybrid machine concept**
   - In contrast to conventional 2D laser machines, both the cutting head and the sheet move when you use the TruLaser Center 7030. Thanks to the cutting head's additional axis, the machine delivers extremely dynamic cutting. This results in superimposed axis motions for outstanding machine performance.

3. **Programming at the touch of a button**
   - The TruTops Boost programming system automatically generates suggestions – not only with regard to cutting, but also the removing, sorting and depositing of parts. It naturally observes the laws of physics while doing so. This system can suggest, for example, how best to spin a part out of the scrap skeleton in a way that definitely prevents cant. There’s nothing like TruTops Boost anywhere in the world.

**About the customer**

Heizomat Gerätebau-Energiesysteme GmbH
Managing director: Robert Bloos
Workforce: 245
Maicha 21
91710 Gunzenhausen, Germany
Phone: +49 (0) 9836 9797-0
info@heizomat.de
www.heizomat.de

**Product range**
- Heizomat
- Heizotruck
- Heizogreif
- Heizotrans
- Heizosolar
- Heizohand
- Heizoblock
- Heizopump

**Machinery**
- TruLaser Center 7030 (from autumn 2017)
- 2x TruLaser 3030
- TruLaser Tube 7000
- TruMatic 7000
- TruBend 5030
- TruTool TSC 100

Additional information on the TruLaser Center 7030 is available here: www.trumpf.com/s/xoltpe

**80 m³ = 5,600 l**

The Heizohack wood chipper can process 80 cubic meters (2,825 cubic feet) of wood in just 30 minutes. That is equivalent to 5,600 liters (1,479 gallons) of heating oil – enough to heat a home for an entire year.

**370 hectares Production grounds**

349 hectares Central Park
202 hectares Monaco

**350 meters**

Robert Bloos's factory is 350 meters (1,150 feet) long. The largest passenger aircraft in the world, the Airbus A380-800, is a mere 72.80 meters (239 feet) long.

**100 %**

In 1982, the production facility in Maicha was all of 10 square meters (108 square feet). Production now spans approx. 35,600 square meters (376,737 square feet) and is heated using only biomass.
It all began in 1860 in Aleppo – the Syrian city that is in such turmoil nowadays. At that time, the town had one of the last flourishing economies in the Ottoman Empire, not least because it was situated on the Silk Road between the Far East and the Mediterranean. Almost 160 years on, and with an international relocation behind it, the Naggiar company has experienced, endured, risked and attained a great deal.
Exactly 157 years ago, Gabriel Najjar, just 17 at the time, and his wealthy brother-in-law, both of Armenian origin, founded Dabbagh & Naggiar. Their business sold steel, tools and iron goods. At a time when the Suez Canal had not even been built, the young entrepreneur established a successful company and soon proceeded to tap key markets. He also cultivated relationships with trading partners, enjoying a particularly good reputation among Italian suppliers. Now, in 2017 and four generations later, Philippe Naggiar explains why that would prove to be a milestone in the history of the company and his family: “Business partners in Italy could not pronounce Najjar. So my ancestors simply changed the name of the company, and later of our family, from Najjar to Naggiar.” This descendant of Gabriel Najjar enjoys recounting what happened more than a century ago. “The anecdote illustrates just how important good business relationships have always been to my family.”

In the 2000s another member of the family, Fady Naggiar, encouraged the company to invest in modernizing the Naggiar Service Center. That was how the successful story of Naggiar and TRUMPF got started. Nowadays, Naggiar offers a wide range of products made of stainless steel, aluminum, brass, copper and zinc as well as services, design solutions and tech support. The company comprises five divisions: Metals, Architectural Products, the Service Center, Equipment and Packaging Materials. Fady, Roy, Ralph, Maya and Philippe Naggiar oversee the divisions; Farid Naggiar is CEO. Although Philippe, who holds a doctorate in electrical engineering, is the company’s youngest director at the age of 27, he is far from being an industry novice. After all, his family is intertwined with the company. Philippe is also the first fifth-generation family member to work there. That is not to say, however, that his decision to join the company was an easy one. In fact, it meant this man of many talents had to abandon his favorite hobby: magic. But blood is thicker than water: Philippe realized where he belongs and is glad to be part of the company’s future.

**Blood is thicker than water**

Family means everything to the Naggiars. Indeed, the family has run the company ever since Gabriel Najjar founded it. Although occasional friction and disagreement is inevitable, the Naggiar brothers, sisters, nephews and nieces are living proof that a family that works together stays together. “Because we share a vision and a passion for our company, things always work out – even though we all make our own decisions.”

In Beirut, there are now 100 residents. Lebanon has a long tradition as a trading nation. Civil war and fighting after the military conflict with Israel in 2006, however, severely impacted the economy. The country’s role as a hub for Middle East trade and services likewise suffered. Scars remain visible in downtown Beirut despite somewhat successful reconstruction. The Syrian market, key to sales, collapsed in recent years. It has also become difficult to transport freight overland to the Gulf States and the Arabian Peninsula. The Naggiars have nevertheless remained loyal to Lebanon, which they describe as conservative but also modern, courageous and very open-minded. What’s more, their company is investing in new machinery and developing new products. This patriotic family believes in Beirut, Lebanon and the people there. In addition, Naggiar has been active in Qatar since 2008. Naggiar Qatar specializes in architectural products.
The Naggiar family sees great potential in the Lebanese economy. They feel it is home to a lot of smart, entrepreneurial people with a very high level of education and skills. The Naggiars believe that every person who stays in Lebanon is important – and courageous. Families still own and operate 80 to 85 percent of businesses in Lebanon. “Family-run companies are one of the main reasons our economy stays stable. Their experience is indispensable,” says Philippe, who interned at TRUMPF in Ditzingen in 2011.

