



# moment<sup>®</sup>

## ClickBuild

Digital startup revolutionizes roof renovation

## Digital Tools

Design engineering at your fingertips

## Digital Learning

Ernie and Bert as pioneers of modern learning



# Digitalization

it doesn't change anything, it changes **EVERYTHING**

Includes annual report



Dear partners of the EJOT Group,

the planning for the topics of this magazine is medium to long-term. We consider which information from our group could be of interest to our stakeholders. For this issue we came up with the mega topic "digitalization". Digitalization concerns each and every one of us, employees, customers, suppliers and our whole environment. We wanted to use a few examples to show how the topic affects us. We describe the path we have taken and begin with an introduction by Karl-Heinz Land, who accompanied us with his digital and strategy consulting service "neuland". Further interesting topics are featured, which we expect will have a positive impact on our performance and our business.

Digitalization is often associated with the adjective "disruptive". That is certainly appropriate, but comparatively less direct and fast, as we are currently experiencing in the context of the COVID-19 pandemic. An integral part of this edition is the report on the past business year, in this case 2019. In our management report we have mentioned the new virus and how we are uncertain about its further course and the economic consequences. The current situation and the assessment of the consequences change from one day to the next. The automotive industry, one of our largest customer groups, is now at a standstill in Europe and America, and is re-starting again in China. That describes a mega-disruption of our industrial societies. We don't know yet, exactly what to expect. But it is foreseeable that many things will be different once this crisis is over. The EJOT Group stands on two legs, is solidly financed and offers products and services that bring benefits to our customers. That is what counts now.

Do you have any suggestions? Criticism or feedback? We are looking forward to it. Please talk to our employees or write to us (moment@ejot.com).

Kind regards

Christian F. Kocherscheidt  
Managing Director



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# ARCHITECT@WORK in Düsseldorf and Munich



For the first time EJOT participated in the unique and innovative trade fair concept, the international ARCHITECT@WORK.

With high-quality designed uniform stands and guided routes with a lounge-like setting, building owners, architects, planners, outfitters and interior designers were informed about EJOT products in a personal atmosphere with individual conversations, and were convinced of their high quality.

In Düsseldorf the EJOT business unit ETICS presented the assembly elements for attachments Iso-Corner and Iso-Bar. In Munich, interested visitors had the chance to have a look at the novel facade substructure system CROSSFIX® made of A4 stainless steel.



Facade substructure system CROSSFIX® in Munich



Iso-Corner and Iso-Bar were presented in Düsseldorf

## The new EJOT® Pro-Line

Innovative products, special services and international partnership with the system provider distinguish EJOT. Our fastening professionals are continuously working on improvements and new solutions.

Our core competencies in the areas of steel and plastics processing have provided fastening solutions far beyond the area of washer anchors for ETICS. In recent years, the new business field of mounting elements for attachments has emerged. The products of the Iso-Team offer the perfect solution for every application. A comprehensive complete package was created together with the usual EJOT service and logistics. And because good things can still be made better, we will be taking the next step. With the EJOT Pro-Line we are adding the business field of ETICS profiles to our product portfolio. Look forward to innovative products in combination with the familiar services of EJOT.



## EJOWELD® nominated as a finalist for the “2020 Automotive News PACE™ Awards”



product portfolio includes the entire modular setting technology for flexible applications and offers installation tools, conveyor systems and control cabinets in addition to the various friction elements.

EJOT USA along with the EJOWELD® method has now been nominated as a finalist for the “2020 Automotive News PACE™ Awards”. This emphasises the special and innovative nature of this joining technology. The award is regarded as an industry-wide benchmark for innovation and excellence in the automotive supplier segment – the nomination as a finalist alone is a prize already. EJOWELD® is considered by the jurors to be a ground breaking technology. The winners of the award will be announced in Detroit.

The EJOWELD® technology is an efficient, flexible and series-proven friction element welding for joining materials in mixed and lightweight construction. As such, it is perfectly suited for use in auto body construction. The

**NEW**

Product innovation for the building industry

### Self-tapping screw JZ5-8.0



For industrial lightweight construction EJOT has a brand new bimetal self-tapping screw in its product range: the JZ5-8.0 is made of stainless steel A2 with a hardened steel pin. It is therefore particularly suitable for fastening profiled steel sheets and sandwich panels to steel substructures up to S 355 (St 52).

# Award for EJOT plant in Tambach Dietharz

## Finalist in the “Grosser Preis des Mittelstandes” competition

The EJOT plant in Tambach-Dietharz, with its THREAD FORMING, EJOSYST® and EJOWELD® divisions, won an award as part of the “Grosser Preis des Mittelstandes” competition from the Oskar Patzelt Foundation (Leipzig). Three finalists, including EJOT, were awarded, as well as three prize winners. A total of 214 companies and people were nominated for the Federal State of Thuringia. However, only those companies that had been suggested by third parties could participate in the competition, such as EJOT in Tambach-Dietharz in the Gotha District. In the second step, the nominated companies had to fulfil various competitive criteria. These included overall development, creation and securing of jobs and traineeships, modernisation and innovation, commitment to the region, service and proximity to customers as well as marketing.



The prize was accepted for the EJOT Tambach-Dietharz site by Dr. Wilfried Pinzl, Head of the Business Unit THREAD Forming.

# Automotive Centre invites to second Networking Day

The Automotive Center Südwestfalen GmbH (acs) held the second Networking Day on the subject “Achieving more together! – Opportunities for medium-sized suppliers through cooperation in the acs network”. The acs was pleased with the large interest in the event: a total of around 100 guests from the region and beyond were welcomed.

universities and industry. During and after the event, the participants had the opportunity for networking and exchange, for intensive discussions on the presented topics and to make new contacts. Additionally, information from various companies was available at around 20 different stands.

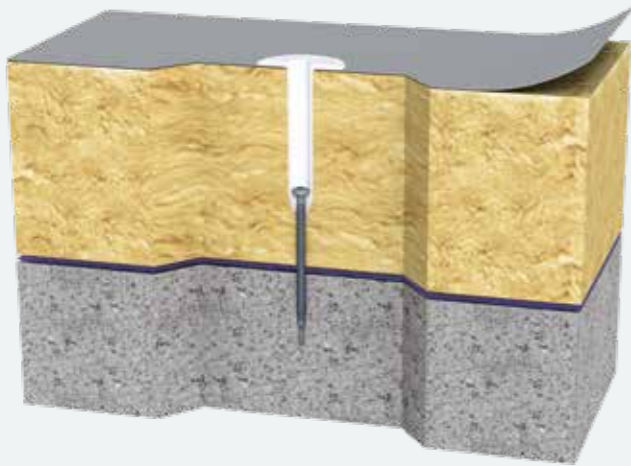
The event was opened by Arndt G. Kirchhoff, Chairman of the Supervisory Board of the acs and Chairman of the acs supporting association, with his lecture, “Economic recession, protectionism and structural change in the automotive industry”. On the following day, various topics connected to the subject of electromobility in the automobile industry were dealt with by renowned speakers from

A further highlight at the acs Networking Day was the exhibition of multiple alternatively-powered vehicles. Overall, the participants could take a look at three electric cars (Audi e-tron, VW e-up, Kia e-Soul) and a hybrid vehicle (Kia Niro Hybrid) in greater detail. The acs reflects on a successful event, and looks forward to further networking days planned in the future.



Product innovation for the building industry II.

## Tube washer EcoTek-T 50



In the flat roof range EJOT offer a new plastic tube washer for fixing roofing membranes to substructures made of concrete, aerated concrete, trapezoidal steel profiles, timber and wood-based materials. The tube washer EcoTek-T 50 has four additional teeth under the head and thus ensures maximum fixation of the roofing membranes.



# Digitalization – it doesn't change anything, it changes EVERYTHING

Digitalization is the reason that classic business models change or disappear. In all areas. "Adapt or die." Karl-Heinz Land already formulated this recommendation in 2013. Nothing has changed in this regard. Far from it. The speed is increasing thanks to exponential growth.

>>Text: Karl-Heinz Land

Companies of all sectors and sizes should ask themselves the question: what is changing in my market as a result of digitalization? There are three main areas of relevance here. First: how does the customer find me? Can I be found digitally, for example via Google? The second area concerns product and service innovation. Let's assume that you used to produce physical keys. In the future, however, the key will only be an app, i.e. a piece of software on a smartphone. So the question arises: what do I need today to produce such keys? Demands on the company are thus changing dramatically. The third area concerns Industry 4.0, in other words efficiency and effectiveness. Do I have a digital assembly line in my company, where things run fully automated through the company as they do in production, or are there many silos- and therefore also breaks? It may be that the customer data base does not know about the e-commerce website and the e-commerce website does not know about the accounting system. These are all silos that I have to break down, otherwise the information flow is not clean. So digitalization affects every area: from customer contact, product and service innovation and business models, to efficiency-boosting measures in my company. In my job, I often deal with people and companies who say: "This doesn't affect us." Unfortunately, I always have to contradict them, because digitalization and technological progress affects us all.

At the very least since Steve Jobs introduced the first iPhone in 2007, everyone knows what innovation means. You can still revisit that moment today on YouTube and feel his pride and the enthusiasm of the audience. "Every now and then, a revolutionary product comes along that changes everything," Jobs explained. Ever since then, we can carry the processing power of the NASA computer that in 1969 put Apollo 11 on the moon in our pockets anytime, anywhere. Many people can scarcely imagine life without their smartphones. They no longer see them as just helpful devices, but as digital mirrors, an extension of their own self. For many people it is the first thing they hold in their hand in the morning and the last thing they put down before going to bed. For some time now, more internet access has been from mobile smartphones and tablets than from computers. Information, communication, photography, media consumption, banking, holiday and travel bookings, building relationships – is there any task that doesn't have an app? This development is also perfectly logical. I would like to explain this using the following triad:

1. **Everything that can be digitalized will be digitalized.**
2. **Everything that can be networked will be networked.**
3. **Everything that can be automated will be automated.**

Just think of the self-driving car, to name but one example. All a consequence of this triad. First the car was digitalized, then it could be networked- and when it is digitalized and networked, it can also be automated. This is where we find ourselves today. There are both economic and practical reasons for this. You will notice that this development is already taking place in almost all areas of life and is steadily gathering pace. The retail trade, for example, has already been severely affected and we are seeing that a rethink of the classic business model is inevitable.

Many retailers have already shifted their focus to the online sector, whereas others have simply disappeared or are struggling to survive. Retail is just one of many examples. I described this development in 2013, in my book "Digital Darwinism – The Silent Attack on Your Business Model and Brand". "Adapt or die" was the essential message back then. This development hasn't changed to this day- on the contrary, speed is increasing thanks to exponential growth. →



**Karl-Heinz Land**

Karl-Heinz Land is an insider in digital transformation. He has been experiencing and shaping his favourite topic – digitalization – for over 35 years, including in management positions at companies operating internationally such as Oracle, BusinessObjects (SAP) and Microstrategy. With neuland, he launched a digital and strategy consultancy in 2014 which, according to the "brandeins" magazine ranking, is repeatedly among the best in Germany.

As a serial entrepreneur and investor, he focuses on innovative technologies such as Blockchain and the Internet of Things. The World Economic Forum (WEF) and "Time Magazine" honoured Land with the "Technology Pioneer Award" in 2006.

The visionary Karl-Heinz Land sees himself as a digital evangelist, and inspires thousands of decision-makers from business, politics and society every year with keynotes and workshops that shape their digital agenda. As co-author, Land has published three groundbreaking management books: With his new book "Earth 5.0 – Provoking the Future", Karl-Heinz Land addresses the general public and sets himself an ambitious task: how we can save the world by means of digitalization.

Many people can barely stay on top of such exponential growth, and admittedly I myself sometimes find it hard to keep track of developments. The principle, valid since 1965, was first described by the computer scientist and co-founder of Intel, Gordon Earle Moore. It says that every one or two years the density of transistors on a computer chip doubles, or to put it simply: computers' computing power doubles every two years. At the time, Moore assumed that this phenomenon would continue to develop in this way for several years. What he did not foresee, namely that the law would remain valid today, has given it the name "Moore's Law". What Moore described at that time is nothing other than an exponential function. Anyone who has ever considered an exponential function will have noticed that the power curve only rises gently over a certain length or time. Sooner or later, the point is reached where the graph rises steeply upwards, at some point almost vertically. The slow growth eventually turns into an explosion of power. We are at exactly this tipping point – the point where it starts to be fun. This also explains the large number of digital technologies that have reached market maturity almost simultaneously since 2010. The exponential nature of this technology is taking hold of and driving digitalization.

