

MARKETS

GERMANY

SPECIAL EDITION 2020

STATES OF FLUX

It's 30 years since German reunification. In this special edition, we look at the structural change that has taken place across the country. Opportunities for growth are opening up in both the East and the West.

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A hiker takes on the "Tiger and Turtle – Magic Mountain" rollercoaster walkway installation in Duisburg. Built in 2011, the sculpture stands on a former zinc-smelting slag heap.

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How Berlin became an international hub for 3D printing

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Healthcare:

Halberstadt turns its fortunes around as a medtech hub

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Germany's largest green hydrogen plant in Schleswig-Holstein

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FOCUS

States of Flux

The Berlin Wall fell in 1990, but many German states are still undergoing structural change. Ongoing transformation is generating interesting investment opportunities.

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OPINION



Structural Change = Creative Solutions

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Federal Ministry
for Economic Affairs
and Energy



Federal Government Commissioner
for the New Federal States

on the basis of a decision
by the German Bundestag



**»Investors from Germany
and around the world
are discovering lucrative
business opportunities in
structural change.«**

Dear Reader,

Germany is world-renowned for its economic dynamism and manufacturing excellence. This said, the country is not without its own challenges. Many regions are undergoing economic structural change and upheaval as a result of diverse factors including digitalization, Germany's own transition to clean energy and global business trends.

The end of the lignite industry, the transformation of the automotive industry to electric drives and the economic pressures large employers experience today are driving structural change in several regions. Many eastern and western German states have taken 'ownership' of these disruptions and turned them into opportunities to change for the better.

Moreover, domestic and international investors are discovering lucrative business opportunities in structural change. Germany has many inspiring success stories which we share in this special edition. All the case studies have one thing in common: The chances of success are greatly increased when investors and other local players collaborate to make progress and effect change.

We at Germany Trade & Invest (GTAI) support international investors interested in coming to Germany. We provide them with market information, support them in making contacts and identify sources of public funding.

If you are interested in Germany, please contact us. We look forward to hearing from you.

Silke Poppe
GTAI Section Director

ONE TO WATCH

Leibniz
Gemeinschaft

Photo: Gordon Welters/laif



Srijna Jha, cofounder and CEO of Morph Green Tech

In 2015, a devastating earthquake hit Srijna Jha's home country, Nepal. At the time, the physicist was living in Germany and was unable to communicate with her family back home. "When a disaster happens, electricity and communication are cut off first," says Jha. Two years later, she and her business partners Katharina Diehl and Marit Bilandzija-Kenning developed a tool that could have provided electricity during the disaster: the Solar Cube. It is an origami-inspired solar charger which uses PV integrated solar textiles and solar cells. "While Solar Cube was built with a vision for rural development and disaster response, it would appeal to outdoor lifestyle consumers too," says Jha. Jha moved to Germany in 2011 to pursue a

master's in Natural Resource Management at Humboldt University in Berlin, and is currently doing a PhD on agricultural innovations for rural development at the Leibniz Centre for Agricultural Landscape Research in Müncheberg, Brandenburg. Müncheberg was the natural choice of location, not least because it is a coal mining region. "Introducing green energy companies in regions which are dependent on fossil fuels makes a lot of sense because the priorities of the funding agencies are geared toward your goals," she explains. The corporation received state funding through the *Gründung Innovativ* program. The Solar Cube is still in the test phase, but Jha plans to launch the product on Kickstarter in 2020.

Quick facts

Name Srijna Jha

Age 34

Nationality Nepalese

Company name

Morph Green Tech

Founded 2017

Based in Müncheberg

Industry Green tech

Capital invested EUR 75,000



www.morphgreentech.com

The "Tiger and Turtle – Magic Mountain" installation is a stroll-on sculpture based on a rollercoaster which can be seen from miles away: It stands on Heinrich Hildebrand Hill in the Angerpark in Duisburg, North Rhine-Westphalia. The landmark was conceived and developed by artists Heike Mutter and Ulrich Genth as part of the "European Capital of Culture RUHR" year in 2010. The hill was once a slag heap owned by the zinc smelting company Sudamin MHD GmbH (which closed in 2005) and is named after a local Duisburg historian.





States of Flux

Thirty years after German reunification, many regions in eastern Germany are still undergoing structural change. The economy in the West is also changing, for a variety of reasons. On the upside, these developments provide promising opportunities for foreign companies.

Structural change can have many faces. It might come rather slowly as a consequence of shifts in a region's major industry and emerging new technologies. Or it might be more rapid and unexpected, for instance in the aftermath of historic events. The process of change is usually accompanied by severe challenges for the region's economy and population; but it also offers manifold opportunities to push forward innovative solutions.

The most prominent and far-reaching example of structural change in Germany's recent history probably came about as a result of the country's reunification three decades ago. The Berlin Wall was a monumental symbol of the division of Germany into two countries: the Federal Republic of Germany (FRG) to the west and the German Democratic Republic (GDR) to the east. The border between the two countries was 1,400km long and "The Wall" ran through the middle



»Even 30 years after German reunification, Germany is still a country in upheaval.«

Klaus-Heiner Röhl, economist

of Berlin and stopped GDR citizens from leaving the country.

Civil rights movement

However, the year 1989 was a turning point. The economic situation in the GDR was bleak. Although the country had narrowly escaped an economic collapse at the beginning of the 1980s, the level of debt was still high. Industry fell into decline. There was a lack of many things: Spare parts for cars, color televisions, building materials, and certain foodstuffs were scarcely available to GDR citizens. They gave vent to their dissatisfaction. Led by peace and civil rights activists and committed Christians, more and more people took to the streets to protest against the regime. They demanded freedom of expression and free elections and wanted to be able to travel to the West without restriction.

Berlin's Iron Curtain is pulled down

On November 9, 1989, this civic movement was suddenly successful: Border crossings from the East to the West were opened. The Wall had fallen. Thousands of Germans from either side fell jubilantly into each other's arms to celebrate the momentous occasion at the border crossings. Less than a year lat-

er (October 3, 1990), Germany was officially reunited.

After reunification, the German Federal Government pushed ahead with the "reconstruction of the East." It wanted to quickly bring living conditions in eastern Germany in line with standards in the western part of the country. Five new German federal states emerged from the former GDR: Brandenburg, Mecklenburg-Vorpommern, Saxony, Saxony-Anhalt and Thuringia. At the heart of them is Berlin, reinstated as the country's capital city.

More than 30 years have passed since the fall of the Berlin Wall. During this period, Germany has been transformed in many ways – and it is still changing. "Structural change is actually taking place everywhere, the drivers are manifold," says Klaus-Heiner Röhl, economist at the German Economic Institute (IW).

The term "structural change" describes the economic, social and political challenges a nation is facing – such as regime change, climate change, digitalization, and even demographic shifts. Nonetheless, companies interested in investing in Germany should take a closer look at regions undergoing transformation, since they usually offer plen-

ty of attractive industrial sites, highly motivated specialists (e.g. university graduates who are often interested in finding work locally) and innovative cooperation partners. The technological structural change associated with digitalization in particular calls for innovative solutions from the industry. In search of those, companies can invest in research and development (R&D) themselves as well as cooperate with regional universities and public research institutes in order to keep pace with technological change. Technology-driven start-ups in particular (often spin-offs of universities and public research institutions) can prove to be positive drivers of structural change in a region.

The German state has a special fund to promote foreign direct investment into those regions most affected by structural change. The different federal states also have their own economic development agencies to promote the local economy and assist potential development partners and investors from within Germany and overseas.

The structural change phenomenon

Across the federal states, structural change is well advanced in certain areas and still very much in progress in others. "Each region is

FACTS & FIGURES

Closing the gap between East and West

unique – with different challenges and different opportunities opening up for investment. Potential investors are encouraged to do their research to find the location which is best suited to their success. The experts from GTAI can help you in the process,” says Silke Poppe, Section Director at Germany Trade & Invest (GTAI).

Overall progress has been strong and widespread since German reunification. In 1990, eastern Germany's economic strength (measured by gross domestic product per capita) was only 43 percent of western Germany's economic position. By 2018, however, it was up to 75 percent, according to an annual report by the Federal Government. In 2010, the unemployment rate in the eastern German states was still hovering at around 12 percent. By the summer of 2019, however, it was down to 6.9 percent. The rate fell from 6.6 percent to 4.8 percent in the West during the same period. There are several regions in eastern Germany where structural change took root more quickly and was particularly successful after the fall of communism.

Germany's "Optics Valley"

Take the city of Jena, where so much has happened since reunification. This relatively small conurbation in the federal state of Thuringia is known as eastern Germany's "Optics Valley." Even in the former GDR, Jena was best known for the world-famous, state-owned lens and camera manufacturing company Carl Zeiss. In the 1980s, up to 70,000 people worked in the Zeiss factories. After German reunification, many of them lost their jobs. The company nevertheless continued in a scaled-down form, trading under the name Jenoptik, and has been a prime mover in making Jena a center of the optical industry.

Many former Zeiss employees also went into business for themselves, applying their expert knowledge in the reunified Germany. As a result, many small companies were founded around Jenoptik. In the intervening years, the university city of Jena has developed into a fast-growing hub for the high-tech industry. Many international investors have settled there, including the Swiss

€22,687

GDP per capita **western Germany 1991** ¹⁾

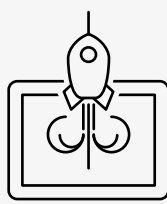
€9,701

GDP per capita **eastern Germany 1991** ¹⁾

€42,971

GDP per capita **western Germany 2018** ¹⁾

€32,108

GDP per capita **eastern Germany 2018** ¹⁾Time of upheaval ²⁾

Share of start-ups (10 years or younger) among all companies by German region in %

Berlin

16.1

Hamburg

7.4

Rhine-Ruhr metropolitan region

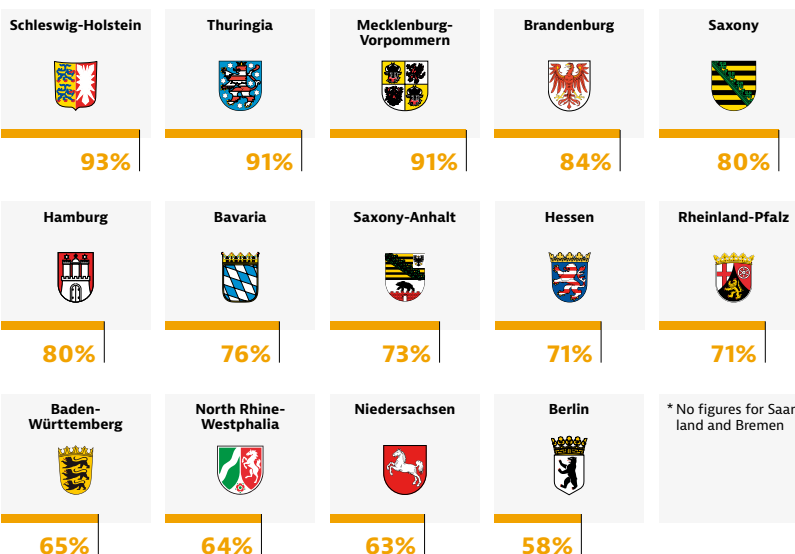
14.3

Stuttgart/Karlsruhe

7.3

Germany's hidden champions ³⁾

Share of SME employees by total employment figures per state



Sources: 1) German Federal Government; 2) German Startup Monitor; 3) KfW

technology group Feintool, Optics Balzers from Liechtenstein, and the Israeli electronics company Orbotech. “Jena is a good example of how strong research and development, a large number of employees in technical professions, and new technological developments have led to sustainable and measurable innovation successes,” explains economist Röhl.

