

Businessland 2023

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Schleswig-Holstein
Germany's True North



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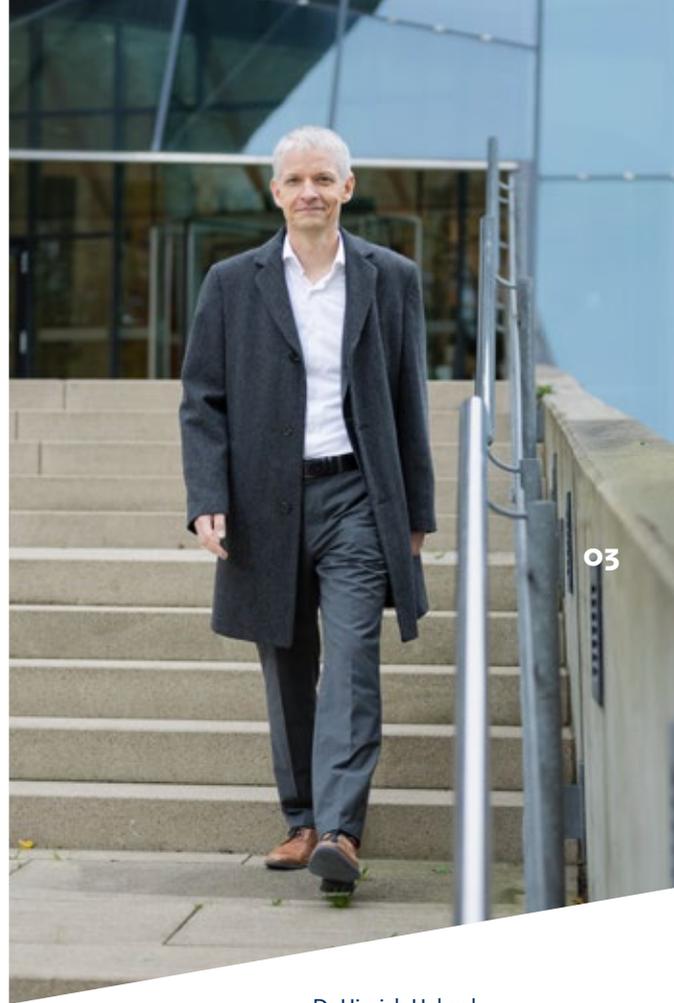
EDITORIAL

Dear reader,

Small and medium-sized enterprises across Schleswig-Holstein are innovative, productive, cosmopolitan – and now also thoroughly crisis-tested. I have witnessed this first-hand during numerous company visits in my first few months as WTSH Managing Director. Especially in recent years, their high level of flexibility and noticeably down-to-earth mentality have resulted in many entrepreneurial solutions that have provided stability despite the crisis.

Our entrepreneurs now face daunting new challenges. First and foremost, high energy prices are affecting almost every link in the supply chains – from production to manufacturing and transport. Without outside help, these problems are virtually insurmountable. However, rapid financial support will not be enough. It has become clear that independence from individual energy sources and suppliers has become a decisive economic factor. This is linked to the expansion of renewable energy, an area in which Schleswig-Holstein has been leading the way for many years. And once again, our SMEs, and also increasingly our fledgling startups, are playing an essential role thanks to their innovative spirit and productivity across numerous fields, from generation to storage and sector coupling. You will learn more about all of this in this issue of “Businessland”. And how companies, scientists and startups are “electrifying” Germany’s True North in terms of e-mobility.

There is also plenty of innovative momentum in other areas – for example, a machine manufacturer in Flensburg is using AI and digitalisation to produce machinery for the furniture industry, which it sells worldwide. This is just one example of the open culture of innovation that is already anchored within Schleswig-Holstein’s companies, and which is particularly advantageous in times of crisis.



Dr Hinrich Habeck,
Managing Director of
the Business Development
and Technology
Transfer Corporation
of Schleswig-Holstein
(WTSH)

It is the foresight and courage to look in new directions, to engage with new markets, to diversify trade relations, services and products that has made our companies so attractive and viable, and perhaps more resilient than many large corporations. And endearing at the same time, because here in Germany’s True North we also keep our feet firmly on the ground. Consistently moving forward along this path, developing new approaches together, especially in difficult times, and thinking outside the box – these are the challenges we must now face together. Because only together will we manage to break free from our former dependencies, to become more (energy) independent and to develop our state as a business, living and working location with a new mindset. Keep reading to discover how, here in Germany’s True North, we are already shaping the future.

Best regards

Dr Hinrich Habeck

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Itzehoe is home to a truly high-tech production facility. Chip manufacturer Vishay processes high-purity silicon into semiconductor wafers. With a second, even more advanced chip fab on the horizon, the company aims to boost Europe's domestic supply of semiconductors.

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The energy storage systems of tomorrow

Battery storage is a key future technology. Whether for electromobility or stationary energy storage systems, many innovations are simply dead in the water without efficient batteries. In Germany's True North, the technology of tomorrow is being researched, developed, applied - and funded. And we are moving into the premier league of battery research.

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Ernst Barlach, a world-famous artist and native of Schleswig-Holstein, was a man of many creative talents who continues to shape the art world to this day. The approach taken by the Ernst Barlach Museum in Ratzeburg is as multifaceted as the artist himself.

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ALL SIGNS POINT TOWARDS ENERGY INDEPENDENCE

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FOR A STRONG SME SECTOR IN GERMANY'S TRUE NORTH

SMEs in Schleswig-Holstein are now thoroughly crisis-tested and able to rely on entrepreneurial solutions and their own resources. Nevertheless, many companies are currently facing major challenges that cannot

be overcome without outside help: precarious supply chains, a shortage of skilled workers and, above all, high energy and raw-material costs. Which is why the state of Schleswig-Holstein is giving its SMEs a helping hand. Not

only by providing funding to ensure direct and uncomplicated financial assistance, but also by accelerating the roll-out of renewable energy - and thus promoting long-term energy independence.



To ensure a strong economy and a clean environment, Schleswig-Holstein is tackling the energy transition holistically.

The energy crisis is posing enormous challenges for the entire economy. It remains to be seen whether all our companies can endure it in the long term. Should certain business models cease to be viable, this could have a major impact on the downstream value chains. In Schleswig-Holstein, the various stakeholders are aware of this complexity – and of the urgent need to address the problems many companies are suddenly facing due to the energy crisis. In November 2022, to soften the blow for small and medium-sized enterprises in Schleswig-Holstein, the state launched the “Mittelstandssicherungsfonds Energie” (SME Energy Guarantee Fund) as a means to top up the existing federal funding programmes. The fund, which was endowed with 200 million euros, is part of the 500-million-euro relief package agreed by the state government. *“Through this programme, we are supporting companies with registered offices or business premises in our state with development loans of up to 750,000 euros,”* explains Minister of Economic Affairs Claus Ruhe Madsen. This support will be provided to businesses whose energy costs have at least doubled in comparison to the last completed business year and which are consequently facing immediate or imminent liquidity problems. *“The loans are tailored to companies with an acute need for liquidity that also find themselves unable to secure a loan from their principal bank under the current conditions,”* says Madsen. He views the programme – which Schleswig-Holstein is the first federal state to offer – as a supplement to the financial assistance offered by the federal government. The application deadline is October 2023.



GERMANY'S TRUE NORTH AS THE HUB OF THE ENERGY TRANSITION

However, rapid financial aid is only one side of the coin. It is also clear that independence from specific energy sources and suppliers has become a key economic factor. To ensure long-term stability in the energy market and secure energy supplies, the expansion of renewable energy sources – and thus independence from fossil fuels – is among the primary goals. Schleswig-Holstein has been making huge strides in this area for a long time. After all, without increased investment in the development of alternative energy sources and a simultaneous reduction in energy consumption, achieving independence from fossil fuel suppliers will be a Herculean task. And this, in turn, will also jeopardise the transition to a net-zero, sustainable economy.

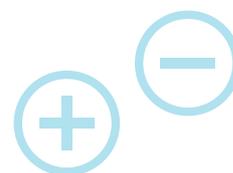
In Germany's True North, the energy transition is being tackled from all sides with the goal of ensuring our SMEs are in good shape for the future. According to the Energy Transition and Climate Protection Act, which was last amended in 2021, Schleswig-Holstein has set itself the goal of generating at least 37 terawatt hours annually from renewables by 2025. Indeed, Schleswig-Holstein already generates – in purely mathematical terms – almost twice as much green electricity as we consume within our borders. Therefore, Schleswig-Holstein is and will remain an important electricity supplier to our neighbours.

TACKLING THE ENERGY TRANSITION FROM ALL SIDES

A key consideration here is to ensure that this green electricity can be distributed in the grid with as few outages as possible – making it also necessary to accelerate the nationwide grid expansion. Furthermore, in regions like Schleswig-Holstein, new ways to use the locally generated electricity must also be found. Renewables are also increasingly needed in the heating sector; for example, via the proliferation of heat pumps.

Work on the many factors leading to energy independence is in full swing in Germany's True North. This encompasses businesses and research institutes as well as targeted, effective funding of innovative technologies. It is therefore unsurprising that Schleswig-Holstein is also breaking new ground in the field of green hydrogen and, for example, is planning to build new electrolyzers to accelerate its production (see page 8). We are also making waves in the fields of electromobility (see page 14), sector coupling and battery research (see page 24).

Even today, our SMEs are not only benefiting from the excellent renewable energy infrastructure in Germany's True North, but also from strong momentum in the form of innovation, networks and funding, all of which are helping to put our small and medium-sized enterprises on a sustainable footing. Schleswig-Holstein has thus already laid the foundations for our long-term energy independence – and for a permanently strong SME sector. (lei/eli) //



AN ENERGY REVOLUTION WITH GREEN HYDROGEN

Projects like eFarm, companies like the HanseWerk Group and many other stakeholders in Germany's True North are betting on the enormous potential and overall systemic benefits of green hydrogen with regard to decarbonising our energy system.





Melanie Koch, authorised signatory for GP JOULE Hydrogen GmbH

If you want to experience the energy transition at first hand, simply drive north from Husum towards Bredstedt and then stop at a large farm in Reußenköge. This spot – surrounded by marshes and seagulls, sunshine and solar panels, North Sea breezes and wind turbines, electrolyzers and e-cars – is the headquarters of GP JOULE, a company working towards 100-per-cent use of renewables and their sustainable conversion into hydrogen, heat and mobility. The eFarm, the largest sustainable hydrogen mobility project in Germany to date, was initiated by GP JOULE and also began its success story here. This joint project is making hydrogen-based infrastructure a reality – from production and processing to its use in vehicles.