A similar situation can be registered in the craft sector. Here too, digitalization has long since arrived. A few years ago only a few craft enterprises had their own websites, but today over 95 percent of them do, an incredibly quick and positive development. 58 percent rely on software solutions for controlling their operational processes and already 25 percent rely on innovative digital technologies such as 3D printers for the production of spare parts on site, block-chain-based tracking systems for machines and materials, drones for measuring roofs or augmented reality glasses for operating or maintenance instructions. This was the result of a study by the digital association Bitkom in cooperation with the German Confederation of Skilled Crafts (ZDH). One result of this development is that companies have more time for the essentials – their craft. New technologies and digitalization can be a significant driver for the performance of a craftsman's business. In this context it is often said that this type of technology is reserved for the "big players", but this is simply not true. Smaller businesses in particular have the chance to profit from the enormous potential.

Office and administrative work is often a real thorn in your side. Through the targeted use of digital technologies, a large number of processes and work steps can be digitalised, networked and then automated. Developing a suitable digitalization strategy is uncharted territory for most companies and anything but easy, so it's a good idea to seek support from external IT service providers. Many companies have already taken up this offer. Even if the costs are initially a deterrent, in the end the service is usually worthwhile.



**Disintermediation**  
 Plattform Economy  
 Elimination of the middleman

Companies need to be aware that we are in the fifth industrial revolution, and it is hitting harder than any industrial revolution before. Value creation is being completely redistributed, many companies are disappearing completely from the market and being overrun by competitors that did not even exist last year. So what's behind this?

There are three crucial paradigm shifts in the fifth industrial revolution that we have never seen before: dematerialisation, disintermediation and disaggregation. Dematerialisation, as the name suggests, involves the transformation of physical products into software and apps. The key from the car becomes the app, so I don't need the key anymore. But then I don't need the machines that produce the key and so on. I think the rest is



**Disaggregation**  
 Share Economy  
 New products and offers

clear enough. It affects the entire value added chain. Disaggregation is also about to turn the world upside down. In this context, the catchword "sharing economy" is often used.

Sharing is the new having! Tomorrow's customer no longer buys a car, they buy mobility. Alternatively, I don't buy a radiator, but rather 23 °C, in other words the services around the product. Disintermediation describes the elimination of the middleman. If everyone can communicate and do business with everyone else, intermediaries will become superfluous. For this reason, every company, whether baker, retailer, bank or machine builder, has to deal with the opportunities and possibilities offered by digitalization.



**Dematerialization**  
 Value creation through software and services 3D-printing

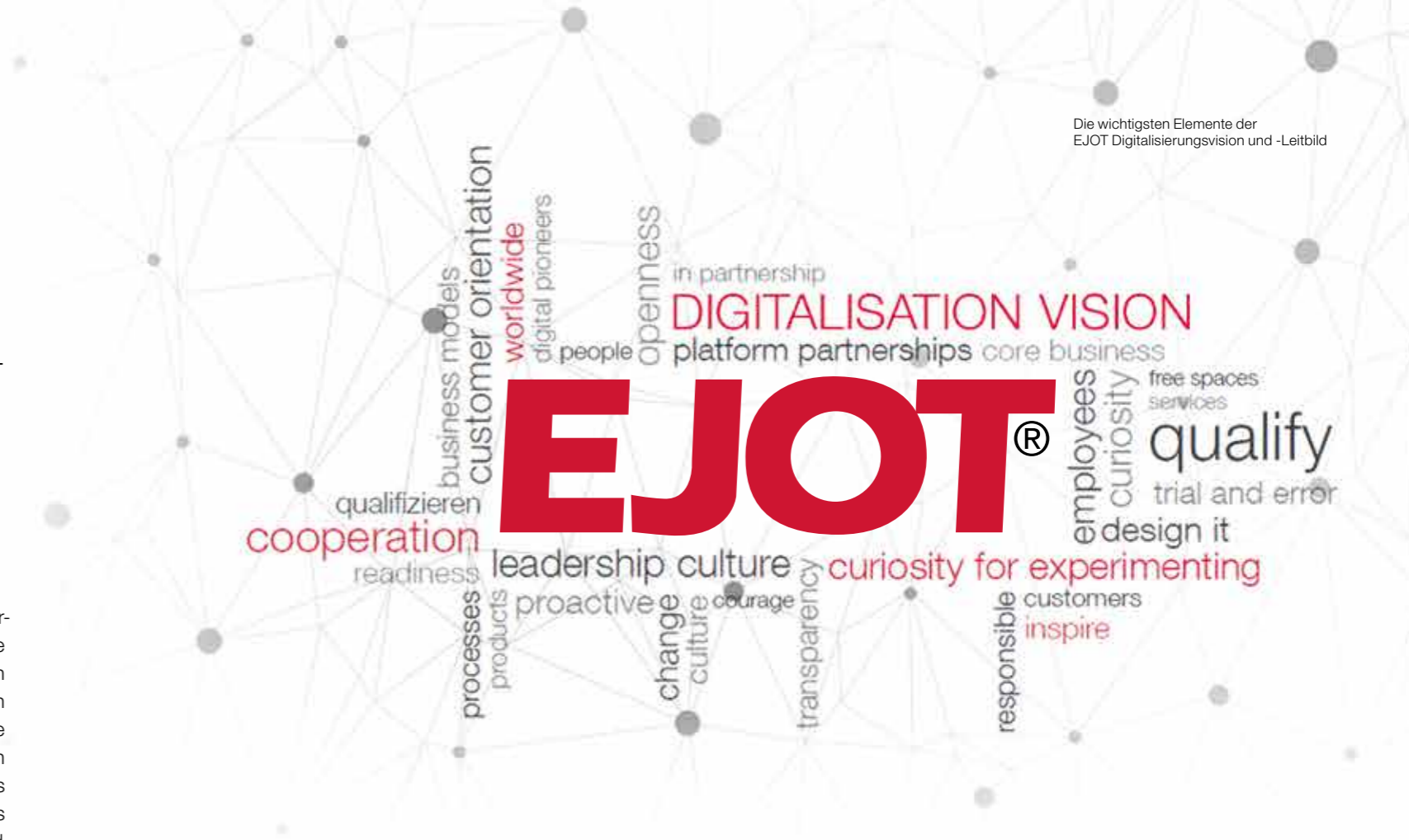
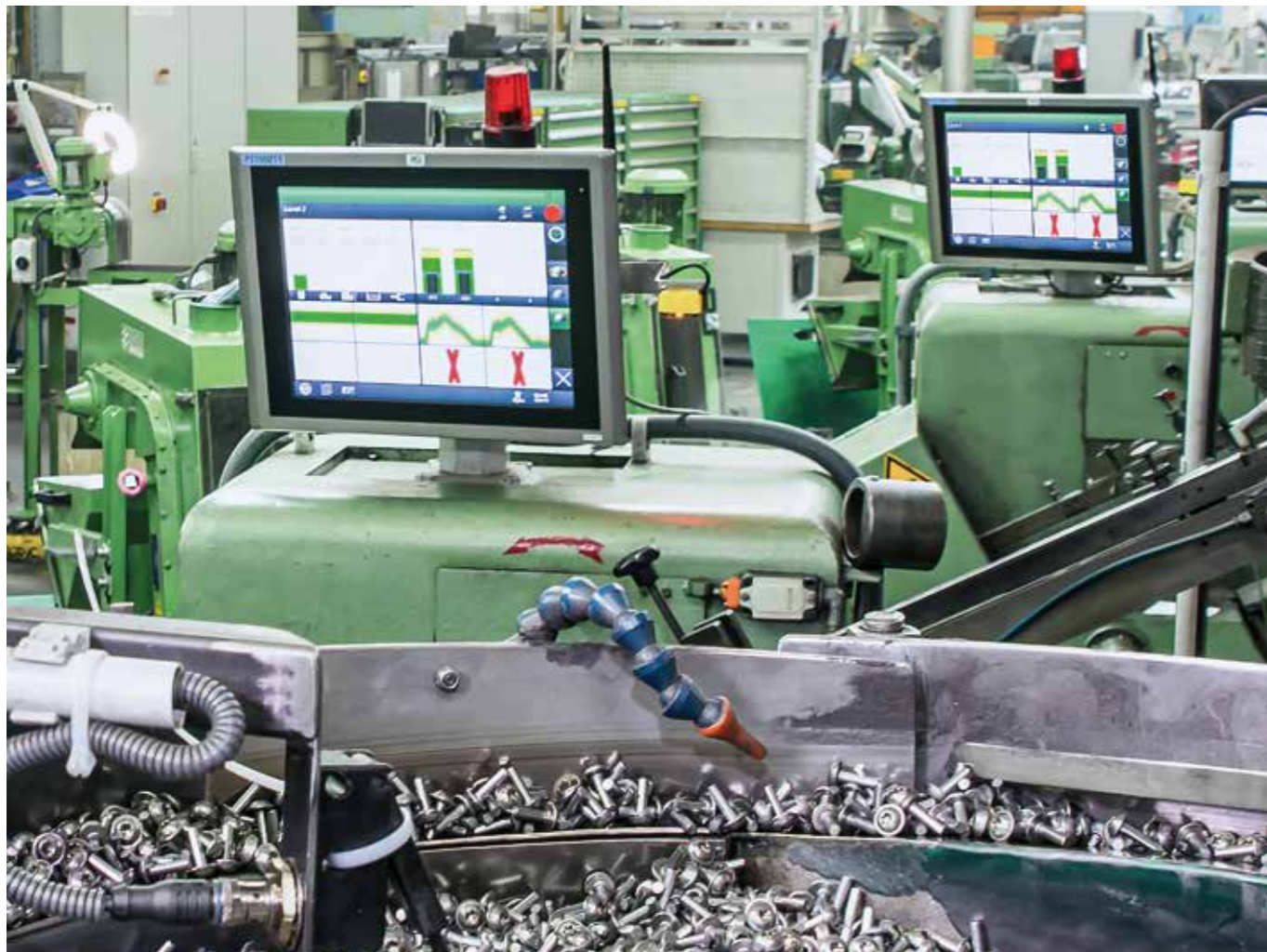
# The path toward digitalization at EJOT

There was no clear roadmap when EJOT began to intensively develop a digitalization strategy a few years ago. The process of formulating the EJOT digitalization strategy, which was started in 2017, was titled "Opportunities through digitalization" and was supposed to set a clear signal that at EJOT digitalization has positive connotations and should lead to advantages for both employees and customers.

>>Text: Andreas Fey

At EJOT today, digitalization constitutes a positive common task and not just the use of the latest technologies. It is primarily about the processes and employees. Active support for creativity, courage, the willingness to experiment and digitalization, is an elementary part of a changing corporate culture. This process of change is not yet completed at EJOT, but important milestones on the way have been reached. There was no clear roadmap with a predefined plan, only the goal of making use of the opportunities provided by digitalization.

Back in 2013, at the world's leading industrial fair Hannover-Messe: German Chancellor Angela Merkel kicked off the future project "Industry 4.0". It was the beginning of the creation of a leading German market for state-of-the-art production technologies. The brand "Industry 4.0" was to underline the future orientation of German industry, similar to "Made in Germany". In the months following the trade fair, the trade press was full of articles on Industry 4.0. The scope of interpretations on how 4.0 would actually look in practice was extremely broad.



It started with simple machine data acquisition, and extended to value-added systems networked across company boundaries. What was new about 4.0 was the holistic approach, which linked suppliers, customers, machines, data and the company's own systems.

Elements of this were available at EJOT at that time. There were already good systems, solutions for data acquisition and automation as well as interfaces to customers and suppliers. And there were many new solutions that were not yet established at EJOT.

As a result, a cross-company project "Industry 4.0" was started on project level at the beginning of 2016. The goal: a roadmap for Production 4.0. Quickly the first inventory was made and a list of possible projects created. Of course, this included all possible digitalization technologies in production (paperless manufacturing, driverless transport systems, predictive maintenance, etc.). All projects that promised benefits in and of themselves. The only question was, where to start? When the resources for implementation are limited, where do you set priorities? At this point it was clear that a 4.0 strategy was needed. As EJOT CEO Dr. Frank Dratschmidt emphasises: "The right steps must be derived from an overarching goal. Orientation is important so that everybody knows in which direction things are moving."

On the way to the digitalization strategy, EJOT received support from the digitalization pioneer Karl Heinz Land and his digital consultancy neuland.digital. Contrary to the initial plan, the

trajectory was significantly increased and not started with project prioritisation. Land brought the importance of digitalization and a corresponding strategy into view for the EJOT management team. "Imagine that you have managed to build the completely digitalised 4.0 super factory, and tomorrow your products will no longer exist!", an often quoted line from Land. His main theses include the fact that digitalization changes everything and real products are being replaced by digital products. The classic car key along with the production plants where it is made and the associated supply industry, which ultimately includes fastener elements, is no longer needed if the car can be opened and started via an app on your smartphone. The conclusion: a digitalization strategy must be derived from the business model.