Disruption brings positive change

The federal state of Brandenburg has also adapted well to the structural changes of recent decades. At 5.4 percent, the unemployment rate in the state is at its lowest ever level, and GDP almost quadrupled from EUR 20 billion in 1992 to EUR 74 billion in 2018. Exports have also risen sharply. “All the economic data make it quite clear: Brandenburg has mastered a successful structural change,” says Dr. Steffen Kammradt, managing director of the Brandenburg Economic Development Corporation. Today, Brandenburg is one of the top locations for the aviation industry, and the automotive industry is also thriving in the state.

In eastern Germany, the industrial inheritance of the former GDR has been preserved in many instances and has served as a foundation for new developments. In Ludwigsfelde, Brandenburg, for example, the once state-owned Industrial Association for Vehicle Construction (IFA) company, which used to build trucks during the GDR era, remains operational to this day. Since 1994, the plant



Dr. Robert Hermann **»Young companies** **accelerate structural change.«**

The German start-up landscape acts as a catalyst for structural change across the country, says Dr. Robert Hermann, CEO of Germany Trade & Invest.

Why do start-ups play an important role in structural change?

Start-ups fulfill several important functions, for example as input providers for larger, established companies. If such companies acquire the technology of a start-up or integrate it into their value chain, they remain competitive in the long term. Start-ups also have a disruptive effect and solve problems in an unconventional way. This accelerates structural change and creates investment opportunities. Furthermore, they create jobs and career opportunities.

To what extent are regions of structural change a good environment for start-ups?

Where positive structural change is taking place, especially in large cities and conurbations, there is a spirit of optimism and creative entrepreneurship. Many digital and technology start-ups have settled in the Ruhr area. The transition from coal to renewable energies and digitalization is in full swing there. A strong start-up scene has also established itself in Leipzig. There has been a profound structural change there since the beginning of the 1990s – away from the lignite and chemical industry and toward digital service providers.

What makes German start-ups interesting for foreign investors?

Investors from abroad can find partners throughout the German start-up landscape. In addition, start-ups are seen as attractive employers in Germany. This creates recruitment potential for foreign companies.

has belonged to Daimler and today employs 2,000 people who produce the Mercedes Sprinter model there. The city of Schwedt is another success story: It is home to the PCK oil refinery, which was also once state-owned and is now fully modernized. Today, it supplies oil to the Berlin and Brandenburg area.

The U.S. company Tesla, a heavyweight in the electric mobility sector, has also announced its intention to become active in Brandenburg: The electric car manufacturer's first European factory is to be built near Berlin. “We will build batteries, drive trains and vehicles there,” explains Tesla CEO Elon Musk.

The positive developments triggered by structural change are evident throughout eastern Germany. Many international companies have settled there, including Pfizer Pharma, Goodyear Dunlop Tires, Ypsomed, GlobalFoundries, Greatview Aseptic Packaging, and Bell Equipment, along with many other small, medium-sized and large companies. According to fDi Markets, a total of 841 investment projects were established in the new federal states during the period 2014 to 2018.

Structural change to the west

In many western regions of Germany, structural change is also a major topic. In the Ruhr area, cities like Essen, Bochum, Gelsenkirchen, and Duisburg were once strongholds of the German coal and steel industry. But today, coal is no longer mined and many steelworks

A photograph of a Carl Zeiss STARMASTER projector, a spherical device with numerous lenses, mounted on a blue arm. The projector is positioned in the lower center of the frame. The background is a dark, curved surface, likely the interior of a planetarium dome, which is covered with numerous bright red, stylized lips. The lips are scattered across the entire surface, creating a dense pattern. The lighting is focused on the projector, making it stand out against the dark background.

Still from "The Moon – A Fairy-tale Under the Stars," a family show projected onto the Star Theater dome at the Zeiss Planetarium in Jena, Thuringia. The Zeiss STARMASTER can deliver the sharpest stars, astral bodies and other motifs using multiple projectors and LED light sources. Zeiss planetariums around the world showcase the company's know-how in opto-electronics.

Review

Structural change since The Wall fell

After German reunification, people in eastern Germany began to live a freer life in many ways. For the economy of the former GDR, however, it meant a shock: The socialist economy was abandoned, and market economy principles were introduced. Companies from the former East Germany had to face global competition virtually overnight and operate using a new currency.

The result? Within just two years, many large, previously state-owned companies shrank to small and medium-sized enterprises (or disappeared from the scene completely). The trade networks that had existed between East German companies and other eastern European countries collapsed. While the western German economy experienced a real reunification boom due to an extended sales market, eastern Germany experienced an economic crisis. The traditional industrial economy in the East needed a complete reboot in order to survive in the globalized market economy. In the early years following reunification, eastern Germany had to face severe challenges including an industrial decline, a severe rise in unemployment, and an East-West exodus. However, there have since been massive investments into infrastructure and economic support programs. "Hidden Champions" (SMEs that are successfully competing internationally) have emerged in eastern Germany. The year 2017 also marked a historic turning point, with more people moving from western to eastern Germany for the first time.



Photo: Paul Langrock/laif

»Each region is unique: with different challenges and opportunities for investment.«

Silke Poppe, GTAI Section Director

→ have closed. The closure of an entire branch of industry has had a dramatic effect on the Ruhr region, and economic initiatives and structural policy programs have only borne fruit to a limited extent.

The Ruhr region nevertheless has a lot to offer today, with no less than 22 universities and more than 60 research institutions. “This dense and diverse research landscape makes a major contribution to coping with structural change,” says economist Röhl. Spin-offs from the research carried out at universities and research institutions could notably be capitalized on by investors. The environment has also proved to be fertile ground for innovative start-ups.

The German start-up landscape extends far beyond the Ruhr region, of course. Almost every region hosts a culture of young founders who develop innovative business ideas and creative solutions which could provide answers to the world’s problems. As previously mentioned, start-ups are an essential driving force of structural change in Germany. In 2017, there were around 108,000 founders of start-ups in Germany, compared to the previous year, when there were ‘only’ 93,000. Concluding a recent report by the state-owned

FACTS & FIGURES

6.9%

Between 2010 and 2019, the unemployment rate in eastern Germany fell from 12% to 6.9%.

No 2

Leipzig/Halle Airport is the second largest cargo airport in Germany and is open 24/7.

€74bn

The eastern German state of Brandenburg’s gross domestic product (GDP) in 2018

bank KfW, chief economist Jörg Zeuner commented: “The German economy needs these dynamic young companies to stay fit for the future. They are often the ones who make new technologies suitable for application and therefore ensure their dissemination.”

Climate change is a major driver

Every day, new collaboration agreements are signed by manufacturers and suppliers across Germany, as solutions to tomorrow’s mobility and transport challenges are discovered. The Stuttgart region in Baden-Württemberg, for example, has become a center for electromobility. All industries working on new, climate-friendly and networked mobility solutions are active in the state’s renowned automobile manufacturers such as Daimler, Audi, Porsche and Mercedes-Benz as well as their suppliers.

Climate change is also driving considerable structural change in the German energy industry. The number of consumers who now demand clean energy in Germany is rising, and the Green Party has made great strides in recent elections. The German Federal Government has been pushing the transition of the country’s energy supply from nuclear and

fossil fuels to renewable energies for some years now. In 2022, the last German nuclear power plant is due to go off-grid, while lignite will no longer be mined after 2038. The last hard coal mine in Germany closed its doors in December 2018.

Environmental technology

Germany's *Energiewende* (Energy Transition) is an enormous project that will bring about large-scale structural change in industry and across all of the regions, more specifically in the three major lignite mining districts: the Rhenish mining district in North Rhine-Westphalia, the Lusatian district in Brandenburg and Saxony, and the central German mining region in Saxony and Saxony-Anhalt.

Germany is already one of the world leaders in the field of environmental technologies. This position is likely to be consolidated over the coming years. With the help of pub-

lic funding, 20 *Reallabore der Energiewende* ("real-world laboratories for the Energy Transition"), for example at the Energy Park Bad Lauchstädt near Leipzig, will provide scientists and innovative companies with ample opportunity to research new solutions for a clean energy future.

Saarland: From coal to IT sciences

Regions affected by the coal withdrawal have a lot to learn from the Ruhr area, which already has years of experience of structural change following the disappearance of an entire industry. Saarland has also mastered its exit from the coal and steel industry well. The region's last hard coal mine closed a few years ago and around 5,000 jobs were lost. The federal state was able to fall back upon its well-networked research landscape in information technology and has since developed into an important location for IT sciences. Several well-known research institutions

such as the Max Planck Institute for Software Systems (MPI-SWS) and the Leibniz Institute for New Materials have settled in the state capital Saarbrücken.

Foreign investors interested in locating in Germany, and particularly in regions undergoing structural change, can count on public support. The German Government and the federal states have an economic development framework in place to strengthen local infrastructure and business ecosystems, create jobs, and promote innovation and entrepreneurship. This system is open for all investors, regardless of their country of origin. There are a number of incentive programs for foreign companies meeting certain criteria; they will be assessed according to need and the regions they would like to invest in. These programs include investment grants, promotional loans, and public equity capital.

Benefiting from structural change

The incentives are not mutually exclusive and can be used in combination. Companies who access them can use them to finance various projects such as research and development, personnel development, environmentally relevant projects, and general investments. GTAI helps foreign companies to identify suitable programs for the project and region in question. Its experts provide assistance in setting up a draft project outline, which normally serves as the first step in the R&D incentives application process.

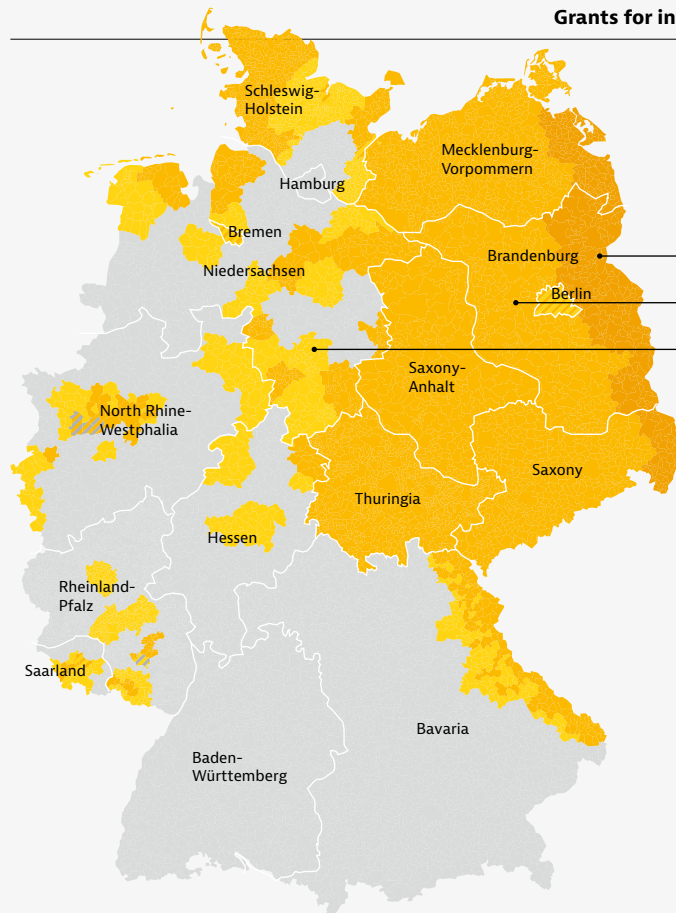
Thirty years after the fall of The Wall, it is now clear that structural change is a phenomenon that is taking place across Germany and is not confined to the eastern states. Structural change takes many forms and its drivers are numerous, for example digital transformation and new climate and environmental protection challenges. The changes that go hand in hand with this state of flux bring exciting opportunities for companies from Germany and abroad. It is worth keeping a close eye on developments and seizing opportunities when they arise.