Melanie Koch studied energy and environmental management in Flensburg and started working on the state-funded eFarm project as a junior project manager in 2018: *“At first there were only two of us, but we quickly grew and now have our own business unit – GP JOULE Hydrogen GmbH – with over 50 employees.”* Now, four years on, the 28-year-old from North Frisia is an authorised signatory for the eFarm and GP JOULE Hydrogen GmbH is implementing projects throughout Germany. In Melanie’s view, this successful enterprise could only have got off the ground in Schleswig-Holstein and North Friesland: *“We have incorporated many public wind and solar farms into our overall project. These project partners have now become co-shareholders in our company, eFarming GmbH & Co. KG, which is another reason why everyone was behind this pilot project. They understood the urgency of making hydrogen marketable and integrating it into the ongoing energy transition. The authorities are also supportive of the overall concept – this is a clear advantage of our location, which wouldn’t have been the case everywhere.”* Despite all their educational work, however, she says there is still an ongoing debate about using electricity directly rather than converting it to hydrogen on account of the reduced efficiency. *“From a physics viewpoint, that statement is*

correct,” explains Melanie. “In a battery, 70 to 80 per cent of the originally supplied kilowatt hour is still there at the end. In a fuel cell with zero waste-heat utilisation, this proportion is only 30 to 40 per cent.” However, she believes this purely energy-based viewpoint is not expedient, and that it is important to analyse the energy system as a whole. *“In the eFarm project, for example, we also factor in the use of waste heat in hydrogen production and optimally combine this with renewable heat networks. This brings the overall efficiency of electrolysis up to 95 per cent.”*

Another aspect is the grid-serving production of the fuel. *“At times when we’re generating a lot of wind and solar energy in the North, we can use this to produce hydrogen during these peaks, which we can then use at other times, for example for transport and in combined heat and power plants.”* According to Melanie Koch, it does not make economic sense to design the power grid purely around the peaks. In particular, she believes “peak shaving” is perfectly possible via hydrogen production. *“Any discussion of efficiency then becomes moot, because otherwise the electricity would either not have been used at all, or its use would be prohibitively expensive due to the required expansion of the electricity grid. So it comes down to the system concept.”*

System efficiency is an important factor for GP JOULE. Melanie Koch believes mobility is a good example of this. *“In heavy goods transport, batteries aren’t efficient because they eat into a lot of the freight capacity and the lorry has to wait around for long periods at the charging stations. Also, a large logistics company wouldn’t be able to charge one hundred trucks overnight because our electricity grid just isn’t designed for that kind of connected load. The same applies to service stations and rest stops. An H2-powered truck, on the other hand, can be refueled using a CO2-free process in ten minutes with no loss of freight capacity.”*



As part of the eFarm project, GP JOULE HYDROGEN has now established four hydrogen production plants and two hydrogen filling stations in North Friesland. *"We drive from the production plants to the filling stations with mobile H2 trailers. These trailers remain at the filling stations until empty and are then exchanged - a kind of deposit bottle system for H2 storage."*

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The new electrolyzers are being built in the immediate vicinity of the wind farms to remove the need for grid expansion and to facilitate the production of green hydrogen at low cost. The H2 can then be driven to various consumers within the local region, such as petrol stations and industrial facilities. The company is gradually rolling out this regional concept to other locations nationwide. The GP JOULE Group is thus making an important contribution to the market ramp-up of green hydrogen, increasing security of supply and ensuring independence from external markets.

THE HANSEWERK GROUP AIMS TO COVER THE ENTIRE VALUE CHAIN IN THE H2 SECTOR

The town of Quickborn in the suburbs of Hamburg is home to another company that is actively involved in the energy transition. Via its power grids, the HanseWerk Group transmits the renewable energy needed to produce green hydrogen to H2 producers in Schleswig-Holstein. Through its newly founded company HAZwei GmbH, the Group also aims to play a direct role in the market as a hydrogen producer.

"We're aiming to provide the entire value chain for the customer in the H2 sector - from green power production and generation, to filling stations and grids, to hydrogen for industrial applications and, in the medium to long term, also heat generation," explains project manager Hauke Siemens. The company's goal is to decarbonise the



Hauke Siemens, project manager at the HanseWerk Group

economy in areas where the energy transition has - without green hydrogen - currently reached its limits.

As a North German, having the opportunity to be actively involved in the energy transition fills Hauke Siemens with a special motivation: *"I previously worked as a stock analyst and studied the European energy sector. However, I lacked a sense of adding value to society through my work."*

In April 2021, he was given the opportunity to do just that by the HanseWerk Group. Since then he has promoted the Group's activities in the hydrogen sector through his role as a key link between industry, trade associations and policy-makers. Here too, a paradigm shift has taken place in recent years, with the result that hydrogen technology has achieved even greater prominence and been scaled up accordingly. Several large joint projects, such as the North German Real Laboratory (NRL), were already underway when he joined the company, and new initiatives were frequently added over the following months.

"Hydrogen will play a key role in the energy system. H2 provides a decisive advantage in terms of sector coupling since it can be used to defossilise processes in practically every sector - in industry, mobility, heat generation." Besides its flexibility, Hauke Siemens emphasises the unique storage capacity of the element H2 with a view to the future. *"If we're talking about the years from 2045 to 2050, we will need renewables with sufficient capacity to produce surplus electricity in the windy and sunny months, which we can convert into hydrogen, store temporarily and transform into carbon-neutral electricity in converted gas-fired power plants during the darker and less windy periods. In the new energy system, we will need large-scale storage solutions for hydrogen."*



According to Hauke Siemens, the road there will be rocky and cost-intensive, but there is no alternative to hydrogen technology per se – even if people repeatedly question this abundant element's efficiency in terms of the ambitious targets set for the energy transition. *"Efficiency is of course important for a company, but it's not the main driver for green hydrogen,"* explains Hauke Siemens. *"In my view, the primary factor in terms of the overall concept is that, ultimately, the economic costs should remain as low as possible. We will need a lot of hydrogen in the future. In principle, H₂ should be used in areas where the conversion losses can be kept to a minimum. However, especially in the ramp-up phase, I wouldn't reduce it to purely a question of efficiency, because a pioneering approach is also important and it makes sense to develop pilot plants, for example, to test the technical infrastructure."*

The HanseWerk Group has recognised the overall systemic potential of green hydrogen and is initially focusing on the industrial and mobility sectors. *"Industry is dependent on hydrogen in many ways. We're talking about no-regret applications here,"* explains Hauke Siemens. *"Ammonia production is a good example – this requires large amounts of hydrogen as a chemical building block. This process is still grey at the moment, but must become green in the future. That's why, as a company, we can already invest in these areas with greater certainty."*

The second focal point is mobility. The HanseWerk Group has acquired a stake in Hypion GmbH, which specialises in hydrogen filling station infrastructure for heavy-duty transport. *"We also plan to provide the hydrogen for the H₂ filling stations in the long term when our electrolyzers are up and running."* To this end, the HanseWerk Group is working to secure up-front sales of its green hydrogen:

"At the moment, our projects are always in partnership with the customer, who purchases the hydrogen in advance. This ensures we can sell the entire production yield from the planned electrolyzers."

The HanseWerk Group is basing its green-hydrogen targets on the North German hydrogen strategy, which stipulates that around five gigawatts of electrolysis capacity should be online by 2030. *"Measured against the projections, we're currently planning to provide about one tenth of this capacity through our company. This should also be the minimum goal. In my experience, the H₂ stakeholders in our state are highly motivated to achieve these goals and to up the pace. Together with the policy-makers and our communities, we are making the energy transition a reality in Schleswig-Holstein – and beyond."* (dm)//



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VISHAY SILICONIX ITZEHOE GMBH

NEW **CHIP FAB** FOR GREATER **INDEPENDENCE**

12 *We are all familiar with the hi-tech fruits of modern engineering - from smartphones and tablets to (electric) cars, games consoles and other consumer electronics devices. What many people don't know is that nearly all of these products also contain a small piece of Vishay. Vishay Siliconix Itzehoe GmbH, a subsidiary of Vishay Europe GmbH, is based in Schleswig-Holstein and is helping to keep the wheels turning in the automotive sector with its advanced silicon wafers.*



The tranquil town of Itzehoe is home to a truly high-tech production facility. At Vishay, semiconductor wafers made from high-purity silicon – 200 mm in diameter, less than 1 mm thick and consisting of around 200,000 individual components – are processed 362 days a year. These wafers are the silicon slices on which integrated circuits, also known as microchips, are manufactured. They are ubiquitous in our technology-driven world – and are needed in ever greater quantities. The importance of chip supply was recently highlighted by the production and delivery bottlenecks in the automotive industry – without enough microchips, production simply grinds to a halt and new cars remain stuck at the factory.

Each wafer undergoes up to 250 process steps in Vishay's clean room over a five to twelve-week period. The manufacturing processes for these components, which are only fractions of a micrometre in size, are sophisticated and require extensive technical expertise. *"And a special working environment, which we have created par excellence here in Itzehoe,"* adds managing director Leif Henningsen. The people who come and go here could be characters in a science fiction film, clad in white sterile protective suits with gloves, hoods and masks. However, these safety measures are not intended to protect people, but rather the product itself. *"We have to ensure that not even the tiniest grain of dust gets into the structures on our wafers, not a hair, not a make-up grain, simply nothing,"* explains Leif Henningsen, *"otherwise the quality would be compromised, the function impaired and the product could even become unusable."* To this end, a special ventilation system is used in the clean room, the heart of the production facility, to keep the number of particles introduced to – or created in – the room to an absolute minimum. *"This room is one of the cleanest production environments in the region and is around half the size of a football pitch,"* explains Leif Henningsen.

Production of power electronics has been up and running in Itzehoe since 1996. However, two decades is an eternity in this high-tech industry – which never stands still. Ever more powerful devices are demanding ever more powerful semiconductor chips, which are dispatched in a steady stream from Vishay in Itzehoe to meet the growing demand in the automotive industry. The Steinburg Innovation Area has become a real hotspot for companies involved in future technologies. And Vishay has played a big part in this.



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"We look forward to helping Europe become less dependent on producers in other parts of the world."

Leif Henningsen, managing director of Vishay Siliconix Itzehoe GmbH

www.vishay.com/itzehoe

EXPANSION FROM 2026: NEW SEMICONDUCTOR FAB

Innovation is practically on the agenda every day here, not least due to the plant's "tangled knot" of energy and other supply chains. According to Leif Henningsen, the company has now reached the limits of its production capacity. *"By initially adding another 2,100 square metres, followed by another phase that will expand our clean room facility by a total of 4,000 square metres, we plan to commission another semiconductor chip fab based on the new 300-mm wafer technology in 2026."* This will represent the company's latest milestone following its earlier switch to 200-mm technology. The planned expansion will enable the Itzehoe facility to double its production capacity and create 150 new jobs. And, by increasing automotive MOSFET production, to increase domestic supply security for silicon wafers. A complex name, incidentally, for a complex production process: "MOSFET" stands for Metal Oxide Semiconductor Field-Effect Transistors.

