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Germany's healthcare market is the largest in Europe, and the corona pandemic has given it a major boost.

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Following the extraordinary success of the BioNTech vaccine, confidence in Germany's life sciences sector is running high. Innovative companies are flocking to Germany's biotech hubs.

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Photo: picture alliance/photothek/ Florian Gaertner

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The German government is pumping money into superfast quantum computers.

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German solar power is growing again thanks to international innovators and climate directives.

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»The pandemic has highlighted the need for Germans to join the elite of the digital-first 21st century.«

Dear Reader,

In difficult times, successful economies do two things: lean into their strengths and correct their shortcomings. The traditionally robust biotech and life sciences sector in Germany is at the forefront of the fight against coronavirus. Mainz company BioNTech achieved global fame for helping to develop one of the major Covid-19 vaccines. But other companies are involved in nearly all aspects of the health industry, from production to logistics. As a Roche spokesperson puts it: "Germany was once known as the world's pharmacy; now we've become a scientific factory."

One key to Germany's relative success in weathering the storm and recovering from the pandemic is the strength of industry and manufacturing. And there's still plenty of room for international companies to join the upsurge. One example we look at in this issue is Swedish tissue maker Essity, which expanded its production facility in Mannheim despite corona-related disruption.

At the same time, progress is finally moving full speed ahead in one area formerly considered a German Achilles' heel: digitalization. The pandemic has highlighted the need for Germans to join the elite of the digital-first 21st century, and there are lots of opportunities for innovative, international companies to help them do so. You can read in these pages about some firms who have already got started. So I hope this issue of *Markets Germany* will provide both information and inspiration.

Dr. Robert Hermann, CEO

Email: invest@gtai.com



ONE TO WATCH

PRATYUSH SAXENA, FOUNDER AND CEO OF IDEATARMAC

When Pratyush Saxena decided to move away from London in 2013, he chose the small, eastern German city of Jena as the best location to launch his new business, Ideatarmac. It helps companies integrate various aspects of online retail platforms and services. Jena is best known for optics, but for nearly three decades it's also played a pivotal role in German e-commerce. The Intershop platform, a pioneer of online retail, was established there in 1992 before most people thought shopping on the Web was even possible.

"Jena already had a lot of infrastructure in place, and it's a university town," Saxena remembers. "This made the decision much easier for me."

The presence of a major university and a spectrum of tech companies has helped him find skilled employees. "You could call it a mini Silicon Valley," Saxena says, noting that the cost of living in eastern Germany is a fraction of what it is in the US tech mecca.

Ideatarmac is now flourishing in Jena with annual growth of up to 40 percent. Reflecting on the early years, the biggest challenge for Saxena was not navigating the complexities of setting up shop in Germany but learning a new language. "Starting a business here is very easy," he says. "Internationals like me get a lot of help." With a bit of help from his tax adviser, he also managed to master the language eventually. "He was my biggest German teacher. He couldn't speak English and I couldn't speak German."

Quick facts

NAME	Pratyush Saxena
JOB TITLE	CEO
NATIONALITY	Indian
QUALIFICATION	Master of Business Administration (University of Bath), Bachelor of Engineering (B.E.) in Electronics and Communications Engineering (Bangalore)
COMPANY NAME	Ideatarmac
LOCATION	Jena, Thuringia
INDUSTRY	E-commerce
LINK	www.ideatarmac.com

GERMANY'S LIFE SCIENCES REVOLUTION

Germany's healthcare market is the largest in Europe, and the reputation of its universities and research institutes is second to none. Now the country is increasingly starting to exploit its potential as an innovation hub for life sciences.

BioNTech and Pfizer's partnership is just the beginning. The development of the coronavirus vaccine, invented in Germany, has been one of the main milestones in the battle against the global pandemic, saving countless lives. But as remarkable as its effectiveness and far-reaching benefits have been, this innovation is also a symbol of the revolution that is taking place in the life sciences sector.

The vaccine, based on the novel mRNA approach, will earn Mainz-based BioNTech billions in revenue, allowing for the research and development of more revolutionary bio-engineered treatments for other infectious diseases, and perhaps even cancer. Earlier this year, BioNTech's CEO Uğur Şahin predicted to *Spiegel* magazine that within a decade and a half a third of new drugs will be based on mRNA technology, ushering in a world where new medicines are made not of active ingredients but of instructions for our bodies.

This medical breakthrough has come not a moment too soon for the economy. The pandemic has impacted billions of people financially, as businesses and governments have been left managing downturns in trade, tightened border restrictions, and cultural shifts like the rise of remote work and online

THE BOTTOM LINE

The pandemic has both highlighted Germany's strength in the biotech and life sciences and provided a "shot in the arm" to innovation and digitalization. That means plenty of opportunities and advantages for companies setting up shop in Europe's biggest market.

THE GROWTH OF BIOPHARMA- CEUTICALS IN GERMANY

Biopharmaceuticals have recently seen a steady rise in Germany, both in revenue and market share.

12.8

BILLION EUROS REVENUE
IN 2019

14.6

BILLION EUROS REVENUE
IN 2020

Sources: IQVIA; Boston Consulting Group Analysis

PRODUCTION SITES IN GERMANY

Germany has the most pharmaceutical production sites in Europe, and the second most in the world, based on the number of active substances approved by the EMA.

USA*

102

GERMANY

44

(165 in all of Europe)

Source: EMA

* Size of Countries not to scale



»What has changed over the past year is that the state is now much more prepared to invest directly not only in research and development but in manufacturing key medical products in Germany.«

Gregor Kemper,
Germany Trade & Invest (GTAI) health expert

shopping. Economists looked on nervously as unemployment rates rose and whole sectors required major propping up from governments.

However, these changes also highlighted some underlying strengths in the German economy – one of them being the robustness of its life sciences sector. That's evident in the range of international businesses that have entered into partnerships with German companies to develop vaccines and other Covid-19 treatments over the past year.

Joining forces to beat the virus

CureVac's first attempt to develop a corona vaccine unfortunately didn't have the same efficacy as BioNTech's, but the Tübingen-based firm remains another world-leading pioneer in mRNA technology. The company's cofounder Ingmar Hoerr first described its potential use in his 1999 dissertation. The spin-off of the University of Tübingen is largely funded by Dietmar Hopp, cofounder of software giant SAP, and has also received investment from the Bill & Melinda Gates Foundation. CureVac is currently working with pharma giant GlaxoSmithKline on a second-generation mRNA Covid-19 vaccine with an improved response to variants of the virus. Additional cooperation partners include Bayer and Novartis.

Within the space of just a few months in early 2020, Germany blossomed into one of the world's leading vaccine centers not only in terms of inventing new vaccines but of mass-manufacturing existing ones. As of April

4

REASONS WHY GERMANY WILL REMAIN ONE OF THE WORLD'S LEADING LIFE SCIENCES LOCATIONS FOR THE FORESEEABLE FUTURE

1

The Market: Germany is Europe's biggest health and pharmaceuticals market. Its healthcare spending per capita is among the highest in the world.

2

Expertise: Germany boasts a dense network of world-renowned universities and research institutes that has been a magnet for foreign companies for decades.

3

Innovation: Germany files more biotech patents with the European Patent Office than any other European country.

4

Public Investment: The pandemic showed that the German government is ready to invest significant sums in the biotech sector. In 2020, it put EUR 1.27 billion into the development of Covid-19 vaccines alone.

2021, no less than seven coronavirus vaccines were being developed or made in Germany. Many companies in Germany have now developed enough capacity not only to produce their own vaccines but to bottle the vaccines of foreign companies. This is important because bottling is a delicate technical process – an incorrectly bottled vaccine can be ineffective.

That explains why multinational pharma giants Merck Sharp & Dohme, IDT Biologika and GlaxoSmithKline all chose Germany early on in the pandemic as a key manufacturing location. Meanwhile, German engineering companies like Bosch and foreign companies working in Germany like Roche were developing early diagnostic tests.

To understand the potential of Germany's universities for research and development, it's worth looking at Daiichi Sankyo's partnership with Ludwig Maximilian University in Munich. The cooperation followed an appeal made in June 2020 by the state-funded Bavarian Research Foundation, which invited researchers to come up with projects to combat Covid-19. Answering that call was the biological research unit at Daiichi Sankyo Europe, Bio Compounds. It came up with an idea for a collaboration with the Munich university to develop an mRNA vaccine candidate.

"Germany, especially the southern part, has a dense network of renowned universities, research institutes and pharmaceutical companies with research activities that makes it very attractive to invest in such projects," says a spokesperson for Daiichi Sankyo.

Accelerating “international cooperation Made in Germany”

One might call this, paradoxically, “international cooperation Made in Germany.” It’s a relatively new phenomenon but one that has been accelerated by the pandemic. “Twenty years ago, research was very much carried out internally within companies,” observed Jürgen Lücke, managing director and senior partner of the Boston Consulting Group, at a press conference called by the German Association of Research-Based Pharmaceutical Companies (vfa) in June. “If you look at the pipelines today, almost everything is a partnership.”

It’s a trend that is set to continue. Frank Mathias, CEO of the southern German biotech firm Rentschler and chairman of the biotechnology group at the vfa, also pointed out how the pandemic had reinvigorated interest in collaboration: “Our company learned a lot from the pandemic, specifically that you can react very quickly if you work together, both beyond borders and beyond competition. Even a few direct competitors have been cooperating.”