»Foreign investors can take advantage of various incentives according to their needs.«

Let It Grow

Project financing incentives are available to all investors and are provided by the German Government, the federal states, and the EU to support business growth. Germany Trade & Invest advises large companies (turnover of more than EUR 50 million) and SMEs alike.

Grants for investment/personnel



Germany offers investment grants (GRW program) of up to 20% to support new production or service facilities.

● **Border area to Poland:** max. 20% for large enterprises

● **C Region:** max. 10% for large enterprises

● **D Region:** max. €200k for large enterprises

Eligible costs are either project-related capital expenditures or wage costs over two years.

Eligible projects for large enterprises

New facility	Greenfield project
Acquisition of closed facility	Eligible costs = (market prices of assets) – (acquisition costs of assets that have been funded before)
Diversification	New products (new NACE code)
Process innovation	New or substantially improved production methods
Environmental investment	Surpassing national and EU environmental standards

Loans for all funding purposes

Public loans can offer reduced and fixed interest rates, long terms, and repayment-free years.



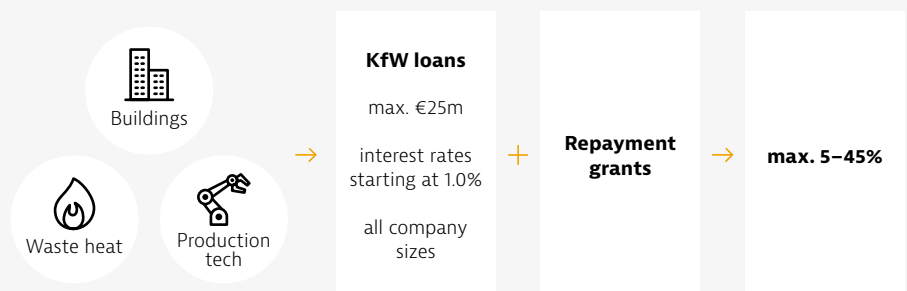
National level (KfW Group)
Special programs available for R&D, energy efficiency, and specific purposes



European level (European Investment Bank)
Loans to individual projects with total investment costs exceeding €50m

Loans/grants for energy efficiency measures

KfW loans in combination with attractive repayment grants



Want to find out more about project funding? Contact the financing and incentives team in Germany Trade & Invest's Investor Support Services division:
daniel.stephens@gtai.com, michael.schnabel@gtai.com

Aerospace

Bremen's Rockets

European launcher hails from the Hanseatic city

Everyone wants a place in space: Telecommunications companies are lining up to fire satellites into space in order to guarantee their customers better Internet supply. Many of the rockets are made in Bremen by the ArianeGroup. The manufacturer of the new launcher Ariane 6 has been building rocket parts since May 2019. In their state-of-the-art new production hall, engineers are assembling 20-station components for the upper stage, such as huge tanks for liquid hydrogen and oxygen. ArianeGroup can build up to 12 of the upper grade rockets here a year – almost twice as many as its predecessor, Ariane 5, and 40 percent more economically. The new facility will make Bremen one of the most important space locations in Europe and could create lucrative opportunities for suppliers from the region. According to the ArianeGroup, eight orders have already been received and the first flight is planned for 2020.

www.ariane.group/en/

Photo: Ariane-Center Bremen



Rocket manufacturer ArianeGroup opened its new production facility, the Ariane Center, in Bremen.

Smart cities

Solingen Is Testing the Future

How smart streetlamps save energy

Solingen in western Germany has been awarded "Smart City" status by the German Federal Ministry of the Interior, Building and Community. Even its streetlamps are intelligent: Sensors in the lanterns detect whether it is cloudy or not. The streetlamps adjust to the weather, allowing energy savings of up to 80 percent compared to conventional lighting. As well as this, the parking spaces in front of the town hall are equipped with sensors so that citizens can see on their smartphones how many spaces are available.

solingen.urbanpulse.de

Green technology

Organic Glue Sticks

Thuringian researchers develop bio-adhesive

Four hundred years – that's how long microplastics made of adhesives remain in the environment. Scientists at the Thuringian Institute of Textile and Plastics Research (TITK) in Rudolstadt are therefore developing a bio-adhesive that is 100 percent environmentally friendly. Researchers extract the ingredients of the "organic hot-melt adhesive" from lactic acid bacteria, resins and waxes. Manufacturers will then be able to use it to glue everything from cartons, book covers and clothing to sanitary towels and diapers.

www.titk.de

Chemicals

CO₂ – an Underrated Raw Material?

Dresden start-up joins forces with French oil giant

Carbon dioxide (CO₂) is considered the number one climate offender as the main greenhouse gas contributing to global warming. But it is also a vital raw ingredient for companies like Dresden start-up Sunfire. Working within the oil refinery of French oil giant Total in Saxony-Anhalt, Sunfire uses the refinery's emissions to produce synthetic methanol from CO₂ and hydrogen. As one ton of methanol binds 1.4t of CO₂, Sunfire calculates it can produce 500t of synthetic methanol over three years. Methanol is a valuable raw material in the chemical industry that is used to produce plastic, glue and other everyday objects. Total aims to reduce its CO₂ emissions by 15 percent by 2030, and is investing heavily in clean technologies such as those of the Dresden start-up. The oil multinational has already invested several million euros in Sunfire through its venture capital subsidiary Total Energy Ventures.

www.sunfire.de/en

Healthcare

Fighting Epidemics

Magdeburg develops new vaccine production process

The yellow fever vaccine is very effective and lasts a lifetime. Yet hundreds of people in Angola died unnecessarily of the disease in 2016 when the country ran out of the vaccine that is expensive and time-consuming to produce. Scientists at the Max Planck Institute in Magdeburg have since developed a method that can produce 80 times more vaccine viruses in one go than the conventional method. Using a probe, they can now continuously measure how many cells live in the bioreactor, which means they can automatically adjust the amount of feed to the cells. The cells are later infected with the virus and killed. In this way, 10 million doses of vaccine can be produced in two weeks – that's the entire global supply of yellow fever vaccine in just 14 days. The new method has yet to be put into practice, with considerable research work still ahead.

www.mpi-magdeburg.mpg.de/2316/en

E-mobility

Tesla's New Plant in Brandenburg

Up to 12,000 new jobs will be created

The community of Grünheide, 40km southeast of Berlin, is best known to nature lovers and ramblers for its pristine forests and lakes. There is hardly any industry to speak of. But all that is about to change: In 2021, the U.S. car manufacturer Tesla will start producing 100,000 electric cars in Grünheide every year. The new plant, which will create up to 12,000 jobs, will also produce batteries and powertrains. The model for the site is the Tesla Gigafactory in Shanghai, built in record time at a cost of USD 2 billion (EUR 1.8 billion). The new factory will be one of the largest investments ever made in the surroundings of Berlin. The Brandenburg site prevailed against stiff competition from across Europe. Above all, it was the good connection to the road network, the proximity to Berlin and easy access to renewable energy that convinced Tesla boss Elon Musk it was the right location. Tesla will be employing highly qualified engineers as well as assembly line workers at the new site.

www.tesla.com



A pine forest in the village of Grünheide, outside Berlin, is the future site of Tesla's first major European car factory.

Photo: ANDREAS MEICHNER/NTY/Redux/laif

Federal States in Focus

Structural change is not restricted to the eastern German states – digitalization and the challenges of climate change are also shaking up the economies in the west of the country. In this section, we focus on each of the 16 federal states in more detail, looking at the context of change, industry growth sectors, and opportunities for structural development, investment and collaboration.

From Lignite to Bioplastics

The phase-out of coal mining in Brandenburg has pushed the chemical and plastics industries to the fore. Around 600 companies are active in this sector in the eastern German state, and are pushing growth. A number are based in Schwarzheide.

Brandenburg is a fairly rural state surrounding Germany's capital city-state Berlin, which is rich in raw materials. For a long time, the city of Schwarzheide relied upon the lignite industry. Local businesses used it to produce polyurethane (i.e. plastic and synthetic resins). However, lignite is finite and coal-fired power plants are speeding up the damaging effects of global warming. It is therefore no surprise that there has been a change of thinking in Brandenburg.

The eastern federal state began the process of shutting down its first opencast coal mine in 2015. The second has been out of service since autumn 2019. In any event, the German Government plans to have shut down all coal-fired power plants by 2038 in order to reduce CO₂ emissions and transition across to renewable energies.

Brandenburg's transition plan

The people of Brandenburg have been working on their own transition plan to positively influence the imminent structural change. In Schwarzheide, local companies and research institutions have been collaborating to shift away from lignite-based plastics toward sustainable bioplastics. In this way, Brandenburg-based companies are addressing the issue of fossil fuels – themselves a fi-

nite resource – and their contribution to climate change, while meeting growing consumer demand for sustainable solutions.

The Schwarzheide business community has fallen back on its considerable expertise in specialized chemical products. This industry focus was the result of the last sweeping structural change in 1990. Shortly after the reunification of Germany, the chemical giant BASF took over a polyurethane production plant in Schwarzheide. Several medium-sized suppliers and cooperation companies followed suit. Since then, almost 600 companies from the plastics and chemical industries have settled in Brandenburg. Their total turnover amounted to EUR 3.4 billion in 2016. Local research institutions such as the Fraunhofer Institute for Applied Polymer Research IAP also support innovation in this field.

Opportunities in sustainable solutions

Companies that want to participate in the growing sustainable business movement will find a suitable and welcoming environment in Schwarzheide. The Lusatia region has developed into a center for biopolymer innovation and offers promising investment opportunities for German and foreign companies. Not only is there a skilled local workforce but also building land at favorable prices, e.g. for the construction of large warehouses and production halls.

Take the Spanish environmental technology specialist Tradebe, for example. The group, which has more than 2,000 employees worldwide, made the move to the Schwarzheide region in 2018. "The region, and



Schwarzheide in particular, is very industry-friendly,” says Volker Sernau, plant manager at Tradebe. “That is why we feel very well looked after here.” The Spaniards plan to invest around EUR 10 million in the site. Jörg Steinbach, Brandenburg’s Minister for Economic Affairs, Labor and Energy, welcomes Tradebe’s move: “This will better enable the Schwarzheide industrial park to meet its responsibilities for structural change in Lusatia.”

Strategic position within the European Union

Foreign companies will also benefit from Brandenburg’s proximity to other European Union (EU) countries. Schwarzheide is located in the southeast of Brandenburg and thus directly in the border triangle with Poland

and the Czech Republic, while the capital Berlin is not far away.

The research into sustainable polymers that is taking place across Brandenburg fits well into the strategy of the EU. Brussels recently decreed that all plastic packaging should be recyclable by 2030. To achieve this goal, the EU Commission is providing funding to develop smarter, recyclable plastics and more efficient recycling processes, and to promote the elimination of hazardous substances and contaminants from recycled plastics. The federal state of Brandenburg and the German Federal Government have also launched specific funding programs in the field of plastics and chemicals: Twenty projects in Brandenburg are currently supported by the federal German Government.