"From here in Schleswig-Holstein, we look forward to helping Europe become less dependent on chip producers in other parts of the world." The first construction phase has already begun. *"We are creating the optimal conditions for the future of our company right here in Itzehoe,"* says Leif Henningsen. (eli) //



Location
Itzehoe



Workforce
500 employees



Company founded
1996



The charging stations operated by the startup nonoxx in Neumünster are just one example of Germany's electrifying True North



CHAMPIONS ELECT THE TRUE NORTH

Sales of electric cars are setting new records and our charging network is being steadily expanded. But this is by no means all that Schleswig-Holstein has to offer: hidden champions, smart startups and innovative researchers are "electrifying" Germany's True North.



Electromobility is increasingly making its mark on our public spaces – snow-white electric buses whirr almost silently through city centres, entire fleets of e-cars owned by companies and public authorities whisper along roads, and even electric ferries have started making waves. *“The pace of development is impressive; within a year the number of e-cars in Schleswig-Holstein has doubled to 30,000 vehicles. Around 20 per cent of all newly registered passenger cars are powered solely by an electric motor – that’s the highest number anywhere in Germany,”* reports Jens Sandmeier, head of the Schleswig-Holstein State Coordination Office for Electromobility at WTSH.

To ensure this growing fleet of electric vehicles never runs out of juice, a Quickborn-based company, Schleswig-Holstein Netz AG, will play a major role in expanding the state’s charging infrastructure – by installing around 10,000 charging points in the coming months, from wall boxes to rapid-charging systems. In other words, the charging options for electric vehicles are set to exponentially increase throughout Schleswig-Holstein in 2023. *“This roll-out is absolutely necessary to further establish electromobility. The comprehensive expansion of our charging infrastructure and its integration into the grid is a fundamental prerequisite for greater energy efficiency in the transport sector,”* explains Jens Sandmeier. The Schleswig-Holstein State Coordination Office for Electromobility has been established at WTSH by the Ministry for Energy Transition, Climate Protection, Environment and

to life by young companies and citizens’ initiatives, such as Dörpsmobil Schleswig-Holstein. The state’s research community is also working closely with companies on future projects.

The global company Danfoss, which has sites in Neumünster and Flensburg, is a world market leader in e-mobility. *“The electrification of transport also includes larger vehicles; thanks to our diverse product portfolio we are a leading player in the bus and truck market,”* explains Markus Pläßmann, head of product management at Danfoss Editron. The company develops and manufactures complete drive systems including electric motors, power electronics and an advanced software platform for construction and agricultural machinery, which is soon also destined for leading truck manufacturers. *“Alongside our Nuremberg site, Flensburg is our most important innovation and production location for semiconductor power modules in Europe. With over 500 employees, we develop innovative solutions tailored to our customers’ needs,”* says Stefan König, managing director of Danfoss GmbH in Germany and president of the Central Europe sales region.

DANFOSS: E-MOBILITY ON LAND AND WATER

Danfoss is currently gearing up to meet a 30 per cent increase in annual demand for electric vehicles. And with the merger of Danfoss and SEMIKRON (Nuremberg), two global technology leaders in power electronics are now joining forces.

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RIFYING

Nature. It is the central contact point for the operational implementation of the state’s electromobility strategy – by providing advisory services and networking opportunities for stakeholders in the state, and supporting various projects and initiatives.

WORLD-CLASS TECHNOLOGY

Through his close collaboration with stakeholders at all levels, Jens Sandmeier knows how much latent potential exists in Germany’s True North: *“Schleswig-Holstein has more to offer than electric cars and charging points.”* Industrial companies here are developing world-class technology solutions – for example in the field of power electronics and battery technology – and are thus directly involved in the electromobility value chains. In addition, smart car-sharing and leasing initiatives are being brought

Thanks to Danfoss electric drive technology, the new Doosan excavators now hum softly around the construction site – emitting zero diesel fumes.





“The new company, Semikron Danfoss, will play a leading role in the area of traction modules for automotive applications,” says Stefan König.

Celebrations were already held back in 2020 when Danfoss marked the 50th anniversary of its Neumünster plant, where Danfoss Power Solutions develops and manufactures hydraulic pumps and motors for tractors, construction machinery and other commercial vehicles with a workforce of around 950 employees – some of whom are also researching innovative solutions for the electric age. *“This is also where our software for use in electric and hybrid vehicles is developed.”*

The shipping industry is also facing major challenges in terms of meeting the agreed climate targets – and ensuring both higher air quality and lower noise emissions. With large e-ferries powered by Danfoss technology already underway in Scandinavia, the company recently won an order to build power trains for three hybrid ferries on the Elbe river. Each of the new ships being built for the Hamburg-based transport company HADAG will be equipped with a drive system that includes a shore power connection and battery storage as well as mains supply units for propulsion and AC power, explains Markus Plaßmann. *“The ships will also be ready to integrate hydrogen fuel cell technology, which will enable zero-emission operations in the future.”*

WHISPER-QUIET SHIP ON THE KIEL FJORD

Passengers using regular ferry services on the Kiel Fjord can already enjoy a noise-free and vibration-free cruise. In 2022, the Kiel-based tug and ferry company SFK put the “Wellingdorf”, its second all-electric ferry, into operation. These highly innovative ships, which can sail continuously for up to 13 hours on the fjord, were built by a Dutch shipyard. Previously, it also built three hybrid ferries that are now playing a big role in the ongoing transport revolution

The all-electric ferry “Wellingdorf”, which was built in the Netherlands and is operated by the Kiel-based tug and ferry company Schlepp- und Fährgesellschaft Kiel (SFK), is already the second ship of its kind operating on the Kiel Fjord



in the state capital. The entire city bus fleet is also gradually being electrified – Kiel’s last diesel bus will be retired from service in just a few years.

ZERO-EMISSION CONSTRUCTION MACHINERY

It is almost impossible not to notice that our cities’ roads and sewers are currently being repaired on a massive scale, and that a large number of new residential and office buildings are springing up across Schleswig-Holstein. With this in mind, you may happen to notice that some of the wheel loaders and excavators in daily use on these construction sites are now zipping along with a quiet whisper instead of loudly belching diesel fumes. At least some of the credit for this must surely go to the Schleswig-Holstein-based company Mecalac Baumaschinen, a technology leader and high-tech manufacturer based in Büdelsdorf that has developed a new range of medium-sized electric construction machines for urban construction sites – including an eleven-tonne excavator and a swivel loader. Unlike their battery-powered rivals, these advanced vehicles can easily complete an entire working day on the construction site between charges. Mecalac calculates that, over the course of a year, three of its zero-emission machines working in tandem on the same urban construction site will, on average, save 64 tonnes of CO₂ in comparison to diesel-powered vehicles. Furthermore, according to the information provided at launch, these emission-free construction machines not only reduce noise levels on construction sites, but can also be used indoors. Like its diesel-powered siblings, Mecalac’s electric swing loader is produced at its Büdelsdorf plant, which employs over 250 people.

E-RACING CAR ON THE VICTORY PODIUM

Equally whisper-quiet, but significantly faster than an electric excavator – the “Raceyard T-Kiel A 22” has been zooming around Europe’s race tracks. Indeed, this sleek in-house design created by students from Kiel University of Applied Sciences even made it onto the victory podium in 2022. In the world’s largest design competition for students, Formula Student, the team from Kiel prevailed in a 38-strong field and finished in third place overall on the race track in Barcelona.



The faces of victory - the team from Kiel University of Applied Sciences with the "Raceyard T-Kiel A 22" in Barcelona

"Each year we set ourselves the challenge of building a competitive car. And for many years we've been gaining lots of experience designing electric racing cars," explains team leader Nikolas Scholz. Even the battery, the heaviest component (40 kilograms, 288 cells and 600 volts) is built by the team - further evidence of the excellent research being conducted at Kiel UAS in the field of power electronics and battery research.

In 2022, the startup nonoxx also got off to a flying start thanks to a smart idea - the company came into existence as the result of an unbeatable offer to the employees of the energy supply company Stadtwerke Neumünster (SWN). *"We offered all their staff an electric car - in the end we leased out 182 e-cars and adapted the charging infrastructure in our company car park to accommodate this electric boom,"* reports Stefan Lingner, managing director of nonoxx. As a service provider for the installation of charging stations and a leasing agent for e-cars, the fledgling company hit the ground running in 2022: *"We offered the cars as part of a package with low-cost electricity tariffs from SWN, however this isn't currently our main focus due to the long lead times."* Instead, the team's primary focus is the turnkey construction of wall boxes and charging stations for corporate customers, local authorities and private households. Through contracts with other

municipal utilities, nonoxx now installs the all-important charging infrastructure throughout Schleswig-Holstein as well as on the outskirts of Hamburg.

TESA - ADHESIVE TAPES FOR THE ENERGY TRANSITION

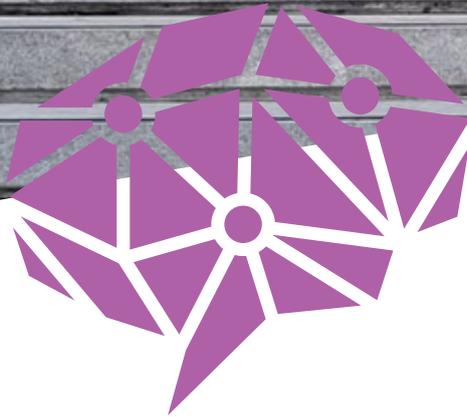
A global player from Norderstedt is cutting an equally innovative figure. Tesa, world-famous for its distinctive adhesive strips, develops special adhesive tapes for e-mobility applications. For example, several of its highly functional adhesive tapes are used in a battery pack - for cable sheathing, bonding battery cells, heat dissipation and fire resistance as well as for sealing. Tesa moved into its new corporate headquarters near Hamburg Airport in 2016. Its Norderstedt location is now home to the company's marketing, administration and research and development departments as well as a technology centre.

Elsewhere in Norderstedt, e-mobility is revolutionising commercial life in and around the Jungheinrich factory, where some 1,500 employees are hard at work designing and building the world's most advanced forklift trucks - all of which run on battery power. Jungheinrich is the undisputed global leader in industrial trucks equipped with lithium-ion batteries - and the only manufacturer that also produces its own batteries in-house (at a factory at the company's Norderstedt headquarters).

The unconventional lorries on the A1 between Reinfeld and Lübeck are a good indication of where the e-mobility journey might be headed. These HGVs, which are owned by a haulage company that transports goods to the port of Lübeck, purr silently along the motorway powered by overhead cables. The goal of the eHighway Schleswig-Holstein (FESH) field trial, which was launched in 2020 under the direction of the R&D Centre at Kiel UAS, is to demonstrate ways to electrify heavy goods traffic. And the early signs are good - the technology works reliably and is already electrifying vehicles far beyond the borders of Germany's True North. (wel) //

On Schleswig-Holstein's eHighway between Reinfeld and Lübeck, goods are electrically propelled to their destination in the port of Lübeck





Torge Lahrsen, Daniel Ehnés and Sascha Greve from the startup en-centive have developed an algorithm that allows flexible distribution of renewable energy - initial funding was provided via the Schleswig-Holstein Startup Grant.