He spent two months becoming acquainted with the machines that he wanted to subsequently operate in Beirut. “I needed not only to understand them inside and out, but also to be able to use the machines myself.” Philippe is hardly the first family member to gain experience abroad. The Naggiars have been sending their sons and daughters abroad for generations so they can broaden their horizons and then propel the company forward. There is no time to stand still. That’s why the Naggiars recently purchased another new machine, not long after Euroblech 2016 in October: a TruLaser 5030 fiber, which boasts the highest available laser power of eight kilowatts.

The next big step will be to automate production two years from now – with help from TRUMPF. As for the TruLaser 5030 fiber, TRUMPF and the Naggiars sealed the deal in less than 30 minutes. “Courage comes easier when you work with the right partners.”
CoolLine: Expanded contour possibilities for thick sheets

With CoolLine, you can cut astonishingly delicate components from thick sheets of mild steel with a high degree of process reliability and narrow nesting solutions. Targeted cooling of the workpiece during cutting enables new geometries and significantly increases process reliability. During processing, special nozzles on the cutting head spray a targeted ring of water mist around the laser beam onto the workpiece. The water’s evaporation energy cools the material around the laser beam so the temperature during the cutting process remains nearly constant.

12 mm sheet thickness

Application area:
Mild steel, medium to high

Throughput increase

+ 100%

Available for:
• Highspeed Eco: TruLaser Series 5000 (8 kW) solid-state lasers
• Highspeed: TruLaser Series 5000 and TruLaser Series 3000 (6 kW) solid-state lasers

Two new turbo cutting processes, Highspeed und Highspeed Eco, represent a milestone in laser cutting technology using nitrogen cutting. All the facts at a glance:

New cutting processes

Many cutting processes can be retrofitted whenever a customer makes a corresponding order. That means you can upgrade your cutting machine at any time to meet new demands.

Product enhancements

To extend your application spectrum, TRUMPF offers other suitable product enhancements for every machine.

Information
www.trumpf.com/s/0wh36d

Application area:
Mild steel, medium to high

The customer
Naggiar Industries S.A.R.L.
General manager: Farid Naggiar
Offices and sales
6 Hobeika Street, Saifi
Beirut 2029 6406, Lebanon
Phone: +961 (0) 1 56 26 52
contact@naggiar.net
servicecenter@naggiar.net
www.naggiar.net

Service Center
• Laser cutting
• CNC punching and embossing
• Bending
• Brushing and deburring

Machinery
• TruPunch 1000
• TruLaser S033 fiber
• TruLaser S040
• TruLaser S040 fiber
Venture capital sounds complicated. What exactly does it involve?

Simply put, venture capital refers to investing in start-ups. Institutional venture-capital funds prioritize a high return on investment, which is associated with high risk. When a traditional company such as ours invests for strategic reasons, then it’s referred to as corporate venture capital. In practical terms, we’re looking for start-ups we want to work closely with. Both parties benefit from corporate venture capital. The start-up receives money and access to expertise, while we profit from a close relationship with an innovative, young enterprise. In essence, TRUMPF has supported innovation for quite some time now. Venture capital is simply the next logical step for us, so now we have founded TRUMPF Venture GmbH – a company that finances tech start-ups. This improves our ability to find worthwhile technological innovations in markets that intersect with our core areas.

What does financing look like? Do you envision taking full ownership of some start-ups?

No, that’s not our objective. Start-up teams typically require initial financing. TRUMPF Venture allows us to add value via financial assistance. We will invest 40 million euros over five years. In addition, we hope to provide funds to as many as five start-ups every year. Our company will have minority interests of 10 to 30 percent in these enterprises. At the end of 2016, we invested venture capital for the first time – in a start-up for sensor systems, XARION Laser Acoustics.

Millions of Germans have watched the TV show “Die Hölle der Löwen” – similar to “Shark Tank” in the USA or “Dragons’ Den” in the UK. Young viewers are particularly fond of the program, which features start-ups, tinkerers and inventors who pitch an idea or product to investors. Christof Siebert, Head of Innovation Management at TRUMPF in Ditzingen, has watched “Die Hölle der Löwen” – German for “Lions’ Den.” What’s more, he himself is a lion. In this interview Siebert describes, how he and his venture-capital team seek and identify technologies of tomorrow.
TRUMPF Venture GmbH is not a typical TRUMPF entity. Your company relies on unique methods, doesn’t it?

If we are to operate on the same wavelength as start-ups, we must think and act like they do. You need to react fast, for example. There’s a saying that sums things up nicely: “Corporations look at the calendar, but start-ups look at the clock!” In the world of start-ups, people make decisions very quickly. We naturally need to keep pace. You also need to have the courage to delegate tasks and to trust your colleagues. TRUMPF Venture GmbH gives us a company of our own, one that focuses on our fields of interest. We hope it will make our work even more efficient and straightforward.