€3.4bn

The total turnover of around 600 plastics and chemicals companies in Brandenburg in 2016. Many are meeting consumer demand for sustainable solutions.

Source: Brandenburg



The design of the original “Penny Farthing” high-wheel pedal bike from 1865 was the basis of an innovative experiment. What would a modern “e-velocipede” look like using the latest innovative materials and technology?

“Concept 1865” was cocreated by design studio Rudolph Schelling Webermann and the chemical innovation giant BASF. The 19th-century model was revamped as an e-velocipede using 24 different BASF plastics. The tires are made of Infinergy®, the world’s first expanded thermoplastic polyurethane.



Germany's e-mobil Valley

The automotive metropolis of Stuttgart is spearheading a shift from gasoline and diesel toward electricity and hydrogen. Companies from the field of e-mobility can capitalize on the restructuring that is taking place in Baden-Württemberg, for example as suppliers to car makers.



Baden-Württemberg is regarded within Germany as a state of inventors – this going right back to its long history of car manufacturing. Back in the mid-1860s, working only 100km apart, Gottlieb Daimler and Carl Benz built the first carriages equipped with an engine – the forerunner of the automobile – in Baden-Württemberg. Around 130 years later, the days of the combustion engine are numbered: Daimler has already announced that it will no longer invest any more money in combustion engine research and development (R&D).

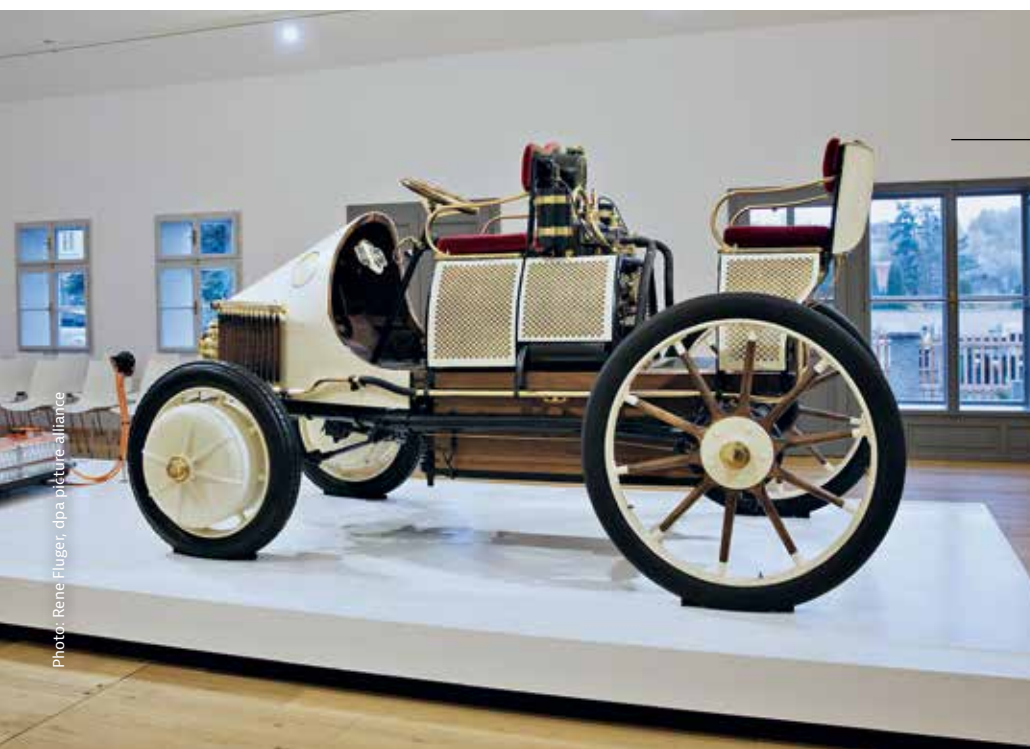
R&D investment

Large investments, however, are being made by the industry to ensure cars are fit for the low-carbon future. In 2017, around 60 percent of Germany's R&D spending from the

manufacturing and service sectors went into vehicle construction according to an analysis by the Stifterverband think tank. Companies in the Stuttgart region account for half of the state's total R&D expenditure. For automotive companies investing around Stuttgart, the proximity to their suppliers and customers, the rich R&D environment and the large pool of specialized workers are major advantages. "All sectors for new, climate-friendly and networked mobility solutions are represented here. There are car manufacturers, vehicle engineers, IT specialists, mechanical engineers and specialists from the energy industry," says Isabell Knüttgen from the "e-mobil BW" business development agency. "The high concentration of specialist knowledge enables companies to be highly innovative, which is clearly evident in the automotive sector." Knüttgen believes the region will play a big role in shaping the change toward electromobility: "Stuttgart will remain the innovation leader in the field of car construction."

Stuttgart's Finnish connection

Finnish development and manufacturing service provider Valmet Automotive has two locations near Stuttgart. In 2019, the company set up a battery test center at one of the sites. "The test competence available at the location was ultimately the decisive factor in locating the center here," says Robert Hentschel, managing director of Valmet Automotive Engineering. The Finns have been working with Daimler for years and supply parts for the production of the Mercedes-Benz A-Class among other products. Hentschel wants to link up with the Stuttgart "e-mobil" initiative and be an active partner in the industry's development and future success.



Porsche is one of the prestigious carmakers in the Baden-Württemberg industrial cluster. Pictured is a model of Semper Vivus, Ferdinand Porsche's racing car from around 1900, the first ever hybrid-electric drive. Today, Porsche are powering the e-mobility revolution with their latest models.

The production line for porcelain artifacts at the Rosenthal factory in Selb, Bavaria. Porcelain manufacturers have a long tradition in the region, but today they mainly produce technical ceramics, which are an indispensable component in many electronic products.



Photo: Gaby Gerster/laif

Before German reunification, the region around Hof in the north of Bavaria suffered from being isolated on the border between West Germany and the Eastern Bloc. But after 1990, the region suddenly found itself at the heart of a unified Europe, and in recent years it has moved further toward the center economically.

Many long-established industrial companies in the Hof area did not survive the waves of rapid change during the 1990s. However, the companies who have managed to adapt their goods and services to the digital world are still successful, including a number of porcelain manufacturers with a long tradition in the region. Today, they produce technical ceramics which are an indispensable component in many electronic products, for example in semiconductors and capacitors.

Interest from energy and e-mobility sectors

This strong expertise makes northern Bavaria particularly interesting for companies working in the energy, electrical engineering and e-mobility sectors. There are also good transport connections available. Although Hof is located in a fairly rural area, there is a freight traffic center with a container terminal at the city's main railway station.

The American company Vishay was one of the first to take advantage of the region back in the 1980s, when it invested in the ceramics and porcelain stronghold of Selb. Over a hundred years ago, the famous porcelain brand Rosenthal invented ceramic solutions for the energy industry. Even today, ceramics are irreplaceable in

industrial electrical engineering (e.g. as insulation in high-voltage pylons), because the material does not conduct electrical current. Europe's first insulator test field was developed by Rosenthal in Selb and garnered important insights for electrical engineering. The niche business that Vishay bought in 1987 has become a worldwide enterprise, and the company's European headquarters remain in Selb to this day.

Bavaria's Japanese connection

Last year, the Japanese group Kyocera also came to Selb. The company is best known as a manufacturer of printers and copiers, but it also has a fine ceramics division. Kyocera was interested in the local business H.C. Starck Ceramics, a leading supplier of high-precision, large components for the semiconductor industry, which is also strong in the production of powders and components made of technical ceramics.

Back from the Edge

Like many regions, northern Bavaria faced challenging changes after German reunification. However, the traditional ceramics industry survived by playing to its strengths and is now attracting investors from America and Japan.



The "Retro Seat" was unveiled by Berlin-based BigRep at the Aircraft Interiors Expo in Hamburg last year. It demonstrates how an existing aircraft seat can be completely redesigned using 3D printing techniques, resulting in weight savings of 50 per cent. It offers high-tech features such as inductive charging for smartphones and other devices on the back of the headrest. The prototype was developed using Dassault Systèmes' 3DEXPERIENCE platform and the "Passenger Experience" industry solution.



Berlin Goes 3D

For decades, Berlin was not seen as an important industrial location. But in recent years, start-ups have been transforming the city, and 3D printing technology has become a major driver of change. These innovative companies are looking for international cooperation and finance.

Germany's capital city is thriving once again – it has become a magnet for companies from all over the world. Following the division of Germany after World War II, which had split Berlin in two, large companies moved their headquarters out of the city. But it has been 30 years since the Berlin Wall came down, and the capital's economy is growing steadily. Bit by bit, Berlin is regaining its reputation as an economic metropolis.

This is largely due to the creative thinkers that have made Berlin their home over the past few decades, and the many start-up companies and think tanks that have been founded there.

Berlin offers the conditions for growth that entrepreneurs in many other capitals can only dream of: comparatively low rents, a highly qualified, international workforce and an undaunted spirit of optimism. This compelling mix is also attracting investors from all over the world, keen to “get a piece” of the boom and to participate in the innovative start-up scene.

Berlin leads in additive manufacturing

Berlin is a world leader in 3D printing, also known as additive manufacturing. These printers are used for the production of models and prototypes in many different businesses. The devices can produce parts or entire products quickly and in one piece with little material input – without weak points such as welding or adhesive seams. There are more start-up companies in Berlin tinkering with new 3D printing techniques, materials and machines than anywhere else in Germany. The international 3D printing network “Mobility goes Additive” (MGA), with over 100 member companies, is based in Berlin. The initiative supports start-ups and helps more established companies to implement 3D printing in their production processes, including serial production. “Germany is the motherland of 3D printing,” says Stefanie Brickwede, managing director of MGA.

One of MGA's members, Berlin-based BigRep, is working on 3D-printed material innovation for aerospace. Together with French company Dassault Systèmes, BigRep recently developed the world's first printed aircraft seat. “Our seat saves 50 percent in weight and thus cre-

ates enormous advantages for sustainable aircraft construction,” the company claims. The reason is that parts produced with 3D printing technology do not have to be solid: A honeycomb structure on the inside provides stability but is considerably lighter.

New innovations coming out of 3D tech hubs like Berlin could revolutionize industrial production. Imagine several print heads installed above an assembly line: Once the first part of a product has been printed, the assembly line moves it to the second print head to work a further step, then to a third, and so on. The potential for the manufacturing industry is huge.

»Germany is the motherland of 3D printing.«

Stefanie Brickwede, Mobility goes Additive (MGA)

“After decades spent as a tool for prototyping, 3D printing has now come of age as its focus shifts to series production,” says Aleksander Cizek, founder and CEO of Gefertec, a member of the Berlin.Industrial.Group. The start-up makes a 3D printer which pulls wire from a spool and melts it. It then dispenses liquid metal threads via a nozzle. Different components can be created in this way by layering. Compared to traditional metal production, companies can save up to 60 percent of their original manufacturing costs and have simplified the process to three steps: storage of the wire, in-printer production and post-production processing.

American investment in Berlin

Berlin's inventive additive printing scene is attracting considerable interest and investment. The U.S. company Formlabs, for example, opened a site in the city in 2014 to complement its locations in China and Japan. Their Berlin office has become the central sales and customer support center for the European market. In recent years, record sums have flowed into German start-ups across all business (investments amounted to EUR 4.8 billion in 2018, according to EY) and the majority of this capital was invested in Berlin. In order to accommodate demand, a technology park is being built on a 40ha former industrial site in the Tempelhof-Schöneberg district – it is no surprise that several of the first settlers will be 3D printing companies.