The process of formulating the EJOT digitalization strategy, which was started in 2017, was titled "Opportunities through digitalization" and set a clear signal that at EJOT digitalization has positive connotations and should lead to advantages for both employees and customers.

First of all, solid preparatory work was done to find the right starting points. Internally employees were able to formulate chances and expectations for digitalization in interviews. Results of an EJOT customer survey also showed an important focus on strategy. "We appreciate EJOT's know-how and competence in solving complexity, but we would like to have more digital services" is a general summary of the customer's point of view.

## Digitalization vision

At EJOT, we are shaping digitalization proactively and in partnerships. With curiosity, openness and a joy of experimenting, we digitalize products, services and processes all over the world in order to create the greatest benefit for our customers, our employees and EJOT. We develop innovative digital business models and set trends in our industries.

As a result the EJOT digitalization strategy is divided into four main categories (excerpt):

1. **Customer experience: We create new digital business models for our customers**
2. **Product & service innovation: We use our know-how to simplify processes for our customers and to create transparency**
3. **Company 4.0: Bundling and transferring new and existing digitalization solutions in the EJOT production plants**
4. **People, culture & leadership: New tools for qualification and facilitation of work and of leadership culture**

The challenge of an appropriately formulated digitalization strategy is to give it life, to communicate it to your own employees. Presenting fancy flyers in the canteen and on the intranet alone does not change anything. "Colleagues should be able to do something with digitalization and see that it works," summarises



## Best practice

Many new technologies as well as their possible applications and uses in the company are often difficult to evaluate. And there are ideas on how to transfer what already exists to new applications and processes. Knowledge about this often resides with the experts of the departments on site. Employees have good ideas and the willingness to get personally involved.

Following the approach "tackling digitalization together", EJOT has created the digitalization team in 2019. It consists of employees who are well networked within the company and who can think creatively and openly across borders. This isn't a team of nerds sitting around in a basement programming, but rather a platform to mobilise EJOT employees' potential for digitalization.

They collect digitalization ideas from EJOT employees, put them together, evaluate them and give employees the freedom to work on them. They set the framework (budget, duration, expected result), accompany the implementation as a coach, coordinate resources and make decisions.

If a positive result is achieved, a decision is then made about a roll-out or about the specific continuation in a project (with definition of the goal, benefits, budget and project organisation). In general, an openness toward ideas for digitalization is required, starting with process improvements, the use of new tools, and the development of new business models.

Christian F. Kocherscheidt, managing partner of the EJOT Group. The way to achieve this was through eight digital lighthouse projects, two per category, suspended in the top management level. They were given high priority and increasingly integrated into the corporation's communications.

One of these eight projects has resulted in today's ClickBuild startup, see report on page 16. Others include the development of a Digital Learning World for the qualification of EJOT employees, the implementation of a collaboration tool for cross-location and cross-national cooperation as well as the further development of the calculation tools for EJOT industrial screws, with which an online engineering service is offered to EJOT customers. The idea of Industry 4.0 mentioned at the beginning is now anchored in two digital concepts, but the focus has been significantly expanded and, with "digitalization" beyond production, it is now directed towards the entire company. For this purpose organisational adjustments were made and a staff department was installed within the EJOT Group.

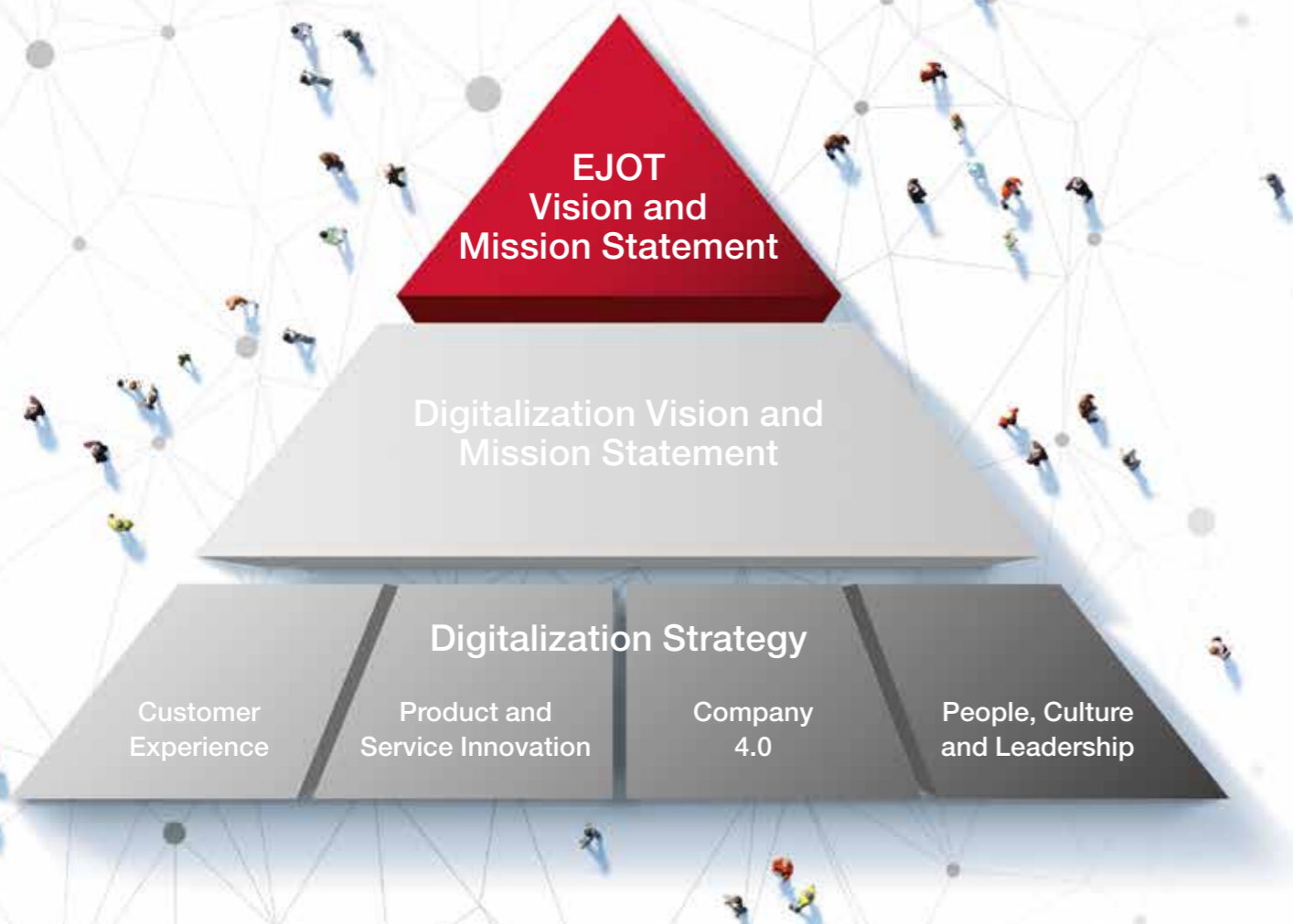
After one year of project implementation, the feedback frequently showed that overall integration of digitalization into the corporate image was still missing in strategy and in projects derived from it.

In 2018 the EJOT management engaged in another series of closed meetings. Prof. Dr. Björn Niehaves from the Chair of Business Informatics at the University of Siegen moderated a process to create a digitalization vision and a digitalization mission statement anchored in the company's mission statement.

The result is anchored in what EJOT wants to achieve with digitalization and what is most important. The central focus is on people themselves. Digitalization requires curiosity, the courage to act, and the willingness to learn from mistakes! This is supported and free space is created to try out and do things. EJOT will approach digitalization responsibly, align it with people and identify potential for change. Employees will be qualified and promoted according to their individual needs, workplaces will be designed in a modern way and a management culture will be established that supports necessary changes.

The credo that is communicated to the company today in connection with the vision is "tackling digitalization together": it does not see digitalization as a single task for the IT department or individuals but as a process of change in which all employees can and should participate and thus help to shape the onward path of digitalization at EJOT.

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# ClickBuild digitalizes the roof renovation

“We’ve caused a real stir here,” says Stephan Wierig. One day after the digitalBAU trade fair in February, the 41-year-old civil engineer is still full of adrenaline. It was the first public appearance of the startup ClickBuild, which Stephan Wierig, owner of the Siegburg company Wierig Profiltechnik, EJOT and the digital pioneer Karl-Heinz Land founded in 2018.

>>Text: Andreas Wolf



That ClickBuild caused a stir at the three-day trade fair in Cologne is obvious. The online platform ClickBuild digitalizes and automates the entire process of industrial re-roofing. “A revolution in the roofing trade”, as Stephan Wierig emphasises confidently. One day after the trade fair, he stands in front of his computer screen in his office in Siegburg and clicks his way through the ClickBuild online platform at breakneck speed: customer contact, precise measurement of the roof area, preparation of offers, project planning, ordering materials from suppliers on the platform, project management, invoicing and reception. All in one online platform, created



Stephan Wierig

in a few minutes, precisely tailored with just a few entries and then implemented throughout until the project is completed. “A currently unique solution worldwide, not only in the roofing industry, but in the entire trade.”

The initial spark for the digital startup ClickBuild came almost three years ago and was purely accidental. Stephan Wierig explains how he met Karl-Heinz Land during a flight. They get to talking, about digitalization of course, an issue for Stephan Wierig in his business as well. He has the idea to digitise re-roofing. But there are also doubts as to how he can put this into practice.

He hears a lecture by Karl-Heinz Land and realises: “I have to do it.” Both sit down together and Wierig talks about his idea to digitalize the renovation of industrial roofs. Karl-Heinz Land welcomes his project with open arms. For years, Land has been singing the same tune: “Everything that can be digitalize will be digitalize. And everything that can be automated will be automated. It’s not a question of how, but when.”

Karl-Heinz Land brings EJOT into play as a partner: EJOT with its know-how in the construction market, the interest in digital business models and as an owner-managed company with speedy decision processes. Stephan Wierig has many years of experience as a civil engineer and his own company is experienced in the planning, calculation and implementation of hall renovations.

“When Stephan Wierig presented the project for the first time, it was clear he knew what he was talking about,” explains EJOT CEO Dr. Frank Dratschmidt. “A good basic framework was clearly visible in the idea for the project as was, of course, the considerable benefit for the customers. In this early phase it was extremely important to think the project through carefully,”

emphasises EJOT CEO Wolfgang Bach. “At some point in the process, it clicked into place.” The project would start with a joint workshop at the end of 2017, followed by concrete project considerations. The establishment of the joint venture ClickBuild would follow in April 2018, and in May 2018 the development of the platform by IT experts could begin.

This was preceded by intensive work to develop a structure for the new business model, explains Andreas Fey, responsible for digitalization projects at EJOT. “We were always driven by questions and doubts: does the roofer really save time? Won’t the product, with which we want to reduce complexity, become itself too complex in the end? Will the new project work in the market?” In this phase of development, the success story was far from certain, Fey admits. It will be a year and a half before the online platform can be launched, “during which we’ve been working flat out,” stresses Stephan Wierig. Right from the start, the software has been developed in a practical manner and hand in hand with Wierig’s profile technology, always focusing on market and customer orientation. The first pilot customers test the platform in November 2019.



The measurement of the existing building is carried out with a drone and is automatically transferred into a 3D model through the development of a digital construction in the software.



„ClickBuild is unbeatable,“ says Dieter Dülsner. The roofer from the Rhein-Sieg district tested the online platform as one of the pilot customers.

Dieter Dülsner, CEO of Dülsner Bedachungen und Dienstleistungen (Dülsner Roofing and Services) in Windeck, in the county of Rhein-Sieg, has dealt with the online platform and already makes a statement in his evaluation: “ClickBuild is unbeatable.” The 44-year-old has compared several offers, both analogue, i.e. as used until now, and digital, with ClickBuild: for re-roofing at a school in Bonn, he confirmed that he needed 11.5 hours to prepare a complete offer. With ClickBuild the complete offer was available in about 15 minutes. “The time saved is enormous.” Extrapolated to 119 submitted bids in 2018, of which Dieter Dülsner was awarded the contract for eight construction projects, it makes a serious difference. “Time that I can definitely use more practically in my craft.” This is now possible with ClickBuild, Dülsner emphasises.