In which areas are you looking for partners?

Smart factories are naturally a priority for us. We’re looking beyond what TRUMPF does today to what we could do tomorrow; artificial intelligence and additive manufacturing are just two examples. Other areas are promising as well. Our partner XARION specializes in laser-based measurement technology, for instance. TRUMPF would not likely develop such a thing on its own, but the technology is a very good match with our core strengths.

How do you find start-ups that meet your expectations?

We use different approaches. We attend pitch events, where start-ups introduce themselves to potential investors. And we serve as judges at competitions such as the CODE_n contest, a platform for innovation. It’s really important to establish a good network. So far, we’ve looked at 500 start-ups. Of those, we closely considered 50 and held talks with 30 within a year. We got pretty far with some start-ups, but then broke our talks off after all. It’s imperative in this sector that you trust your gut feeling. Before we seal a deal, we always ask ourselves two questions: Would we invest our own personal money? Does the start-up absolutely need to succeed? It’s not a matter of right or wrong. Instead, it’s important to evaluate a lot of start-ups that specialize in the same or similar areas. Doing so allows us to amass a wealth of experience.

Once you have found a perfect match, how do you collaborate with a start-up?

We help the start-up grow and establish a network. In addition, we always want to be involved in subsequent rounds of financing. Shares are usually sold after seven to ten years. Such investments necessitate a wait-and-see approach: if both parties verify that their partner is an ideal match, then everything should proceed smoothly. But you can’t eliminate risk entirely – you’re not investing in an established brand, after all.

Where there is risk, there must also be courage. How much do you need in your line of work?

I would say that start-up founders and venture capitalists alike need to muster varying degrees of courage. Start-ups naturally bear a different risk than we do as a company. That’s why we need to appreciate their courage and work together as equals. At TRUMPF Venture Capital, every investment we make is courageous, because we know full well – in fact we fully expect – that not all of them can succeed. Failures are okay – inevitable even. Out of ten start-ups, three or four will go bankrupt. Another three or four will grow a little bit. But just one in ten will truly thrive. So yes, you do need courage – combined with expertise.

Fast team: In the past six months, the venture capital experts have looked at 500 start-ups and held talks with 30 of them.
Samuel Kurz, Philipp Ruta and Fabian Bacher want to revolutionize breakfast toast. The team from the Vocational School Center Leonberg is taking part in the German youth science competition “Jugend forscht” and has devised a toaster with an integrated laser that can be individually programmed using an app. The weather forecast or a short message on your toast? No problem!

In February and March 2017, TRUMPF Spain and TRUMPF Portugal presented the TruConnect range of solutions at exclusive customer events held in ten cities across the Iberian Peninsula. Apart from smart product solutions for connected manufacturing, such as Web Calculate or Condition Guide, the roadshow focused in particular on the results of consulting projects for reference customers in Spain. Participants were also fascinated by the virtual reality domain, which allowed them to experience the smart factory up close and hands-on.

The yearly work quota is part of the new initiative and an arrangement for age-related employee mobility, a qualification initiative and an arrangement for age-related working hours system or not – without having to consult with the Managing Board or the Works Council. Instead of the normal weekly work schedule, employees can draw on a flexible working hours system or not – without having to consult with the Managing Board or the Works Council. The yearly work quota is part of the new initiative and an arrangement for age-related employee mobility, a qualification initiative and an arrangement for age-related working hours system or not – without having to consult with the Managing Board or the Works Council.

At Euroblech 2016, TRUMPF received not one, but two awards in the “New Generation of Sheet Metal Working” competition. First, for the TruConnect Industry 4.0 solutions range, and second in the Academic Excellence category. Here, TRUMPF shared the award with the Fraunhofer Institute for Manufacturing Engineering and Automation IPA for a demonstration work station showcasing their digital assistance sorting system for products, services, segments and applications is easy to find thanks to a clear layout and intuitive navigation. With just a few clicks, customers and prospects can easily compare new features – for example, a comparison of the technical data of different product versions. Plus, the MyTRUMPF customer portal has now also been integrated into the website. On your PC, tablet or smartphone – all pages dynamically adapt to the respective device so that they can be used efficiently anywhere and at any time.

Ayrton Senna made motorsport history as a Formula 1 driver. To commemorate the 25th anniversary of his third world championship title, the Ayrton Senna Institute, in collaboration with TRUMPF, organized an unusual exhibition in Brazil: an open air museum. Sculptor Rafael Sanches created 11 statues representing Senna’s career. Standing over two meters tall, the artworks were produced on a TruLaser 5060 and a TruBend 5320. In October and November 2016, they were exhibited at well-known locations in Sao Paulo; now they have a permanent position along the Interlagos racetrack.
INNOVATIVE INVENTORY MANAGEMENT

It’s the late shift. The nozzles have run dry, and there are no supplies in the warehouse. What now? The machines stand still. It’s the worst-case scenario – but one that can now no longer happen at AVERMANN Laser- und Kant-Zentrum GmbH in the central German town of Thörey.