Berlin

Berlin

3.6 million

50%

of all manufactured goods are to be produced using 3D printing globally by 2060.

Source: ING

From Port to Waterside Living

The city of Bremen is reinventing its port on the Weser river with the largest construction project in Europe. Construction companies, developers and other companies are invited to reshape the future of the northern German city.



Right at the beginning of the nineties, Bremen's once-thriving commercial harbor was a sorry example of the decline of traditional industry, with increasing numbers of empty buildings and abandoned warehouses. Rather than watching its decay, the city of Bremen decided in 2000 to transform its inner-city port – the *Überseestadt* (“Overseas City”) was born. In recent years, it has become one of the largest urban development projects in Europe: An area of 288ha will be rebuilt into a new neighborhood by 2025. As much of the old harbor as possible will be preserved in the waterfront redevelopment.

The *Überseestadt*, which is only 2km from Bremen's old town, will mix the commercial maritime environment – including port management, logistics and commerce – with culture, leisure and living. The vision is to transform the harbor district into an entrepreneurial

live/work environment where office and residential spaces coexist and blend into each other. For real estate and construction investors, it offers a unique opportunity to make their mark in a heritage location. The situation has many advantages such as the well-developed infrastructure and its proximity to the freeway and Bremen airport.

Getting the balance right in Overseas City

Around 2,500 people currently live in Bremen's *Überseestadt*. By 2030, it is expected to have twice as many inhabitants. The number of companies in the quarter is also growing rapidly: In the early days of *Überseestadt*, there were only 300 companies with around 6,000 employees. Today, more than 1,000 companies operate there with over 16,000 employees – and the number is rising. It is not difficult to get the work-life balance right in the district: Rents are still moderate, there are shops and services in the immediate vicinity, and the walk to work is pleasant. A city beach called Waller Sand has been created in the quarter for outdoor leisure.

Many investors have already leapt in, buying up land and real estate, repairing old buildings or putting up new ones. Take the former factory of the food manufacturer Kellogg on the banks of the Weser. The company closed its doors in Bremen in 2017, but a private investor bought the site and is planning a CO₂-neutral building ensemble. Over 1,000 apartments, schools and kindergartens are to be built on the river peninsula, alongside offices, restaurants and shops. The landmark Kellogg silo is to be converted into a hotel with a rooftop restaurant. To date, over EUR 1bn has been pledged for the *Überseestadt* – a figure which is expected to double before construction has finished.



Bremen's *Überseestadt* isn't just a business location: Artists like Tom Gefken (pictured) have moved in and set up creative community spaces. He is the founder of the GaDeWe gallery – “The Gallery of the West.”



The breeding of green microalgae in a biogas plant in the Walsrode area for use in a photobioreactor system. A fine example of a future-focused project which is driving structural change.

Photo: WFG Deltaland GmbH

Location, Location, Location

For a long time, the region around the city of Walsrode in the federal state of Niedersachsen struggled with structural challenges. But in recent years, the region once reliant on chemical firms has evolved into an efficient e-commerce logistics location.



Walsrode
Niedersachsen
8 million

The commercial landscape around the Industrial Park Walsrode is characterized by the chemical and packaging industries. For many years, the leading employer in the area was Wolff Walsrode, a subsidiary of the chemicals giant Bayer. “But the wave of restructuring in the 1990s and 2000s has left its mark,” explains Michael Krohn, managing director of the local business development agency, Deltaland. Wolff Walsrode was divided up by various companies, including the American chemical group Dow and the Finnish Wihuri Group. This step came along with substantial job losses in the area. In the late 1970s, Wolff Walsrode alone had employed around 4,000. By the end of 2019, there were just 1,800 jobs in the whole industrial park across five employers.

Emerging logistics hub

And yet the region is strategically located in the state of Niedersachsen, situated between the major cities of Hamburg, Bremen and Hannover. The cities are connected by the A7 and A27 freeways, which are major axes in northern Germany. Hannover’s international airport is a 35-minute drive away, and the North Sea ports are also within easy reach. For Deltaland’s managing director, this was reason enough to promote the region as a logistics hub.

Dow already recognized the potential of the site when it bought the industrial park in 2007. In addition to Dow and its successor DuPont, three other large companies are located there, including the film man-

ufacturer Wipak, a subsidiary of Helsinki-based Wihuri, and Epurex Films, a subsidiary of the materials manufacturer Covestro. Public funding to drive structural change was provided by Niedersachsen and the European Union.

“We have constantly introduced ourselves to project developers and brokers, and attended trade fairs and congresses,” recalls Krohn. The effort paid off. In 2015, the “A27park Walsrode” opened up another industrial area, where e-commerce companies such as the Irish toy manufacturer Smyths Toys are locating their European logistics arms.

The area is expected to expand to a further 40ha in the coming years. “This will allow SMEs as well as other large corporations to settle here,” says Krohn. The location is well suited to import and export businesses, as goods can be transported to the freeway, airports and the northern German seaports quickly and efficiently.

The fact that several international companies are already in the region makes it easier for foreign investors to commit. Resident service providers are used to dealing internationally, and building permits are issued quickly.



In the production hall of Swiss medtech company Ypsomed, technician Liane Haberland examines a cartridge holder for insulin syringes, which was manufactured using an injection moulding machine. The company produces infusion sets for diabetics and injection devices for administering liquid medication. To date, EUR 100 million has been invested in buildings (including the new production plant near Anklam, Mecklenburg-Vorpommern), infrastructure and planned production.

From Farmland to Healthcare

If you search for Mecklenburg-Vorpommern online, you may well find photos of sand dunes, flowering fields and blue lakes but not so many of industrial activity or busy urban life. Over half of the area of the northern German state is still used for agriculture and so, unsurprisingly, the food industry is the biggest employer in the region.

But in recent years, the state has been harnessing its rural tradition to attract new business from home and abroad. Mecklenburg-Vorpommern is rich in raw plant-based materials that companies from the food and pharmaceutical industries can use for their production. Consequently, many companies from these sectors find it convenient to settle there – for example, in and around Anklam, close to the Baltic coast.

Fertile ground for pharmaceuticals

The fertile, agrarian region offers a number of clear advantages for healthcare companies. Up to 200ha of land have been earmarked for industrial production and settlements and prices are still comparatively low. For companies who need a lot of space for production halls or cultivation areas, the Anklam district is ideal. The proximity to the Baltic Sea is an asset for exports to Denmark, Poland, Finland and the Baltic states. Goods can also be quickly transported to the Czech Republic or the Netherlands by freeway.

The Swiss Rehau Group was one of the first to recognize Anklam's geographical advantages 12 years ago. Under the brand "Anklam Extrakt," the Swiss produce plant extracts for the pharmaceutical, food, cosmetics, and beverage industries in the province. In 2017, the company expanded its Anklam site and hired additional specialists. "We produce and sell high-quality plant extracts for the food and pharmaceutical industries worldwide and focus on quality 'made in Germany,'" says Mirko Bröcker, managing director of Anklam Extrakt.

State support for export businesses

The company received substantial financial support from the public sector. There are two prerequisites to qualify for such subsidies: Permanent new jobs must be created and the services or products must be distrib-

The area around the town of Anklam in Mecklenburg-Vorpommern is traditionally agricultural. Now, healthcare companies from Germany and abroad are discovering the benefits of the northern German location.

uted beyond the borders of Mecklenburg-Vorpommern. The federal state is actively supporting foreign and export-strong entrepreneurs through the initiative.

Hitting its healthcare targets

The state funding package is particularly attractive for companies from the healthcare and pharmaceutical industries. Mecklenburg-Vorpommern has put measures in place to nurture its healthcare industry – and is hitting its targets. Every fifth employee in the state now works in this sector. "With this share, Mecklenburg-Vorpommern is at the top of all federal states," says the state government. Between 2008 and 2017, the gross value added by the healthcare industry increased by an average of 5 percent per year, and this sector alone contributes around 15 percent to the state's total gross value added. This makes Mecklenburg-Vorpommern the state with the fastest-growing healthcare economy in Germany.

Anklam's Swiss connection

The Swiss are swelling their numbers in this state by the Baltic Sea, attracted by the locational advantages: In 2019, Ypsomed opened a production plant for medical technology for the treatment of diabetes near Anklam. The company makes use of the considerable healthcare expertise in the region. "The location offers ideal conditions, especially for qualified employees," comments Simon Michel, CEO of Ypsomed. The Swiss company has spent EUR 100 million so far on buildings, infrastructure and planned production.



Anklam
Mecklenburg-Vorpommern
1.6 million

1 in 5

Every fifth employee in the former agricultural state now works in the healthcare or pharmaceutical industries. It has the fastest-growing healthcare economy in Germany.

Source:
Masterplan Healthcare
Economy 2020
Mecklenburg-Vorpommern

A next-generation 3D scanner at the Fraunhofer IGD in Darmstadt handles a delicate artifact. Two computer-controlled "touch sheets" capture the finest details using digital cameras without having to touch the object. 3D scanning is an invaluable tool which is used in science, healthcare, industry, architecture, and construction as well as the cultural and creative industries.



Photo: Fraunhofer IGD



Smart trams in Darmstadt

The city has set up 18 5G antennas around its central station, making it possible to test "teleoperated" trams in an urban setting.

Digital First in Darmstadt

All over the country, companies are struggling to meet the demands of digitalization. Meanwhile, the technology hotspot of Darmstadt in Hessen is home to a new generation of IT companies.



Darmstadt
Hessen
6.3 million

Many well-established industrial and service companies have been shaken by new digital competitors in recent years and forced to re-examine their business models. When companies have been slow to adapt, business has often shrunk and jobs have been lost. On the positive side, digitalization presents a great opportunity for the economy.

The city of Darmstadt is one of the regional hotspots where information and communications technology (ICT) is flourishing. In fact, many German and foreign companies in this sector have chosen to base their headquarters there, including Software AG, Germany's second largest IT company, and the U.S. software company CA Technologies, now a major employer in the region.

The presence of large research institutions from the tech sector in the Hessian city – including the Technical

University of Darmstadt, the Fraunhofer Institute for Computer Graphics Research IGD, and the National Research Center for Applied Cybersecurity (ATHENE) – ensures that a large number of creative IT solutions are coming out of Darmstadt. Tech companies can draw from a local pool of specialists, highly qualified staff and ICT graduates.

Award-winning city for tech innovation

With the right conditions for growth, it is no coincidence that Darmstadt has become a leading center for tech innovation. In 2017, the city even won the national competition "Digital City" run by the German IT industry association Bitkom. Darmstadt also has the geographical selling point of being closely located to the financial center of Frankfurt. This makes it especially attractive to IT companies from the financial sector such as fintech start-ups.

For the Darmstadt city administration, it is also very important to provide an up-to-date IT infrastructure to stimulate innovation. For example, the city has set up 18 5G antennae around Darmstadt central station, which make it possible to test self-propelling, semi-automated trams in an urban environment. The city's mayor, Jochen Partsch, has highly praised the project as "an example of profitable cooperation between science and business."

Turnaround for Harburg

Things are looking up for a small harbor in the south of Hamburg which fell into disuse in the 1970s. In recent years, investment in the quarter has given Harburg a new lease of life.



Hamburg
Hamburg
1.8 million

In the early 1970s, there was still a lot of activity in Hamburg's southern harbor district Harburg. Cargo ships brought goods from all over the world to Harburg and loaded German industrial goods to ship abroad. However, the triumph of the large container ship spelled the end for the port, which was simply too small. Gradually, companies moved away, halls stood empty, and the area became neglected and derelict.