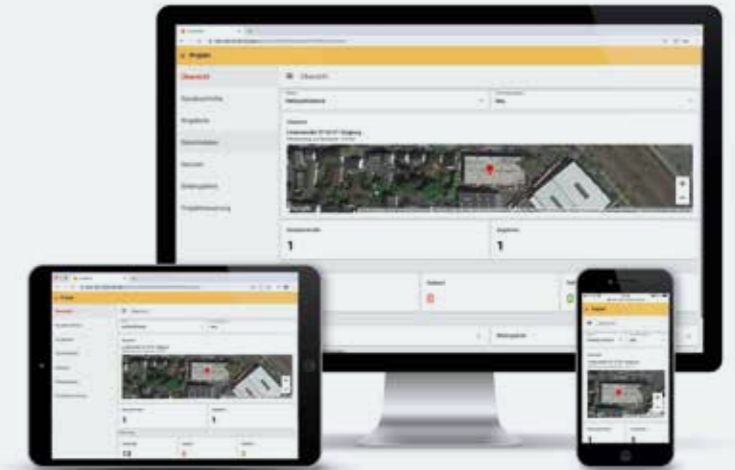
What clearly speaks in favour of ClickBuild is that this platform covers the complete spectrum from quotation preparation and project management to invoicing and acceptance and that all participating parties are directly involved. Up to now, Dülsner

continues, he has tried out various software solutions, but these only depict partial areas. The user-friendliness of ClickBuild is also excellent. “My employees, who are already equipped with tablets, do not have to undergo extensive training to work with ClickBuild.”















The ClickBuild team has set itself ambitious goals for the current year: “We will expand the existing configurations for further roof variants on the platform,” announces Stephan Wierig. At the same time he wants to take the step towards private re-roofing. In addition, there are plans to open the platform to further trades such as the renovation of building facades. Together with his team, Stephan Wierig is looking for pilot customers from various trades in order to create practical extensions together with them. Good prospects for the platform are offered not only on the national but also on the international market. The ClickBuild vision: “We are creating a practical B2B platform for all trades in the construction industry through a high degree of customer focus.”

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## FACTS



The goal of ClickBuild is to use an online platform to digitalize the entire process of re-roofing of industrial buildings and, in the future, many other trades.

-  The process begins with the online configurator, which uses a satellite view to record the basic dimensions of the building and allows the scope of the refurbishment to be planned and offered based on preconfigured content.
-  The measurement of the existing building is carried out with a drone and is automatically transferred into a 3D model through the development of a digital construction in the software.
-  Based on this, the 3D model and exact parts lists to be ordered from suppliers are created in “Digital Construction”.
-  All the necessary information comes from the ClickBuild data base, to which all suppliers are connected via the platform.
-  The creation of a fixed-price quotation is thus possible in a fraction of the time and materials and services can be ordered directly via the platform.
-  In the subsequent project planning and control phase, all required information is made available via the platform across all devices on PC, laptop, tablet or smartphone, thus ensuring transparency throughout the entire process.
-  The first step was to create the product data base (PIM) and the configurator.
-  Programming the “Digital Design” (algorithms that automatically calculate the technical implementation) was started in 2019.
-  Parallel to the development, all developed functionalities were tested by Wierig Profiltronic GmbH.
-  ClickBuild is characterised by fast, simple and intuitive setup. Roofing companies can get started within a few minutes based on basic data.
-  ClickBuild maps the entire project management. Via the dashboard, the user can keep an eye on progress at all times.
-  The project plan is based on a Gantt chart, which graphically displays the chronological sequence of activities in the form of bars on a time axis and can be customised.
-  The Gantt chart shows dependencies and links that affect deliveries and project timing. Project control and assembly management are also carried out in real time via a Gantt chart, which documents the course of the project and gives all those involved an insight into the current status.
-  ClickBuild is not only a platform for the roofer themselves, but for all project participants – from the supplier to the site manager. The user can flexibly arrange the invoicing of the project, either as a lump sum or dependent on the progress of the construction work (measured).

# Construction industry struggles with digital change

When it comes to the use of digital technologies, the German construction industry still lags behind when compared to other national sectors, as well as on an international level. These are the results of the study “Zukunft Bau – Beitrag der Digitalisierung zur Produktivität in der Baubranche” (Future Construction – Contribution of Digitalization to Productivity in the Construction Industry), carried out by the Leibnitz Centre for European Economic Research (ZEW) Mannheim on behalf of the Federal Institute for Research on Building, Urban Affairs and Spatial Development (BBSR).



So far the construction industry has invested little in digitalization projects, and often limits itself to the use of basic digital solutions such as electronic invoicing or CAD applications (used respectively by 38.5 and 36.2 percent of companies in the construction industry, including the planning sector). By contrast, construction-specific technologies such as 3D scanners or virtual reality are rarely used (2.8 and 7.5 percent of companies respectively).

The primary obstacles to the successful implementation of digitalization projects consist of excessive financial (62.4 percent of the companies) and time (61.5 percent) expenditures associated with digitalization projects. The majority of the companies surveyed still perceive excessively strict data protection rules (57.5

percent), insufficient broadband expansion (55.6 percent) and a lack of standards and interfaces (54.9 percent) as obstacles. Remarkable is that over half of the companies (52.1 percent) simply see no need for digitalization projects.

“Small companies in particular, of which there are particularly plenty in the construction industry, cannot afford to spend the time involved in digitalization. To do so, it would be important to prepare for less economically fortunate times and digitalization in particular can contribute to this”, says Prof. Dr. Irene Bertschek, project manager and head of the ZEW research area “Digital Economy”.

Nevertheless, the construction industry has recognised the potential of digitalization for various variables of economic success,

## Obstacles to digitalization in the construction industry including planners

Information in percent of the companies on the question: “Which of the following reasons prevent your company from successfully implementing digitalization projects?”. <sup>1)</sup>

Investment requirements too high	62.4
Time expenditure too high	61.5
Data protection rules are too high	57.5
Lack of sufficient broadband	55.6
Standards and interfaces	54.9
No need for digitalization projects	52.1

## Influence of digitalization on the building industry including planners today or in three years

Percentage of the companies on the question: “How do you assess the influence of digitalization on the following aspects of your company?”. <sup>1)</sup>

	positive	neutral	negative
<b>Today</b>			
Competitiveness	49.3	47.7	3.0
Business success	46.3	49.9	3.2
Innovative ability	40.7	58.6	0.7
Division of labor between	40.6	58.2	1.2
Labor productivity	40.5	53.8	5.6
Scope of services	31.9	66.4	1.7
Consistency of the business model	30.4	66.9	2.7

### In three years

Competitiveness	57.5	39.3	3.2
Business success	56.9	39.5	3.6
Innovative ability	48.9	50.2	0.9
Division of labor between	47.3	52.0	0.7
Labor productivity	44.4	54.8	0.8
Scope of services	39.7	58.8	1.5
Consistency of the business	35.1	60.4	4.5

<sup>1)</sup> Source: ZWE company survey Building Ind. 2018

such as competitiveness, innovative ability or productivity. This is evident from the fact that significantly more companies expect positive effects from digitalization in the future. For example, 57.5 percent of the companies expect digitalization to have positive effects on their competitiveness in three years, as compared to only 49.3 percent of the companies seeing it at the present. In addition, the effects of digitalization on overall corporate success (56.0 percent in three years vs. 46.9 percent today) and innovative ability (48.9 percent in three years vs. 40.7 percent today) would be viewed much more positively in three years compared to the current situation. Finally, 47.3 percent of the companies see the central question of productivity effects of digitalization on the future as positive.

“The study has shown that there is still a lot of untapped potential for digitalization in the construction industry. However, the industry has recognised the opportunities for productivity and quality gains that digitalization offers. With its approximately two million employees and almost 330,000 companies, the construction industry is one of the most important economic sectors in Germany. It is important to tap this potential – also for the interest of macroeconomic development,” comments Dr. Markus Eltges, head of the Federal Institute for Research on Building, Urban Affairs and Spatial Development (BBSR), on the results of the study. **E**

## Info

The Leibnitz Centre for European Economic Research (ZEW) is a charitable economic research institute. It was founded in 1990 as an initiative of the regional government of Baden-Württemberg, together with economic representatives of the state and the University of Mannheim, and started its work in April 1991. Since then the ZEW has established itself as one of the leading German economic research institutes and enjoys a high reputation throughout Europe.

### The work of the ZEW is committed to four objectives:

- Excellent research
- Scientifically sound economic policy advice,
- Scientific qualification
- Transfer of knowledge to a professional audience and the general public.

The institute addresses decision makers in politics, economics and administration, scientists in the national and international field as well as any interested members of the public. As a representation of the considerable quantity of up-to-date information provided by the ZEW, we would like to refer to the regular surveys on the situation of financial markets and the economic situation of the information economy as well as the broad annual study on innovation activity in the German economy.

# Awaken enthusiasm and passion for change

Q&A

>>Interview: Andreas Wolf



Coaching leadership style, cooperative processes, an open error culture – the world of work is changing rapidly. Interview with EJOT HR manager Angelika Wetzstein on “why people are indispensable in digital transformation”.

**We are moving in exponential times – digitalization and new technologies lead to new business models and are changing the world of work quickly. How can we successfully involve employees in this process?**

Life consists of change. Employees are open to change when they understand what is happening and how it can benefit them.

Put transparently, this means that in the digital working world, the half-life of knowledge and skills is dramatically reduced. Digital developments force companies to develop and implement new business models and processes at high speed.

“What’s in for me?” is exactly the answer to this speed of change: everyone is helping to shape digitalization. Digital transformation simply cannot afford to do without any employee. Therefore, digitalization goes hand in hand with a coaching management style that encourages employees to contribute their wealth of ideas and experience, independently of hierarchies. Cooperative processes and an open error culture à la “fail fast, learn fast” are indispensable.

This way, each and every individual can become an architect of digitalization. If everybody thinks through and drives digitalization forward together, then not only will the management style

change, but communication will too – it will occur everywhere, regardless of hierarchies. Employees will experience better networking, more efficient communication and the use of collective knowledge. The task of HR is to manage the different levels of “digital fitness” of all generations of employees.

**What demands will digitalization place on the employees of the future – who will shape the workforce of the future?**

Here again, I see a link to the speed of change involved in digitalization: frequent relearning and the willingness to engage in lifelong learning will affect us all. This requires curiosity, interest and openness for technical developments and their possible applications so that we can create ideas for implementation and application in our own fields of activity.

The truth is that employees in a digital and mobile working environment will have to work much more independently than before. As such, the demands on self-organisation and decision-making ability will have to increase in order to deliver fast reactions and results (“fail fast”).

Unlike in the past, agile forms of work require a delicate balance of technical and methodological competence. Communication and leadership will increasingly be experienced in networks and virtually.

**What does HR need to offer for the digital transformation?**

Agile forms of work as well as changed leadership and communication behaviour naturally require a further development of organisational design. Here I see HR clearly as having responsibility.

We also need new training and further education concepts that are flexible, modular and geared toward practical use. Instead of classic lecturers and frontal training, we will experience “learning journeys” with moderators, impulse and input providers. Here too the focus is also on encouraging curiosity and calling for initiative.

**Work areas in HR management will also be automated. Is HR organisation actually bringing about its own end through digitalization?**

Some readers may find this idea appealing but the answer is no – with digitalization we are doing away with the annoying

routine work, but not with HR altogether. The use of artificial intelligence in recruiting for example is undoubtedly helpful. The final decision about the applicant and whether he or she fits with the corporate culture requires empathy and emotional competence – impossible without the human factor.

Digitalization allows us to focus on our core competencies and redefine our role: for the “wave of digitalization” we won’t be handing out life jackets but rather encouraging our employees to surf the waves. The core task of HR is to awake enthusiasm and passion for change and to find employees who understand, accept and live the possibilities of digitalization.



Apprentices can create work and setup plans with an iPad, the camera function and the appropriate pen.