It all began when TRUMPF presented a study on innovative inventory management at its open house event last year: one automated dispenser provides the most critical original parts, e.g. lenses, nozzles and protective glasses. A part is removed from the machine only when needed – this guarantees constant part availability and eliminates the need for time-consuming searches. The integrated inventory management system keeps a constant eye on inventory levels and automatically places an order if any of them reaches a certain minimum threshold. Holger Hunstock, managing director of AVERMANN, was immediately sold on the idea. In this system, he saw the solution to many problems plaguing his company.

Service experts at TRUMPF subsequently met with AVERMANN to flesh out a solution that is now being put through its paces. Preliminary results speak for themselves. “Other providers already offer similar machines, but there was always something missing. Our first positive impression of TRUMPF’s solution has proven correct. The TruServices team saw things from our perspective and made our day-to-day lives easier,” says Hunstock.

Uncomplicated and flexible

Use of the machine is straightforward and intuitive. The storage compartments can be arranged in multiple ways, and more can be added at any time. Every employee receives a personal user card with which they can view the available spare parts on the digital display. When they need one, they simply have to select the part they want, take it out of the drawer, and then confirm.

“This also increased cost awareness on the part of our employees,” says Hunstock. “The dispenser is a practical solution that we will certainly be keeping after the test phase.” TRUMPF plans to further optimize the system, incorporating user requirements and preferences, and aims to soon make the solution available to all its customers.

WATER TREATMENT INSTEAD OF REPLACING IT

Once every year, the cooling water in the laser cutting machine has to be treated. This is not only a time-consuming and complicated process, but stopping the machine is also costly. That’s why TRUMPF offers a fast alternative: the Easy Filter, which can be used parallel to production. Just four steps and the water is clean once again.

1. Adding in the biocide
First, the biocide is poured into the used cooling water and then flushed through for two hours.

2. Attaching Easy Filter
The Easy Filter cleans the cooling water to provide demineralized water.

3. Measuring conductivity
While the water is being filtered, its conductivity is tested. If it is less than 10 μS, the filtering has been sufficient.

4. Adding in corrosion protection
In the last step, the filter cartridges are removed and the Easy Kit corrosion protection is added.

Using Easy Filter and the accompanying Easy Kit means that you can keep on producing for another year, worry-free.
The patented Delta Drive opens up whole new possibilities in punch and laser processing. The right ejector tool sorts parts into good and waste parts.

In this way, the Delta Drive opens up new and innovative methods. For example, it lets small laser-cut parts be reliably removed. Previously, most of them fell through the die into the scrap container and had to be removed by hand. Now the punch can operate in a slightly offset position. This feature benefits the new ejector tool: it conveys the small parts via a part chute directly into as many as four sorting boxes.

What’s more, these cutting processes make whole new classes of sheet thicknesses suitable for processing with cutting gas: a TruLaser 5030 fiber with an 8 kW laser can cut even mild steel with a thickness of 12 millimeters. However, high speed and less gas are not synonymous with a drop in quality – quite the contrary. And for sharp-edged contours, the Highspeed and Highspeed Eco cutting processes even prevent burr formation.

Both patent-pending processes are based on an unusual nozzle design. The new attachable nozzles are used in combination with the Highspeed eco cutting process. They sit directly on the sheet and thereby limit the lateral outflow of the cutting gas. Its new modular design makes it possible to replace individual parts depending on wear and tear, consequently reducing costs. The Highspeed process uses the bi-flow nozzles, which ensure optimum gas flow thanks to their special nozzle geometry.

Highspeed and Highspeed Eco – these terms stand for the new speed records set in nitrogen-cutting with a solid-state laser. They have nearly doubled the throughput for mild and stainless steel sheets of middle to large thickness. An improvement in the feed rate of up to 100 percent is possible as well. But it’s not only their speed that’s impressive: these cutting processes are also extremely economical. Thanks to Highspeed Eco and the attachable nozzle, the use of cutting gas can be reduced by up to 70 percent.

Who am I, and what am I doing here?
As the core of the CO2 laser generator, I ensure that the generator receives a steady supply of high-voltage power. I come in two versions in TruServices: Power Tube Basic and Power Tube Plus.

What makes me special?
I’m an original part! This means I’m ideally suited for the TRUMPF laser and machine and work perfectly with them, guaranteeing the highest degree of process reliability and naturally the best cutting results.

How does TruServices ensure that I meet their standards for quality?
Each and every original tube is subjected to a rigorous 100 percent quality review in Germany. I pass the tough TRUMPF quality tests with flying colors. A certificate confirms my optimum performance parameters.

Can TruServices actually guarantee this?
Of course! That’s not an empty promise: TruServices offers all its customers a guarantee of up to 24 months or 5,000 operating hours for the Power Tube Basic. And if I break down even once during the warranty period, a full refund will be provided.
By holding back inactive punches and using the bottom side of the sheet, even with thin or specially coated stripper, you can achieve a blanking die along with a close-fitting, non-marking punching on the top or bottom side of the sheet, even with thin or fragile sheets.

Another problem was that punch inserts of the MultiTools appeared in a color not used in the manufacturing process. Thanks to the partnership with TruServices and the use of the non-marking MultiTool, the customer’s problems were resolved. Tsukata considerably improved the quality of its parts and secured productivity.