The founding of the Hamburg University of Technology (TUHH) in 1978 brought a ray of

hope for Harburg. The educational institution breathed new life into the old port and a number of service and technology companies settled there, clustered around the university.

This started the ball rolling and then, more recently, real estate developers began transforming the neighborhood with redevelopment and new construction projects. Arne Weber was one of the first: He bought Unilever's former soap factory and converted it into a modern office building. Other projects followed suit, including upmarket restaurants that also attracted wealthy customers. "In the past, well-heeled people avoided this district. Then they came with their own boats and parked directly in front

of the noble restaurants and shops on the water," says Christian Weber, managing director of the construction company HC Hagemann.

Hamburg's "Innovation Port"

The transformation of Harburg is far from complete. There are still many properties and sites in the harbor that are suitable for unusual and prestigious development projects – hence many opportunities for investors, both domestic and foreign. The neighborhood already boasts The German Aerospace Center, as well as the Fraunhofer Center for Maritime Logistics CML.

In particular, a project called the "Hamburg Innovation Port" (HIP) is attracting interest. The vision for HIP is a commercial complex where companies work closely together with the scientific community. The first building with around 6,000m² has already been completed, and a further 20,000m² are under construction, including five new hotels. In all, just under a third of the planned 70,000m² complex is under way, and investment to date totals EUR 150 million.

For a model of what Harburg's harbor might look like, one only has to travel a few kilometers north to the *Hafencity*, where the transformation of the old warehouse district has already largely been completed. The area is proving to be a magnet for locals and tourists, not least because of the world-famous *Elbphilharmonie* concert hall.



Hamburg's "Innovation Port" (HIP) is being developed as a hub for the networking of industry and science, clustered around the Hamburg University of Technology (TUHH), the German Aerospace Center (DLR) and the Fraunhofer Society.

Photo: Hamburg Innovation Port, MVRDV

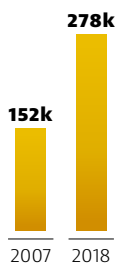
Görlitz Rediscovered

For a long time, the city of Görlitz, on the border with Poland, suffered from the decline of the coal industry. But the Saxon city is being regenerated as a tourist location and is now positioning itself as an attractive real estate location with several advantages for investors and international companies.



Görlitz
Saxony
4.1 million

On the rise
Number of hotel stays in Görlitz



Source:
State Statistical Office
Kamenz

The end of the lignite industry in the Görlitz region resulted in a severe crisis for the local economy. When the main lignite-fired power plant was shut down in 1997, around 6,000 jobs were lost. To make matters worse, other sectors such as precision optics, the textile industry and electrical engineering also began to shrink. Many people were forced to leave the city to find work. The population has shrunk from 72,000 citizens in 1990 to just under 57,000 today.

“We have had to make great efforts to create a positive new outlook,” says Andrea Behr, managing director of the local business development agency (EGZ). In short, the city had to make a virtue out of necessity. The first dramatic change to the landscape happened when an open-cast mining hole south of Görlitz was flooded. It became the *Berzdorfer See* (Lake Berzdorf), an area of 960ha – one of the largest lakes in Saxony. The city has plans to develop it into a local recreation area, returning the former industrial site back to nature with areas for leisure and entertainment such as campsites and restaurants. Behr sees huge investment potential for the lake and the urban area in terms of tourism and lifestyle. “Within the last year, two more hotels have opened,” she says. There are now 47 hotels, inns and guesthouses in Görlitz, and the number is growing all the time.

As Germany’s easternmost city, Görlitz has always had an international perspective: One part of the city is located in Germany, the other, called Zgorzelec, in Poland. The two countries are separated by a bridge over the River Neiße, while the Czech border is only 20km away. Görlitz enables easy and fast access to the eastern European markets.

The old town of Görlitz, which remained almost undamaged during the world wars, is a well-known destination for film and television production companies as well as tourists. As a result of all this interest, Görlitz has applied to become a UNESCO World Heritage Site. Real estate investors, both domestic and foreign, are invited by the city to get involved in the restorations



Director Dominik Graf (above, right) and actress Saskia Rosendahl (below, left) during the shooting of the movie *Fabian – Der Gang vor die Hunde* on set in Berliner Straße, Görlitz.

and receive a subsidy in return. For example, there are subsidies for property owners who renovate residential buildings. In addition, up to 30 percent of the costs incurred for the maintenance of a building can be reimbursed.

Subsidies for real estate development

There is also substantial support for commercial real estate: The public sector subsidizes up to 40 percent of the costs when companies establish themselves in the region, construct new or expand existing buildings. The city administration plans to make more commercial space available from the end of 2020. For example, it is currently developing the Schlauroth industrial estate, which offers companies a plot of 7ha to settle on. Prices are still attractively low: Manufacturing companies can purchase space from EUR 10 per square meter.



Photo: picture alliance/AAPimages

German film stars Antje Traue and Moritz Bleibtreu on set in *Es war einmal in Deutschland...* (Bye Bye Germany) in the historic Saxon city of Görlitz.

Görlitz's potential has already been recognized by several large and medium-sized companies. Bombardier, the Canadian aircraft and rolling stock manufacturer, is one of the largest employers in the region. In 1998, it took over the rolling stock manufacturer Deutsche Waggonbau. Siemens also first invested in Görlitz in the 1990s, and today the company operates a turbine plant there. The company's latest project is an Innovation Campus for high-tech companies, in partnership with the Dresden University of Technology, among others. A start-up accelerator and a competence center for research into hydrogen technologies are also under construction.

"Following in the footsteps of Bombardier and Siemens, several other internationally active companies have chosen to locate in Görlitz and the surrounding area," says Thomas Horn, managing director of the Saxony Economic Development Corporation (WFS).

»We have had to make great efforts to create a positive outlook.«

Andrea Behr, managing director of the local business development agency EGZ (Europastadt Görlitz/Zgorzelec)

From Grey to Green

Traces of the coal and steel industry can be found everywhere in North Rhine-Westphalia. Heavy industry shaped the state's character for around 200 years, until the great coal crisis at the end of the 1950s. In subsequent decades, dozens of mines and collieries closed their doors, especially in the Ruhr area. Disused mines, steelworks and old workers' settlements lay derelict for many years, but today they are museums, cultural centers and offices.

Lignite continues to be mined between the cities of Cologne, Aachen and Mönchengladbach over an area of 2,500km². However, the end is in sight for the industry: The German Government is committed to shifting the country's energy supply away from nuclear and fossil fuels and toward renewable energies by 2038. The phasing out of coal is a central plank of the Energy Transition.

Essen's green energy cluster

Structural change is particularly evident in Essen, a city in the Ruhr area with 590,000 inhabitants. Environmental protection and green tech play a particularly important role in the city which was awarded the title of "European Green Capital" in 2017. "When it comes to developing new ways of energy production or technologies for improved energy efficiency and storage, you can't beat Essen," says Andre Boschem, managing director of the local economic development agency (EWG).

Essen in North Rhine-Westphalia was once the epicenter of the coal and steel industries in Germany. Today, the Ruhr region is powering Germany's energy revolution, and Essen's green energy cluster has become a hotspot for innovative energy solutions.

Essen is home to the listed power utilities RWE, E.ON and Innogy – companies that were heavily impacted by the Energy Transition. They are all working hard on their future positioning. Innogy, for example, has set up a real-world laboratory for energy system transformation in Essen and is aiming to make a neighborhood fossil-fuel-free. They are joined by SMEs from the energy sector and renowned research institutions who are all driving the development of new technologies and working on solutions for sustainable energy production. This energy cluster offers a vibrant ecosystem for investors. One outstanding example is the joint venture between the German electricity producer STEAG and the Swedish energy digitalization expert NODA, which was launched in 2018 with a remit to use district heating more efficiently. The Ruhr region also hosts the important "E-world energy & water" trade fair every year.



Back in 1985: Clouds of steam billow up from the giant fire-quenching water tanks at a coking plant at Zollverein, in the industrial Ruhr region of North Rhine-Westphalia. The factory was operational until 1993.

Today: The former Zollverein plant was declared a World Heritage Site by UNESCO in 2001, and now the giant tanks have been transformed into an industrial-themed swimming pool.



The VoloDrone is the first large drone for agricultural use, made as part of a joint venture between agricultural equipment manufacturer John Deere and Volocopter GmbH, based in Bruchsal. It is fully functional and ready for its first mission. The potential applications of the VoloDrone are manifold.



Photo: John Deere / Volocopter

Kaiserslautern in Rheinland-Pfalz has been an international city for a long time: Almost 25,000 U.S. and French soldiers were stationed there at the beginning of the 1990s. The military bases were the main economic driver in Kaiserslautern and the surrounding area – responsible for more than 40,000 jobs. In the last few decades, the United States has largely and France completely withdrawn their armed forces, while jobs have been lost with other major local employers, such as the sewing machine manufacturer Pfaff and the railway repairs depot. The unemployment rate rose to 17 percent in the late nineties.

Harnessing the digital transformation

Since 2000, however, Kaiserslautern has recovered. The Kaiserslautern University of Technology (TU) and the Kaiserslautern University of Applied Sciences (HS) were key drivers of that change. They ensured that renowned research institutes settled in the city – such as the Max Planck Institute for Software Systems and the Fraunhofer Institute for Experimental Software Engineering IESE as well as the Fraunhofer Institute for Industrial Mathematics ITWM. “Over the past 10 to 15 years, Kaiserslautern has developed into one of the most agile and renowned science locations in terms of digital transformation,” says Dieter Rombach, founder and former director of the Fraunhofer IESE. There’s a dynamic ecosystem here that makes it easy for foreign companies and investors to network with scientists. The Science and Innovation Alliance Kaiserslautern (SIK), for example, provides a forum for universities, 10 research institutions and 40 high-tech companies to exchange information with each other.