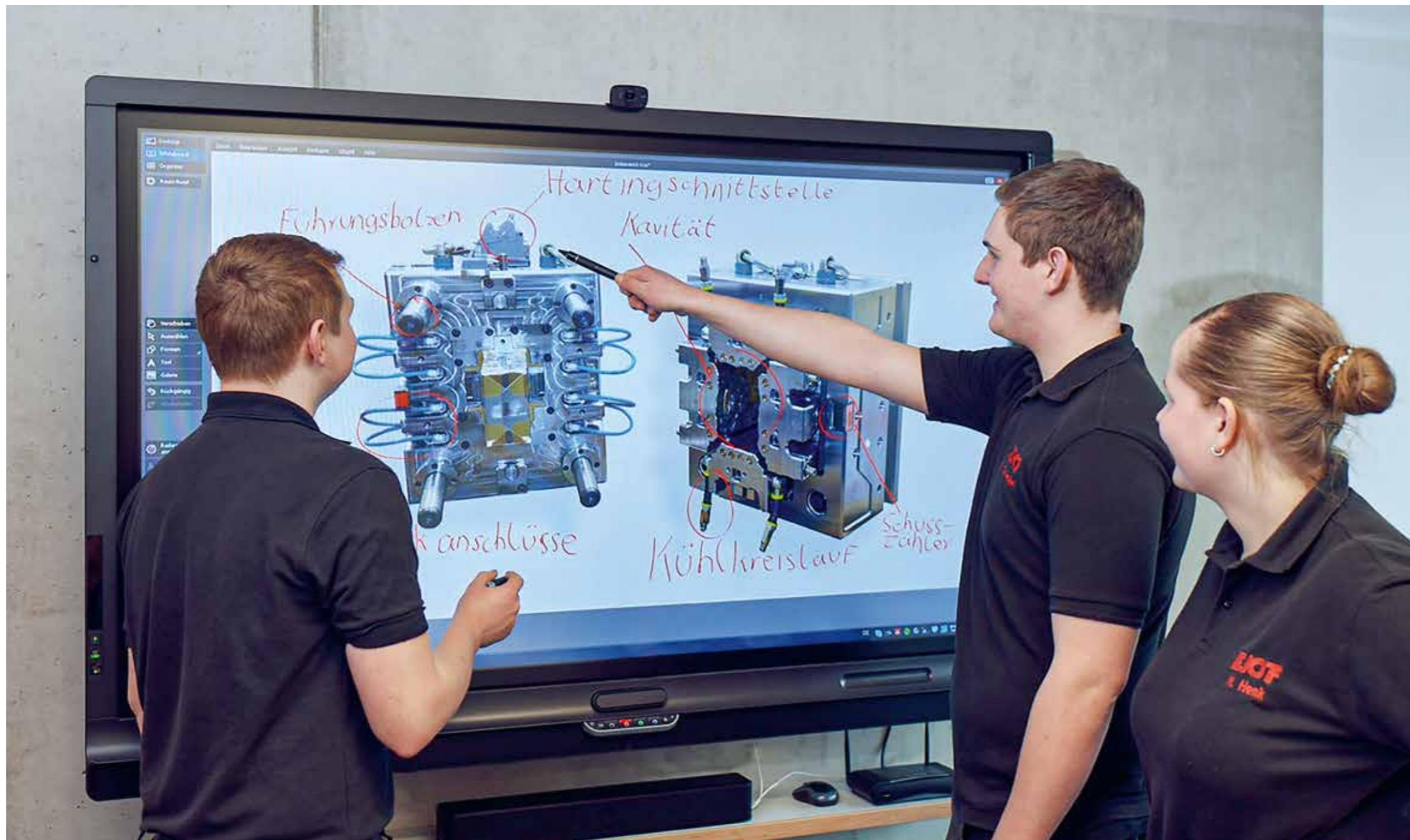
**Angelika Wetzstein**

EJOT manager for the areas of Personnel, Legal Affairs, as well as Environmental and Building Management.

# Digital education – Ernie and Bert as pioneers of modern learning methods

EJOT proactively shapes digital change, This also applies to training and further education. The big challenge is to focus more on digital media. A look into the past helps.

>>Text: Andreas Kurth



Developing young talent is one of the most interesting tasks at EJOT. Successfully preparing trainees, students, new and longstanding employees as well as all those who want to become trainees for the tasks and challenges of the future is the foundation for positive further development of EJOT. The enormous technological change, especially digitalization but also the strong growth of the past few years, continuously poses new challenges for EJOT. The way in which today's society learns is also undergoing a fundamental change. If you look at the areas of school, training, studies and economy 50 years ago, it's plain that these challenges are not entirely new, but today's changes are taking place many times faster and in an increasingly complex environment.

Digitalization requires a fundamental change in existing qualification strategies. Thus, not only the contents of qualification but also its methods must be reconsidered. When considering how EJOT can shape these changes it is worth taking a look at the past.

Lloyd Morrisett noticed more than 50 years ago as his daughter was fascinated by a television test card. This gave the psychologist the idea to encourage small children to learn via television. The idea of the world's most successful children's series was born. "Sesame Street" was based on a completely new and, at the time, highly controversial didactic concept. A series developed by psychologists, educationalists and TV experts, specifically tailored to the television behaviour of children. They created a brightly coloured children's world, in no way inferior to regular commercials with unusual characters, wonderful costumes, and catchy songs and melodies. The difference is that the children did not learn how delicious Coca-Cola was, but how to count, spell and make friends. The launch of the German Sesame Street on the 8th of January 1973, provoked vehement protests in parts of Germany. The Bavarian teachers' association even spoke of an "advertising, drill and persuasion program". It is known today that Lloyd Morrisett's idea for Sesame Street inaugurated one of the most important educational concepts of the last century. But why does this concept work so well and what can EJOT take from it today?

Dr. Rosemarie Truglio has been jointly responsible for the didactic concept of the American Sesame Street for around 20 years. From her we have the excellent phrase, "because if you can't reach them you can't teach them". Transferred to today's everyday life and changed learning and social behaviour, this sentence challenges traditional teaching methods such as frontal teaching and working with books. In an increasingly digital world with smarter phones, clocks, TVs and apps that are continually being adapted to the individual, uniform curricula and methods seem outdated. EJOT Managing Director Angelika Wetzstein has no doubt: "The biggest challenge will be to focus on digital media, which is already taken for granted by a large number of people in the private sphere, also in the professional environment."

Since the new construction of learning workshops in Bad Berleburg and Tambach-Dietharz, EJOT has taken the first successful steps in this direction. The apprentices can create work and setup plans with an iPad, the camera function and the appropriate pen. Through interactive QR codes, digital animations of the production process can be called up directly on the machines. Action cams are used to transfer images of the machine interior to external screens. Through virtual reality glasses, learners can enter inaccessible machines virtually and safely. The learner is always consciously placed at the centre of attention. The learner should thus go from being the consumer to being the producer in a sustainable fashion. In the future, learning content should not simply be accepted, but questioned, explored and even produced. The first and very exciting results →

Learn in small groups with digital tools. View of the 3D model of an injection molding tool.



EJOT Future Camp: Apprentices and students work with 3D printers.

have already been achieved in the form of self-produced learning videos. "In a time when knowledge has an ever shorter half-life, we are thus building up competencies that will further strengthen the adaptability of our employees," explains Angelika Wetzstein. With all the new possibilities for digital knowledge transfer, learning success must always be viewed critically. With all the new possibilities for digital knowledge transfer, learning success must always be viewed critically. No digital tool should be used if it does not provide a clear advantage for motivation and learning success. "We are absolutely convinced that digital learning media can provide excellent support for personal knowledge transfer, but can never completely replace it," Wetzstein confirmed.

Besides the qualification methods, digitalization also changes existing qualification content. If one takes a look at the curricula of state training and study courses, one finds that these no longer meet the requirements of today's working world. The training contents of the metal and electrical professions are for example from 2007, the contents of the IT professions go as far back as 1997. EJOT wants to proactively shape the digital change and independently promote current topics. Internal trends such as additive manufacturing, driverless transport systems or digital business models are consciously taken up and qualification offers are developed. With the EJOT Future Camp a format was created that introduces trainees and students to new work contents in a targeted way. Compressed into one week, the Future Camp offers the opportunity to experience and try out digitalization first hand. "In this way it is possible to build up an understanding of digitalization at an early stage and to further promote the potential for digital innovation," says Angelika Wetzstein. The development of new training courses also deliberately takes unconventional paths. While IT and technology continue to merge in day-to-day operations, a suitable occupational profile that meets changing requirements is not to be found in the national education programs. With

the "production IT specialist" EJOT has succeeded in finding an innovative solution. Through the combination of "machine and plant operator" and "IT specialist" a new job description was designed that exactly meets the changed requirements. And with the "production clerk" EJOT continues this individual path and for the first time combines technical and commercial professions.

Angelika Wetzstein is convinced of the chosen strategy: "Just like the makers of Sesame Street, we will continue to pursue our ideas and visions, always with a critical eye so that digitalization does not degenerate into an end in itself, but always offers added value for our employees and customers".



Digital learning methods can provide excellent support for personal knowledge transfer, but can never completely replace it.

# Use of AR-Technology\* at EJOT

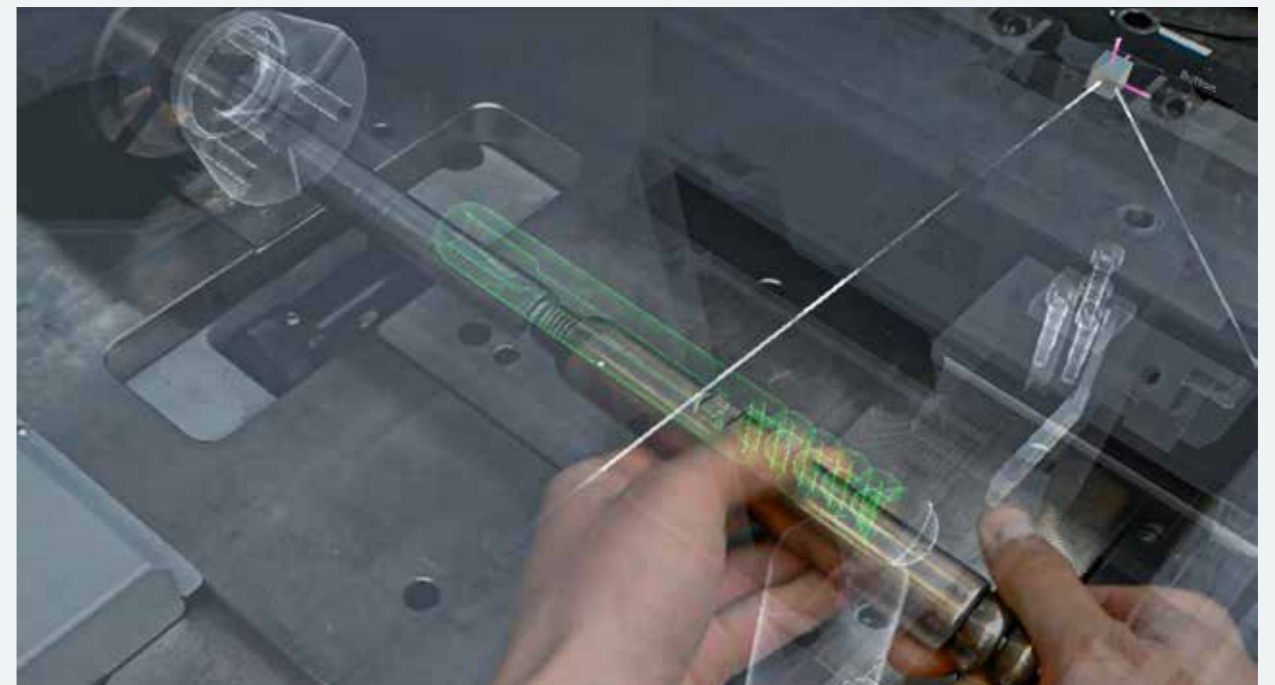
>>Text: Christoph Peter

Since last year, EJOT has been using augmented reality (AR technology) to solve problems in addition to the established means of communication.

The location in Ciasna (PL) and a plant in Germany, where the technology experts for plastic injection molding machines are located, have AR glasses from Microsoft available. The main benefit is that the conversation partner can display information of all kinds in the other person's field of vision. For example, the employee in Ciasna might have a complicated problem with a machine that he cannot solve without expert knowledge. In the past, the first step was to pick up the phone. It's just not that easy to put a problem into

But AR technology is also used in other cases: When planning a layout for an area or a new plant, objects can be generated from the 3D data of machines and equipment. These are then placed as a hologram in the room, where the future location should be. So one can e.g. walk through a new warehouse and ideally see the shelves, containers and stackers on a scale of 1:1 and thus assess whether the layout is optimally planned or not.