ARTIFICIAL INTELLIGENCE IS ACCELERATING THE ENERGY TRANSITION

From startups to established SMEs - many economic stakeholders in Germany's True North have recognised the potential of artificial intelligence (AI) for their business. Three current examples show that AI not only directly promotes value creation, but can also make an important contribution to the energy transition.

To compensate for the fossil-fuel phase-out and meet the rising demand for electricity, the German government has set ambitious targets in the field of renewable energy. These goals include the expansion of solar energy systems, an area in which progress is painfully slow due to the complex certification process, among other factors. CarbonFreed GmbH in Meldorf is aiming to accelerate this process - by combining the entrepreneurial spirit of a start-up with the unique potential of artificial intelligence.

"We're currently limited to around 1,500 to 2,000 solar plants nationwide due to a backlog at the certification bodies - in other words, five gigawatts," calculates managing director Marko Ibsch. *"But we need many times that, about 15 gigawatts and about 10,000 plants, to complete the transformation of the energy system in favour of renewables."* This increase cannot be achieved with more staff alone. This is where CarbonFreed comes in: *"Certifiers, grid operators, PV developers - everyone moans because the grid connection certification process is so complex, laborious and time-consuming that electrical engineers hardly have any time left to take care of planning, commissioning and certifying future installations. This is where we come in, by focusing on technology that can digitalise the grid connection process and thus the certification process for photovoltaic systems."*

The challenge lies in the fact that for every solar system larger than 135 kW that is connected to the grid in Germany, project-specific proof of compliance with the requirements must be provided - to ensure grid stability and avoid jeopardising system security. A large number of documents must be screened and inspected so the necessary calculations can be made. And since these work steps are extremely laborious, the inevitable result is waiting times of several months.

Marko Ibsch, managing director of CarbonFreed GmbH, is using AI to speed up the certification process for solar power plants



Together with his team, Marko Ibsch took a deep dive into the respective processes in order to realise his vision. CarbonFreed GmbH, founded in 2021, is doing everything it can to bring its customers' plants online faster and lessen the burden on the certification bodies. *"In our view, and based on our conviction and testing in recent months, we can safely say that AI is perfectly suited to this task. It can do the detective work in place of humans and thus free up skilled workers."* CarbonFreed's AI algorithm takes care of the laborious searches that are an indispensable part of tracking down the required information. By processing the information and carrying out a preparatory assessment, it leaves the engineers more time for the important final certification decisions. *"We reckon that, with our software, the certification bodies will be able to issue certificates six times faster in the future."* Through CAT Meldorf - a network partner at the AI Transfer Hub Schleswig-Holstein - and Jan Cornils, an innovation consultant at WTSH, Marko Ibsch also got to know Andreas Hennig, a project manager at the AI Transfer Hub Schleswig-Holstein. Together, they explored the possibilities of project funding and, specifically, the state government's AI policy.

Renewable energy, AI know-how, value creation for Schleswig-Holstein - through its gridcert project, CarbonFreed is reflecting the core themes of the state's AI policy. The project has received almost 175,000 euros in funding from the state chancellery. *"Without this funding, we wouldn't have been able to get this project done in its current form,"* summarises Marko Ibsch. *"We're now looking for smart people and AI developers to bring the software to life and accelerate the energy transition with AI."*

EFFICIENT LOGGING OF SEABIRDS AND MARINE MAMMALS

Each time the biologists from BioConsult SH board a plane to count seabirds for local authorities, nature conservation associations or the wind farm industry, they can expect to photograph up to 40,000 specimens - per day. The resulting images are then evaluated by hand. At least for now. Using AI technology, the company based in Husum will soon be able to automate these time-consuming processes. The short name for this ambitious project is "Kiek Ma".

Dr Georg Nehls is a full-blooded biologist with a passion for field research. Early in his career, the current managing director of the ecological research and consulting office BioConsult SH was not especially interested in technology: *"I started mapping mussel beds in the North Sea in 1998. Back then, the main electronic innovation was a handheld GPS device that I was able to use,"* says Nehls. *"It gave us an accuracy of about 400 metres when determining the location. For mussel beds, that isn't precise enough."*

Little by little, the digital world has opened up new opportunities for Dr Georg Nehls and BioConsult SH. The company now employs around 120 people, including six AI programmers who are used to handling large quantities of data.

Aerial counts to record seabirds and marine mammals are part of the core business at BioConsult SH. *"We have flights over the Baltic Sea during which we photograph 30,000 to 40,000 birds in a single day. An enormous amount of work goes into this,"* says project manager Anna Kersten. *"It can take up to five months from the count to delivery of the data,"* adds Dr Georg Nehls, *"We need a way to make the information available faster."*

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This need gave rise to the project "Artificial Intelligence for the Classification of Marine Species" ("Kiek Ma" for short), which involves the use of AI methods to develop algorithms for automatic recognition and identification of objects on the water surface. To develop the required capability, the BioConsult SH scientists will process a total of around 250,000 training images. From this data, the AI will learn to find and identify the animals on its own. The hitherto manual processes of animal detection and identification will thus become automated. In the future, the AI will handle 80 to 90 per cent of the team's workload, while the experts from BioConsult SH will remain heavily involved on the quality assurance side.

In the course of the project, Anna Kersten also became aware of the possibilities offered by the state's AI policy. *"The support from the AI Transfer Hub Schleswig-Holstein and the WTSH was very positive. We received guidance on drafting the project plan and submitting the paperwork."* The project also impressed the state chancellery, which provided 179,000 euros in funding.

The AI project "Kiek Ma" involves the use of algorithms that can automatically detect, identify and count objects on the water's surface



Dr Georg Nehls, one of the leading minds behind BioConsult SH's "Artificial Intelligence for the Classification of Marine Species" ("Kiek Ma") project

"Our aim is to provide the best possible basis for decision-making. The requirements in terms of the energy transition and climate protection are of equal importance to us," says Dr Georg Nehls. *"We are delighted to be making a contribution to the energy transition through our work,"* says Anna Kersten. *"As fast as we want to move forward with climate protection and the energy transition, it's important to monitor and evaluate the potential impact on wildlife in accordance with the highest scientific standards. We are thus in a position to be responsive to all institutions and companies involved in the energy transition."*

USING AI TO OPTIMISE ENERGY CONSUMPTION

Despite high energy costs and a growing awareness of the need to save electricity and use energy from renewables, many small and medium-sized enterprises in Schleswig-Holstein want to make changes - but many don't know where to start. Not least because the energy market is highly complex. Furthermore, at many companies the existing business processes leave scant opportunity to tackle such issues. This is where the startup incentive comes in - armed with AI technology and the conviction that it can play a role in combating climate change.

The team focuses on commercial customers, as these organisations tend to consume a lot of energy, thereby creating huge optimisation potential. As a service provider, incentive helps companies to save electricity and to use it at times when it is cheaper - digitally and through the use of artificial intelligence.

"We present a concept, free of charge, that enables SMEs to easily start managing their consumption as a first step," explains co-founder Daniel Ehnes. *"This has a digitalising effect in that we help companies to eliminate paperwork and create initial added value."*

Digitalisation thus creates the basis for automated optimisations using AI algorithms and predictive methods. *"We do the calculations - what will the PV feed-in from the roof be? How much electricity will the heat pump consume? When should the forklifts be connected for charging? We automate these processes with a lean solution as our product."*

For the North German, incentive is more than just a good business model: *"We have a deep intrinsic motivation and the ambition to build something that adds value to the economy and society during the energy transition. That's why we founded the company."*

The startup's focus is on customer groups in the food value chain - from the farmers, who need cold storage to keep their produce fresh in winter, to the processors and logisticians, right through to food sales in the supermarkets. Until now, the respective systems were typically operated in isolation. *"We combine the various energy consumers and optimise them. Wherever disparate systems need to be consolidated across different trades, that's where we come in."*

"We received the 2021 Schleswig-Holstein Startup Grant, which helped us a lot."

Daniel Ehnes, co-founder of the startup incentive

incentive also received support to establish itself on the path of corporate development. In the first step, Daniel Ehnes and his co-founders presented their ideas and their commercial potential to the WTSH StartUp Funding & Financing team. And with success: *"We received the 2021 Schleswig-Holstein Startup Grant, which was a great help to us."* In short order they became acquainted with the team at the AI Transfer Hub Schleswig-Holstein, received funding support and carried out a feasibility study.

"The feasibility study provided an excellent foundation for our project," says Ehnes, an electrical engineer by training. *"It created the scientific basis for our project and confirmed that our concept really can create added value."*

Daniel Ehnes feels positive about the future - for incentive and for Schleswig-Holstein as a leading AI location. *"Here in the North there is a good spirit, smart people and policy-makers who are driving the topics of digitalisation and AI. The energy transition is a mammoth undertaking, but we've started at the best time and under the best conditions for future success."* (dm) //



INTELLIGENT NETWORKS IN SCHLESWIG-HOLSTEIN

Having long since recognised the potential of artificial intelligence, Germany's True North has already set the wheels in motion via the state's AI strategy. In which direction? Towards becoming Germany's leading location for AI research. Many locations across Germany's True North are already developing innovative AI-based solutions to meet the challenges of our time - and Schleswig-Holstein is now expanding this endeavour. The new goal is to ensure that the potential of AI can be transferred more efficiently to small and medium-sized enterprises. The AI Transfer Hub Schleswig-Holstein helps with this. The network is jointly operated by the state, the WTSH, the universities and the UniTransferklinik Lübeck. Its purpose is to enable companies to make better economic use of AI technologies and benefit from the know-how gained via the latest research. The idea is that research results should flow to where innovative products, applications and solutions are being developed, i.e. to small and medium-sized companies. On the one hand, this expertise will be transferred in the form of further training, and on the other through individual partnerships with companies.

The AI Transfer Hub Schleswig-Holstein has secured funding of around three million euros.

Your contact

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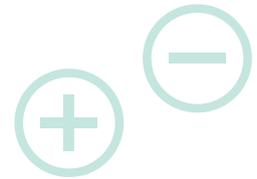
More information is available at
kuenstliche-intelligenz.sh

KI TRANSFER-HUB.SH



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ISIT director Professor Holger Kapels (left) and deputy director of FAB-SH Raphael Richter are committed energy-transition pioneers



HOME ADVANTAGE FOR BATTERY TECHNOLOGY

As one of the federal states at the forefront of the energy transition, Schleswig-Holstein is now boosting its credentials as a research hub and production centre for innovative batteries. The various stakeholders are determined not to let other regions steal a march on Germany's True North when it comes to developing key technologies for electromobility and stationary energy storage.