What if Tsukata found a problem in its production activities? A mark was coming to TRUMPF? The company uses the TruMatic 6000 fiber to produce covers for control panels and makes parts for measurement devices. TRUMPF Japan tested the prototype together with Tsukata. In a short interview, Hiroyuki Uemori from TRUMPF Japan provides a look inside the successful collaboration between the two companies.

What customer did TRUMPF Japan work with? For control panels and makes parts for measurement devices. TRUMPF Japan tested the prototype together with Tsukata. In a short interview, Hiroyuki Uemori from TRUMPF Japan provides a look inside the successful collaboration between the two companies.

What issue was Tsukata grappling with when it came to TRUMPF? Tsukata found a problem in its production activities: a mark was appearing in a color not used in the manufacturing process. Another problem was that punch inserts of the MultiTools not needed during the production process left scratches on the material.

Quick and easy setup of the die by using a blanking die.

User friendly:

Compatible:

High productivity:

Substantial increases in productivity in small punching operations compared to Classic System tools.

What was the goal of the project? The partners wanted to work together to resolve the previous problems, to ensure that Tsukata would again be able to produce high-quality products that were as scratch-free as possible.

Was TRUMPF able to resolve these problems? Thanks to the partnership with TruServices and the use of the non-marking MultiTool, the customer’s problems were resolved. Tsukata considerably improved the quality of its parts and secured productivity.

What did TRUMPF Japan do with the MultiTool? TRUMPF Japan worked with the MultiTool to achieve a blanking die along with a close-fitting, non-marking punching on the top or bottom side of the sheet, even with thin or fragile sheets.

The partners wanted to work together to resolve the previous problems, to ensure that Tsukata would again be able to produce high-quality products that were as scratch-free as possible.

Was the collaboration successful? The partners wanted to work together to resolve the previous problems, to ensure that Tsukata would again be able to produce high-quality products that were as scratch-free as possible.

THE EDISONS OF LASER WELDING

When the cutting machine becomes a welding system

Florian Sepp and Christoph Weiss from WSoptics are pleased with their efforts. After a period of tinkering and testing, they were able to develop a conversion system that one could unhesitatingly call ingenious. The two inventors used their TC08 to transform a laser cutting machine into a laser welding machine. “Due to the design of the special lens of the TC08’s laser welding head, it can handle both heat conduction welding and deep penetration welding,” explains Sepp, CEO of WSoptics. What’s revolutionary about it is that the TC08 can be fitted to virtually all CO2 machines in TRUMPF’s standard portfolio. With this conversion, the laser cutting machine becomes a high-tech cutting and welding system that delivers top-notch welding results.

Laser welding is the future

Hailed as the technology of the future, laser welding is gaining ground. And rightly so, as it offers enormous potential. “Laser welding wins people over primarily through its high quality and efficiency. It also produces excellent results on a wide range of materials,” explains Matthias Kammüller, Executive Vice President and head of the TRUMPF Machine Tools division.

Both heat conduction welding and deep penetration welding produce high-quality and stable seams that in many cases require no reworking. In addition, deep penetration welding in particular features rapid process speeds. Thomas Rupp, head of Sheet Metal Laser Welding at TRUMPF, presents further arguments for why sheet metal processors should take a good long look at this technology: “There are many reasons why laser welding is an attractive alternative to conventional welding – that’s why TRUMPF offers the TruLaser Weld 5000 as a comprehensive solution. The technology offers an opportunity to win new contracts, as it allows part designers more freedom in their work – especially when they are looking at complete assemblies.” Rupp points out that laser welding can also produce parts that are very difficult to make using conventional welding methods.

Successful as partners

Florian Sepp and Christoph Weiss developed the TC08 laser welding head on their own, tailoring it for TRUMPF machines -- that is why WSoptics is the company in charge of marketing the product. TRUMPF and WSoptics actually worked even more closely recently on a different topic: the Smart Collision Prevention software module. The smart function for laser cutting machines optimizes the execution strategy, and thereby prevents the cutting machine from stopping in -- resulting in smooth, seamless production. More than anything else, it is the tinkering and development that drive TRUMPF alumni Florian Sepp and his management colleague Christoph Weiss at WSoptics: “We’re like Thomas Edison: we want to solve problems,” says Sepp. This goes right back to the company’s philosophy: “Others sell software; we sell intelligence.” The two inventors are in firm agreement about this approach, one they want to continue pursuing in the future. Perhaps even as a TRUMPF development partner.


**SUPERLATIVE BENDING RESULTS**

**25 years** have passed since TRUMPF presented the first-ever bending machine on the market, the Trumabend V85. But despite the many technological advances – the range of such machines has expanded to ten different series – sheet metal bending still often depends on manual processes. Hence, the focus on improving working conditions for the machine operator, resulting in many product enhancements in recent years. Meanwhile, fully automated bending solutions such as TruBend Cell have increasingly found a place in the manufacturing environment. To increase speed and flexibility, TRUMPF added panel bending solutions to its portfolio a few years ago. This infographic presents some of the most significant advances in the vast field of bending.