The third application is the so-called cyber set-up. Similar to known kitchen gadgets, for example from the company from Vorwerk, one can set-up according to the instructions. Guided set-up instead of guided cooking. The tutorial can

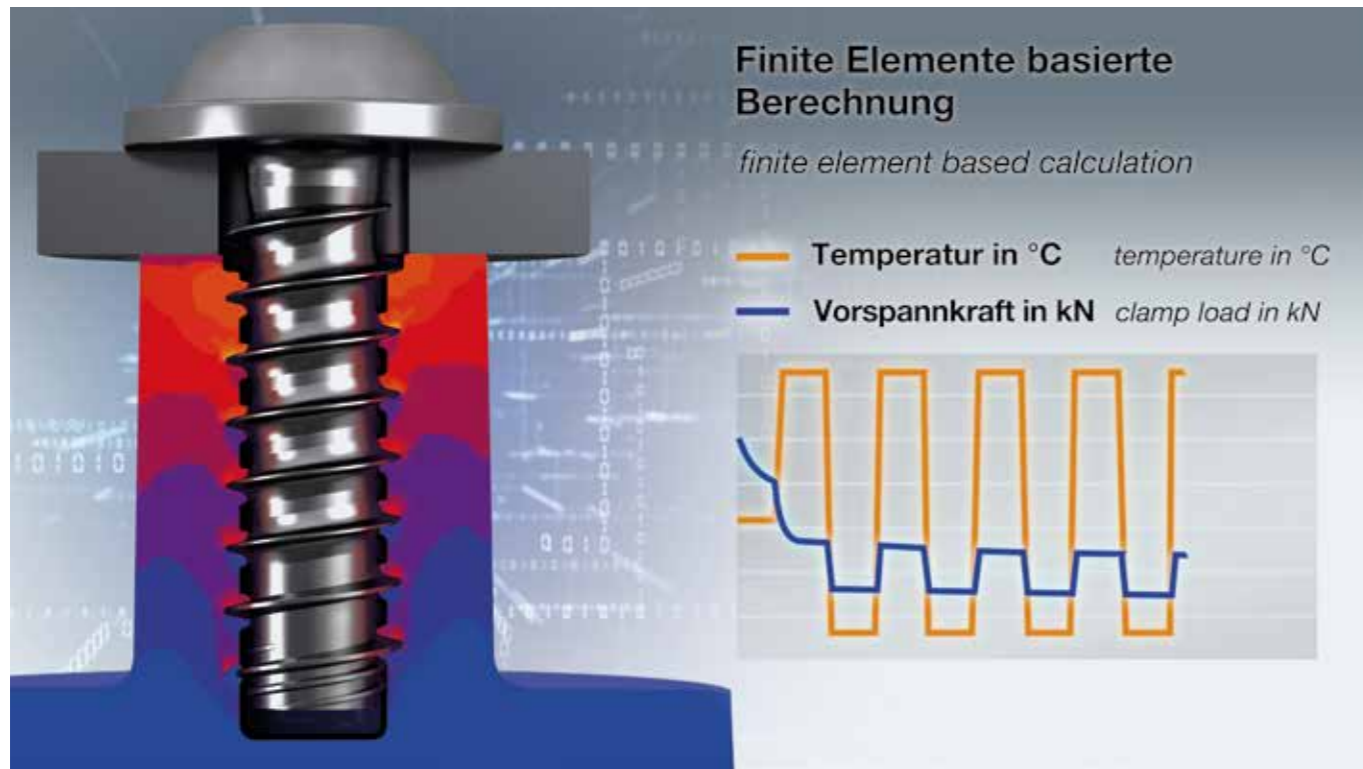


words. The different languages make this even more difficult. The presence of an expert on site was often unavoidable. AR technology opens up new possibilities for us in such situations. The call to the expert is still made as in the past, but no longer by phone, instead directly via the AR glasses, Skype or MS Teams. The expert can then look through the eyes of the problem solver, so to speak, because the current field of vision of the caller is displayed. In order to guide the colleague in problem solving, you can also display information in the field of vision in addition to the language. For example, you can mark certain things and include videos, pictures or other objects.

consist of videos, images, or even holograms that indicate the next step to be performed. However, wearing the glasses while setting up is not really practical. Therefore, EJOT does not use the technology for machine set-up, but plans to use it to create a set-up standard. For example, a video is created during set-up and the walk path is recorded.

We are looking forward to the development of the next generation of AR glasses and hope for further exciting opportunities.

\*AR = Augmented Reality



## Digital services – innovation and market demand

Computer-aided engineering (CAE) is a general term for various types of technical calculations made using software solutions. The rapid technological progress and ever-shorter "time to market" and product life cycles make the use of digital calculation tools, which significantly reduce development times and consequently costs, a mandatory requirement of the market.

>>Text: Heinrich-Georg Homrighausen and René Gerber

In 1999, shortly after the market launch of DELTA PT<sup>®</sup>, now the world's leading product for direct fastening in thermoplastics, the affiliated computer program DELTA CALC<sup>®</sup> was published - a by-product of development, so to speak. At the beginning, it was still a slightly overloaded Excel tool from today's point of view, but it was nevertheless a milestone and provided the initial spark for all the calculation tools that followed. With this program, developed by EJOT on its own initiative, it was possible for the first time to calculate the relevant torques and resulting preload forces for a self-tapping screw in plastic. This enabled the EJOT application engineers to give design and, above all, installation recommendations for the DELTA PT<sup>®</sup> screw to the customer at the push of a button. Time-consuming and therefore expensive component tests could be reduced to a necessary minimum. This feature is today still a unique selling point in the fastening technology market. In 2006 and 2007, DELTA CALC<sup>®</sup> was optically upgraded and its content was further developed into a desktop application, gradually expan-

ding to include numerous calculation options. The program is still in use in this form today.

The next milestone followed in 2011 with the publication of ALtra CALC<sup>®</sup>, the computer program for the ALtracs<sup>®</sup> Plus screw. This fastening element for direct fastening in light metal materials and non-ferrous metals is one of the most successful products from the EJOT Industrial Division in terms of sales development, and the digital tool ALtra CALC<sup>®</sup> certainly plays a part in this that should not be underestimated.

Though the programs mentioned were initially for exclusive internal use for EJOT application technology, as well as the licensees of the respective product groups, a paradigm shift occurred in 2013 with the release of the so-called light versions. Functionally, these are somewhat "reduced" online versions with a focus on easy use, made available free of charge to registered customers in the newly created

online service area "CAD&more". As of 2017, the so-called "Application Checks" for the products TSSD<sup>®</sup>, FDS<sup>®</sup>, SHEETtracs<sup>®</sup> and EJOWELD<sup>®</sup> were added. These are very product-specific solutions. They can be simple feasibility studies, parameter data bases, all the way through calculation modules. These are also made available to registered customers free of charge. Concerns that the significantly expanded online calculation service will result in a qualitative deterioration in the customer-supplier relationship cannot be confirmed. All online tools are characterised by their simple operation. Should more complex questions arise, the contact with the EJOT application technology, also online, is quickly established for frequent and intensive use. Considerably more than 10,000 calculations in 2019 across all online tools prove that the correct decision was made.

If this is summarised as an interim balance, the most important products are currently equipped with the corresponding digital calculation tools. Even for the product families not yet considered, extensive test data bases can in many cases provide assistance to customers.

The market launch of the EVO PT<sup>®</sup> screw last year initiated numerous other innovations, also with regard to technical calculations. Already during the development of the new thread geometry, numerical calculations using the Finite Element Method (FEM) were consistently applied. Many optimisations could be carried out without lengthy test series and sample productions. The knowledge gained in the process flows directly into the affiliated computer program named EVO CALC<sup>®</sup>, which is currently in the rollout phase.

In the basic version, EVO CALC<sup>®</sup> initially offers the same functions as its predecessor DELTA CALC<sup>®</sup>, i.e. the calculation of design and installation parameters. The analytical mathematical models used are very fast and sufficiently accurate for this application. Often, however, the question arises as to how the clamp load behaves in service condition after assembly. For a direct fastening into plastic the relaxation, meaning the time- and temperature-dependent loss of clamp load, must especially be taken into account. Conventional analytical mathematical models are simplistic and ultimately too imprecise to reliably predict this complex process. For this reason,

EVO CALC<sup>®</sup> was equipped with an interface to an external FEM system. With this program, it is possible to create a simulated temperature profile, which means defining the corresponding service condition and passing it to the numeric calculation together with the relevant initial conditions and design parameters. In conjunction with complex material models, the FEM system calculates the anticipated clamp load curve and eventually the final residual clamp load. Time-consuming and cost-intensive temperature tests can thus be reduced to a minimum. This interface opens up further extensive possibilities for the future, as the FEM can be used for almost any strength and deformation simulation on solids.

EVO CALC<sup>®</sup> is designed to examine the individual screw point. However, questions as to how different service conditions (temperature, driving forces etc.) might affect the entire assembly and its fastening also arise frequently. In this case, the exclusive use of EVO CALC<sup>®</sup> is not sufficient, but is only one of many aids in project processing. Further FEM calculations must be carried out on the CAD model of the assembly, for example to determine the most heavily loaded screw point and to check whether it can bear the specified loads. This can result in optimisation recommendations that minimise possible risks of failure. Such a project can of course also include validation tests on the finished and optimised component. Finally, these extended CAE services are intended to bundle the competencies in the field of direct fastening and provide sophisticated engineering services for the customer.

For EJOT this is a further step towards a deepened development partnership and corresponding customer loyalty for the innovative products. After this first test phase the CAE services are continuously upgraded and tested in new projects.

Computer programs, configurators, test data bases, component tests and advanced CAE services are important building blocks of the Industrial Division's service portfolio and have the potential to establish their own business model with intelligent networking and uncomplicated online availability. For the time being, the creation of an engineering portal is planned to do just that. The concept phase for this has already begun. We're looking forward to it already. ■

### Digital tools in the Construction Division

The ETICS Fasteners business unit of the Construction Division has configurators available that determine the right product for each application. Whether anchors for External Thermal Insulation Composite Systems or mounting elements for fastening attachments – with the ETICS product configurator you will always find the optimal product solution. A genuine relief for ETIC system providers.

In the building fasteners division, the approval wizard's digital capabilities are very convincing. The EJOT approval wizard

is a free, data-based version of the two current European Technical Approvals ETA-10/0200 and ETA-13/0177, as well as national approvals Z-14.1-4 and Z-14.4-779. The program allows a certified fastening element to be determined through selection of specific applications. The user also receives the respective approval values (characteristic tensile and transverse load, as well as the corresponding approval document). EJOT products can be compared quickly and easily and then selected. The selected products can be directly ordered through the connected EJOT online shop.