Intelligent grid and storage technologies are the key to ensuring a reliable supply of renewable energy from wind power and photovoltaics. In Schleswig-Holstein, more electricity is produced from these sustainable sources than is consumed - the perfect prerequisite for developing powerful batteries to store green electricity in the future. This in turn should prove beneficial in terms of new electric cars with longer ranges and faster charging options, as well as advanced stationary power storage systems.

Schleswig-Holstein is already home to many brilliant minds in the field of research and development - scientists at universities and research institutions such as the Fraunhofer Institute ISIT in Itzehoe are hard at work on groundbreak-

ing solutions. And technology leaders like Customcells in Itzehoe and UniverCell in Flintbek are already producing high-performance battery systems.

Indeed, this wealth of expertise in battery technology prompted the state of Schleswig-Holstein to apply for the large-scale nationwide project "Forschungsfertigung Batteriezelle" (battery cell production research), which was coordinated by the Fraunhofer Institute for Silicon Technology (ISIT) in Itzehoe. Although Münster was awarded the contract in 2019, the application process nevertheless had a positive outcome and provided an innovation boost for Germany's True North - by efficiently pooling its competencies in the field of energy storage technologies, the state government has now created an excellent framework for the expansion of local research and development activities.

ISIT IS IN THE PREMIER LEAGUE OF RESEARCH CENTRES

With its 160 employees, the Fraunhofer ISIT in Itzehoe is considered one of Europe's most advanced research institutions for microelectronics, microsystems technology and battery technology. At the heart of the institute are clean-room facilities so expansive that the components developed in-house can be manufactured on an industrial scale. Besides universities, many of its research projects also involve industrial partners looking to integrate the institute's know-how into their own development and production processes.

Customised battery solutions:

The team at FAB-SH can now carry out rapid development of cell prototypes and small-series production using the rapid-prototyping process in just three to eight weeks



"We want FAB-SH to put us in a leading position in the national and international research arena."

ISIT director Professor
Holger Kapels

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FAB-SH CREATES FRESH MOMENTUM

Among the key players is the new Schleswig-Holstein research centre for applied battery technology (FAB-SH), which began operating under the umbrella of ISIT in 2022. It focuses on application-oriented research projects that are implemented by 30 scientists, engineers, lab technicians, as well as mechanics, electronics technicians and up to 20 students. "The trend is towards innovation - such as the use of silicon anodes - that will triple the energy density of batteries," explains the deputy director of FAB-SH, Raphael Richter. Research is underway to find faster ways to charge batteries, a key development goal for electric cars alongside increased range. In addition, there are the important aspects of battery reliability and safety.

The basis for this, he says, already exists at the Fraunhofer Institute. FAB-SH can now use the 3,400 square metres of laboratory and office space in its new building to develop batteries for various applications in cars, ships, medical technology or as stationary power storage systems.

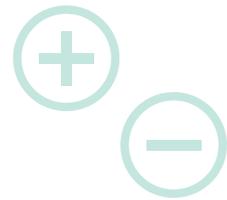
"We have developed and patented production processes that are unique to ISIT, such as the dry coating of electrodes and our own separator technology for joining battery cells," explains Holger Kapels. In the field of cell technology, the Itzehoe Institute is considered a leader in the development of high-performance cells and high-temperature batteries. The new FAB-SH will now accelerate and optimise the industrialisation of these and other battery technologies.





“In the field of e-mobility and power storage systems for renewable energy, monitoring battery performance and health is paramount.”

Professor Christoph Weber,
Kiel University of Applied Sciences



CUSTOMCELLS DEVELOPS SOLUTIONS FOR PORSCHE AND ELECTRIC JETS

In the long term, FAB-SH’s initiators hope that the research centre, together with existing companies such as Customcells and Alzner Battery, will form the core of an energy storage innovation park in Itzehoe.

Established in 2012 as a spin-off from ISIT, Customcells is now a technology leader in its own right in the field of batteries for the high-end sector. Following the creation of a joint venture with Porsche in 2021, the company has also announced mass production of batteries for Lilium, a pioneering developer of electrically powered aircraft.

At the company’s headquarters in Itzehoe and at its Tübingen plant, more than 100 employees develop and produce battery cells ranging from prototypes to small and medium series. With European tech investors Vsquared Ventures and 468 Capital as well as Porsche Ventures investing in Customcells, the tech company plans to continue its growth and double its workforce to around 200 employees.

REVOLUTIONARY MATERIALS RESEARCH AT THE UNIVERSITY OF KIEL

New materials and manufacturing processes could trigger a revolution in battery technology. This is the firm conviction of researchers at the “laboratory for reliable battery-based energy conversion” (BAEW) at the University of Kiel.

The BAEW team has developed a silicon anode that can store ten times more energy than the graphite anodes currently used in lithium-ion batteries. Should this technology become established, electric cars with ranges of 1,000 kilometres would no longer be a pipe dream. It is now a question of making the new anode viable for industrial use.

AI-BASED BATTERY MANAGEMENT AT KIEL UNIVERSITY OF APPLIED SCIENCES

Every electric car driver knows the battery is the heart of their vehicle. It is an expensive component with a finite service life. **“That’s why it’s important to monitor and control batteries to ensure they provide power for as long as possible, and to predict impending faults,”** explains Professor Christoph Weber from Kiel University of Applied Sciences. He says this requires sophisticated battery management and diagnostic systems that can monitor the health of each battery cell. At the university’s Institute of Mechatronics, the professor and his team are developing self-learning systems equipped with artificial intelligence (AI).

“In the field of e-mobility and power storage systems for renewable energy, monitoring battery performance and health is paramount. We’ve designed a new, reliable system that continuously collects and interprets all relevant data and makes self-learning predictions, for example when certain battery modules or cells will develop faults,” explains Weber. This knowledge would enable car manufacturers to carry out targeted repairs, for example.

Kiel UAS has already applied for a patent for another innovative procedure called the "living model for battery condition prediction". ***"Until now, battery storage systems have always required extra maintenance just to ensure their operational safety, which comes at an enormous cost. With our monitoring system, we can reliably predict when the health of a battery cell will deteriorate and arrange a replacement or repair before a failure occurs,"*** explains Professor Weber. This could, he adds, allow replacement systems to be dispensed with.

HEIMDALYTICS - A STARTUP DEALING WITH BATTERY HEALTH

Professor Weber founded the startup Heimdalytics together with experienced engineer Clemens van Zeyl in 2022. The spin-off aims to make the self-learning battery management system developed at Kiel UAS commercially viable. ***"We receive funding in accordance with the AI policy of the state of Schleswig-Holstein and are also financially supported by three companies. This has enabled us to hire five young engineers, all graduates of Kiel UAS."***

In addition, a Renault dealer in northern Germany is already helping Heimdalytics - by allowing the latter to test its system at the dealer's repair centre for electric vehicle batteries. Christoph Weber is convinced that this innovative technology from Kiel could sustainably extend the life of valuable electric-vehicle batteries.

MEGATRENDS: HYDROGEN AND BATTERY TECHNOLOGY

You will often encounter two rival camps in the car industry - divided by the belief that either battery-powered electric cars or hydrogen vehicles will ultimately prevail. However this debate regarding future mobility solutions makes it clear that both systems are needed. Batteries are also essential in vehicles powered by hydrogen-powered fuel cells; for example to store braking energy or assist the electric motor during acceleration.

In Schleswig-Holstein, all roads lead to the future. With its diverse research and development landscape, and through active promotion of new efficient and environmentally friendly technologies, our state is ready to help shape technological progress far beyond our own borders. (wel) //

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**We are familiar
with headwinds.
We use them to
generate new energy.**

#echteAussichten

Schleswig-Holstein uses wind power to produce hydrogen for carbon-free mobility.
More at der-echte-norden.info



Gaming is opening up new recruiting formats and marketing opportunities - especially for SMEs

READY FOR THE NEXT LEVEL

GAMING AND BUSINESS IN GERMANY'S TRUE NORTH

To say that gaming has reached the mainstream would be an understatement. Video games have been an integral part of our cultural and daily reality for several generations. In Germany alone, the industry is turning over billions, trade fairs and streaming content are attractive crowd-pullers and new opportunities are also emerging for small and medium-sized businesses.

Gaming is not just for young people. Six out of ten Germans now regularly play video games. The gender distribution is almost equal among the respondents at 48 per cent female and 52 per cent male. The video game industry in Germany generated 9.8 billion euros in 2021 alone. Yet another record-breaking year.

FROM TEEN BEDROOMS TO FULL STADIUMS - E-SPORTS IN GERMANY'S TRUE NORTH

The fact that the terms "e-sports" and "gaming" are often used synonymously is understandable yet not always accurate. E-sports are fundamentally a sub-sector of gaming, but thanks to their widespread appeal, digital competitions have long had their own raison d'être. Unlike traditional sports, the participants in e-sports compete digitally.

A few years ago, e-sports events in Asia that filled entire stadiums were considered rather exotic. Now most Bundesliga teams have their own e-sports departments - including Holstein Kiel. The first e-sports competitions held in Germany were small-scale events organised by the respective online communities.

A lot has changed since then - Schleswig-Holstein has had its own regional e-sports association (EVSH) since 2021.

"As a professional association, we're not only involved in the political aspects," says Daniela Stahl, a board member at EVSH. "We also see ourselves as an interface to traditional sports and do a lot of educational work on e-sports in the North."

EVSH also organised Schleswig-Holstein's first official e-sports state championships in 2022 - funded by the state's ministry of the interior. The finals were held at Gamevention in Neumünster, Schleswig-Holstein's gaming and e-sports festival.

The fact that initiatives like EVSH are supported by the state government is no coincidence. After all, since last summer, promoting the gaming landscape has also been an official component of the coalition agreement concluded by the governing parties in Germany's True North.

IS THE SHORTAGE OF SKILLED WORKERS THE "FINAL BOSS"? NEW RECRUITING FORMATS BASED ON GAMING

The current shortage of skilled workers is a problem for every industry and region, and for companies of all sizes. In Schleswig-Holstein, it primarily affects small and medium-sized enterprises. When it comes to recruitment, there is now an urgent need to find new ways to identify and inspire suitable applicants. Dr Timo Schöber is among those who believe gaming could be one such new approach. A gaming expert and the founder of the Flensburg-based startup lvlup!HR, he develops strategies to "level up" traditional HR tasks. *"Various different concepts are on the table. These range from apprentice teams and company sports to teaching media skills through e-sports. At lvlup!HR, we also use e-sports in the context of assessment centres,"* says Schöber.

"When people play," he continues, *"on the one hand, they act more naturally compared to situations where they are being observed, as is normally the case at an assessment centre. At the same time, they don't feel they're being watched while they play."* This has several advantages, including stress reduction and more reliable data. Individual roles can also be specially tailored or even abandoned. *"If a member of a team is rather quiet and doesn't communicate very often, we can assign them to the role of leader in the game, i.e. the person who coordinates the team and has to give instructions,"* explains Schöber. In this way, requirements profiles can be specifically analysed and developed.