This was a good enough reason for the U.S. tractor manufacturer John Deere to locate its European Technology Innovation Center (ETIC) in Kaiserslautern, and the French car manufacturer PSA also has a plant there. The “bloodletting” of traditional jobs has been compensated for by about the same number of jobs in high-tech

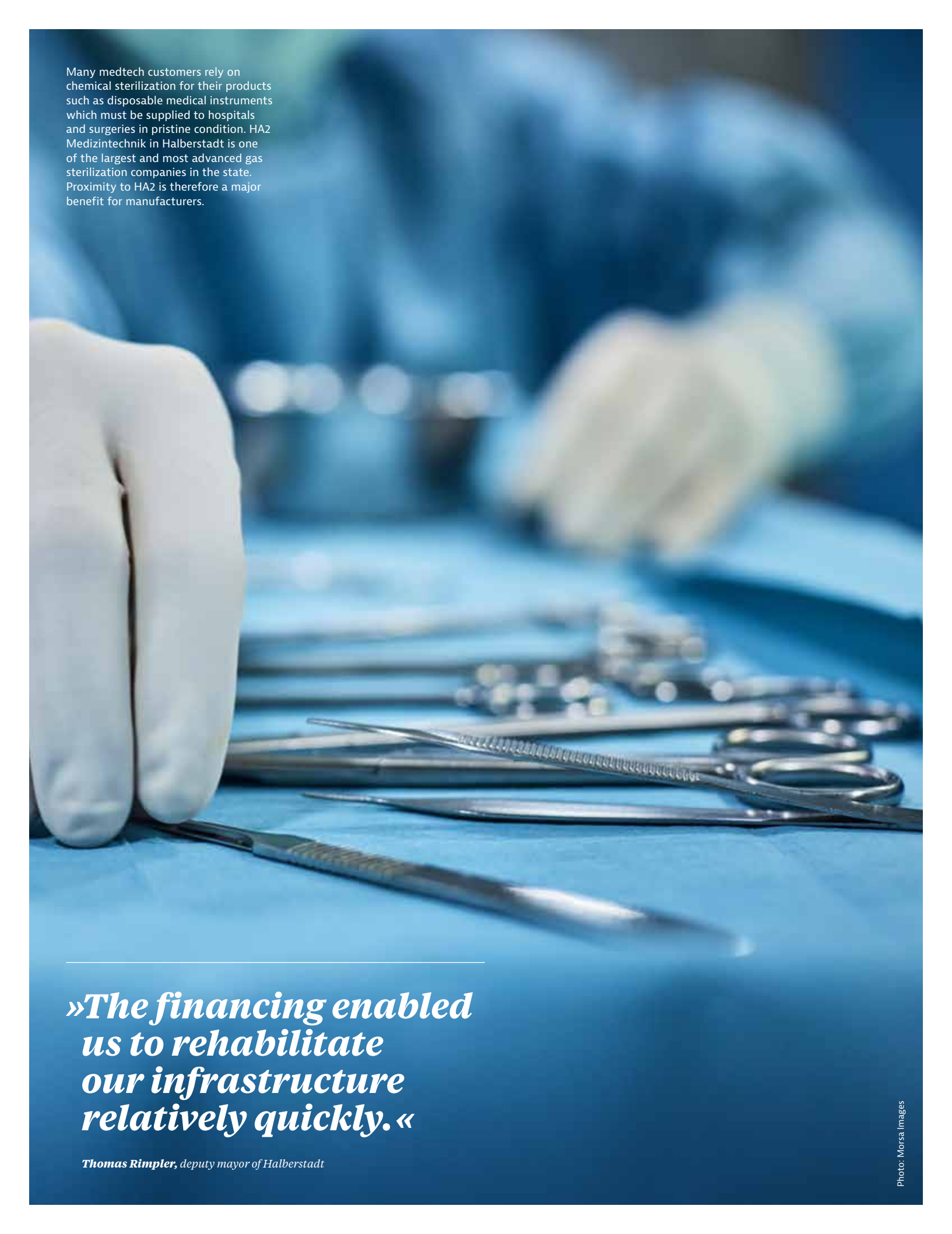
From Barracks to AI Hotspot

The economy of Kaiserslautern, a former military base, slumped after the withdrawal of American and French troops in the nineties. However, the region in Rheinland-Pfalz has reinvented itself as an attractive location for information technology and science.

industries, says Rombach. The high instance of spin-offs from academic research has contributed to this uplift, such as the international IT company Empolis, which has co-founded the German Research Center for Artificial Intelligence (DFKI). Empolis’ director Stefan Wess came to Kaiserslautern in 1984 because “some of the world’s best minds were already teaching in the then still very young field of artificial intelligence,” he says.

“Kaiserslautern is also a very open and very international city,” Wess says, and it offers plenty of commercial space, such as the former 20ha site of Pfaff. The abandoned military bases also have great potential: A former French barracks site set over 65ha has been converted into the PRE-Park industrial estate, where 75 companies have already settled, creating around 2,350 jobs. Rombach is certain the trend is set to continue: “The planned foundation of a Rheinland-Pfalz innovation and foundation hub in Kaiserslautern will accelerate further foundation and settlement projects.”





Many medtech customers rely on chemical sterilization for their products such as disposable medical instruments which must be supplied to hospitals and surgeries in pristine condition. HA2 Medizintechnik in Halberstadt is one of the largest and most advanced gas sterilization companies in the state. Proximity to HA2 is therefore a major benefit for manufacturers.

»The financing enabled us to rehabilitate our infrastructure relatively quickly.«

Thomas Rimpler, deputy mayor of Halberstadt

Medtech Throws City of Halberstadt a Lifeline

The future looked bleak for Halberstadt in the federal state of Saxony-Anhalt – a city dependent on a dying industry. Then it became one of eastern Germany's "model cities for reconstruction" and developed into a hub for medical technology.

The fall of the Berlin Wall in 1989 was the first step toward the reunification of East and West Germany. For Saxony-Anhalt, the political turnaround led to a "dramatic economic slump," says Thomas Rimpler, deputy mayor of the city of Halberstadt. Many local companies hemorrhaged staff or disappeared completely from the market – the job losses were huge. The Maschinenbau Halberstadt company, for example, which had around 2,000 employees at the time, has only 70 staff today.

But as early as 1990, there was a positive turning point when the Federal Government chose Halberstadt as one of six "model cities for reconstruction," giving the local residents hope for the future. "The financing enabled us to rehabilitate our infrastructure relatively quickly," says Rimpler. One investor built a new city center costing EUR 140 million – a 40,000m² retail area was created and a new town hall. The city started developing industrial and commercial areas in order to attract investors. There are over 100ha currently available for potential investment. "And that plot is available immediately," explains Rimpler. "Because the city is the owner, it accelerates the awarding process." With an attractive purchase price of EUR 10 per square meter, there are plenty of good deals around.

Growing medical technology hub

Since then, several companies have set up in Halberstadt, particularly from the medical technology sector. More than a third of Saxony-Anhalt's 75 medtech companies are based in the city today. HA2 Medizintechnik is one of the largest and most advanced gas sterilization companies in the state – many of its customers rely on its chemical sterilization process for their products. "Proximity to HA2 is a huge benefit, especially for newly established companies," explains Rimpler. More than 1,000 jobs have been created by several companies as a result.

The unique selling point of gas sterilization makes Halberstadt particularly interesting for medtech companies that manufacture disposable products. Their

deliveries, for example to hospitals, are often very specialized. Individual parts are supplied on a case-by-case basis. This offers a clear advantage for other businesses based in the Halberstadt area, who can save time and money by having their products sterilized locally.

U.S. investment in Halberstadt

Nanostone Water came to Halberstadt in 2004. The spin-off of the Leibniz Institute for New Materials in Saarbrücken develops and produces ceramic filters with nanotechnology, which are used for pollution-free drinking water, among other things. Eight years later, the U.S. venture capital investor True North Venture Partners entered the business and the company was able to expand its production facility at a cost of EUR 11 million in 2016 (the state supported the investment with EUR 2.75 million). "The outstanding development of ceramic membrane technology on site was an important prerequisite for our ongoing investments in Halberstadt," explains Mark Schweizer, CEO of the U.S. parent company.

"Medtech Saxony-Anhalt" cluster

In Rimpler's view, the support and cooperation offered by the state's economic development agency (IMG) is a big incentive for foreign investors, giving them the confidence to commit. There are also numerous possibilities for networking in the area – nearby Magdeburg is home to the "Medtech Saxony-Anhalt" cluster, for example. There are no less than 34 medtech companies and research institutes in the cluster that are developing new diagnostic and therapeutic methods. Potential investors in this field can choose from 11,000m² in Halberstadt which have been earmarked for research and development projects.

Good transport connections

What makes Halberstadt stand out as a location is its proximity to important junctions. Magdeburg tends to attract companies with a research focus, while Wolfsburg and Leipzig are chosen as industrial locations for manufacturing companies and suppliers. The deputy mayor of Halberstadt is proud of the U-turn his city has made: "The companies are creating new jobs, and in the long term, the central location and proximity to the freeway and airports will stimulate Halberstadt's development," he says.



Saxony-Anhalt's medtech cluster

The cluster is home to no less than 34 medtech member companies and research institutes – 11,000m² sqm in Halberstadt have been earmarked for R&D projects.



A technician at Saarland University working on a laser interference project. Around 2,000 people from 81 nations study at the university which is now a major hub for computer science.

Photo: Oliver Dietze/Universität des Saarlandes

Industry Reboot

The death of the coal industry dealt Saarland a hammer blow. But then the region around the city of Saarbrücken remembered its strengths – its proximity to France and its broad research landscape in computer science.



Like many parts of Germany that relied upon heavy industry, Saarland faced enormous challenges at the turn of the millennium. Coal mining had been its economic base for more than 200 years, but the last mine closed in 2012. Five thousand jobs were lost and the region suffered an identity crisis.

Strong geographical advantage

Luckily for the region around the city of Saarbrücken, it had geographical advantages to fall back on: It borders directly on France and Luxembourg, while Belgium is only an hour and a half away by car. "Saarland is a central hub for companies that want to do business with France and western Europe," says Thomas Schuck, managing director of the Saarland Economic Promotion Corporation. Several major freeways lead directly from Saarbrücken to France, and the region's airport is well linked into Europe.

For the kitchen manufacturer Nobilia from northwestern Germany, this was reason alone to start building a production facility in Saarlouis (not far from Saarbrücken) in 2019. "In our search for a large site with good transport links in the immediate vicinity of France, Saarland was particularly suitable for us," says managing director Lars Bopf. "For Nobilia, the French market is the second largest after Germany." The kitchen manufacturer plans to build its plant on an area of 29ha, starting production in 2020, with plans for over 1,000 employees on the site.

In 2005, the unemployment rate in Saarland was still 10.7 percent, but it recently dropped to 6.1 percent. New job creation is partially responsible, but jobs in traditional industries have also been preserved. More than 10,000 people are still employed in steel production, for example, and a further 50,000 work for a number of automotive suppliers.

In the post-coal era, the state has also been flexing a new muscle: its embedded research landscape for information technology (IT). In the seventies, Saarland University was one of the first universities in Germany to offer an IT course. Since then, the city has evolved into an internationally recognized hub for computer science. Around 2,000 people from 81 nations study here – potential young talent for local companies. In recent years, several renowned research institutions have settled in Saarbrücken, including the Helmholtz Center for Information Security (CISPA) and the German Research Center for Artificial Intelligence. They also offer cooperation opportunities for foreign companies.

Winds of Change

Germany's largest green hydrogen plant is to be built on the windy west coast of Schleswig-Holstein. State development initiatives are driving structural change around Germany's Energy Transition program, and companies will find plenty of investment opportunities and support funding.

Germany's northernmost state of Schleswig-Holstein has had a rough ride over the past 10 years. Shipbuilding, one of the cornerstones of its economy, suffered heavy losses after this industry's global crisis of 2008, while agriculture is also declining. Many jobs have disappeared and young people have moved away.

The city of Heide in the district of Dithmarschen was the first to address the demise, developing a region-wide concept with 11 other municipalities. The Heide Region Development Agency (EARH) was born, with a remit to promote projects relating to the Energy Transition, Germany's sweeping, country-wide initiative to shift the energy supply from fossil fuels and nuclear power to low-carbon and renewable energy sources, which will run until 2050. Wind is a plentiful source of power here – wind energy accounted for 95 percent of the state's electricity consumption in 2016 alone. There are 850 wind turbines in the district of Dithmarschen, for example. Any business which settles in Schleswig-Holstein in order to develop energy storage facilities will be welcomed with open arms, especially because a large amount of the excess power is wasted.

Green hydrogen from wind power

In response to the problem, the Heide Region Development Agency has launched the "West Coast 100" real-world laboratory initiative, among other projects. Here, "green hydrogen" is produced from wind energy in a test environment. The hydrogen will then be fed into gas grids and used to produce climate-friendly fuel for aircraft. The waste heat will be used to supply an industrial plant and power a local community. The use of renewables in district heating networks is in high demand in the region. Any company initiating this kind of project can apply for subsidies of up to EUR 1 million from the state's development bank.