International collaborations that have been established for decades have also taken sudden quantum leaps. Takeda is one case in point: Japan’s biggest pharma company recently opened a second plant in Singen, Baden-Württemberg, for producing an inoculation against dengue fever (see page 9), taking advantage of 40 years of local know-how, particularly in freeze drying. “The expertise of our colleagues at this location is flowing directly into future vaccine production at the plant,” says Takeda spokesman Andreas Hundt.

Government support

Since 2016, Takeda has invested EUR 200 million in the Singen site. “Setting up a completely new vaccine factory is very complex,” Hundt says. “Such a process can take several years. Now the goal is within reach.” That’s thanks in part to the Baden-Württemberg government, which was quick to provide the necessary planning and building permissions. If all goes well, production of the dengue fever vaccine will begin in 2025.

Hundt says that there is a broad range of reasons for leading pharma companies to partner up in Germany. “Major indications of quality are the well-educated skilled workforce, the excellent technical facilities and the proximity to other sectors – for example, mechanical engineering,” he explains. “That’s a crucial advantage for a business location. Pharmaceu-

ticals are highly complex products that require several challenging steps to ensure consistently high quality. This combination of specialist and technical expertise has developed over many years and can be found in Germany.”

Hundt also underlines the importance of the German capital Berlin, where Takeda’s distribution center is based. “Here in the heart of the capital, the company can communicate and network with all the most important stakeholders,” he says. “From specialist and

sector associations, patients’ organizations, and health insurers all the way to health policy politicians.”

Berlin, he adds, also boasts a high concentration of creative companies, start-ups, universities and research institutes specializing in life sciences. Greater Berlin is home to some 21,000 health sector companies, including around 300 in medical technologies, over 240 in biotech and 30 in pharmaceuticals. That makes the city one of Europe’s most important health sector locations.

HOW DOES GERMANY’S HEALTHCARE SYSTEM WORK?

Germany’s 83 million people can rely on 1,900 hospitals, 409,000 doctors and some 19,000 pharmacies. This system is ultimately administered by a joint committee representing doctors, patients, hospitals and health insurers. It is paid for by a statutory insurance system, which requires every resident in Germany to take out either public or private health insurance, to which they contribute monthly. Employers subtract half of these insurance contributions from monthly wages, then pass it on to the insurers and pay the other half themselves. In the case of privately insured people, the amount of contributions is based on their individual health record, the age at which they joined the insurer and the type of coverage they want. People insured by one of the public health insurers pay in 14.6 percent of their salaries (with an upper limit for high incomes) and receive the same health coverage, regardless of how much they contribute. Family members without an income are also insured. The health insurance contributions of the unemployed are usually paid by the national social security agency.

HEALTHCARE SPENDING IN GERMANY

Germany spends more on healthcare as a percentage of GDP than any other EU country except Switzerland.

Source: OECD 2019



SWITZERLAND

12.1



GERMANY

11.7



FRANCE

11.2



UK

10.3



SPAIN

9.0



TURKEY

4.4

The young but highly trained research team at BioNTech in Mainz worked tirelessly to develop the revolutionary new vaccine against coronavirus in record time. Project "Light-speed," as they called it, took just over a year from launch to approval.

Photo: BioNTech

GERMANY'S PUBLIC INVESTMENT IN COVID-19 VACCINES

Germany spent more public money – EUR 1.27 billion (USD 1.5 billion) – on Covid-19-vaccine R&D than any other European country and the second most in the world (in USD billion):

Source: Global Health Centre at the Graduate Institute, Geneva

2.3

US

1.5

GERMANY

0.500

UK

0.327

EU INST.

0.145

CHINA

Sabine Sydow, director of vfa BIO, stresses other advantages. “We keep hearing how much companies value our research institutes, both inside and outside universities – they are highly regarded partners,” she says. The fact that public-private partnerships are very well established in Germany, she adds, is another selling point. “We have the research and we have the technology.”

“What has changed over the past year is that the state is now much more prepared to invest directly not only in research and development but in manufacturing key medical products in Germany,” says GTAI healthcare expert Gregor Kemper. “And another big change was that private investment went through the roof in 2020 – driven not only by BioNTech and CureVac going public but also by smaller companies’ venture-capital rounds.”

The world’s pharmacy

Another non-German company that has thrived in Germany during the pandemic is Roche. The Swiss healthcare giant has maintained four major sites in Germany for several decades, and its expertise in diagnostics was vital to the rapid development and mass production of several Covid-19 tests in the early stages of the pandemic. Roche has committed to constructing a new diagnostic research center and production plants in the southern town of Penzberg at a cost of EUR 420 million over the next few years.

“Germany is an innovation engine for Roche,” says Johannes Ritter, Roche’s head of communications at Penzberg. “Germany was once known as the pharmacy of the world, and now we’ve become what we like to call a ‘scientific factory’ in Germany – it’s that dovetailing of scientific and production expertise that works well.”

One measure of how highly Roche regards Germany as a healthcare location is that it has begun to foster digital health innovation platforms for start-ups in the major cities. These include the accelerators Startup Creasphere in Munich and RoX Health in Berlin. Their *raison d’être* is to transform the German healthcare system by supporting digitalization. Ritter calls this the new “third pillar” of the sector alongside pharmaceuticals and diagnostics.

“Currently, there’s a lot happening in that field in Germany with a big potential,” he explains. “Small companies like start-ups behave in a totally different way to big companies like



German Chancellor Angela Merkel opens the new Takeda production hall in Oranienburg in 2017.

Photo: picture alliance/Ralf Hirschberger/dpa, Zentralbild/dpa

FDI PERSPECTIVE: TAKEDA

Japan’s biggest pharmaceutical company has two production plants in Germany: one in Baden-Württemberg, which is working on a dengue fever vaccine, and another in Oranienburg.

Takeda has been active in Germany since the 1980s, but the country became one of the Japanese pharmaceutical giant’s key global locations in 2011, when it acquired the Swiss company Nycomed. That gave Takeda two major manufacturing plants in Germany – in the town of Singen in the south and near Berlin in the northeast. Both locations have a decades-long tradition of manufacturing medicine. Today, Takeda employs some 2,500 people in Germany. They specialize in the production of high-quality medication that reaches patients in more than 100 countries around the world. Takeda has expanded substantially in Germany in the past few years, investing more than EUR 300 million. This money went toward increasing capacity at the Oranienburg plant by 50 percent in 2017, while the Singen plant is about to become Takeda’s first site to produce a dengue fever vaccine. Takeda’s production was not slowed by the coronavirus pandemic.

>2,500
employees in Germany

€300M
invested in German sites in recent years

1981
was the year Takeda launched in Germany



Photo: picture alliance/empics/Joe Giddens

ReWalk is a wearable exoskeleton with motorized hips and knees that helps paraplegic people walk again.

FDI PERSPECTIVE: REWALK ROBOTICS

The Israeli company ReWalk Robotics recently opened an office in Berlin. It uses cutting-edge robotics technology to assist patients with lower limb disabilities.

With a product that was designed in Israel, ReWalk Robotics saw lucrative new opportunities open up in 2018 when its Personal 6.0 Exoskeleton system was listed in Germany's catalogue of therapeutic appliances (*Hilfsmittelverzeichnis*) of the National Association of statutory Health Insurance Funds. In practice, that meant health insurance companies in the country were able to cover the cost for this innovative assistance for patients with lower limb disabilities. Not long after, the company began to sign supply contracts with many of Germany's 105 leading health insurers, and it has now opened an office in Berlin.

The exoskeleton, which uses state-of-the-art robotics and computer systems to help people with paralysis, is the first such device to be made available to German patients on prescription. The company also has a more lightweight device, the ReStore, which is intended to help people who have lost the use of limbs after a stroke to walk again. The product is also available in the US.

1st

exoskeleton to receive FDA clearance:
ReWalk Personal 6.0 Exoskeleton

FROM 2018

the costs of the exoskeleton have been
covered by German health insurers

52

training centers in Germany –
more than in any other European country

Roche – they're potentially faster and more agile, which is where we can learn from them. And we're not doing this, as you might assume, just to buy up the start-ups someday," Ritter continues. "On the contrary, we've created an environment within our global ecosystem to pilot solutions and services, drive investment, make and share experiences and facilitate international expansion. The idea is to create a win-win situation."

Success 15 years in the making

None of this has happened by accident. There are plenty of reasons why one of the most effective Covid-19 vaccines was jointly developed in Germany. Large Western vaccine companies have concentrated 70 percent of their industrial R&D efforts and 80 percent of their worldwide production facilities in Europe.

"General location factors attract foreign pharmaceutical companies," says vfa spokesman Henrik Jeimke-Karge. "They include a close proximity to the leading machine and packaging manufacturers, as well as a high degree of automation and, with it, high degrees of plant efficiency, productivity and flexibility."

Moreover, 15 years ago the German government began creating favorable conditions for today's infection research. In 2006, three ministries established a new initiative in the field of zoonotic (animal-spread) diseases, and in 2015, a research network was set up to study and combat such infections.

As a result, Germany has developed a unique expertise in fighting pandemics. Two crucial aspects are: firstly, the latest analysis and synthesis technology paired with genetic laboratories, high-performance computers and analytic robots; and secondly, highly qualified pharmaceutical scientists coupled

with efficient regulatory authorities. Germany currently contributes some EUR 140 million to the EU's international Coalition for Epidemic Preparedness Innovations (CEPI).

