Businessland 2020

Schleswig-Holstein
Germany's True North

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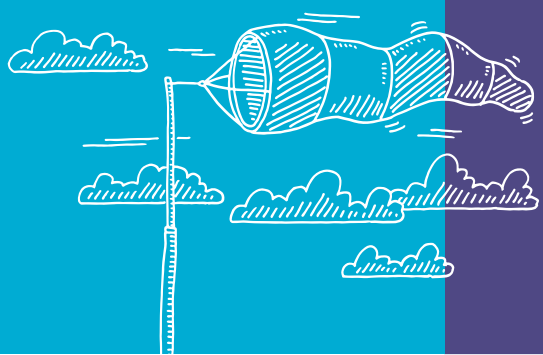

Know-how with perspective
These days, there is scarcely a yacht owner or shipping company anywhere that isn't a customer of GL Yachtverglasung GmbH. The company based in Halstenbek makes the extraordinary – and sometimes the impossible – a reality for its international clientele.

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Mecca for artists in Büdelsdorf
Every year, artists and art lovers from all over the world flock to the town of Büdelsdorf, population 10,000, for NordArt, Europe's largest annual art exhibition.

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THOSE WHO FAIL TO INNOVATE WILL LOSE

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INNOVATION IN SMES – A PREREQUISITE FOR SURVIVAL IN THE FACE OF GLOBAL COMPETITION

Without question, small and medium-sized enterprises are the engine of the German economy – more than 99 per cent of all companies in Germany are SMEs. They generate more than half of the value added and provide almost 60 per cent of all jobs. That also applies to Schleswig-Holstein, which is strongly characterised by SMEs. Here, many companies have repeatedly made a name for themselves with innovative products and are now making waves globally as "hidden champions".

By adopting an innovation-centric strategy, the company EDUR has succeeded in creating lean, digital processes and sustainable products

The RAN Dock is the in-house innovation workshop at Raytheon Anschütz. The best ideas are incubated here until they are ready for the market.

In the current age of digitisation, globalisation, demographic change and with a shortage of skilled workers, the pressure on SMEs to innovate is growing. In order to remain competitive, new, innovative products, services and processes must be developed – because companies that fail to innovate will ultimately lose. So how are small and medium-sized businesses in Schleswig-Holstein managing to remain innovative and competitive within the context of their market-proven specialisations and niche strategies?

Innovation and internationalisation are key elements of the successful business models adopted by SMEs in Schleswig-Holstein. In order to remain competitive, they must permanently reflect on their respective core business while consistently implementing innovations. However, according to a Bertelsmann study from autumn 2019, SMEs in particular have failed to adapt their innovation profile to the new challenges and conditions, especially with regard to progressive digitisation. According to the study, only around a quarter of these companies have the necessary innovation competence and culture that will enable them to hold their own against the global competition in the long term.

Within each company, two central processes need to take place in parallel and on a permanent basis: day-to-day operations and the development of new products and services. The major challenge facing SMEs is implementing the changes that are necessary to increase their innovative capacity – not only before it's too late, but also in parallel with their ongoing business. Another challenge is to move away from incremental innovation, i.e. continuous and gradual improvement of existing products, services, processes or business models.

Disruptive innovations break up established markets and usually arise through trial and error. There have always been examples of disruptive innovations – the car eventually replaced the horse as a means of transport and digital photography replaced paper photos. Today, music streaming platforms are making audio storage media obsolete and cloud computing is replacing in-house servers. For the first time, 3D printing is even being used to print entire houses made of concrete – here again, the conventional production processes for a large number of "traditional" commodities will be challenged in the future.

Innovations of this kind typically begin life as processes in small, inconspicuous niches within an industry. Later, based on a completely new technology or business model, services and products are developed that initially address only a small customer group. What comes next? The new service or product gains momentum, is widely used and thus becomes the dominant market factor – and ultimately displaces many established companies and their products.

But how groundbreaking will future innovations need to be? For many companies, innovation simply means changing the details of existing products, such as their function, size or shape. In all likelihood, this type of incremental innovation will no longer be a recipe for survival in many industries in the future. Indeed, companies will increasingly need to examine whether their business model could be threatened by disruptive developments. With significantly lower innovation budgets and fewer human resources than large companies, how should SMEs meet these challenges?

GROWTH THROUGH INNOVATION

Efficient and strategic innovation management is therefore all the more critical for the innovative capacity of SMEs. Targeted planning and implementation of innovation projects is becoming increasingly important for the competitiveness of SMEs – especially against the backdrop of digitisation and globalisation. According to estimates by the BMWi (Federal Ministry of Economics and Energy), around one third of total economic growth can be attributed to innovations. Ministry experts report that around 110,000 small and medium-sized enterprises throughout Germany introduce new products and processes to the market every year in order to improve their position. However, according to the "Trend Study 2019: Speed", SMEs are too slow when it comes to implementing innovations and redesigning processes.