PLAY AND BE SEEN: MARKETING OPPORTUNITIES FOR SMES

So much attention arouses desire. Games, events, content and, last but not least, the gamers themselves have all become interesting marketing factors. Both on the big stage of global corporations and also at the level of SMEs.

"Basically, both e-sports and gaming offer good opportunities for companies to establish targeted partnerships," says Darius Karampoor, managing director of the influencer agency Fairplay Management. The Kiel-based company specialises in brokering partnerships between brands

and influencers from the world of gaming. *"For small and medium-sized companies, partnerships with micro-influencers really make sense,"* says Karampoor. *"The success of the last few years has left its mark, as the big players can now command big budgets."* However, this need not result in exclusion, according to Karampoor. *"None of this matters at all. Via targeted campaigns, it is possible to address the relevant target group by adopting a regional approach. This is especially true if the creator's face also appears in their own social media campaigns and the agreed content is not limited to the creator's own channels,"* explains Karampoor.

The game has turned serious. However, gaming is also making it possible to master serious challenges in a playful way. Whether at the association level, at events like Gamevention or as a marketing channel, a vibrant gaming scene now exists between the North Sea and the Baltic. (as) //

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Daniela Stahl,
board member of
E-Sport-Verband
Schleswig-Holstein e.V.



Dr Timo Schöber,
Gaming expert and
founder of Flensburg-based Startup
lvlup!HR



Darius Karampoor,
managing director of
the influencer agency
Fairplay Management



Economics Minister Claus Ruhe Madsen

WE URGENTLY NEED TO CUT RED TAPE

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Claus Ruhe Madsen is a new resident of Schleswig-Holstein. The former mayor of Rostock chose to swap his high office and his city for the True North. A native of Denmark, he has been Schleswig-Holstein's Minister for Economics, Transport, Labour, Technology and Tourism since June 2022. He is now tackling the shortage of skilled workers head on.



"Businessland" -
Interview

"Businessland": The soaring demand for skilled workers has been described as one of the biggest problems facing our economy. Hardly any other topic is so omnipresent ...

Madsen: And that's also a good thing. I'm always amazed that this issue is only now reaching the wider public. This problem is not a new one. It has been on the horizon for years.

Due to demographic change alone, we expect a skilled labour deficit of 180,000 people in Schleswig-Holstein, because by 2035 at the latest, almost the entire baby-boomer generation will be enjoying their well-earned retirement. If the economy returns to pre-pandemic growth rates, we may even be facing a shortage of over 300,000 skilled workers by then. That's quite a number.

"Businessland": Is demographic change the only culprit? Unfortunately we can't do much about that.

Madsen: No, there are also other reasons and therefore certain dials we can adjust. Especially in sectors where we are facing a big deficit, pay is often low. And many professions that essentially have nothing to do with paperwork are now overloaded

with bureaucracy. A good example is nursing. Nurses are still among the group of workers whose pay is comparatively low relative to the importance of their job. And they also spend half their time simply documenting their work. So we lose nurses because, understandably, they don't want to do that. They actually want to help people and not sit in an office all day. We urgently need to cut red tape in this area.

“Businessland”: Are there other sectors that are affected in a similar way?

Madsen: The high demand for skilled workers cuts across all sectors. Besides nursing, it's most keenly felt in logistics, skilled crafts and trades, and the hotel and catering industry. And there is also a shortage of qualified childcare specialists, which means some parents are forced to take time off work. But take tourism, for example - one of Schleswig-Holstein's flagships. If you're on holiday here, you might suddenly find that your favourite restaurant is closed. A rest day - due to a lack of staff. Hotels are also being forced to limit their services in some cases. And this is despite the fact that the industry is flourishing and we actually set a new record for overnight stays in the first half of 2022. But none of that matters if there aren't enough staff.

“Businessland”: And now? What is the state government doing about it?

Madsen: We've resolved to make attracting skilled workers the main focus of our governmental activity. This is set out in the coalition agreement and is a joint task of the state government, whereby, as the Ministry of Labour, we are naturally at the forefront. Our first point of business is to further develop our “skilled workers for Schleswig-Holstein” initiative by looking at the current needs and developing new approaches for action. Besides supporting the hardest-hit sectors, our focus is now clearly on



Claus Ruhe Madsen,
Minister of Economic Affairs,
Transport, Employment,
Technology and Tourism

skilled labour immigration and securing skilled workers in areas linked to climate protection.

“Businessland”: On the subject of skilled labour immigration - how important are skilled immigrant workers in terms of covering the shortfall?

Madsen: Extremely important. Of course, we are facing specific challenges here - recognising foreign degrees, residence and work permits, language skills. Which is why we're already in the process of setting up a Welcome Centre, as a place where international skilled workers and Schleswig-Holstein-based companies can get help with all aspects of immigration. We don't want to immediately drive these professionals away again with all our red tape, and we want to support them in the best possible way as they build a new life here in Germany's True North. Of course, the Welcome Centre should also contribute to increasing the visibility of Schleswig-Holstein as a business location and as an attractive place to work for international professionals.

“Businessland”: The companies must also share some of the responsibility for attracting more skilled workers. What can they do?

Madsen: I would like to see companies coming up with innovative strategies. I want to see them venturing outside their comfort zone and exploring new avenues to attract people to their business. For example, we want to motivate companies to hire more long-term unemployed people. That takes courage and a lot of trial and error, but it can often be worth it. Through our advisory networks aimed at securing skilled labour and by providing support for further training, the state government will naturally help our companies to establish new approaches. But it is a path we will need to walk together. Policy-makers can't simply prescribe it, we can only point the way. (ks) //

“We don't want to immediately drive these professionals away again with all our red tape, and we want to support them in the best possible way as they build a new life here in Germany's True North.”

Claus Ruhe Madsen



Ove Lange, managing director
of Anthon GmbH and Salloa Lange,
HR development manager

ANTHON GMBH

HEAVY METAL FROM A TECHNOLOGY LEADER

The global player with roots in Flensburg combines tradition and high tech. The Anthon family business creates complex machines for the furniture industry and for other "incisive" tasks.



Location
Flensburg



Workforce
180 employees

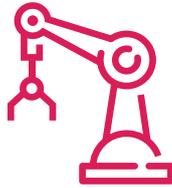


Company founded
1865

“We are a global player and a family business in one. With an 80 per cent export share, we are active worldwide but only at home in Flensburg.”

Ove Lange, managing director of Anthon GmbH

anthon.de/en



First-time visitors to Anthon are often astonished – these machines are anything but lightweights. In fact, they are truly mighty; the largest of these “made in Flensburg” plants is the size of two and a half football stadiums! They are heavy, computer-controlled and equipped with state-of-the-art mechanical engineering, super-fast computers, hundreds of sensors, robots and artificial intelligence. **“One saw blade alone can weigh up to 100 kilos. Our complete machine systems for the furniture industry weigh up to 300 tonnes,”** says Ove Lange, a well-travelled managing director at Anthon and the man responsible for ensuring that the company never rests on its laurels on account of its proud corporate history. Instead, the 49-year-old, who has helmed the family business since 2002, emphasises the need for Anthon to relentlessly defend its worldwide reputation for developing and building the “Rolls-Royce of sawing machines”. **“We used to advertise with heavy metal. But these days our machines can do much more. They can communicate digitally and be computer-controlled in factories, work sustainably and absolutely reliably in 24-hour operation, and deliver perfect results to boot – and all this at a blistering pace.”**

Ikea is a good example. **“Guess how many ‘Pax’ wardrobes our factory in Sweden can produce,”** asks HR manager and press spokesperson Salloa Lange with a smile. The answer is scarcely credible: ten of the popular furniture pieces leave the plant every minute inside their cardboard packaging. 355 days per year, around the clock. **“We can still go a little faster,”** adds her husband Ove Lange. In its new “Pax 2.0” factory, which Anthon is currently developing for the furniture giant, a cupboard will leave the plant every four seconds – fully automatically. **“Strenuous and hazardous work no longer needs to be done by humans – the heavy wood-based panels are moved by robots.”**

By contrast, manual labour is in demand at Anthon itself – its industrial mechanics, electricians and cutting machine operators in Flensburg build the machines with the help of CNC milling machines and other IT-controlled systems. The company custom designs each machine for its customers, which include kitchen manufacturers and producers of insulation boards for the construction industry.

“We depend on smart, committed people with the drive to make things happen,” says Salloa Lange. **“Machines – no matter how high-tech they are – still need people to invent them and introduce them to the market. Our team does precisely that.”**

For over 150 years, the Flensburg-based company has been holding its own in the market – founder Wilhelm Anthon’s original 40-square-metre workshop has since grown into a factory site with a footprint of 35,000 square metres. **“Today, we are a global player and a family business in one. With an 80 per cent export share, we are active worldwide but only at home in Flensburg,”** emphasises Ove Lange. At Anthon, a sense of continuity meets a constant willingness to change: **“We achieve progress by always having the courage to reinvent the tried and tested – by always looking for the best tailor-made solutions on the market.”** Accordingly, the motto adopted by the company’s fitters and adventurous apprentices is: **“From Flensburg to the whole world!”** Accordingly, its machines and even entire production lines are assembled at the customers’ premises by Anthon’s own specialists – be it in Canada, New Zealand or Japan. **“This is also how we recruit qualified employees as well as committed trainees. Every company is suffering due to the shortage of skilled workers. That’s why we’re actively working to inspire young people – and with success,”** reports the HR manager.

Anthon is currently training twenty apprentices in six professions, and the family-owned company also offers a dual study programme in automation engineering. **“We invite schools to hold their pre-vocational classes at our company. The pupils get to see our company up close and also get to know our staff.”** At school careers fairs, the company’s stand is manned entirely by its own trainees. **“Video clips of our trainees are a real hit on Instagram with over 50,000 views.”** Which, she explains, is why Anthon is never short of applicants. Salloa Lange also approaches skilled professionals via the online career portals and invites them to interviews. **“They are generally impressed by our family atmosphere, the prospect of an independent and varied workload, our attractive career opportunities and goodies like company e-bikes, summer parties and trainee events.”** Her words convey a certain sense of pride, and rightly so. After all, who wouldn’t want to work for the “Rolls-Royce of mechanical engineering”? (wel) //

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Pioneering research and biotechnology - a process developed by PLANTON in Kiel prevents the killing of day-old chicks

PLANTON GMBH

THE CHEMISTRY OF SUCCESS

The last few years have highlighted the groundbreaking role played by many biotech companies and analytical laboratories. While their work can often seem highly scientific and rather abstract at first glance, it almost always has an important real-world context - and the potential to fundamentally change our everyday lives. PLANTON in Kiel is showing how this works in practice.



Location
Kiel



Workforce
80 employees



Company founded
2000

“PLANTON is an inexhaustible toolbox with a wealth of viable business ideas.”