"Germany is well-known as Europe's biggest pharma market due to its high per capita healthcare spending," says GTAI's Gregor Kemper. "But not everyone is aware of its strength as a life sciences location. Germany accounts for more EPO patent applications in biotechnology than any other European country, and the local pharma industry provides a large labor pool of skilled life sciences professionals. And there's still a lot of untapped potential."

Kemper's own analysis of Germany's biotechnology industry highlights some crucial points, first and foremost the ongoing expansion in the sector. Both the number of biotech companies and the amount of investments are on the rise (source: BioDeutschland). The industry now supports well over 30,000 employees in Germany and generates around EUR 5 billion in revenue each year. And that's just the biotech firms.

At the same time, there is still great potential. Kemper points out that while Germany, with its dense network of institutes, can still rely on its traditional research strength, the country lags behind the US and the UK in terms of biotech investments. But that could very well change following the pandemic, which has put the federal republic firmly on the radar.

Germany has begun to redress this imbalance by promoting biotechnology clusters. These "BioRegions" are local initiatives of all sizes that work to advance biotech in Germany. Focusing on the respective specialties of local universities and R&D institutes, these clusters help connect experts to political decision-makers.

ROBOTICS INDUSTRY DOUBLES ITS REVENUE

Total revenue from Germany's robotics and automation industry 2002–2020



Source: Statista

The advance of digital health

These biotech advances have gone hand in hand with IT enhancements in the healthcare sector in general. Personalized medical apps have allowed pharma companies to tap into large amounts of real-world data beyond clinical studies.

Recent innovations in Germany's healthcare market illustrate how those strengths are developing. For example, the German government has begun to foster the use of digital health applications, known as DiGAs, which open up a new range of possibilities when it comes to both diagnosis and treatment.

DiGAs are effectively "digital assistants" – apps that doctors can prescribe and patients can install on smartphones to help monitor and treat health issues. Since October 2020, patients can claim the costs for them through national health insurers. Meanwhile, last year the German Ministry of Health changed the

rules to allow for electronic medical prescriptions. As of January 2022, all prescriptions will be digitally available, relying on a secure telematic infrastructure throughout the German healthcare system.

These are systemic changes designed to make patients' lives more comfortable and convenient. But the benefits go much further. One notable example is ReWalk – a wearable robot exoskeleton with motorized hips and knees that is helping paraplegic people to walk again. It's a device that utilizes user-initiated mobility through the integration of a wearable brace support, a computer-based control system and motion sensors to detect the patient's center of gravity.

This product now has a direct sales operation in Berlin and was the first robotic aid to be introduced into Germany's approved catalogue of therapeutic appliances. That means patients can have the costs covered by their health insurers. The fact that revolutionary devices like ReWalk are available on the German market underlines the country's commitment to modernizing its healthcare sector by offering state-of-the-art products.

There's a lot about Germany's life sciences industry that not so long ago may have sounded like the stuff of science fiction, but as international companies and their German partners are finding out, the future is very much now in this fast-evolving sector.



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IN BRIEF

Investors around the world admire the spirit of innovation that inspires the German economy. Here we throw the spotlight on just some of the trends and research projects that are changing the face of things to come.



HYDROGEN-POWERED FERRIES

Norwegian passenger ship will run on German green hydrogen

The world's first hydrogen-powered ferry, the MF Hydra, operated by Norwegian company Norled, will run on sustainably produced hydrogen from eastern Germany. The fuel will be generated by a new 24-megawatt proton exchange membrane (PEM) electrolyzer Linde Engineering is building in the eastern German town of Leuna.

95%

"We believe that hydrogen will play a significant role in the future of zero-emission ships," says Norled CEO Heidi Wolden. Deliveries will begin in 2022 and will reduce the ferry's carbon emissions by up to 95 percent. A renewable power plant is also in the works for a site near the Leuna facility.

www.norled.no/en/

CHARGING AHEAD

Ethanol-powered EV charging station from Berlin

The lack of charging infrastructure is a major barrier to widespread e-mobility, but one start-up's solution could be a game changer. Founded in 2018 and located in Wildau on the outskirts of Berlin, M.E Energy recently won the Entrepreneurs' Award from Germany's national development bank, KfW, for an electric vehicle (EV) charging station that generates its own electricity.

"The energy comes from bioethanol," M.E Energy cofounder and CTO Inès Adler explains on the KfW website. "A converter turns the liquid into electricity, which is routed directly into the vehicle's battery through the charging cable."

Not only does the charging station operate independently of the power grid, it's also really fast. M.E Energy claims it can charge an EV battery sufficiently to drive 300 kilometers in under 15 minutes.

www.meenergy.com



ISRAELI DIAGNOSTICS

Magdeburg's biotech hub welcomes infections pioneer

Magdeburg's healthtech landscape has a new attraction. Israel's Kidod Science & Technologies has joined the eastern German city's Health + IT Campus to establish a new EUR 10 million company called IBD Science + Technologies.

IBD is positioning itself as a leader in diagnostics of viral and bacterial infections in biological fluids. Kidod's molecular technology has proven its worth in Israel, and IBD hopes to replicate that success in eastern Germany.



»Proximity to university medical institutes is very important, and the Health + IT Campus offers the perfect environment that encourages research.«

**Moshe Golan,
President Kidod**

<https://ibd-science.com/>

PLASTIC FANTASTIC

Modular recycling facility on the site of former coalmine will recycle hundreds of tons of plastic a day

Germany's Biofabrik Technologies Dresden and Switzerland's Enespa AG are teaming up to build the world's largest chemical recycling facility for plastic. The facility, called WASTX Plastic, will be built on the site of a former coalmine in the Lusatia region of eastern Germany in the Schwarze Pumpe industrial park.

The site will eventually be able to recycle several hundreds of tons of plastic per day. WASTX Plastic's facilities, which are being built to a modular design, are scalable and therefore able to handle as much plastic as necessary for given locations. It also means that the facility as a whole can continue to operate even when individual modules are out of service.

Biofabrik is providing the technology, while Enespa is handling the finance and daily operations. The project is open to individual investors.

<https://biofabrik.com/en/>
www.enespa.eu/en/

HOT TOPIC

Renewable heat stored in process steam tanks

You can create heat with electricity and generate electricity with heat, but if you ask Berlin's LUMENION, the two commodities need to be far more tightly connected in the form of "renewable heat." The company has come up with a steel storage system called Menion, capable of storing electrical power in the form of process steam and heat up to 650 degrees Celsius. This warmth can be used later for heating buildings or be converted back into electricity.

The company says the system, which won the 2020 Berlin-Brandenburg Innovation Award, is particularly useful for conserving excess electricity generated by renewable sources such as wind and solar.

<https://lumenion.com/?lang=en>

SPEEDY CONSTRUCTION

Carbon cement technology for lightweight modular structures



Photo: Betondesign-Factory

Small structures like garden sheds need to be easy to build and just as easy to assemble. Betondesign-Factory from the eastern German town of Schönborn has come up with a modular system called "Conwood frameworks" that combines the advantages of both wood and carbon cement.

The system can also be used for more permanent structures, offering good stability but relatively low weight. That saves time and costs in transport and assembly. The exterior walls also provide good protection against cold, heat and sound. The carbon cement technology received the German President's Award for Technology and Innovation, the German Future Prize, in 2016.

www.betondesign-factory.de

SMART TRACTORS

Intelligent machine makes vineyards more ecological



Photo: Eloi Omella/Getty Images

How to make wine growing more environmentally friendly? One answer is to design tractors that can tend the grapes more intelligently, say the makers of Vineyard Pilot Assistant, an automated tractor that increases the speed at which vineyards can be worked and weeded and provides a viable alternative to chemical herbicides.

Robot Makers and the agricultural engineering company Braun Maschinenbau were awarded the 2020 Innovation Prize from the western German regional state of Rhineland-Palatinate for their invention. "We all want winemaking to be more ecological," says Robot Makers CEO Bernd Helge Lerach. "This is a milestone. Our machines operate faster than conventional weed-killing sprayer systems."

<https://robotmakers.de/en/>
<https://braun-maschinenbau.info/en/>

GERMANY'S MANUFACTURING BOUNCE

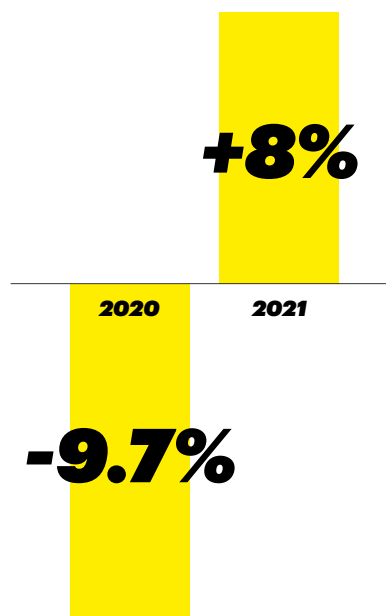
Manufacturing, one of the central pillars of the German economy, did not escape the coronavirus pandemic unscathed. But in 2021, Germany's determined, export-focused producers and family-run businesses led the country's economic recovery.

The Swedish global hygiene and healthcare company Essity has not let the pandemic get in the way of progress. Essity invested EUR 40 million in expanding its facility in Mannheim, one of the biggest business investments in Baden-Württemberg in all of 2020. The innovative integrated production site will process wheat straw pulp for manufacturing paper products such as tissues and kitchen rolls. Wheat straw pulp produces the same quality as wood pulp but requires less water and energy to process and is a renewable resource.