However, if used strategically and in a targeted manner, these same factors can actually help SMEs to become pioneers in their industry. The example of Greif-Velox GmbH in Lübeck shows that it is possible to develop from a traditional mechanical engineering company into a technology leader.

GREIF-VELOX – AN INNOVATION DRIVER BASED ON TRADITION AND ARTIFICIAL INTELLIGENCE

From cement and car paints to flour and even ready-made baking mixes – Greif-Velox develops and produces bagging and palletising systems for food, chemicals and building materials of various consistencies at its Lübeck location. The company offers a large number of customised solutions for this purpose – the resulting filling and palletising systems are in operation in more than 50 countries worldwide. Greif-Velox is in competition with a handful of other companies. Over the past ten years, plant technology in this sector has largely stood still and innovative leaps have been rare. In the meantime, however, customer needs have changed – and some of them can no longer be met with existing technology.

This is precisely where the SmartFlex innovation project from Greif-Velox comes in. The company's goal is to develop a filling system for solids in the food sector, such as flour or starch. This new filling plant will be able to fill 5–25 kg containers with a throughput of ten tons per hour – flexibly and with numerous calibration options. "The trend is towards filling smaller containers. Whereas it used to be necessary to have two different filling systems for smaller and larger containers, in future only one system

ARTIFICIAL INTELLIGENCE DRIVES THE ECONOMY

The ultimate goal of artificial intelligence (AI) is to simulate human perception and actions by means of technical systems in order to automate complex tasks. In various fields, such as automation technology and medical engineering, AI is already opening up solutions that bring both technical and economic advantages. And it has long since entered everyday life.

According to a McKinsey study from 2019, the global market for AI-based software, hardware and services is growing by 25 per cent annually. The study also predicts that German GDP will grow by up to 4 per cent by 2030 due to the use of intelligent robotics. AI is increasingly finding its way into companies and public authorities, and makes it possible to extensively tailor the optimisation of processes. However, the barriers to entry when it comes to building up expertise in the field of AI are relatively high. The goal, therefore, is to actively dismantle precisely these barriers and to ensure that the various actors in Germany´s True North are networked with each other. (lei/eli) //

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Innovation drivers at Greif-Velox: Mike Siebeck, Dr. Alexander Mildner and CEO Ralf Drews

will be needed," explains R&D Development Manager Dr. Alexander Mildner. In addition, the new plant, which is being developed as a modular system, will be self-optimising and react to changing process parameters such as the moisture content of the filling material in real time. The company also plans to integrate sensors to measure humidity, density, temperature and air flow. "Algorithms are being developed for this logged sensor data," says Mildner. If the density or moisture content of the product to be filled, for example flour, changes during filling, the algorithms can process the changes in real time to ensure the container is filled with the required weight of product and within the defined tolerances.

SmartFlex is a lighthouse project at Greif-Velox and will form the basis for a comprehensive product changeover. Its modular design will make it possible to adapt all Greif-Velox products as necessary. "The technical solutions being developed for this lighthouse project will also provide the basis for raising our entire product portfolio onto a new technological level," says Mildner. The technological innovations that Greif-Velox is implementing via the project will create clear benefits for customers and, in particular, meet new market requirements. ***"To achieve long-term success, companies shouldn't develop new ideas solely on the basis of existing customer requirements, but rather focus on latent and future customer needs,"*** says Mildner. "We have fulfilled this requirement through our lighthouse project. Overall, we have created the potential to position ourselves significantly better through targeted innovations." However, the implementation of such an innovation step must be planned and strategically implemented. "It took a year before we were able to formulate the project and approach it in a structured way."

Like many other innovation-based initiatives, this forward-looking project in the field of artificial intelligence (AI) is being financially supported by the "Landesprogramm Wirtschaft 2014–2020" scheme with funds from the European Regional Development Fund (ERDF). It has attracted particular interest because, in the future, AI is expected to play an increasingly important role in generating innovation. The funding bodies in Schleswig-Holstein want to further increase awareness among the region's SMEs about the potential applications for AI, while also funding specific projects.

INNOVATION IS NOT JUST FOR PRODUCTS!

Most of the innovation activities of SMEs are aimed at products or services. Nevertheless, the importance of efficient, effective processes within companies is increasing, especially with regard to digitisation. This raises the question – how can these processes be "innovated" and embedded? And how disruptive must they be in order to be successful?