Professor Michael Kleine, managing director of PLANTON GmbH

planton.de/en



Biotechnology companies have always been important, but since the outbreak of the pandemic when the demand for test evaluations and vaccine development began to skyrocket, they have been booming. It is therefore pleasing to learn that a company from Schleswig-Holstein is a member of this ever louder orchestra of biotech players.

PLANTON's journey began with four young scientists from Kiel and an idea to develop a novel antibiotic in 2000. *“At that time,”* reports PLANTON's managing director Professor Michael Kleine, *“we already had a lot on our minds, but not very much in our wallets. The market for new medicines was down and venture capital funding was hard to come by.”* According to Kleine, he and his comrades-in-arms, all researchers at Kiel University Hospital and the University of Kiel, were therefore grateful for any help at all. *“In the end, it was the Mittelständische Beteiligungsgesellschaft Schleswig-Holstein that helped us out of the starting blocks.”*

Proximity to research is an important factor in the company's work. In the early days, the enterprising researchers literally guaranteed this by swiftly securing rented premises at the University of Kiel and thus avoiding lots of additional red tape.

The startup's goal was industrial-scale production of a human protein in potato plants for the development of a new therapeutic agent. *“A large cosmetics company came on the scene as a customer, which gave us a proper push.”* By now, having outgrown its premises at the University of Kiel, PLANTON had relocated to new headquarters on an industrial estate in the city.

Not many companies can honestly claim that their operations always proceed precisely as planned. This is all the more true when research and science are the driving force behind the business model. While PLANTON, thanks to some major investments, managed to complete an initial clinical trial of its newly developed agent in 2008, the Kiel-based company failed to secure financing for a second clinical trial. This was the premature death knell for its novel drug. For Kleine, however, the alarm bells were by no means ringing. *“Our company has had more than one point of focus for a long time.”*

PLANTON has been a service laboratory since 2004 and carries out molecular biological and biochemical analyses. Since then, it has also begun offering services relating to the analysis of pesticides and microbiology. It has also been the drinking-water testing centre for Schleswig-Holstein since 2015. In addition, the company's portfolio includes medical and veterinary analyses as well as accredited testing of foodstuffs, animal feed, seeds and even paternity tests.

PLANTON has even successfully expanded into Asia. Its laboratory in Nanjing, China was inaugurated in 2018 in the presence of Prime Minister Günther. Nevertheless, by laying the foundation stone for a new laboratory complex in the Friedrichsort district north of Kiel in spring 2022, the company has removed any lingering doubts about its roots remaining firmly in Kiel.

INNOVATING TO PREVENT THE KILLING OF CHICKS

PLANTON has achieved notable success by developing and patenting a PCR process that prevents the killing of day-old chicks. *“We can now determine the sex of the chick in the egg on day nine, long before it hatches. This allows the male eggs to be sorted out.”* Together with their Dutch colleagues, the Kiel-based researchers have made this process viable for the poultry industry under the name Plantegg. Since 2022, it has been officially forbidden to kill chicks in Germany. The ability to sex the chicks as soon as possible has thus become a critical economic factor for the industry.

PLANTON is an example of entrepreneurial foresight that impressively demonstrates the latent innovative potential in the field of biotechnology - and how the smallest developments can ultimately affect the big picture. (as) //

Professor Michael Kleine,
founder and managing director
of PLANTON GmbH



STARTUP GRANT & NETWORKS

A LAUNCHPAD FOR IDEAS WITH WINGS

34

Diverse funding opportunities and a wide range of advisory services - from the pre-seed phase to market maturity and beyond. Germany's True North is renowned for this and offers a wide range of support for startups.

The state of Schleswig-Holstein has earmarked 2.7 million euros for the Schleswig-Holstein Startup Grant from 2022 to 2027. Under the scheme, university graduates and individuals who have completed vocational training are eligible for a monthly non-repayable subsidy of 1,750 euros for eight to twelve months. Students will continue to receive the existing grant of 800 euros per month.

Baltic Business Angels Schleswig-Holstein e. V. helps entrepreneurs on the road to success - with advice, action, experience and capital. The StartUp Network Schleswig-Holstein provides additional support and networking opportunities. With support from the state government, startups can benefit from the region's network of universities and university-related organisations.

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Schleswig-Holstein
Germany's True North



“Let’s green up! We let trees do the talking!”

Plantobelly’s founders Bastian Klemke (left) and Christian Hahn

PLANTOBELLY

TREES CAN NOW ASK FOR A DRINK



The idea for this green startup originally stemmed from a withered houseplant – and culminated in Christian Hahn and Bastian Klemke jointly launching Plantobelly, an innovative product that enables cities, municipalities and fruit-growing and gardening businesses to water trees and plants on demand. The two entrepreneurs, who live next door to each other in Stockelsdorf near Lübeck, are gaining more and more customers, and not only in Germany’s True North.

“I was annoyed that I’d forgotten to water the plant and thought of building a sensor to measure moisture with a warning mechanism,” recalls Christian Hahn. When the graduate physicist and software developer, who enjoys tinkering with electronics in his spare time, told his friend and neighbour Bastian Klemke about his idea, his eyes lit up immediately. Klemke, a graduate industrial engineer and the sales manager at an international company, was convinced that the need for such a product extends far beyond his neighbour’s living room. Indeed, their research revealed that this was a “blue ocean”, a previously untouched market without compet-

itors. *“We wrote to two office-plant rental companies that same evening and promptly received an invitation from both,”* recalls Klemke. However, it soon became clear that their novel idea had far greater potential for outdoor plants. The Plantobelly founders requested meetings with the Hanseatic City of Lübeck, which already devotes considerable resources to watering roadside trees. Amid rising temperatures and increasingly frequent dry periods, these costs are only increasing. Moreover, more trees are needed because only “green” cities offer a truly habitable climate. Klemke: *“In 2019, we buried our first prototype in Lübeck. There are now several hundred sensors in use in Schleswig-Holstein and beyond. The response has been very positive, and the potential market is huge. We are now also receiving enquiries from abroad, currently from Switzerland, the city of Vienna and a vineyard in Portugal.”* In September 2022, the founders hired their first employee to assist them with sales. Christian Hahn explains how the Plantobelly system works. A small proprietary sensor is buried in the root area of the tree at a depth of about 40 centimetres. It

measures the moisture and transmits this data, which is made available to the customer graphically on a website. Plantobelly is Hahn’s second successfully established business concept in Schleswig-Holstein. He demonstrates the “live view inside the soil” using the example of Tree 114 in Lübeck’s city centre: *“The green tick means everything is fine, the soil is moist enough, watering shouldn’t be necessary for another two weeks.”* He points to a red horizontal line: *“If this is reached, the moisture level is critical. The customer then receives an alert via an email or push notification if desired.”* The sensor has a battery that lasts six to ten years. A radio network, the so-called LoRaWAN, is used for wireless data transmission. Since summer 2022, the “Plantobelly N” with narrowband mobile wireless technology has also been available as an alternative.

Hahn, 49, and Klemke, 45, financed their startup with their own money before receiving funding from Lübeck’s Gateway49 Accelerator and the German Federal Environmental Foundation. Despite the product’s excellent commercial prospects, Bastian Klemke admits that perseverance is nevertheless needed. *“Many customers want to test our system with two or three sensors first before ordering larger quantities. Completely understandable.”* Even if sales take off, Plantobelly has no plans to relocate production outside Germany’s True North. *For the two founders, nowhere else comes close as a place to live and work: “This is our home and we like it just fine.”* (sas) //

plantobelly.de

YOLUMA

MOBILE SOLUTION FOR FUNERAL DIRECTORS

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Why do funeral directors need an app? *"We work with a lot of data and documents, many of which are already in a digital format. But until now there was never a mobile solution that could make all order-relevant information available at any place and time."* explains York Matzen. When the 26-year-old talks about his startup idea, it quickly becomes clear that he knows the target group and industry processes in great detail.

His family runs a funeral home in Harrislee near Flensburg. York Matzen and his younger brother Luis grew up in and around it and have both previously worked in the family business. Through their "funi" app, launched by their jointly owned startup YOLUMA, they are now offering exactly what was sorely lacking in their day-to-day work - a digital application that helps them save time, avoid superfluous paperwork and optimise in-house processes. And success was not long in coming - six months after founding the business, they concluded a cooperation agreement with a software company that services one in ten funeral homes in Germany.

York Matzen can cite many clear examples of the app's concrete benefits. *"If, for example, death certificates are uploaded remotely, the office staff can start processing them before their colleagues get back from the external appointment. At the chapel, we can quickly check whether the delivered wreaths and bows correspond to the order. And if the deceased's jewellery or other belongings are gathered at the hospital, their handover can be precisely documented."* Another huge issue for all companies is the recording of working hours, which is now obligatory after the ruling by the German Federal Labour Court in September 2022. *"Especially with on-call services, including at night and on weekends, planning and time recording are very time-consuming. Our app also offers a solution for this, and naturally complies with the data protection and auditing requirements,"* says York Matzen. The young entrepreneur programmed the prototype version of the app himself - after teaching himself the necessary skills in his spare time. *"At first, I saw this as a kind of personal self-improvement,"* says the young man, who graduated from the Duale Hochschule Schle-

swig-Holstein (DHSH) in Flensburg with a Bachelor's degree in business administration in 2019. He completed part of his practical training in Munich, but then found himself drawn back to his home state. Initially, he had no plans to join the family business. But due to a sudden staff shortage on the commercial side, he dutifully stepped in. York Matzen is currently working full-time on expanding the features of his "funi" app.

This is only possible thanks to a startup grant from the state of Schleswig-Holstein, which was awarded by WTSH on behalf of the state. A startup coach from Dock 1, a facility at Flensburg University of Applied Sciences, had initially made the young entrepreneur aware of the various funding opportunities.

Meanwhile, his brother Luis is still focused on completing his training as a funeral director. *"He was the first person to test our app in live operations and is heavily promoting us at the vocational school,"* says York Matzen. He sees advantages in founding a company with a sibling: *"We know we can rely on each other. I'm very excited about what we could achieve with 'funi'."* And this bright future isn't necessarily limited to burial services: *"The app can be connected to any database. It's also of interest to other industries."* (sas) //

yoluma.de

Bringing funeral services into the digital age:

Entrepreneurs Luis (left) and York Matzen from YOLUMA in Harrislee





“We know your employees are innovative and just need the right tools to move their business forward.”

The Nautilus crew together with Minister of Economic Affairs Claus Ruhe Madsen and the two other winning teams from StartUp.SH's “Überflieger” competition

NAUTILUS GMBH

NAO MAKES DISTRICT HEATING MORE EFFICIENT

When the founders of Nautilus won the “Überflieger 2022” competition for startups in Schleswig-Holstein, they began to realise the importance of their innovation in light of the current energy crisis. Their proprietary Nao software is designed to control district heating networks more efficiently and help consumers save energy.