Mannheim is Essity's largest European plant, processing 220,000 tons of wood pulp annually. The facility expansion will increase that capacity by 35,000 tons of wheat straw pulp. Construction of the new buildings continued through the pandemic, with Essity still on target to start selling its sustainable paper products in the second half of 2021. The Mannheim plant provides work for around 2,000 people, making it one of the leading employers in the

GROWING AGAIN

Year-on-year change in total manufacturing in Germany



Source: BDI

region. And the new straw pulp production will create additional jobs.

“Germany is the largest and most important market for Essity in Europe,” says Roger Schilling, head of Essity’s Mannheim location. “Here we have not only good investment conditions, but also excellently trained skilled workers with whom we can effectively implement the transformation toward even greater sustainability.”

Like other sectors worldwide, German manufacturing was hit hard by pandemic restrictions on freedom of movement and disruptions to supply chains. But manufacturers carried on and are now reaping the rewards of their creativity and persistence.

Cheery outlook

The Federation of German Industries (BDI) projects that manufacturing in general will grow by 8 percent and total exports by 8.5 percent in 2021. “Industry is the anchor of stability for the German economy. It is playing a key role

in the economic recovery,” BDI President Siegfried Russwurm said at the Hannover Messe trade fair in April. “Germany is an industrial country, and Germany is an export country. That is our trademark, and it has to stay that way – and we are succeeding this year.”

Two key drivers were diversification and state help. The German manufacturing market encompasses everything from small high-tech components to heavy-duty machinery. And

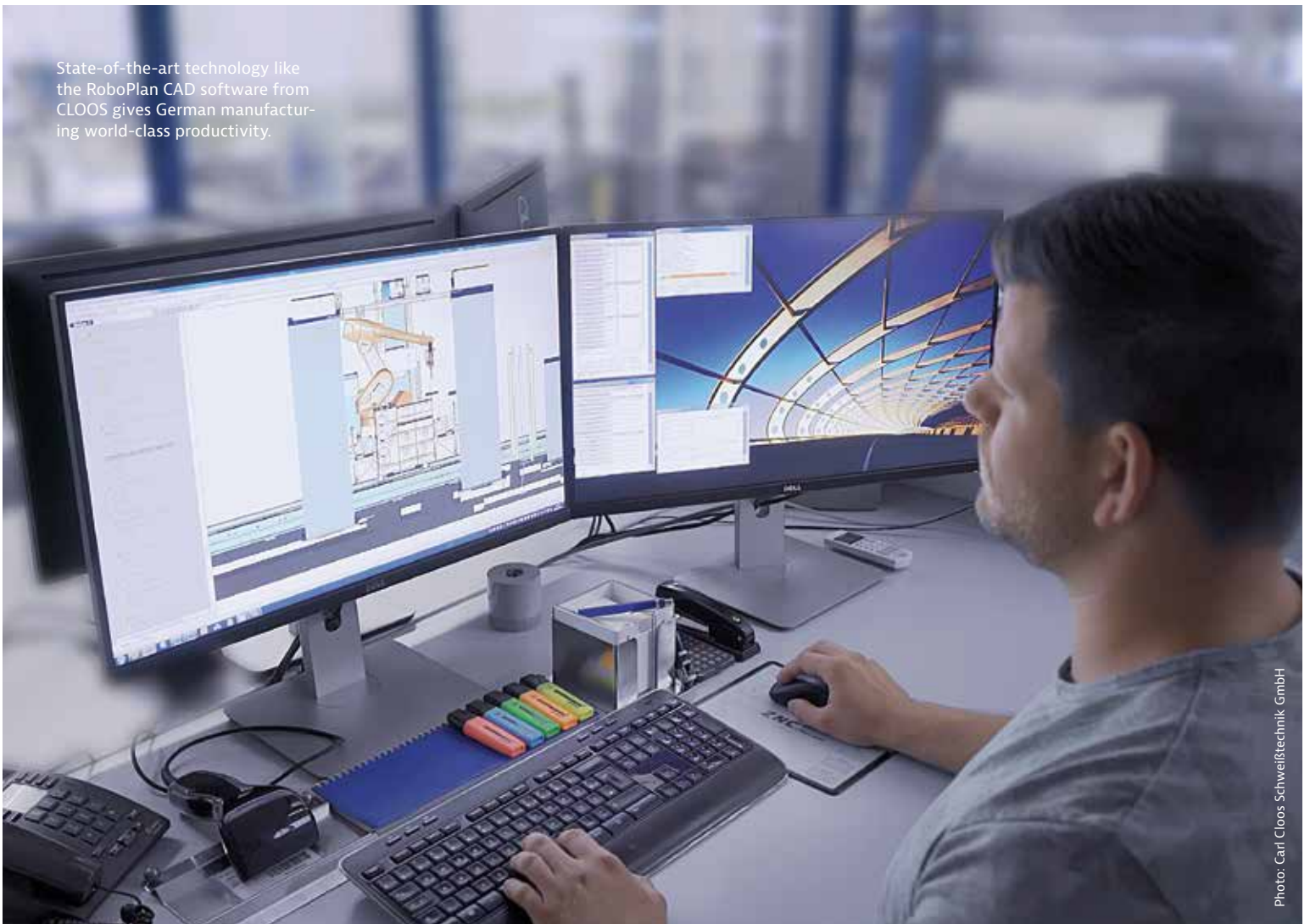
THE BOTTOM LINE

Export-oriented manufacturing is traditionally a German strength, and the sector has pulled its weight in helping the country recover from the pandemic. German subsidiaries of international companies have profited from its robustness.

the government has made commitments to support industry throughout the coronavirus pandemic. Germany’s EUR 130 billion stimulus package is especially useful for international businesses working in the areas of mobility, medical devices, CO₂ reduction, digitalization and artificial intelligence.

French company Air Liquide, for example, is investing EUR 40 million in a new air separation plant at its German partner BASF’s

State-of-the-art technology like the RoboPlan CAD software from CLOOS gives German manufacturing world-class productivity.





»German manufacturers are highly respected for their quality and timely delivery.«

Andreas Glunz,
KPMG

Schwarzheide site near the eastern city of Dresden. It will manufacture material for lithium-ion batteries for 400,000 electric vehicles annually, beginning in 2022.

The OECD predicts that German GDP will grow by 3.3 percent in 2021 and 4.4 percent in 2022. Whereas Germany's service sector has struggled somewhat, the country's export-focused manufacturing industry has kept expanding despite some supply issues.

"Germany has the highest number of industrial robots in Europe – it's number four in the world after Singapore, South Korea and Japan," says Andreas Glunz, managing partner International Business at KPMG. "This was very helpful when vaccine production had to be ramped up very quickly for European production facilities."

"Germany is also home to many 'hidden champions' – family-owned businesses with long-term horizons that are world market leaders in their niche," Glunz adds. "German manufacturers are highly respected for their quality and timely delivery. Our reliable and robust supply chains stood up to the challenges of the pandemic."

Hidden champions go global

Austrian vehicle manufacturer EMPL experienced growing global demand during the pandemic. The family-owned company based in Tyrol invested EUR 20 million to expand its

MANUFACTURING SUCCESS: THE OUTLOOK FOR THESE SECTORS IS PARTICULARLY SUNNY

Additive manufacturing: Germany is a worldwide leader in 3D printing, particularly with metals. With applications in automotive, aerospace and biotech, the additive manufacturing market grew by 21 percent from 2019 to 2020.

Batteries: With the e-mobility revolution, the market for European-made batteries could reach EUR 250 billion by the mid-2020s. Germany is investing more than EUR 1.5 billion in battery research and production and is the continent's leading battery location.

Green products: The EU Green Deal has set the goal of recycling 55 percent of plastic packaging by 2030. This is creating opportunities for manufacturers focusing on the circular economy, says consulting firm KPMG.

Healthcare & life sciences: Germany's pandemic response bolstered pharma and med-tech manufacturing. Investment in biotech companies exceeded EUR 3 billion in 2020, three times the volume of 2019.

cutting-edge assembly plant in Zahna-Elster in Saxony-Anhalt. The facility is designed for flexible, environmentally friendly production and is set to be completed by the end of 2021.

About 70 percent of the company's output is exported, which is why EMPL initially decided to establish capacity in Germany shortly after German reunification. The expansion of the site,

not far from the eastern town of Wittenberg, will create about 60 new jobs. Many family-owned manufacturers in the region supply EMPL with vital components.

"It was fundamentally a success story," says former CEO Herbert Empl, whose son now runs the company. "We recruit from the whole region and train apprentices to help fill our team of skilled professionals. We're very happy, because the people are highly motivated and work hard." But there's another reason why Germany is attractive to international investors: "There is a very high number of German family-owned businesses looking at succession plans right now," Glunz says. "Germany offers unrivaled access to all other 26 EU countries because of its central geographical position within Europe, and the tightly knit network of scientific institutions, universities, government and business creates a reliable and sustainable investment ecosystem."

Glunz also points out that Brexit has weakened one of Germany's biggest competitors, as UK manufacturing is no longer part of the EU. "Germany remains a highly sophisticated location for manufacturing companies," says Thomas Bozoyan, a senior manager at GTAI. "In the future, Germany will continue to offer a wide range of possibilities for domestic and foreign business in different sectors."

SUNNY DAYS AGAIN for German Solar

The solar industry in Germany has emerged from a period of slow growth and is back on track, thanks to the country's ambitious climate goals and a little help from international companies.