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**Did you know?**

**S U P E R L A T I V E **

The TruBend Serie 5000 is TRUMPF’s most successful family of press brakes on the international market. Its all-round productivity is legendary – from programming and tooling to bending and folding. The upper tool is attached to a pressure bar that moves up and down four times per minute on average, covering a distance of 1.6 meters, or a total of 96 meters, per hour. This equates to 2,304 meters every 24 hours or 841 kilometers (523 miles) per year. In other words, almost exactly the distance between TRUMPF’s bending competence center in Pasching, Austria, and its technology center in Warsaw, Poland.

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**From Austria to Poland**

TRUMPF has been selling bending tools for 23 years now. If you laid all of them in a row, they would stretch for an unbelievable 449 kilometers (279 miles) from end to end. In fact, TRUMPF sold 28 kilometers (17 miles) of bending tools last fiscal year alone.

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**Under more pressure**

Immense forces act on the cylinders of a press brake when bending sheet metal. The measuring unit is the bar, familiar to most people because it is also used to measure car tire pressure. The standard value for winter tires on a laden vehicle is approximately 3 bar. The much bigger TRUMPF machines must generate much higher forces. Deep-sea divers encounter similarly high forces, known as underwater pressure. While recreational divers mostly plunge to depths of no more than 40 meters, professional divers often go further, reaching depths of up to 180 meters where the underwater pressure is 18 bar – close to the physical limits of the human body. But even this comparison pales when talking about the pressure that TRUMPF machines can withstand, because a single operation can impose an almost unbelievable pressure on the cylinders of up 300 bar.

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**The tandem version** of the TRUMPF TruBend Series 8000, in which two connected machines are operated synchronously as one, opens up a whole new dimension in bending performance. Already designed for large formats and thicknesses, the double pack enables several centimeter-thick components to be pressed at twice the pressure. Such applications require a press force of up to 10,000 kilonewtons or more than 1,000 metric tons. If even more force is required, TRUMPF can offer customized machines with a press force of up to 2,500 metric tons. This is 69 times the bending force applied by a single TruBend 7036 press brake. Or, a visual metaphor: a force of 2,500 metric tons is equivalent to the pressure exerted by the weight of 13 or more blue whales, the largest mammal on Earth, which on average weighs 190 metric tons.

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**The fastest bending machine**

The TruBend 7036 is an ergonomically designed, high-end solution for bending small parts. The back gauge is made of lightweight carbon fiber and provides an acceleration force acting on the machine of 2.9 g. For comparison: the same acceleration force is generated when a racing car traveling at 100 km/h negotiates a bend, but in this case acting on the driver.

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Drivers must withstand up to 2.9 g when cornering at 100 km/h.
Innovations, technologies and future trends.

Secure and efficient

The RTC tool cartridge – the classic TRUMPF rapid tool change cartridge made of carbon fiber reinforced plastic – is now available in a new and improved version. The new cartridge features sturdy arms that securely grip even heavy tools. It also offers ingenious additional features, such as an integrated handle that allows you to carry three tool cartridges in each hand. And optional clips of different colors make it easier than ever to keep tools organized in production facilities. These color-coded clips help production personnel sort all their tools into categories, such as machine program or sheet thickness.

Bending made easy

TRUMPF has developed several ways of rendering bending solutions more efficient and more user-friendly. Take the new lightweight tools, for instance. Upper tools that now weigh over 10 percent less not only reduce the physical strain that machine operators experience, but also reduce set-up times. Upper tools boast the same stability under load while reducing the tool weight they must support.

Precise angle measurements are no problem for sensor tools that communicate with the ACR Wireless measurement system. ACR stands for automatically controlled bending. This system uses sensor disks and ensures that any fluctuations in material properties, like strength or springback, do not affect bending. What’s more, the system will make necessary adjustments to ensure angle requirements are met every time. In addition to ACR Wireless, TRUMPF offers ACR Laser for non-contact measurements of the angle of bending.

Both machines boast industry-standard peripherals and double their performance: two machines can alternatively be operated in tandem mode. The RTC tool changer for the TruBend 5000 series and the ToolMaster, an automatic toolchanger for the TruBend 8000 series, bring their power and precision to bear every time they bend large parts. And a new tandem configuration doubles their performance: two machines combine to create various TruServices value packages. They make customers’ jobs easier and help them save money. There are currently 14 packages that, for example, supply solutions for increased productivity and flexibility, or cover your annual need for important original parts. TRUMPF value packages can be customized for your requirements in laser cutting, punching, or bending. TRUMPF will offer a discount if you use a single order number to purchase multiple packages.

Twice the power in tandem mode

TRUMPF leveraged years of experience to create various TruServices value packages. They make customers’ jobs easier and help them save money. There are currently 14 packages that, for example, supply solutions for increased productivity and flexibility, or cover your annual need for important original parts. TRUMPF value packages can be customized for your requirements in laser cutting, punching, or bending. TRUMPF will offer a discount if you use a single order number to purchase multiple packages.

Benefit from value packages

TRUMPF has advanced additive manufacturing once again in the form of two new 3D printers, the TruPrint 3000 and the TruPrint 5000. Using lasers to manufacture whole parts, these medium-format machines are designed for the mass production of complex metal parts. The TruPrint 3000 and the TruPrint 5000 boast industry-standard peripherals and a sophisticated solution of interchange-able cylinders: the construction cylinder and the supply cylinder can be swapped out quickly. The TruPrint 5000 is the first 3D printer made by TRUMPF equipped with three 500-watt lasers that turbo-charge efficiency. This machine will become available at the end of 2017.