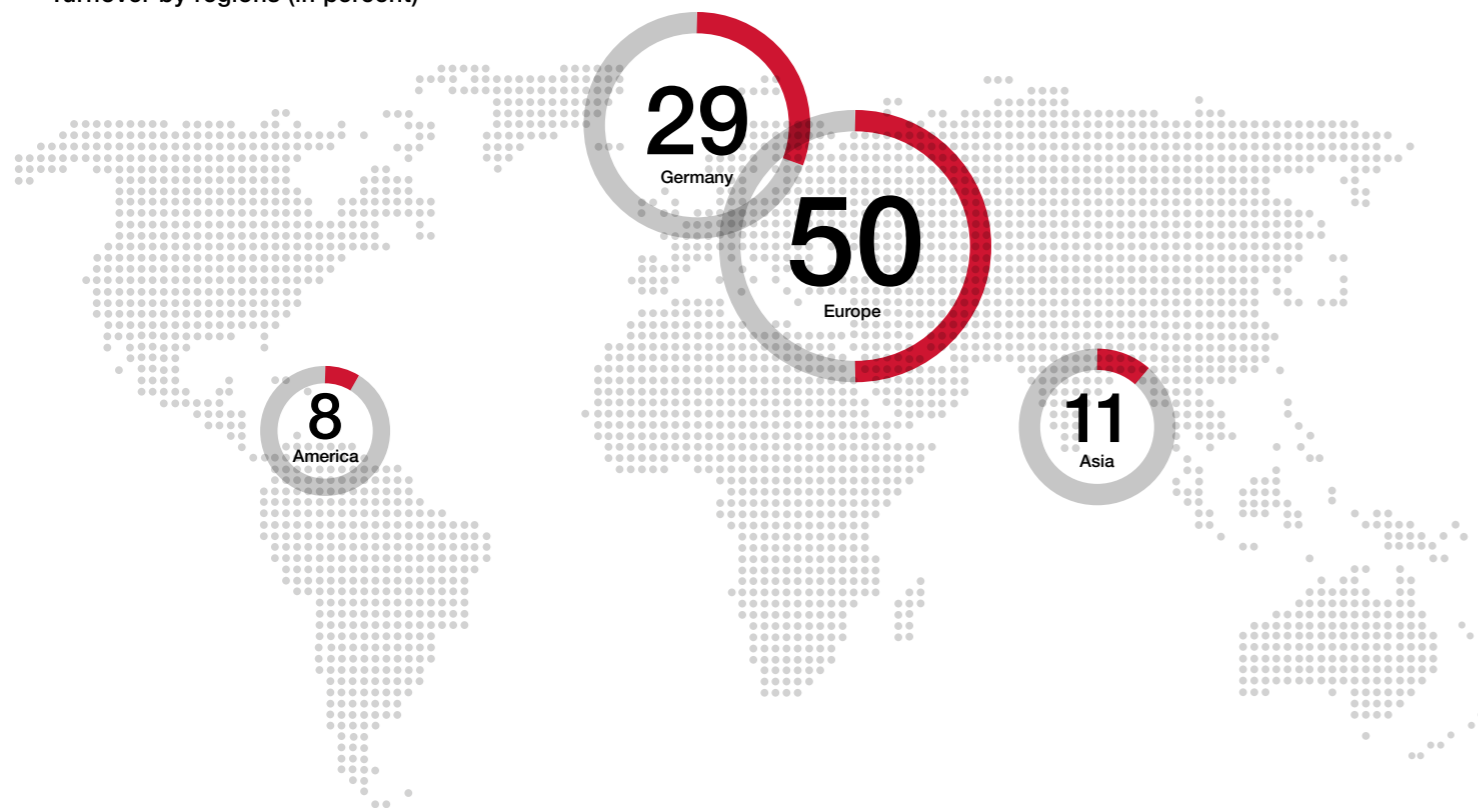
ANNUAL REPORT

# 2019

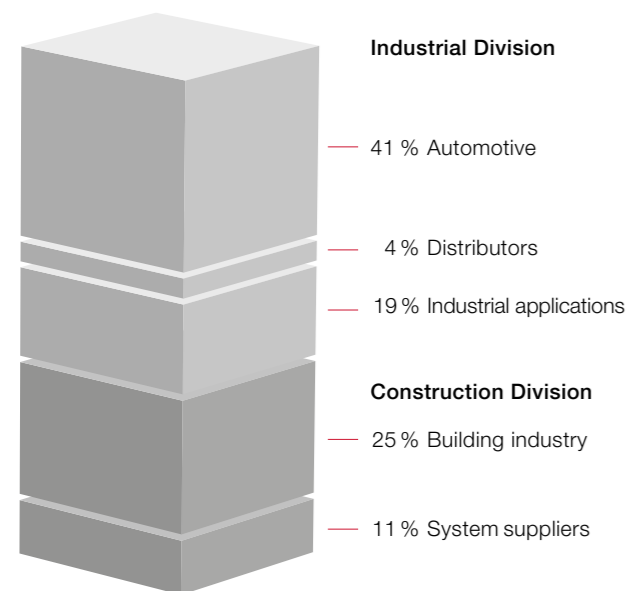


# Operating figures

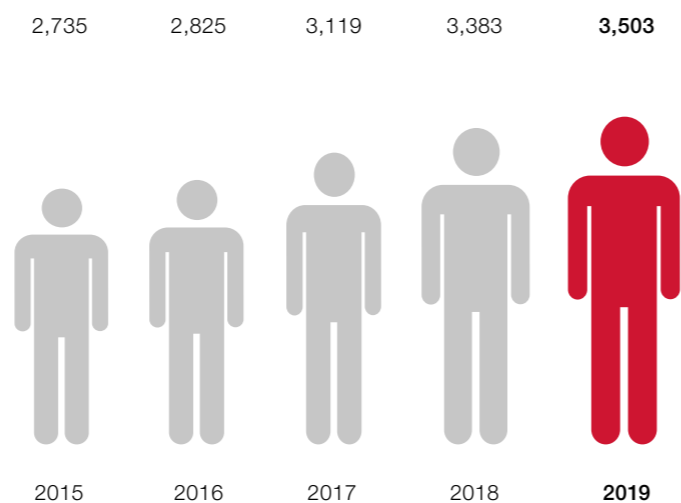
Turnover by regions (in percent)



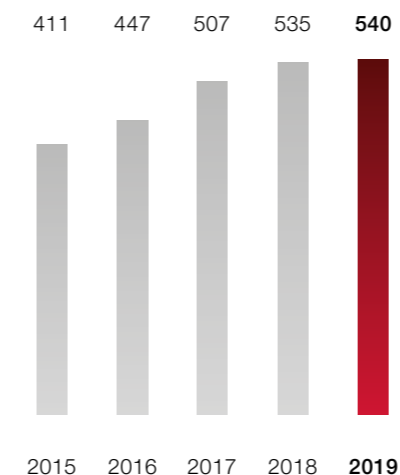
Turnover by customer groups



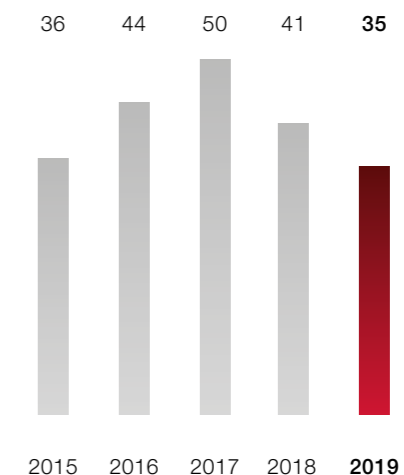
Employees (yearly average)



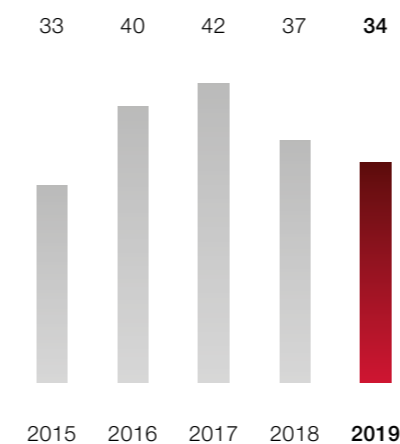
Turnover (million euro)



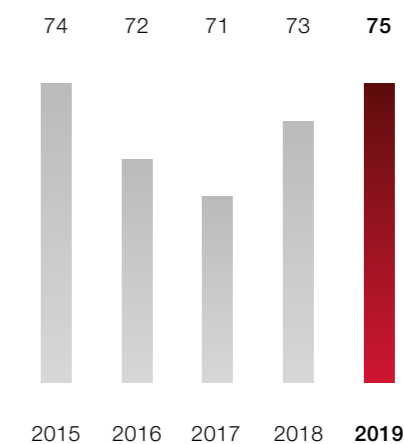
EBIT (million euro)



Investments (million euro)



Equity ratio (in percent)



“For us, as for the metal and electrical industry in Germany, 2019 was marked by a slight economic tailwind.”

“For our German industrial division, the first three quarters were similar to the end of 2018. Especially in the automotive environment, this meant high volatility in the order bookings of our customers. This improved in the last quarter of the year, enabling us to increase group revenue to € 540 million.”

>> Christian F. Kocherscheidt, managing director

# Management Report

## Our group holds its own in an increasingly difficult environment

Our company group was able to hold its own in an increasingly difficult environment in the 2019 financial year. On the one hand this environment consisted of macroeconomic uncertainties, fed by increasing global trade conflicts and Brexit, but also by dynamic changes such as the digital transformation, for example in the automotive industry. Against this background, the German domestic market was particularly affected. Falling production figures in the automotive industry led to increasing price pressure on the customer side, while on the other side there was increasing cost pressure from collective wage agreements, energy and material costs, and the simultaneous pressure on our customers – and our group – to manage investments parallel in the new age of digitalization and electromobility.

For us, as for our metal and electrical industry in Germany, 2019 was marked by a slight economic tailwind. For our German industry, the first three quarters were similar to the end of 2018, which meant high volatility in our customers' order intake, particularly in the automotive sector. Especially in the automotive environment, this meant high volatility in the order bookings of our customers. This improved in the last quarter of the year, enabling us to increase group revenue to € 540 million. For large parts of the year this was not foreseeable. Especially in the summer months of 2019, the order situation was so volatile that the instrument of reduced working hours was examined for German industrial sites. Due to more stable order backlogs in the autumn of that year,

it was possible to postpone these plans. For the group as a whole, the fact that we are standing on two legs, the automotive and electrical industries on the one side and the construction industry on the other, again proved to be positive. The latter was characterised by a positive economic trend in which we were able to participate. In addition, the group's good international positioning helped to offset the local risks of the individual markets. In the end, the number of our international employees rose to a new all-time high of almost 3,600 EJOT employees. In view of uncertain order backlogs, a massive slump in automobile production in China and other regional economic developments, we consider this a success. Nevertheless, it was not possible to maintain the results of the previous year and reach the planned profit targets. Thanks to our countermeasures, we were able to achieve a satisfactory group result (EBIT) of € 36 million despite the difficult conditions, which in turn could be fully invested in the future of our group.

2019 was also the year in which the idea of sustainability and climate protection became an integral part of the public debate and thus an even more important factor for economic activity. This development will accompany us in the long term and will also change in addition to digitalization. This could be a reminder from a politicised young generation that is taking the climate issue loudly to the streets, or from governments that are quietly presenting comprehensive legislative packages on climate change. The latter in particular have called for an ecological turnaround of industrial society on the political meta-level with the "Green New Deal".



The new production hall in Turkey.

## Our customer sectors showed two different faces

The automotive industry, which is very important for us, is in the middle of a demanding transformation from the traditional production of comfortable and safe means of transport with combustion engines to a "mobile device", software-driven and electric. This is to take place in a technologically open way, with the consequence that the research and development expenditure for drive technology will remain high and additional investment will have to be made in digitalization. The EJOT Group can profit from this focus, especially with regard to our industrial sector, where we have important capabilities and products for the age of e-mobility.

The volatility of orders in our Building Fasteners Division in Central Europe is different from that of the automotive industry. This was particularly true of our core market of industrial lightweight

construction, and it affected us to a surprising degree. We had expected moderate growth and were not sufficiently prepared for the positive dynamics of the market. Already in the first quarter of the year we were confronted with delivery and capacity problems and had to adjust to the new order situation. As our capacity in the area of our core range of bi-met drilling screws can only be adjusted at short notice with difficulty in view of limited space and high procurement times for machines and equipment, we took advantage of the more difficult situation in the automotive industry and were able to integrate employees from the manufacturing areas of the industrial division into the construction sector. Overall, this led to a new record in the production and delivery of construction screws. At the same time, however, we also realised that we had to better harmonise production capacity and sales volumes. In the future, this will mean a targeted development and expansion of our capacity



**Best exam result honoured at IHK annual reception** // Peter Jung, who completed the combined training as a production IT technician at EJOT, was awarded for the best test result in the field of machine and system operators at the IHK annual reception in Siegen. The three-year apprenticeship as a production IT technician includes the IT specialist training next.



**Website Relaunch** // At the end of February, the long-planned go-live of our new website took place. In addition to the ejot.com page, a total of 19 local online presences of our international subsidiaries also went live.



**Minister of Economics of North Rhine-Westphalia visits** // Prof. Dr. Andreas Pinkwart, NRW Minister for Economic Affairs, Innovation, Digitalization and Energy, informed himself about current innovations of the family business and about the path EJOT is taking in the implementation of its digitalization strategy.



**Angelika Wetzstein becomes new general manager of EJOT Holding GmbH & Co. KG.** // As of April 2019, she is responsible for the areas of human resources, law, insurance, and environmental and building management.

# Management Report

for building products. Due to our international business, we will secure this expansion through our international locations. To this end, we are creating space and investing in additional machinery and equipment so that we will be able to respond increasingly quickly to changing demand from summer 2020.

The climate issue already mentioned and the political response to it had both positive and dampening effects in some areas of our markets. In Germany, for example, the announcement of possible subsidies in the area of building insulation has already led to the reluctance of many investors and, as a result, to the postponement of possible measures until after the subsidies have been approved. This particularly affected our business in the supply of products for fixing thermal insulation systems. Conversely, a very positive development in the installation of solar systems led to high demand for our fasteners.

On the industrial side, the focus was on our more recent products and product innovations and on the further development of our process technology. The latter was particularly required in the area of our multi-stage forming technology. Here we produce, amongst other things, products that lie at the limits of forming and machining technology and are subject to the highest safety and quality requirements. We have responded to the dynamically-increasing demands on our product quality by investing heavily in further improved measuring technology and intensively dealing with material suppliers and quality itself. Despite the high expenditure involved, we are convinced that this is an

important step towards securing this pillar of the group.

A further focus of attention was on our products for lightweight and mixed automotive bodyshell construction and battery electrics. Here we were able to grow further with our EJOWELD® system range as well as with our FDS® screw. Lightweight and mixed construction solutions continue to gain ground in the bodyshell and our customers are finding the solutions for their process reliable joining technology here at EJOT. In the past financial year we were able to accompany many more customers SOPs and look forward to a well-filled project list for the coming years.

The EVO PT® is clearly the successor of the DELTA PT® for direct fastening in thermoplastic materials and “the EJOT industrial product” par excellence. In our opinion, EJOT has been setting the industry standard for 4 decades. Therefore it was a matter of course for us to maintain this unique worldwide market position and to expand it if possible. In 2019 the intensive development work of several years could be concluded with the completion of the product development and the digital simulation and forecasting software. In spring 2019 we provided our international sales force with comprehensive training and in autumn at the “K” trade fair in Düsseldorf we started marketing this new top product of the group.

Promoting potential in the company – this was the motto of the EJOT digitalization team. Know-how and the commitment of our employees is a strength at EJOT and shapes corporate culture. This should promote the potential of our



Digitalization Team 2019

employees and enable them to try out their own ideas for the sensible use of digitalization. The team consists of a select group of EJOT employees who have an overview of digitalization topics and are well networked on an both international and interdisciplinary level at EJOT as well as having external experts. They collect digitalization ideas, evaluate them and are available as coaches to support implementation.