Just three years after Germany's once high-flying solar manufacturer SolarWorld was forced into bankruptcy due to falling industry prices and seemingly unbeatable competition from China, production lines are back up and running again at the company's former sites. That's all thanks to major new investment from Swiss solar photovoltaic (PV) manufacturer Meyer Burger.

"We lost manufacturing some years ago and now we are bringing it back," said Meyer Burger CEO Gunter Erfurt at the reopening of the Freiberg plant in the eastern German regional state of Saxony in May. "The timing could not be better." A second plant will revive manufacturing in Bitterfeld-Wolfen, Saxony-Anhalt. Improvements in performance and production costs of Meyer Burger's technology have made European production more competitive.

Experts predict the future belongs to solar because it's one of the cheapest and most plentiful sources of power and one of the most climate-friendly. The resurgence of solar power in Germany is evidenced by the figures for annually installed PV capacity, which reached nearly 5 gigawatts (GW) last year – the highest level since 2012. Those numbers are set to increase considerably in the coming years due to Germany's transition to clean energy (*Energiewende*).

Regional initiatives

Demand is also rising at the regional level. Berlin, for instance, just passed a law making solar PV systems mandatory in all new buildings and renovations as of 2023. Jenny Chase, head of solar analysis at BloombergNEF, says that while more foreign investment on the manufacturing side is likely, there is already "plenty of Ger-



Inspection of a solar module on the production line at Meyer Burger's plant in Freiberg. The Swiss company is opening a second plant in Saxony.

GREAT POTENTIAL IN GERMANY'S SOLAR PHOTOVOLTAICS SECTOR

142%

Increase in new solar PV rooftop installations of between 10 and 30 kW in the first quarter of 2021 compared to the first quarter of 2020

100 GW

Increase in PV energy capacity in Germany by 2030 (up from 53.6 GW in 2020) – the national government target

6 GW

PV capacity for 2022 energy auctions – a threefold increase since 2020

Source: pv magazine

man money" in the sector as investments in projects complying with environmental, social and governance (ESG) standards have become particularly attractive.

Investment opportunities

International companies have been interested in German solartech for some time. South Korea's Hanwha Group acquired Bitterfeld-Wolfen-based Q CELLS in 2012, turning it into one of the world's leading PV companies. And with the new solar boom, the time has never been better for foreign firms to establish a presence in Germany and in related fields such as energy storage.



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GERMANY GEARS UP FOR DIGITAL

When it comes to many aspects of digital transformation, Germany is in the middle of the European pack. But both government and business want that to change – and fast. That’s good news for innovative tech companies looking for a foothold in the heart of Europe.

KEY DRIVERS: FLEXIBILITY, COST SAVINGS, CUSTOMER EXPERIENCE

Motivation for going digital (companies in Germany)

57%

**STRATEGIC CORPORATE
DEVELOPMENT**

57%

**REDUCING
COSTS**

53%

**CUSTOMER
CONNECTION**

52%

**MAKING WORKFLOW
MORE FLEXIBLE**

Source: IHK

When the Swedish software start-up Scrive opened its first German subsidiary in Munich last February, it recognized there would be challenges. Scrive provides e-signature solutions for businesses, enabling them to sign contracts and legal documents quickly and easily online. It's a service that could benefit many German companies – not to mention the governmental regulatory system – but people still needed convincing. “There's still a bit of reluctance and resistance to being the first one to move and change,” says Scrive's country director Germany, Patrick Larm. “There's anxiety and a desire to wait and see.”

While Germany is by no means at the forefront of digitalization, it remains the biggest economy in Europe. Its thousands of small and medium-sized enterprises (SMEs) are widely respected, but not all of them are on top of the latest software or digital business models. For foreign enterprises with solutions to help SMEs catch up, that spells opportunity. According to Germany Trade & Invest's director of digital and service industries, Marc Rohr: “A lot of start-ups are coming to Germany because they know there's a gap.”

Corona as a catalyst

Scrive is a case in point. Before opening its Munich office, the company had already won big German clients, including the Nordic subsidiaries of heavyweights like Volkswagen, BMW and electronics retailer MediaMarkt. Now Scrive has set its sights on leading the German e-signature market, then expanding into Austria and Switzerland. “The fact that Germany is lagging somewhat behind,” Larm explains, “is an advantage you don't see in many other markets.”

Over the past 18 months, the pandemic has sped up the adoption of digital solutions by business owners. Retail stores, supermarkets and bakeries have shifted from cash to contactless payment, and more firms are allowing employees to work remotely and have adopted video conferencing for staff and clients. “Over the last 15 months, we've seen a great demand for more digitalization in general,” says Rohr.

The biggest area of growth has been in online retail, an area which older Germans in particular have been wary of. The pandemic saw Amazon post record profits in Germany and

THE BOTTOM LINE

Germany needs help from international companies and entrepreneurs to get up to speed digitally. That's creating lots of niches for digital solution providers with a presence in the country.



GTAI'S DIGITAL ACCELERATOR

Marc Rohr is director of digital and service industries at Germany Trade & Invest (GTAI). Marc and his team help international companies find opportunities in the digital realm, from those offering digital payment solutions to those assisting SMEs to go online. He spoke with *Markets Germany* about the many opportunities now opening up.

What has been the impact of Covid-19 on German companies from a digitalization perspective?

There have been a lot of developments. It's become increasingly evident that there are shortcomings in Germany's digital infrastructure.

What sectors are leading the digital drive?

Companies that focus on services have really used the coronavirus pandemic to go digital and transform their business models.

What's the biggest advantage for international tech companies setting up in Germany?

If you want to introduce a new business model, Germany is the biggest market in Europe to launch in. There's still huge demand here.

Where does Germany lag behind digitally?

There are still really big gaps between rural and urban areas in terms of connectivity and digitalization. But I think the government understands that there needs to be more investment on this side. Germany also has very high standards when it comes to privacy, which can make it hard to implement some digital and online solutions.

Given the challenges, why would companies choose to come to Germany?

Ironically, Germany's biggest disadvantage is also an advantage. Because we have the toughest rules and regulations, once you've completed your rollout here, you can do it anywhere.

all major grocery chains roll out online shopping and delivery services. “A whole generation realized it was possible, and even preferable,” adds Rohr.

Meanwhile, behind the scenes, companies were struggling to secure stock and source critical parts during the pandemic, bringing inventory control and supply chain management to the fore. “The pandemic really accelerated the need for digital supply chain management,” Rohr says. “I think that will stay, too.”

The shift is boosting demand for digital logistics, inventory tracking and customer-facing online shopping tools. A 2020 survey by industry association Bitkom showed that 97 percent of German firms saw digitalization as an opportunity, and 84 percent agreed that the pandemic had made it more important in-house. “The good news is companies want to push their digitalization forward,” Bitkom President Achim Berg says. “The bad news is that not all of them are in a position to do it.”

Need for international input

Germany is taking concrete steps to close the digital gap in terms of broadband speed, Internet connectivity and access. While most of its cities are connected to high-speed Internet, rural areas have too often been left behind. The Federation of German Industries characterizes Germany as only “slightly above the EU average” when it comes to digital transformation.

And it's not just lobby groups who are pushing for change. There's a growing awareness within German companies that they've got work to do. According to a 2021 study by Germany's chambers of industry and commerce, only 39 percent of businesses considered their digitalization journey to be complete, while 71 percent of the companies surveyed by Bitkom admitted they were playing catch-up. Construction, transportation and manufacturing firms were most likely to consider themselves behind the curve. The hospitality and restaurant industries are also far behind: one in five said they were not at all digitalized.

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PARALLEL TRENDS: Sustainable E-Commerce

The coronavirus pandemic has revolutionized how Germans shop, especially for groceries. And the change has come hand in hand with increased concern about ecological and social issues. International investors are meeting this demand with organic, local and eco-friendly produce.

Erich Comor, CEO of Knuspr, poses with a bag of regional produce. Knuspr serves the growing demand for sustainable groceries.

FDI PERSPECTIVE

Last summer, Knuspr, part of the leading Czech online grocery conglomerate Rohlík, commenced operations in Munich. It aims to reach some 30 million customers across Germany in the next three years as it extends its services to Frankfurt, Stuttgart, Hamburg, Cologne and other cities. Unlike its rivals that emphasize speed of delivery, Knuspr promotes sustainability by focusing on fresh regional products: It purchases more than 95 percent of its stock directly from producers and farmers rather than wholesalers or intermediaries, and more than 30 percent of its products are sourced locally.

>30%

of Knuspr's product range comes from local suppliers such as butchers and bakeries

€190M

is the capital raised by leading European online grocery business Rohlík Group

THE BOTTOM LINE

The pandemic not only moved German shoppers online, it made them more conscious of the environmental and social impact of delivery services. International companies that can meet their enhanced expectations have a good chance of success.

Germany in the winter of 2020 was a country in the grip of a renewed partial lockdown to contain the spread of coronavirus. City streets were relatively empty. One exception: the increased numbers of young cyclists braving the cold temperatures with large insulated boxes on their backs, delivering hot food to customers at home.

Whether it's food and groceries, clothes and shoes, or electronics and entertainment, online purchases have risen dramatically during the pandemic. According to the German Retail Federation (HDE), e-commerce in 2020 accounted for 12.6 percent of retail revenue in Germany, up from 10.8 percent in 2019. For comparison, in 2010 that figure was just 4.7 percent. But with more and more Germans shopping online, sustainability has become a pertinent issue, one which encompasses carbon emissions, packaging and product sourcing. That's prompted something of a sea change in the sector.