EDUR – LEAN, DIGITAL AND PRECISE PROCESSES

EDUR-Pumpenfabrik Eduard Redlien GmbH & Co. KG in Kiel has not only found an answer to this question, but also defined basic processes within the scope of a concrete project and expedited the digital transformation within the company. On the one hand, digitisation offers opportunities to develop and bring innovative products and services to market faster and in a more targeted manner. On the other, it leads to the implementation of fewer flawed business processes – and more efficient ones.

EDUR has been manufacturing industrial pumps since 1927 and thrives on individual, customer-specific orders. The components for its pumps are designed in accordance with a modular principle. This makes it possible to produce the various components, which are subsequently used to assemble the complete pumps in accordance with customer-specific requirements, from one blank. In turn, this results in products that can be extensively customised. As the number of product variants and their complexity has increased, the volume of information required for production has also risen sharply. "This meant that our production processes contained redundancies – they were inefficient and prone to errors," explains EDUR Managing Director Dr. Jürgen Holdhof. To change this, EDUR launched the EDUR 4.0 innovation project in 2017.

Its goal is to implement efficient, transparent and flexible processes to ensure all employees receive precisely the information they need at their workstation in digital form. At the same time, the company wants to reduce the number of redundant process steps and create uniform documentation. In the final stage of expansion, all EDUR processes will be managed via a central control system – the "EDUR Workplace" – which will communicate with all interfaces. ***"This will let us strengthen the degree of autonomy and personal responsibility of each employee, and thus also the competitiveness of EDUR,"*** explains Holdhof. "We will therefore greatly increase the efficiency of our processes with a simultaneous increase in quality." The economic benefits of these optimised processes are also obvious – higher-quality processes mean even higher-quality products. The bottom line is that the successful

Highly individualised – the components of an EDUR pump are based on a modular principle. As a result, various different components can be produced from one blank.

digitisation of production processes is a prerequisite for the company's medium to long-term survival. ***"It's not enough to just automate processes and workflows in the course of digitisation. Companies must also find answers to the changes and increased dynamism in the market. This includes constantly questioning the foundations of one's own success, thinking about the business in the long term and not just copying the concepts that have previously brought success. It all boils down to a need for innovation,"*** says Holdhof.

The digital transformation at EDUR therefore extends not only to the production processes, but also to the pumps themselves. For decades, the company's pumps have been equipped with sensors to record the respective operating conditions. Their purpose is to provide the plant operator with sufficient data to ensure reliable operation of the plant. "Here, too, we've been increasingly working on digital solutions for over ten years," says Holdhof. The challenge was to create a digital, smart pump that would form the core of networking with customers and suppliers along the entire value chain.

Today, the smart pump not only supplies process data that reflects the current status of the plant, but also adjusts itself automatically in accordance with the required operating points. Other sensors provide additional information, for example about wear and tear and anticipated faults, allowing failures to be detected and prevented before they occur.

In order to meet the challenges of a new customer journey – i.e. the steps the customer takes before buying a product – EDUR and two other pump manufacturers have established a platform called Star Pump Alliance (SPA). It enables machine and plant manufacturers worldwide to find the right pump for their specific problem. "SPA now offers a way to make these unique searches easier, faster and better – by providing the potential customer with a single source for information, technical advice and a precise orientation, and enabling them to immediately contact the respective pump supplier," explains Holdhof.

However, SMEs also see the lack of acceptance of innovations by customers as a barrier to innovation. This is a warning signal indicating that, on the one hand, some SMEs fail to synchronise their innovation process with the wishes and requirements of their customers and their market until it is already far too late, and on the other, that innovation must never be an end in itself. "We have the expertise to equip pumps with sensors that notify customers that maintenance is necessary and/or automatically reorder the required spare parts. The problem currently lies more on the demand side, where many customers are still quite conservative," reports Holdhof.

Financing innovative ideas

Securing financing for new development projects remains a major hurdle for small and medium enterprises. In order to enable SMEs to realise their innovative projects, the state is supporting innovative development projects within the framework of the "Landesprogramm Wirtschaft" (LPW) funding scheme. This targeted project funding, which helps SMEs bring processes and technologies to market maturity, is allocated by the Technology Transfer Corporation of Schleswig-Holstein (WTSH) on behalf of the state.

Promoting innovation

Grants for innovation projects are available for:

- **Internal research, development and innovation projects**
- **Recruitment of key personnel for innovation**
- **Implementation of internal process and organisational innovation**
- **Activities related to research, innovation and technology transfer**
- **Projects related to changes in energy policy and environmental innovation**

Amount: up to max. 50 per cent of the costs.
Grants do not have to be repaid under the **condition** of job creation

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