**Focus on the location in Thuringia and the expansion of our international activities**  
The company collective agreement concluded at our site in Thuringia was well received by employees and the public. The result is a collective wage agreement that signals the alignment of the Eastern collective wage agreement with the standards of the West German group. Between 2019 and 2021, the alignment of working hours and wages will be implemented step by step. This was in line with the wishes of our employees in Thuringia, who were well

aware of the additional cost pressure on the site and the resulting need for continuous productivity improvements. Thirty years after the fall of the Berlin Wall, however, we saw no reason to maintain the wage differences any longer, especially since both major locations, in Westphalia and in Thuringia, together make their contribution to the success of the entire Group. This step was well received in politics and the media.

Following last year’s award in the “Factory of the Year” competition in the “Outstanding Location Development” category, we were able to commission our first major production expansion at the Thuringian location. A new building of 8,000 m² creates space for EJOMAT® sorting machines and dispatch, a new large tempering furnace creates capacity to temper the important FDS® screws on site. In the coming financial year we expect the completion of the next step of our site expansion project with an extended surface treatment.



**New production hall at EJOT Polska** // The new production hall in Ciasna was officially opened at the end of May. This is the second expansion stage of the factory in Poland, which was finished less than two years after the completion of the first plant.



**Large crowds at the open day event** // Hundreds of visitors took a look at the modern production and the new building complex at our EJOT location in Tambach-Dietharz. The new learning workshop was opened as part of the apprenticeship day that was held at the same time.



**“King of Buschhütten”** // The exceptional athlete already dominated the EJOT triathlon on the swimming course and did not give up the lead on the 40 km bike course or the 10 km running course. His finish time was 1:38:38.



**Focus Magazine Award** // A study by Focus magazine evaluated the 5,000 companies with the largest number of employees in Germany with regards to their ability to innovate, willingness to invest, research & development, new products and technology. EJOT convinced the jury and received the seal for “Germany’s most innovative companies”.

# Management Report

📍 In Turkey, we were able to start the expansion of our plant in Istanbul at surprisingly short notice when we were offered an adjacent plot of land with buildings for lease. This enabled us to react more quickly to the increased capacity requirements.

📍 In India, the production of JT2 screws has started, which has great potential for our joint venture EJOT-OCTAQON, but is also intended to supply the entire group.

📍 In Lithuania, the production of the first profiles for the External Thermal Insulation Composite Systems has begun. This is a new product area for us which should make EJOT even more interesting for the system customers.

📍 In Russia, we started in-house manufacturing of anchors for thermal insulation fixing for the local market. In past years these have been purchased from a production partner.

📍 In Poland we were able to implement the second expansion of the production area within two years. The new production hall in Ciasna is already the fourth expansion stage of the factory. Overall, the production area grew by around 30 percent and the number of employees rose from 215 to 260. At the same time, the new regional distribution centre in Olszowa with an area of 9,000 m<sup>2</sup> and 15,000 pallet spaces was put into operation in the Upper Silesia region. Here products are shipped to sister companies of the EJOT Group as well as to customers from Poland and Europe.

## 2020 Outlook

Based on the more stable order situation in the fourth quarter of 2019, we are entering the new financial year with confidence. We expect stable industrial and automotive business and further growth in the construction sector. Due to our international positioning, we expect to be able to compensate for economic setbacks in one country or region elsewhere. We believe our product offering is attractive and beneficial, often the benchmark for the industry. Security, international availability and reliability are noteworthy qualities of ours. In addition, there are concrete new products both in construction and in industry. Last but not least, in the coming year we expect to start customer projects that we have worked on in the past two years.

Together with a company with many years of experience in building refurbishment, we have entered into a partnership with ClickBuild GmbH & Co. KG, a digital start-up company with the aim of revolutionising re-roofing. With ClickBuild we are bringing the process chain of re-roofing into the digital world. We want to start at the beginning of 2020. We expect to be able to halve the development and quotation times for re-roofing and once more give our customers "more time for the trade".

The ETICS business unit has been working on the establishment of an additional business segment for the existing target group of system providers for some time. Alongside anchors and mounting elements for attachments, in the future profiles for high-quality formation of

plaster connections will be part of the portfolio. In Vilnius the new products of the EJOT Pro-Line have already been produced in the last months and presented to the first international customers, with first order commitments for the coming year, so that the sales of the EJOT Pro-Line can officially start with a basic programme for the 2020 season.

EJOT UK has – despite Brexit – set itself ambitious growth targets until 2025. These targets concern the construction as well as the industrial sector. To achieve this goal, expansion measures at the site are inevitable. After we had put the construction measures on standby for several months due to the uncertainties over BREXIT, the project will now start. The tendering process has started and

the expansion is scheduled to take place in the course of the new financial year. In this way, we want to create the conditions on site that will enable us to achieve the targeted growth.

We are entering the new financial year with confidence and intend to grow moderately. Above all, we expect this growth at our international locations. It is difficult to predict to what extent geopolitical developments, trade restrictions or trade facilitation will stimulate or hinder business. There are reports from China of the spread of a new viral disease that has the potential to weaken supply chains and growth. The exact impact is not yet clear. However, we remain confident that our resources will enable us to counteract adverse developments and reinforce positive ones. ■



Christian F. Kocherscheidt



Wolfgang Bach



Angelika Wetzstein



Dr. Frank Dratschmidt



Ralf Birkelbach



Dr. Rolf Künkel



**Presented to the public** // We were able to present our new product - the EVO PT® screw – to the public for the first time at the K trade fair in Düsseldorf. The EVO PT® is the evolutionary development of the self-tapping screw for thermoplastics. In addition to excellent fastening properties and a large potential for standardization, only the EVO PT® offers opportunities for the precalculation of torques and clamp loads as well as the clamp load relaxation under temperature and over time.



**Foundation of ASYST subsidiary in Mexico** // The establishment of a plastics production in Mexico was decided. Mexico is developing into the fifth largest automobile location after the USA, China, Germany and Japan. Mexico is developing into the fifth largest automobile location after the USA, China, Germany and Japan. All leading auto-mobile manufacturers and suppliers are in Mexico.



**Apprenticeship day at EJOT** // On November 9, the EJOT apprenticeship day took place in Bad Berleburg. With interesting and exciting demonstrations of 10 apprenticeships and dual study opportunities, visitors were able to get information, try things out, have their application folders checked, etc.



**EJOWELD® nominated as finalist of the "2020 Automotive News PACE™ Award"** // The award is regarded as an industry-wide recognized benchmark for innovation and excellence in the automotive supplier segment. The EJOWELD® technology is an efficient and flexible friction element welding for joining materials in mixed and lightweight construction. The winner will be presented in March 2020.

# Management Report

# International

EJOT is a European market leader in fastening technology. In Europe, our numerous sales companies and offices guarantee direct customer contact and fast availability of our products. Global availability is ensured by EJOT production facilities and sales offices in North America and Asia. Our international presence is also guaranteed by our membership in the Global Fastener Alliance (GFA), a joint venture of

family-owned businesses working in fastening technology. Some of the EJOT product solutions are also available to an international circle of licensees. They ensure, for example, the supply of the Delta PT® screw to the vast world market, or wherever we are not directly on site.

For more information about our companies and partners, please go to [www.ejot.com](http://www.ejot.com)



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- Bosnia
- Bulgaria
- China
- Germany
- Denmark
- Finland
- France
- Italy
- India
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- Japan
- Mexico
- Norway
- Austria
- Poland
- Romania
- Russia
- Serbia
- Slovakia
- Spain
- Sweden
- Switzerland
- Taiwan
- Czech Republic
- Turkey
- United Arab Emirates
- USA (2)
- UK
- Hungary

# EJOT Group

The chart shows the existing divisional organisation of the EJOT Group. The EJOT Holding GmbH & Co. KG bundles the strategic management and the central services of the Group. Below it are three interim holdings with affiliated German and international companies. Within these companies varying forms of the two divisions, or eight business units respectively, of the EJOT Group are presented.

Our Industrial Division (Industrial Fasteners and Engineered Plastic Components) are mainly active in the automotive and industrial sector. The Construction Fasteners Division focuses on roof, window and facade fixing, as well as mechanical fixing technology for External Thermal Insulation Composite Systems.

# Management



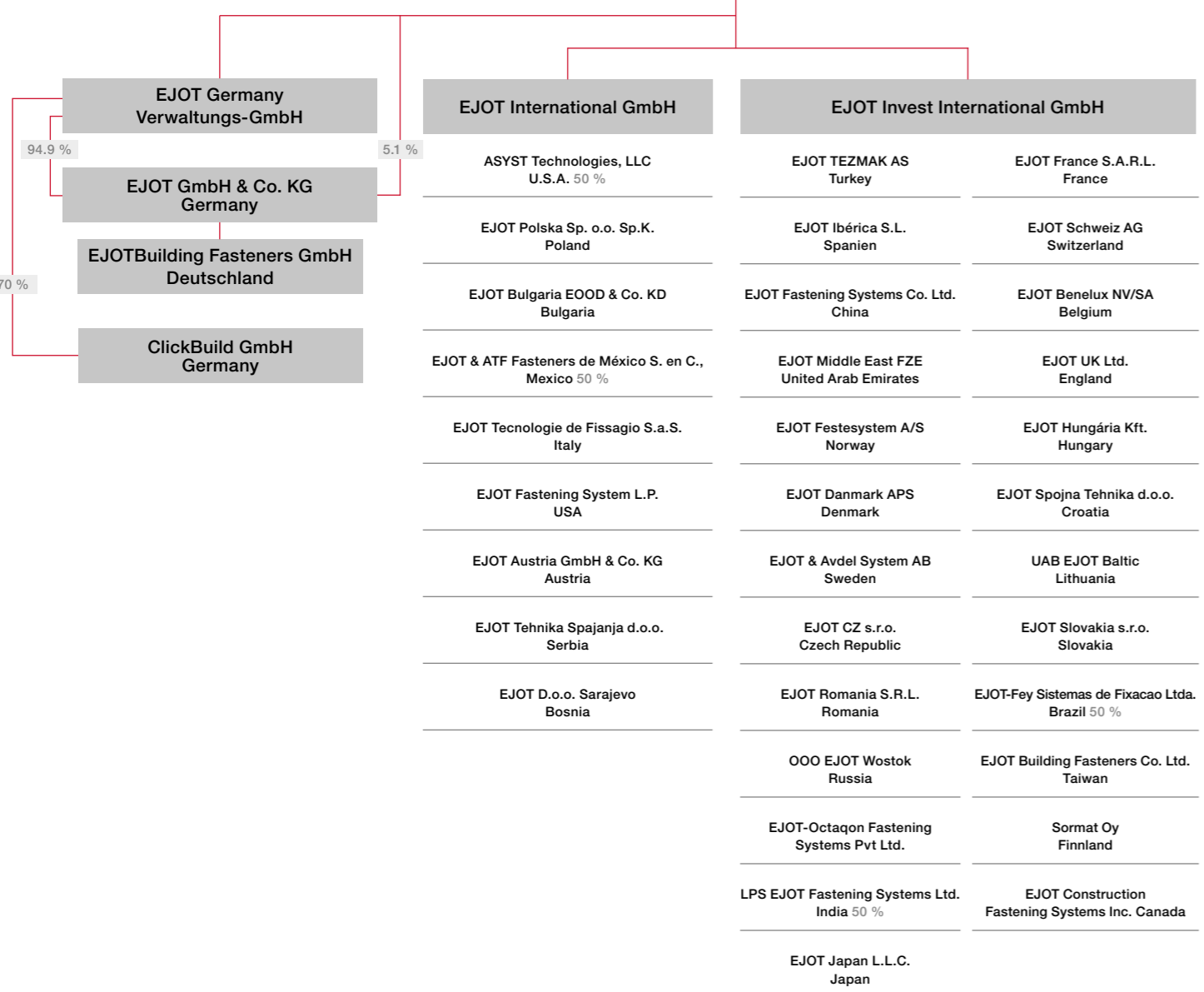
**Management (from left):**

- Wolfgang Bach
- Ralf Birkelbach
- Angelika Wetzstein
- Dr. Rolf Künkel
- Christian F. Kocherscheidt
- Dr. Frank Dratschmidt

**The Advisory Board (from left):**

- Dr. Claus Hoffmann  
(Former CFO Robert Bosch GmbH, chairman of the advisory board)
- Prof. Dr. Thomas Bauernhansl  
(Head of Fraunhofer IPA, Stuttgart, Institute Director IFF, University of Stuttgart)
- Prof. Dr. Christina Berger  
(Former head of the centre for material science at Darmstadt Technical University)
- Dr. Hans-Toni Junius  
(Chairman of the management C. D. Wälzholz)
- Kathrin S. Kocherscheidt  
(Judge at the district court Koblenz, shareholder)
- Jean Dufour  
(former member of the management at Bosch Siemens Hausgeräte GmbH)

**EJOT Holding GmbH & Co. KG**



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