Ethical, sustainable and local

In response to customer demand, German e-commerce giant Zalando is making sustainability a key part of its business model. The company has tripled its ethical and eco-conscious clothing offerings to 80,000 products and also made sustainability assessment mandatory for its more than 3,500 brand partners and private labels. It's also sourcing 100 percent renewable electricity in its facilities and has already achieved a 64 percent decrease in emissions since 2017. "The desire of many people for a sustainable way of life is increasingly shaping consumer behavior," says HDE managing director Stefan Genth.

Sustainable alternatives, including organic and local produce, are also picking up steam in the food sector. The trend was already well established in traditional bricks-and-mortar German grocery stores, Genth notes in a recent HDE report, but that demand has now carried

over to online. Furthermore, home cuisine exploded in popularity during lockdown and consumers have become far more conscious about the source and sustainability of the food they eat.

Home delivery boom

The sale of groceries on the Internet has been growing faster than any other area in online retail for years, according to Germany's Institute for Applied Ecology (Öko-Institut). The surge in demand has been so pronounced over the last 18 months that many delivery services were barely able to meet orders. And that's despite the plethora of grocery and restaurant delivery services springing up last year, including the entry of international companies such as Knuspr, Getir, GetFaster and Wolt.

150%

Increase in organic food revenue in Germany from 2010 to 2020

€14.6BN

Organic food revenue in Germany in 2020

82%

Percentage of people in Germany who say it is important that grocery products are sourced locally

Source: Knuspr; Federal Ministry of Food and Agriculture (BMEL)

Turkish grocery delivery firm Getir began operating in Berlin in June and plans further rollouts across Germany in the coming months. "Germany is the biggest economy in Europe and therefore the most important market for us to introduce and grow our business," a Getir spokesperson says. "We see great potential here to win over enthusiastic customers with our innovative technology and high-quality service."

Last year saw the Russian start-up GetFaster opening its store in Düsseldorf and the Berlin launch of Finnish company Wolt as a restaurant delivery service. Wolt has since expanded to Frankfurt, Munich, Hanover and Cologne and has increased its range to include local market vendors.

Convenience meets eco-sense

The fact that all these service providers make their deliveries with bicycles and electric modes of transport underscores how the convenience of home delivery dovetails with sustainable and socially responsible products.

German start-up Flink, for instance, promotes itself on the organic quality of its fruit and vegetables. And Knuspr from the Czech Republic (see page 20) is hoping to tempt German consumers by focusing on regional produce.

Moreover, with many delivery services honing in on urban areas, there are still opportunities out there for new players to serve the more overlooked and rural regions, Öko-Institut notes. Especially, if they can convince customers that using their services is good for the planet as well.



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Germany's **QUANTUM** **FUTURE**

Faster, more powerful and smarter – that's what Germany is aiming to become by supporting the development of quantum supercomputers. International quantum hardware and application companies are starting to take notice.



Europe's most powerful quantum supercomputer at the IBM Innovation Center in Ehningen. The new machine, unveiled this year, is the end result of a collaboration between IBM and the Fraunhofer research group.

Twobillion euros is no small chunk of change. So the German government's decision in 2020 to invest that sum in quantum computing is a clear indication of where it believes the future lies. Quantum computers can perform calculations at far greater speeds than conventional ones. And that's fueled hopes that many vital research experiments – which would otherwise be conducted in costly and time-consuming laboratory settings – can now be fully simulated.

The billion-euro investment package for the development and construction of quantum computers comes from the government's economic stimulus and crisis management package. The first milestone of the new initiative was the publication of their "Roadmap Quantum Computing" in January 2021.

"The roadmap shows what it takes to transfer the excellence of basic research into the application phase through close cooperation between the private sector and academia," says Professor Stefan Filipp, one of the two chairpersons of the government's Quantum Computing Expert Council. "Germany and Europe must act now, because the search for ever more computing power is picking up steam, and the US' technology giants and start-ups have already grabbed some of the pole positions."

An international opportunity

The German government has made it clear that its quantum computing plans will be realized using German and European-made components and know-how. As a result, international companies from all over the world are setting up offices in Germany to

contribute directly to related projects and benefit from the growing ecosystem.

Munich's Quantum Business Network (QBN) has registered strong interest from several global players in quantum hardware and applications. "We estimate that 70 percent of all foreign players with potential stakes in Germany's quantum computing business have either recently opened an office in the country or are in the process of setting one up," QBN CEO and founder Johannes Verst says.



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SEMICONDUCTOR Self-Sufficiency in Europe

With growing global demand for computer chips amid a post-corona supply shortage, Germany and Europe are building up their domestic capacity. International electronics companies are positioning themselves to take advantage of the developments.

In June, German Chancellor Angela Merkel attended the opening of a billion-euro new Bosch production facility for computer chips in Dresden to highlight Germany's response to an economic challenge. "In the past, oil was considered the lifeblood of an economy; today, we depend on semiconductors more urgently than ever," she said. "We will not only make Germany and Europe as a whole more crisis-resistant but also create new opportunities for growth and prosperity, for sustainable jobs and for social security."

Bosch built its semiconductor plant – the largest investment in the company's history – with the help of EUR 200 million in IPCEI (Important Project of Common European Interest) funding for microelectronics. That move has already triggered billions of euros of investment in Dresden and the surrounding region.

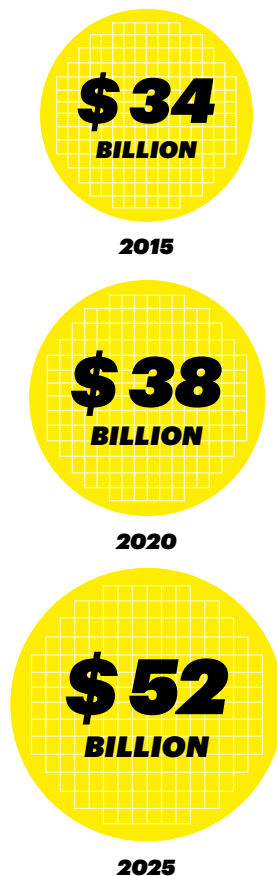
With its many renowned R&D institutes, the eastern German regional state of Saxony has become the center of chip production in Europe and the fifth largest producer in the world. Other major international electronics companies – including TSMC, Samsung and Intel – are in discussions regarding potential locations in Germany. EU Commissioner Thierry Breton hopes Europe's share of global semiconductor production will grow to 20 percent by 2030.

Germany tackles a post-corona shortage

In the first half of 2021, as many economies were starting to rebound, industries were hit by a global shortage of microchips. The bottleneck disrupted supply chains, delaying production in the auto industry, portable electronics and other manufacturing sectors. Germany recognized

EUROPE'S CHIP SECTOR IS GROWING

German electronics industry group ZVEI predicts that by 2025 Europe's share of worldwide semiconductor production will increase to about 9 percent.



Source: ZVEI, <https://www.zvei.org/presse-medien/pressebereich/weltmarkt-fuer-mikroelektronik-waechst-im-pandemiejahr>

the need to support chip production at home. At the start of 2021, the German government pledged an extra EUR 400 million to its existing EUR 1.75 billion in funding for microelectronics.

"The months of chip shortages ahead are threatening profits and the livelihoods of a lot of people," says Max Milbredt, a manufacturing industry expert with GTAI. "But Europe is very strong in applied research, and we have a world-class talent pool of engineers and apprentices."

Apple commits to Bavaria

Greater self-sufficiency means greater innovation. Also in June, Apple announced it would build a new billion-euro Silicon Design Center in Munich. The Bavarian capital is home to Apple's largest engineering hub in Europe employing 1,500 engineers. Apple wants to produce more of the tech that runs its devices in-house, and over the past five years has worked with more than 700 German companies, including chip manufacturer Infineon.

In May, France's SiPearl opened its first international subsidiary in Duisburg in the Ruhr region, focusing on hardware development. The R&D location is also a regional hub providing support for connected mobility and high-performance computing applications. "Proximity to customers" and the "excellent university landscape" influenced the choice of location, says SiPearl's country lead, Frank Gorris.



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Making the Right CONNECTIONS

Germany's Digital Hub Initiative offers international companies significant advantages when it comes to building partnerships and driving innovation. Two examples from software and customer support services illustrate how the system works.

When **BlinkIn**, a German-Indian remote customer support platform, set up shop in Munich in 2018, it didn't have to start from scratch to establish partnerships and a customer base. The Bavarian capital is also Germany's insurance technology hotspot, and the Digital Hub InsurTech in Munich – one of 12 digital innovation ecosystem networks – introduced the start-up to some heavyweight partners. Founded by the German Ministry for Economic Affairs and Energy (BMWi) five years ago, the initiative combines more than 2,500 start-ups, 2,000 small and medium-sized enterprises (SMEs) and corporate companies and academic partners.

BlinkIn is now working with the ADAC, Germany's biggest auto club, to implement roadside assistance video support apps, illustrating, for instance, how to perform an oil change or diagnose a check engine light. One German insurer is also using BlinkIn technology for remote damage assessments, offering support technicians from a German pump maker.

"Admission to the InsurTech Hub in WORK 1 in particular, with participation in the world's largest insurance conference in Las Vegas, was a crucial milestone for our development," BlinkIn cofounder Josef Süß says on the website of Invest in Bavaria, the regional economic promotion agency.