Cutting-edge 3D printing

The ToolMaster, an automatic tool changer for the TruBend 5000 series, makes work more efficient and agile. It changes the tools within mere seconds and automatically reverts the bender to a new program. The machine operator does not need to intervene at all. Excellent storage capacity in the magazine provides space for up to 60 upper tools and 48 lower tools; it also supports special customer tools. The ToolMaster can be retrofitted for existing TruBend benders and combined with any machine option.

Every second counts

The new lightweight tools, for instance, now weigh over 10 percent less not only reduce the physical strain that machine operators experience, but also reduce set-up times. Upper tools boast the same stability under load while reducing the tool weight they must support. Precise angle measurements are no problem for sensor tools that communicate with the ACR Wireless measurement system. ACR stands for automatically controlled bending. This system ensures a high utilization rate.

TRUMPF leveraged years of experience to create various TruServices value packages. They make customers’ jobs easier and help them save money. There are currently 14 packages that, for example, supply solutions for increased productivity and flexibility, or cover your annual need for important original parts. TRUMPF value packages can be customized for your requirements in laser cutting, punching, or bending. TRUMPF will offer a discount if you use a single order number to purchase multiple packages.

Benefit from value packages
Connectivity is important. But how? And with whom? How can it create value? How do suppliers, customers and service providers become part of the digital chain? The solution is as easy as it is brave: each party in the process contributes the things they can do best. And to make sure chaos does not ensue, there is a platform that prepares and connects the input data and makes it available for everyone: AXOOM.

In an open discussion, several partners talked about all the things that could yet result from this model.
A department store for industry

When TRUMPF founded AXOOM GmbH in 2015, the omens were favorable. “We felt the enthusiasm out there and discovered that our partners were keen on this topic,” says Heiko Brandsch, Manager Strategic Partnerships at AXOOM. Manufacturing companies need raw materials, tools and machines. If the value chain is covered digitally on a business platform, this creates a huge amount of value all by itself: the partners that offer their services there can coordinate and align them with each other, expand their range and find inspiration. And in the case of AXOOM, they can benefit from an infrastructure that offers everything they need for Industry 4.0, from an app store to secure data transmission in the cloud.

Marion Dohm, Linde AG: First of all, I’d like to look back for a moment. I heard about the AXOOM digital business platform from a colleague and found the topic so exciting that I just had to embrace it. Here at Linde, we’re developing very much in the direction of e-business and smart services. We want to show our customers that we offer more than the commodity “gas” in cylinders and tanks. I like to compare AXOOM with a department store. I push my cart through the aisles and fill it with the services I need. When TRUMPF founded AXOOM GmbH in 2015, the omens were favorable. “We felt the enthusiasm out there and discovered that our partners were keen on this topic,” says Heiko Brandsch, Manager Strategic Partnerships at AXOOM. Manufacturing companies need raw materials, tools and machines. If the value chain is covered digitally on a business platform, this creates a huge amount of value all by itself: the partners that offer their services there can coordinate and align them with each other, expand their range and find inspiration. And in the case of AXOOM, they can benefit from an infrastructure that offers everything they need for Industry 4.0, from an app store to secure data transmission in the cloud.

Bodo Wrobel, Linde AG: Having created the first ever open platform for manufacturing companies, AXOOM possesses a USP. Customers can purchase services there and improve their processes, from ordering and design through to manufacturing. Horizontal connectivity is important, but it works only with the right partners.

Leonore Mehwald, kloeckner.i GmbH: We are in the vanguard of digitalization in the steel industry and want to establish an end-to-end information flow along the supply and service chain. For this purpose, we’re creating an open industry platform for our sector. Part of this strategy is for us to get deeply connected with our customers in the context of Industry 4.0. To achieve this goal, we’ve found an ideal partner in TRUMPF, and we’ve already integrated our contract portal into the AXOOM platform. But that’s just the beginning: we have loads of ideas for further solutions to make it easier for our customers to work with us.

Dr. Stefan Heizmann, Gühring KG: Following a recommendation, we looked at AXOOM and it immediately captured our interest, because no such service existed previously for manufacturing companies. Before then, we were used to handling projects without partners. As a matter of fact, we’re very autonomous and proud of our independence. But in the digital world this approach no longer works so absolutely, which is why we’re now opening up for – and through – AXOOM. Our presence there can bring us into contact with new customer groups while also allowing us to use digital services to strengthen our position as market leader with our existing customers.

Step by step

Companies can use AXOOM as a department store for industry in order to optimize their sales, or as an end-to-end cloud solution for their own operations. After all, AXOOM has two objectives: one is to increase overall productivity with individual process steps – from order receipt to delivery – that are connected intelligently; the other is to ensure high availability of the means of production by controlling and monitoring machines and components centrally, for instance to minimize downtimes. In each case, it is advisable to take small steps that keep close track of market developments.

Dr. Stefan Heizmann: We expect that customers and potential customers will be able to discover the entire Gühring portfolio through AXOOM. The first app we put on the platform was a cutting force calculator. We’re currently developing a navigator app, whereby the customer inputs a material along with its processing method. The app suggests which tool is suitable for the task and facilitates quick ordering. In addition, we’re currently considering also using AXOOM internally as a platform. We manufacture precision tools on self-made grinding machines – and we do so in various fully automated plants. Consequently, we see a lot of scope to add value by connecting the machines. AXOOM is an important building block here and can be used worldwide for displaying machine statuses.