Crude oil refinery gets on board

The crude oil processor Heide Refinery is one of the initiative's main partners. "We want to find a substitute for the production of hydrogen from fossil fuels," explains managing director Jürgen Wollschläger. He has high

hopes for the technology which converts wind power into hydrogen gas that, crucially, is easy to transport. "In the future, the project could have an impact not only in the Heide region, but worldwide." The project has already attracted international stakeholders, such as the Danish energy group Ørsted.

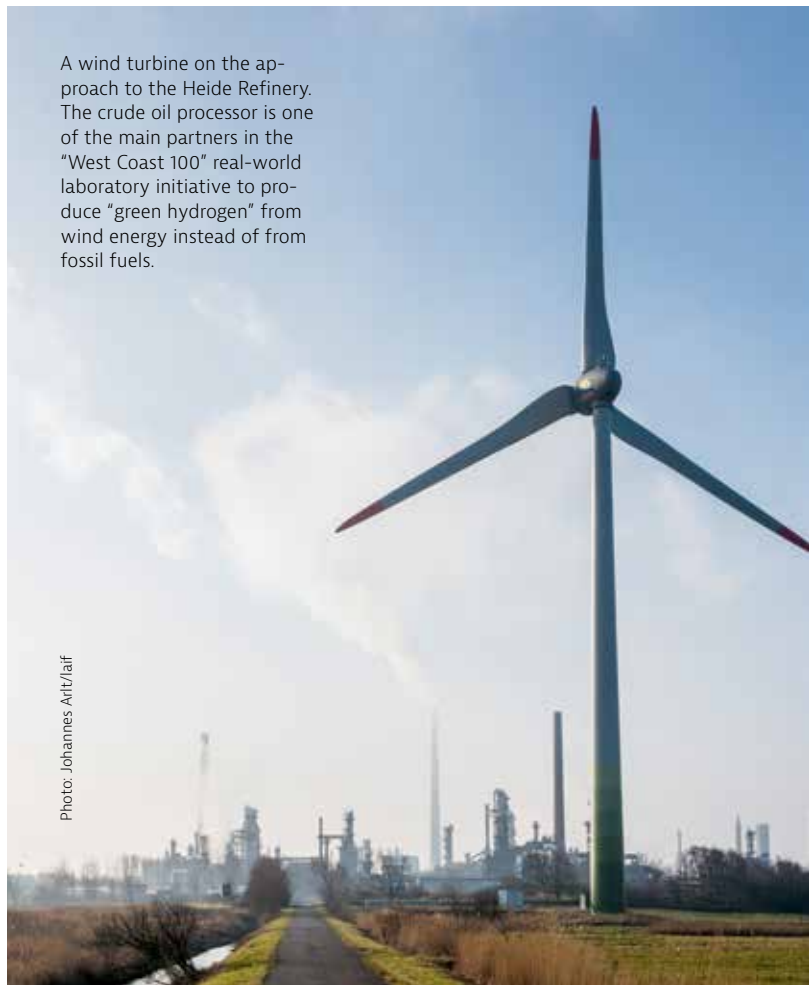
The projects are already driving regional structural change: "We expect several thousand direct and indirect jobs in the long term," says Dirk Burmeister, CEO of the Heide Region Development Agency. The unemployment rate in Dithmarschen has fallen to around 5 percent and the population is growing.



Heide
Schleswig-Holstein
3 million

A wind turbine on the approach to the Heide Refinery. The crude oil processor is one of the main partners in the "West Coast 100" real-world laboratory initiative to produce "green hydrogen" from wind energy instead of from fossil fuels.

Photo: Johannes Airt/laif



The Intersection of Success

Ilmenau in Thuringia has successfully made the transition from traditional industry during the GDR era to a prime, modern location for technology. Companies can find large industrial sites for development and a strong local science network.



Ilmenau
Thuringia
2.1 million

91%

Increase in GDP
in the region of
Ilmenau between
2000 and 2016

Source: Ilm-Kreis

The early nineties were a tough time for the people in the region of Ilmenau in southern Thuringia. Its main industries of chemical plant construction and mechanical engineering were fighting to stay afloat. “Many companies from the GDR era were no longer competitive, and traditional sales markets in eastern Germany and the former Eastern Bloc states broke away,” explains Thomas Scheller from the local government administration. The result was an all-too-common story in the eastern states: Many jobs were lost, many people moved away.

Nevertheless, the people who stayed never lost their confidence. They put ambitious plans in place to revivify the old industrial sites and attract innovative technology companies to the area. Several local organizations worked tirelessly to achieve this: The state’s ministry of economics, the municipal administration, the State Development Corporation of Thuringia (LEG), and Ilmenau University of Technology (TU).

Research institutes attract technology business

The cities of Ilmenau and Arnstadt were among the first to develop new large industrial and commercial sites, which promptly found buyers. For example, more than 100 technology-oriented companies (some of them internationally active) have settled in the vicinity of the TU. All of them make good use of the links to the research and development departments of the university and the direct access to graduate talent. They can also network with public research institutions, such as the Fraunhofer Institute of Optonics, System Technologies and Image Exploitation IOSB and the IMMS Institute for Microelectronic and Mechatronic Systems. The start-up scene is also well supported by the Technology and Start-Up Center Ilmenau.

At the beginning of the new millennium, the LEG joined forces with the local district to tackle a major project: the construction of the Erfurter Kreuz industrial estate. The 400ha site is located only 20km from Erfurt, the capital of Thuringia. Moreover, it is well connected to the

rail network and located directly at the A4 and A71 freeway intersection – two of the main traffic axes in central Germany.

The region’s central location is a big selling point for many foreign companies, says Scheller – after all, they can easily transport their goods. The industrial park had its first breakthrough in 2005, when an international joint venture between the airline Lufthansa and the British manufacturing company Rolls-Royce settled there. The “N3 Engine Overhaul Services” venture maintains and overhauls aircraft engines.

Chinese battery manufacturer chooses Ilmenau

Other foreign companies are picking up on the potential of the industrial park – for example, the Chinese battery manufacturer CATL is setting up its European HQ there. Construction began in October 2019 and production is scheduled to begin by 2022. In total, the Chinese

»The settlement will further strengthen Thuringia’s largest industrial area.«

Petra Enders, district administrator

company plans to invest up to EUR 1.8 billion and create 2,000 new jobs. District administrator Petra Enders says the move is a big vote of confidence for the region: “The settlement will further strengthen Thuringia’s largest industrial area as an economic and growth engine for the federal state.”

Local economy is growing fast

“The establishment of CATL is one of the largest and most forward-looking industrial investments in Thuringia,” affirms Dr. Arnulf Wulff of LEG. Erfurter Kreuz is already the largest industrial estate in Thuringia – a total of around 10,000 new jobs have been created here to date. Companies based in Arnstadt and the neighboring municipality of Wachsenburg, for example, could take advantage of the 180ha of land available here.

A current location analysis by the local chamber of industry and commerce shows that the region has grown rapidly since the year 2000. Within 16 years, the district has increased its gross domestic product (GDP) by almost 91 percent to EUR 3.1 billion. It is now home to more than 7,700 companies, and its momentum is growing.



Technicians work on an aircraft engine at N3 Engine Overhaul Services on the Erfurter Kreuz industrial estate, Thuringia. As a joint venture between Rolls-Royce and Lufthansa Technik AG, N3 has grown into one of the world's most modern maintenance centers for large civil engines within a very short space of time.

Structural Change = Creative Solutions

Structural change in Germany offers foreign investors a myriad of opportunities. Marco Wanderwitz, the Federal Government Commissioner for the New Federal States, explains how the state supports foreign direct investment.

Mr. Wanderwitz, Germany was reunited 30 years ago. After the event, the eastern federal states were confronted with massive structural change. Looking back on this process, was it a success?

Much progress has been made since 1989 on Germany's integration into a unified nation and on bringing standards of living into line. One manifestation of this is that in recent years – for the first time since World War II – more people have moved from western to eastern Germany than the other way around. In addition, the situation on the labor market has fundamentally improved. Whilst none of the 30 largest German stock corporations are headquartered in the eastern states, the region has developed an economy driven by high-tech small and medium-sized companies.

Today, many regions in the western federal states are also affected by structural change. Is structural change now a phenomenon throughout Germany?

Structural change is an ever-present phenomenon, but its speed and extent vary from

FACTS & FIGURES

30%

of eligible costs: the maximum subsidy available to overseas investors, depending on company size and multiple criteria

region to region. There are always two sides to structural change. On the one hand, it is a challenge for companies and employees. On the other, regions experiencing rapid structural change show that they can adapt to new business fields and technologies in good time and develop new prospects. This is also the case in the new federal states.

Do the regions in which structural change is taking place have anything in common? Or are the causes too disparate to draw parallels?

Important drivers of structural change are innovations and new technologies, increasing globalization, but also changing consumer preferences within the population as a result

of increasing prosperity and demographic development. Added to this is a constantly shifting political and societal environment. The challenges differ greatly from region to region. The common feature of successful regions is that they adapt early and decisively to new opportunities.

What effect is digitalization having on structural change?

The digital revolution is having a profound influence on structural change in Germany. Technology is advancing rapidly and bringing about changes in almost all areas of life. Digitalization isn't just something for IT companies: It affects companies across the board. New and alternative business models are emerging. But industry is also changing: *Industrie 4.0* is the buzzword. We should view these changes as an opportunity for greater prosperity and a better quality of life. The German Federal Ministry for Economic Affairs and Energy contributes to this by creating a favorable environment for business and by giving companies targeted support.

An aerial view of the roughly 6km long Saale-Elster Viaduct near Halle, Saxony-Anhalt, which is the longest railway bridge in Germany. This section is part of the new ICE Munich-Berlin line, the largest railway infrastructure project to be realized since German reunification.

Which sectors are particularly affected by structural change in Germany?

Currently, the automotive industry is probably one of the most affected, as the sector moves to electric mobility. Then there is the energy industry, as we shift our energy supply to renewable sources. However, structural change affects all regions and industries. German economic policy provides broad-based support across all sectors, the aim being to foster a smooth transition.

Change is often a difficult process, but it also opens up opportunities. Against this background, what openings are there for foreign investors in Germany?

We need innovative solutions to help us manage structural change. The affected regions harbor scope for a proactive role for both German and foreign companies. Ideally, the changes that take place will also modernize the region. Since reunification, for example, massive investments have been made in infrastructure, especially in the new federal states. State-of-the-art

FIRST PERSON



Marco Wanderwitz is Parliamentary State Secretary at the German Federal Ministry for Economic Affairs and Energy.

As the Federal Government Commissioner for the New Federal States, one of his tasks is to ensure that the specific interests of the population of eastern Germany are adequately taken into account in all decisions and measures taken by the Federal Government.

publicly funded research institutions offer companies numerous opportunities for co-operation. Higher education institutions are a source of highly qualified young professionals. Last but not least, attractive funding programs are available at national and regional level in regions undergoing structural change.

How does the Federal Government support foreign investors who want to invest in regions affected by structural change?

Such investments are supported by grants. Depending on the size of the company, foreign commercial investors can expect subsidies of up to 30 percent of the eligible costs. In addition, there are other promotional instruments, such as the loan programs of the state bank KfW, which can be combined with the investment grants. Another good example is Germany Trade & Invest, which works on behalf of the Federal Ministry for Economic Affairs and Energy to offer foreign investors advice on how to expand their business to Germany.

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