A dozen helping hands

The 12w Hubs are spread geographically throughout Germany. The idea is to accelerate Germany's digital future by connecting start-up enthusiasm with institutional expertise and SME experience. Becoming part of a Hub gives entrepreneurs a fast track to major players in their fields.

The founders of FlyNex, a promising solution provider for commercial drone use. With offices in Leipzig and Hamburg, the start-up has benefited from the Digital Hub Initiative.



Photo: FlyNex

Drone software maker FlyNex can attest to that. The company relocated from Hamburg to Dresden in 2017 after participating in the Smart Infrastructure Hub Leipzig. That led to FlyNex being linked with the regional utilities provider enviaM, which uses the start-up's software to inspect the lines and towers of its power network.

"What really helps us is the close connection and simple access to other start-ups as well as mid-sized businesses and companies,"

FlyNex CFO Michael Petrosjan told the business newspaper *Wirtschaftswoche*. That is exactly what makes the Digital Hubs so powerful and important to the German economy.



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Printing the **FUTURE IN 3D**

3D printing was once just a convenient, if expensive, way to construct prototypes and a niche for gadget lovers. No longer. Thanks to Germany's technological expertise and its broad industrial landscape, additive manufacturing is now a USD 12.6 billion market with plenty of opportunities for international businesses.

In September last year, a brand new 3D printing facility appeared in the northern German city of Bremen. A Belgian firm called Materialise was behind it, investing EUR 7.5 million into their new location, which now employs more than 120 people and operates over 30 industrial metal printers.

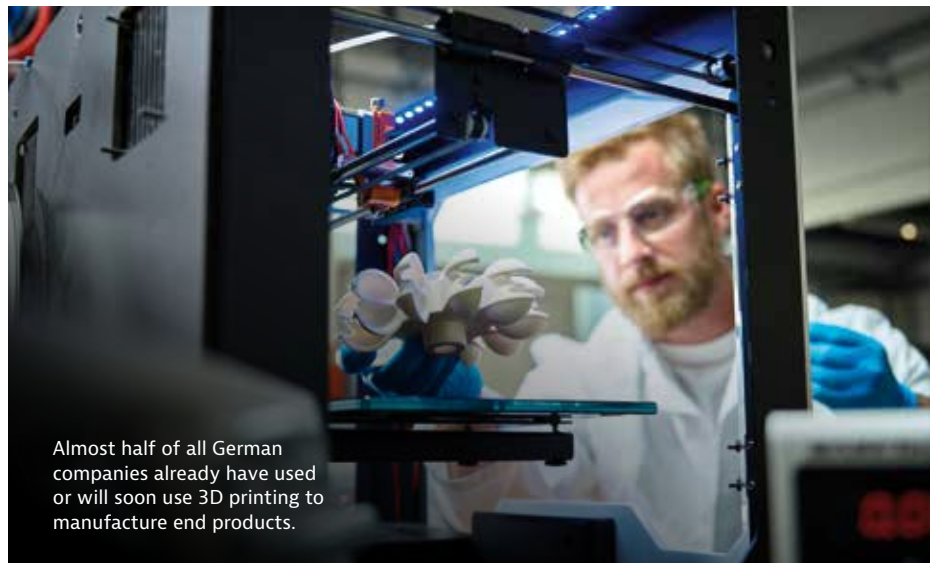
The subsidiary is already working with Airbus, which has a large production facility in Bremen, to print plane parts. The new facility will integrate software development and printing activities at one site. "Our work in Bremen will explore opportunities to optimize printing processes, improve energy efficiency and more consistently recover and reuse metal powder to create more sustainable technologies," Materialise Vice President Jurgen Laudus says.

Interest in additive manufacturing, Laudus adds, is at an all-time high, after the coronavirus pandemic forced companies in Germany and around the world to rethink their supply chains and bring them closer to home.

Adding up to a big market

In a recent study, EY found that almost half of all German companies (49 percent) already have used or will soon use 3D printing to manufacture end products. That's up from just 16 percent in 2019. And the online manufacturing platform Hubs (formerly 3D Hubs) estimates that the global additive manufacturing market will expand to USD 37.2 billion by 2026. Germany is at the epicenter of this lucrative trend.

"Germany is a big market," says Germany Trade & Invest's 3D printing expert Max Milbredt. That, he explains, is primarily due to the country's large industrial base, which increasingly relies on the technology for prototypes, tools and parts that previously would have been



Almost half of all German companies already have used or will soon use 3D printing to manufacture end products.

49%

of German manufacturers expect to be making products with 3D printing by 2022

Source: EY

made by hand. "Metal 3D printers are moving ever-closer to serial production," he adds.

Closer to customers and innovation

The growing popularity of 3D printing among many flagship European industrial companies makes the continent's largest economy an attractive location for international specialist providers. That's true both of firms that make parts on

contract and suppliers of 3D technology. Airbus, for example, already relies on 3D at its Bremen site to make lightweight mounts for overhead compartments in its planes. Meanwhile, BMW recently opened a EUR 15 million 3D printing center to make out-of-production and hard-to-find parts as well as unique tools.

Germany's network of universities and research institutes is also a source of cutting-edge expertise and skilled personnel – another advantage for international companies like Materialise.



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RAPID Regional Rebound

Germany is poised for a vigorous economic comeback from coronavirus restrictions, but the business landscape has changed. One of the unexpected winners has been the northeastern port city of Rostock in the regional state of Mecklenburg-Vorpommern.

The consensus among economic experts is that Germany will return to robust economic growth in 2021 and 2022 – but which parts of the country have the sunniest outlook?

Switzerland-based think tank Prognos surveyed growth projections for Germany's 401 districts and independent municipalities and coming out on top was the northeastern port city of Rostock. Prognos projects a cumulative gross value-added growth of 16.4 percent between 2019 and 2030 for the city. One reason is the availability of quality labor in the area. Prognos predicts that the German workforce will shrink by 7 percent from 2019 to 2030, with Rostock being one of 15 regions to record a growing workforce during that period.

"In the post-pandemic decade, the main drag on economic performance across Germany's regions will be the competition for skilled workers, and those cities and districts that serve as magnets for top people will be the winners," says Dr. Michael Böhmer, Prognos' chief economist. "Rostock is among the top regions in our ranking because it is a medium-sized city home to universities that attract young people from all over the region. It also has a sparsely populated periphery, so companies can still find the commercial property that their business models need to flourish," he adds.

Hotspots all over Germany

Rounding out the Prognos top 10 are Potsdam, Leipzig, Regensburg and Darmstadt, as well

as three districts on the periphery of Munich (Dachau, Ebersberg and Erding) and two on the outskirts of Berlin (Dahme-Spreewald and Oder-Spree). "The districts just outside Berlin will benefit from the Berlin Brandenburg Airport and the Tesla factory in Grünheide since these new projects will create tens of thousands of jobs," Böhmer says.

Another factor generating business opportunities in some specific locations in Germany are government support programs. They include monetary incentive programs for the regions affected by Germany's phase-out of coal-powered electricity, the GRW regional economic promotion program, which assists with the costs for setting up business production facilities in underdeveloped areas, and the EUR 10 billion Future Fund package for education and next-generation technology.

THE BOTTOM LINE

Robust economic growth is set to resume after the coronavirus pandemic, but some parts of Germany are likely to rebound more strongly than others. The northeastern city of Rostock surprisingly came out on top in a regional ranking by Swiss think tank Prognos.

"The coal phase-out law, for example, makes rezoning easier in the coal-producing regions, which renders them more attractive for greenfield investments, which, in turn, often trigger associated projects," says Jens Nagel, director at Germany Trade & Invest (GTAI).

Other advantages

"An additional draw is that Germany has traditionally been very decentralized, so professionals within the international community don't have to travel hours to have access to good schools, good hospitals, and culture and entertainment," Nagel adds.

Prognos' analysis suggests a considerable amount of regional variation. What's true in one part of the country isn't necessarily so in another. "Taxi companies, for example, have been hit hard by the pandemic in the larger cities, where people use taxis for recreation and culture, but much less so in rural regions, where people mainly use taxis to do things like see the doctor," Böhmer says. "We always advise businesses to conduct thorough feasibility studies for their respective sector, as location factors play out differently for different industries."



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The website germanyworks.com is provided by Germany Trade & Invest (GTAI). Here you will find comprehensive information about the country and its opportunities. We provide access to a large network of experts and organizations. And we offer personal assistance for any specific questions you may have.

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ROSTOCK

life sciences, wholesale, retail, building materials



DAHME-SPREEWALD

digitalization, life sciences/biotech, mobility



POTSDAM-MITTELMARK

life sciences/biotech, health, food technology



ODER-SPREE

automotive, metal, plastics, tourism



LEIPZIG

life sciences/biotech, energy technologies, chemicals



REGENSBURG

automotive, microelectronics, energy technologies, digital networking of industry



DARMSTADT

life sciences/biotech, IT



DACHAU

automotive, health



ERDING

tourism (near to Munich airport)



EBERSBERG

tourism, trade exhibitions



MEATLESS GOES MAINSTREAM

The demand for vegetarian and vegan meat and dairy substitutes in Germany is growing exponentially – in the same way it did for organic products a decade ago. Connoisseurs of the food trade can dig into this exciting market.

This tasty dish uses so-called “planted.chicken,” which contains no meat, just 100 percent vegetable proteins from four natural ingredients. It also has no additives.