Andreas Egelseder: I also see big potential for ensuring component quality and avoiding machine downtimes. There are several
stages to the forming process, and each sub-process has specific requirements. If in the first stage one of the parameters is a bit off, you can adjust for that in subsequent stages – but that will only work if all the stages record and exchange the relevant data.

Wolfgang A. Haggenmüller: Additionally, we also cooperate with AXOOM at the marketing level, with joint trade fair appearances to show our customers the possibilities such a platform offers. We’re currently further developing our sensor technology, for example. This will allow us to upgrade older machines and equip them for Industry 4.0. We see a big new market here – after all, nobody’s going to replace all their machines just because of Industry 4.0.

Marion Dohm: Our plans for the future include automated and intelligent tracking systems for cylinder gases. In addition, we’re optimizing and modernizing our web shop and our online portals. That will mean you can do all your gas administration at your desk with just a few clicks.

Bodo Wrobel: There are lots of ways to use such smart services in conjunction with additional apps. One possibility we’re considering is an app for supporting welding activities, such that when you enter the material type and thickness, you receive a recommendation for the gas type.

Leonore Mohwald: The AXOOM platform is a showcase project for the topic of Industry 4.0 in Germany. Its open interfaces allow a large circle of suppliers and customers to digitally connect with each other. Because this approach is so attractive for everyone involved, we expect that these kinds of solutions will establish themselves in various sectors. That’s why we’re pursuing a similar approach for the steel industry.

“AXOOM is an exciting topic because no such service existed previously for manufacturing companies.”

Dr. Stefan Heizmann

And where will we be in five years’ time?

Dr. Stefan Heizmann: AXOOM will continue to play an important role for us as a partner. We also want to use the platform to reach customers who currently do business with our competitors.

Leonore Mohwald: AXOOM is an exciting spin-off that will retain its high degree of agility by virtue of new ideas and solutions. This suits us perfectly, because at kloeckner i our mindset is very similar. We will continue to cooperate closely and to cross-fertilize.

Bodo Wrobel: In the future, it will also be important for AXOOM to keep its ear open to the market and understand customers. If you want lasting success, you need to take small steps. As time goes on, we’ll continue to need partnerships from different business sectors to show us fresh ways of thinking.

Marion Dohm: My vision is to expand the national and international collaborations so that the business platform can offer its services, in conjunction with its partners, in as many countries as possible all around the globe.
When I was young – in other words, when the last ice age began – I was one of many ardent admirers of Robert Falcon Scott. Over a hundred years ago, Scott embarked on his quest to reach the South Pole before anybody else. This British explorer endured many hardships en route – only to learn that the Norwegian Roald Amundsen had arrived at the pole first. Soon thereafter, Scott froze to death in the Antarctic.

Scott epitomized courage in my eyes. An explorer who gave his life for his country, which explains the 30-plus memorials erected throughout England. He ventured as far into the bone-chilling cold as anybody ever had. A hero.

In the shadow of this national treasure, an equally remarkable explorer from the British Isles would fall into oblivion. A rival of Scott’s, Irishman Ernest Shackleton attempted to traverse the Antarctic by dogsled three years after Scott’s death. It would end in miserable failure. His ship, Endurance, was crushed by pack ice – forcing Shackleton and his crew to seek refuge on an ice floe. They called off their polar expedition before getting very far at all.

Curiously enough, it was in the face of defeat that Ernest Shackleton rose to the occasion. After all, when people pluck up the courage to act, it is not due to an absence of fear – and Shackleton certainly had plenty of fears. Courage instead entails the awareness that some things are more important than our fears. Things that demand we try something out without being able to know if it will work out.

Even when confronted with colossal problems, Shackleton could still recognize opportunities – in contrast to worrywarts inclined to find a problem in every opportunity. He was, above all, pragmatic enough to adjust his daring plans to suit the cold reality. Shackleton thus displayed an “important leadership quality,” according to Nancy P. Koehn, a historian at the Harvard Business School. Koehn argues that anybody who has founded or led a company knows that it is sometimes necessary to change course without slowing down. “It is very difficult to abandon a long-held dream. But Shackleton did so.”

What did Shackleton teach me? I learned that courage means overcoming your fears just as you would overcome any obstacles on route to reaching your goal. Such hurdles and hindrances often remind me of a childhood hero: Mr. Tur Tur, a character in the “Jim Button and Luke the Engine Driver” books. When seen from a distance, Mr. Tur Tur appears to be a menacing giant – but up close he is, in fact, a person of normal size. Similarly, obstacles that seem impossible to overcome from afar often appear manageable on closer view.

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Shackleton and his crew camped on the ice floe for ten months, and survived by eating penguin fat and their sled dogs. He ultimately set out in a seven-meter open boat to get help. It was a risky venture: between him and the nearest inhabited island lay one of the stormiest seas in the world. But Shackleton reached the island of South Georgia, whose inhabitants received the emaciated and exhausted explorer as if he were an extraterrestrial. Aided by a Chilean tugboat, he rescued his crew three months later.