Regardless of whether heating networks are operated with natural gas, coal or biogas, these systems are invariably highly complex – especially when tens of thousands of households and businesses need to be supplied with heat. **“To optimally operate and control this kind of heating network, millions of data points need to be processed and evaluated,”** explains CFO Christian Rühmann, who co-founded the company Nautilus in Lübeck with software developer Marc Hager and district heating expert Rupert Wieser in mid-2022.

For the first time, their new district heating software makes it possible to record all the suppliers' processes and analyse the heating network in real time. **“Furthermore, the customers also benefit. Because by 2026, all households and businesses must be**

equipped with a digital smart meter that can be read remotely.” The software will then allow users to continuously monitor their consumption.

However, if people really want to better understand and permanently reduce their own consumption of heating energy, the two entrepreneurs believe this is not enough. **“The customers need access to their own energy data in real time and a tool that, based on the data and the individual living situation, can forecast the greatest potential savings and actively help them save energy,”** says Marc Hager, outlining some of the features already offered by the new software.

This digital innovation also impressed the jury of the “Überflieger” competition run by the StartUp.SH association in October 2022 – Nautilus took first place in a field of seven Schleswig-Holstein-based competitors. The association's patron and the federal state's Minister of Economic Affairs, Claus Ruhe Madsen, was also enthusiastic about Nautilus at the award ceremony. Instead of a cash prize, the two founders have won a high-profile trip to San Francisco, where they will have the opportunity to network

with tech companies. The one-week trip includes meetings with investors, American startups and business representatives. Meanwhile, at home in Germany, some district heating providers have started showing an interest – the municipal utility in Annaberg-Buchholz, Saxony, is now preparing for a pilot run with Nao. One of the software's innovative features is that it can be adapted to the specific application scenarios of each district heat supplier. **“It can respond to 120 different fields of application in power plants and heating networks and analyse the performance and condition of the customer's plants. The suppliers can also filter out house substations that are suboptimally configured,”** explains Marc Hager. After four years of research in the field of district heating, he says he has realised how barrier-free digitalisation can contribute to greater efficiency and sustainability.

He expects to see mounting pressure from suppliers to convert their systems and their customers' households to smart meters by 2026. **“From this perspective, we are launching Nautilus on the market at the perfect time,”** says Christian Rühmann. Digitalisation is a long and innovative process. Which is why the founders of Nautilus are already planning their next step – to use artificial intelligence to further optimise heating networks with self-learning tools. Their end goal? Nothing less than to save valuable energy and further reduce CO₂ emissions in the spirit of the energy transition. (wel) //

nautilus.de

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Norma Jensen,
Baltic Business Angel

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"Businessland" -
interview

BALTIC BUSINESS ANGELS AT WORK

Helping entrepreneurs make the breakthrough - this is the stated goal of the business angels. Behind this catchy name are seasoned entrepreneurs who support startups with funding and entrepreneurial know-how. More than 10,000 business angels are already active throughout Germany. In Germany's True North, the Baltic Business Angels Schleswig-Holstein e. V. network has been steadily established, expanded and supported by WTSH since 2018. Forty-six angels are currently at work in our state, supporting startups across Schleswig-Holstein with funding and advice. So far, they have arranged around 80 pitches and about 45 investments, not to mention almost seven million euros in seed capital. "Businessland" talked to business angel Norma Jensen, an industrial engineer and member of the network since 2022, about new ideas, old structures and lessons learned by the angels.

"Businessland": Ms Jensen, you run your own business, so your free time is limited. Why do you take time to support young entrepreneurs?

Jensen: I'm always happy to give them my time, I see it as an investment in the future. I love meeting new people and hearing their ideas.

How do we want to live in the future? People who found companies are pioneers, visionaries and non-conformists. It's important and exciting to

work with them, so you can also help to shape the future. Besides, it's nice to watch things grow. In a nutshell, I'm excited about future-focused thinkers who develop their ideas imaginatively, freely, cheekily and without limits, and I look forward to helping them along the way. The collaboration and dialogue within our network also appeal to me.

"Businessland": As an experienced entrepreneur, but also as a person, what advice do you have for young people who want to bring an idea to the market?

Jensen: Two things: perseverance, and don't be afraid to make mistakes. To swim against the tide, you need to be strong and courageous. I generally think the days of just playing it safe are over. Unless we make some mistakes, we won't get anywhere. That's why it's so important to develop a culture of error tolerance. Startups must be allowed to make mistakes and even to fail. What I want to contribute is an attitude that sees every mistake as a corrective factor that you can grow from, because ultimately we don't live in a land of milk and honey. Starting a business isn't easy, it's hard work and entrepreneurship isn't a sprint, it's a marathon. You need to be clear about that.

"Businessland": Do startups really operate differently, in a new or even revolutionary way, and what adjustments could still be made?

Jensen: Many company founders have really great ideas and innovative approaches to shape our lives in the future. However, in terms of the business structures during or after the company's founding, many are still stuck using old models. For example, the overwhelming majority of startups are created by all-male teams. It's not about wanting to fly the diversity flag, but about the best possible constellation for a successful business. It's clear that mixed teams - and by that I don't just mean gender, but also, for

"We don't live in a land of milk and honey!"

Norma Jensen,
Baltic Business Angel

example, professional background and age - tend to come up with new and innovative solutions. We need this collaborative competence, to exploit the shared wisdom of many equal partners. So I strongly advise people to mix it up for future success. By the way, according to a McKinsey study, diverse startup teams are more successful than non-diverse ones. To overcome the enormous challenges of the future, it's not about your ego, it's about working together on an idea.

"Businessland": Put your ego aside, focus on the idea. It sounds like a simple formula. How does this work in practice?

Jensen: People establishing businesses should critically examine whether their idea really has a competitive USP. It must have a unique selling proposition that can be protected and they need to carefully study the competition. Is the idea really a new idea or just a feature? Is the business plan watertight? How will you make money? Starting a business always requires a certain amount of passion. For your idea, for your team. If you try to go it alone, you won't stand a chance in the long run. As is so often the case, you can only succeed together. This demands a lot from each individual - you have to put your own needs on the back burner and leave your ego outside the door. But seeing your idea through to market maturity, finding your first customers and enjoying shared success, that compensates for everything. The feeling is simply indescribable - even without an ego.

"Businessland": What do you expect from your work as a Baltic Business Angel?

Jensen: I understand the pioneering spirit among today's entrepreneurs very well. New ideas are not always received with enthusiasm and doubters abound. I know this from my own experience. As a business angel, I want to work with other angels to promote innovation and new ideas. So far, I've only been involved with investments for my own business area and have been very successful in this area. Now I'm entering into a direct personal dialogue with the startups via the network, through which I will also learn a lot. Not only from the other angels, but also from the startups themselves. This will benefit me enormously. The bottom line is that I want to make money through my investments. So I will look closely, check the details and learn. Investments are neither gifts nor donations.

"Businessland": How would you sum up the startup scene in Schleswig-Holstein?

Jensen: There is no right or wrong. There is just "do it"! (lei) //

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The development and establishment of the Baltic Business Angels Network is supported by the WTSH as part of the state-funded project "REACT StartUp SH".

bba-sh.de



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ERNST BARLACH MUSEUM RATZEBURG

THE “RELOADED” ARTIST FROM WEDEL

The small Ernst Barlach Museum in Ratzeburg has achieved something that many other, even much larger, exhibition houses have yet to do. Besides showcasing works of art that stand silently on pedestals or hang on walls, it also offers visitors a multifaceted multimedia show that invites interaction and conveys knowledge in a fun and playful way. “Barlach reloaded” is the name of the concept that has made the work of the world-famous sculptor, visual artist and writer Ernst Barlach (1870–1938), who was born in Wedel, feel amazingly up-to-date – and which is also drawing young people to the museum.

“It was clear that we needed a whole new way to present the works. We wanted to reimagine this artist, who is celebrated internationally but considered old-fashioned and even rather “fusty” by many people here in the North,” explains Heike Stockhaus. She is the artistic director and curator for the non-profit Ernst Barlach Gesellschaft Ham-

burg, which maintains the two Barlach houses in Wedel and Ratzeburg in Schleswig-Holstein. The 150th anniversary of the artist’s birth, which was celebrated in 2020, prompted the Barlach expert and her colleagues – with the support of various public and private institutions and partners – to renovate the historic house in the centre of the

**Ernst Barlach Museum
Ratzeburg**

Barlachplatz 3
23909 Ratzeburg

Open Tuesday to Sunday
from 11 am to 6 pm



island town of Ratzeburg, where Barlach spent part of his youth, and to redesign the exhibition there in a way that is not only contemporary but also forward-looking.

And this starts right at the entrance - when buying your admission ticket, you can choose to borrow a smartphone or install the Barlach app on your own device. By scanning the QR codes on some of the artworks, visitors can (for example) insert Barlach's famous bronze figures "Der singende Mann" ("The Singing Man") or "Das Wiedersehen" ("The Reunion") into a virtual environment or place them against various backgrounds, including full supermarket shelves and apocalyptic landscapes. **"Besides the social upheavals of his time, the consumption and destruction of the Earth as a result of unbridled progress were also central themes of Barlach's work. Issues that are still of great concern to us today,"** says the curator.

One of the exhibition rooms houses a giant touchscreen with a length of over five metres, on which texts and images about Barlach's life and works, and their historical context, can be displayed at the touch of a finger. **"We feel this context is important and it can be perfectly conveyed using this digital timeline,"** says Heike Stockhaus. During

the time of the German Empire and the Weimar Republic, Barlach rose to become one of the most important and best-known German Expressionists. During the Third Reich, he was ostracised by the National Socialists, but was later equally revered in both German states.

Another interactive screen invites you to play the "Barlach Game". Square pictures appear, which the visitors must rearrange into the correct chronological order. Which one did Barlach create first, the first talking robot or his large statue, "Der Geistkämpfer" ("The Spirit Warrior"), which was commissioned by the city of Kiel? The upper floor, which is entirely dedicated to the poet and playwright Ernst Barlach, is also full of multimedia games. Visitors can project their own image onto large-format stage settings, save the results - and even use them in their own social media profiles. Another highlight is the virtual reality 3D installation that recreates a scene from the Barlach drama "Der tote Tag" ("The Dead Day"). By putting on VR glasses, visitors are transported right into the middle of the on-stage action.

But none of this is about technology as an end in itself, emphasises Heike Stockhaus, a student of Barlach for more than 35 years. **"We use the media for the artist, not against him."** The original works still have their own space, and those who prefer detailed text panels to pictures and films will also find these in the exhibition. The artistic director of "Barlach reloaded" also attaches particular importance to the accompanying "Barlach GoYoung" programme - its workshops give young people the opportunity to become "museum ambassadors". An artist of the past has thus become an inspiration for the present and future. "Barlach GoYoung" also impressed the jury of the renowned "Deutscher Kinder- und Jugendpreis" (German Children's and Youth Prize). In 2021, the programme was awarded first prize in the "Youth Culture" category. (sas) //

ernst-barlach.de
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