Swiss meatless food start-up Planted produces mouthwatering kebab, pulled pork and chicken dishes from peas, rapeseed oil, water and B12, a key vitamin people conventionally get from animal-based foods. In May 2020, the company opened an office for communication and marketing in the southwestern German town of Konstanz, a mere 72 kilometers from its headquarters in Zurich. Three months later, Planted moved that office a further 802 kilometers to Berlin, increasing its Germany-based workforce from four to ten.

THE BOTTOM LINE

Traditionally, Germany may have been a meat-happy country, but eating habits are changing. Now, vegan and vegetarian substitutes for animal products are all the rage.

Later in the year, German supermarket chain EDEKA introduced planted.chicken products to its outlets in the southwest of the country. As a direct result, the Swiss start-up began looking seriously at the feasibility of setting up a production facility on German soil. “The German market for plant-based food is very competitive due to its sheer size, but if you succeed in Germany, you will succeed anywhere,” says Planted cofounder Pascal Bieri. “Also, Switzerland and Germany have a shared appreciation for quality and there’s an abundance of talent in Berlin.” A German production facility, Bieri explains,

would be able to source its main ingredients, pea protein and pea fiber, tariff-free from within the EU. That's not the case with their existing plant in Zurich, which, when sourcing from the EU, must pay Swiss import tariffs.

A tasty business

Planted is just one player in a sector full of dynamic start-ups with tasty alternatives to meat. Several large traditional German meat processing companies have also been quick to get on the bandwagon. Arguably the most prominent is Rügenwalder Mühle, which now often generates more revenue with vegan and vegetarian substitutes than with meat. Other international enterprises, such as Danone's Alpro and Oatly of Sweden, are expanding their operations in Germany as well. To understand why, you only need to look at the numbers.

The Federal Statistical Office says that 83,000 tons of meat substitutes were produced in 2020, up nearly 39 percent year on year. The value of these products rose almost at the same pace (37 percent) to EUR 375 million. The entire German plant based food sector, which also includes plant-based milk, cheese, yoghurt and other food products, grew by 53 percent in 2020, reaching a sales value of around EUR 1 billion. And these numbers are only going up.

Something new on the menu

These mouthwatering growth rates come with the steady decline of meat consumption in Germany since the late 1970s. It fell to 57.3 kilograms per capita in 2020, down 750 grams from 2019, according to the German Institute for Economic Research.

"Plant-based meat and milk products have achieved footholds in supermarkets, discounters and the hospitality sector, and this translates into enormous sales potential both for domestic and foreign companies," says GTAI's food and nutrition expert Daniel Lindel. "Vegan food will very soon be leaving its niches and become mainstream, and we assume the dynamics will mirror those Germany witnessed with organic products a decade ago."

So, what's driving this trend in a traditionally meat-loving country? Surveys indicate many reasons for changing German consumer preferences, ranging from wariness of antibiotics used in animal husbandry to outrage over the plight of migrant workers toiling away in meat processing factories. The meat and feedstock

THE TOP 3 IN GERMAN SHOPPING CARTS

Annual sales value of plant-based foods in Germany, 2020



Source: The Smart Protein Project: Plant-based Food Sector Report/Retail Scanning Data, Nielsen

industries' poor CO₂ track record is also a factor, as are animal welfare concerns.

Moreover, an EU-wide survey by ProVeg International, an NGO working in the field of food-system change, found that health benefits, brand trust, curiosity and, last but not least, taste are also leading people to cut back on or give up meat. When asked which veggie products they would like to see more of on supermarket shelves, respondents said, above all, plant-based cheese and also ready meals. There was a clear distinction between "reducers," who would like to see more meat substitutes, and plant-based eaters, who want more plant-based baked goods and chocolate.



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FDI PERSPECTIVE: RØNNEBERG GROUP

The Norwegian food company is investing in a new factory in Anklam in northeastern Germany which will make plant-based milk and dairy substitutes and desserts. Its founder tells us why.

In June 2021, Norway's Rønneberg Group and other investors broke ground in the northeastern German city of Anklam to build a factory making vegan yoghurt, desserts and drinks. It will have a daily output of 20 tons, which will mainly be supplied to supermarket chains selling the products under their own labels. Rønneberg Group expects the creation of 20 highly qualified jobs in the factory.

"We picked Anklam because GTAI helped us tap into the EU's funding programs for Germany's northeastern region and because it has good transport links to Berlin, Hamburg, Scandinavia and Poland," says Harry Rønneberg, the founder of Rønneberg Group. "And the Made in Germany label is like a certificate of quality that will be helpful for us when exporting to other countries."



GETTING in on the Game

E-sports are booming like never before in Germany and the rest of Europe. Video game tournaments offer electrifying opportunities for sponsorship and brand awareness, so it's not surprising that international sports players are joining the fray.

A few years ago, Germany's biggest soccer teams noticed they had a problem: The age of the average fan had reached 42 – older than the target demographic that most advertisers covet. But efforts to attract younger supporters with traditional marketing and promotion weren't working. "Everyone between 14 and 30 is super difficult to reach," says Constantin Rittmann, German country representative for the Swiss e-sports agency MYI Entertainment. "They don't watch TV or listen to the radio, but they're all gaming."

So football clubs decided to go where the kids were. Nowadays, iconic German football clubs like Werder Bremen and Bayer Leverkusen "field" teams to play virtual soccer and compete in tournaments featuring games like League of Legends, Smash Bros. and Fortnite.

With football clubs lending the scene legitimacy and Covid-19 pushing more people online, Germany's e-sports are poised for explosive growth. Globally, almost half a billion people play e-sports. "From a niche sport, e-sports athletes have become among the best paid sportspeople in the world," says Germany Trade & Invest (GTAI) analyst Oliver Wilken.

New players from Switzerland and Turkey

The growing scene has international companies eager to jump into the action. In 2020, Switzerland's MYI Consulting opened its first German office, offering companies help accessing the e-sports scene through team sponsorships and setting up tournaments. "We saw big potential in Germany," Rittmann says. MYI's clients sponsor tournaments in order to raise brand awareness among tech-savvy young peo-

ple who might one day be promising software engineering recruits.

Other companies are targeting gamers themselves. Turkish computer hardware manufacturer Monster Gaming, which specializes in souped-up laptops designed for e-sports, entered the German market in late 2020 with a showroom and store in central Berlin and a raft of tournament sponsorships. "The German e-sports market is big and will get bigger for sure," says Germany sales director Goktug Oguz. "We want to be part of it."



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»We saw there's big potential in Germany.«

Constantin Rittmann, German country representative for the Swiss e-sports agency MYI Entertainment



SORTING THROUGH THE SYSTEM

Germany offers an extensive system of financial incentives for investors of all shapes and sizes, but a little legwork is required to find the right support program. Germany Trade & Invest's finance and incentives expert Daniel Stephens considers the best way to do it.



Photo: Andriy Onufriyenko/Getty Images

Mr. Stephens, I'm looking to set up shop in Germany – show me the money!

DANIEL STEPHENS: Ha! I'd love to, but it's not that simple. At the last count, Germany had over 2,500 different incentive opportunities for companies, including region-specific programs. So it's my job to filter out the ones which are most effective for you.

Where do you start?

DS: The size of your company is important as the incentives often vary accordingly. Small and medium-sized companies often have very little capital of their own with which to make significant investments, so incentives for these companies are correspondingly larger. Moving on, we look at the number of permanent jobs to be created, which is a crucial criterion. Naturally, the planned activity is also important, whether it's R&D or production or a mixture of activities. Finally, some industries and activities are supported by specific dedicated programs. Those would be the four major starting questions: which industry, what kind of activity, how many jobs, and how large is the company?

So, can you give us an example?

DS: Only a hypothetical one, but let's say we have a company that makes saucepans with an annual turnover of EUR 30 million, employing 25 people. It's looking to set up a production facility in Germany that will create 20 jobs.



DANIEL STEPHENS

Daniel Stephens has worked at GTAI's head office in Berlin for almost a decade. He began as corporate communications manager in 2012, before moving into investor support services. Since 2019, he has been the senior manager for finance and incentives, offering statistical analysis and support to potential business expansion candidates.

The facility will cost EUR 10 million, and the company has EUR 2.5 million of its own equity. As it's a small company – by European Union definitions – setting up a production facility and creating employment, we can find a suitable location that has a 20 percent cash grant incentive from the state's Joint Task program. So, the company is theoretically eligible for a EUR 2 million cash grant.

But our hypothetical company still needs EUR 5.5 million.

DS: Yes, but the company can apply to Germany's government-owned bank, KfW, for a loan to cover the rest of the financing gap. KfW is the world's largest business development bank and offers loans with extremely business-friendly conditions. This is not the

same as going to your normal primary bank – although, ironically, a primary bank is actually where you make the application.

Small company, large loan. Wouldn't that cause a problem in terms of collateral?

DS: It might, but the company can also apply for a guarantee from the guarantee bank of the regional state in which the expansion is to take place, as a supplement.

That sounds easy ...

DS: It is on paper. In reality, a business will have to prepare a rigorous plan to get any of these incentives.

You specifically mentioned R&D – what's the story there?

DS: Germany has a strategic imperative to maintain its leading global reputation for R&D and has a large number of programs in place. Companies wanting to carry out good R&D in Germany can, from some programs, receive a cash grant for up to 60 percent of the eligible costs of a project.

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A Year of **SILVER LININGS**

The Germany Trade & Invest FDI Report for 2020 showed an annual 9 percent decline in the number of greenfield and expansion projects in the first year of the pandemic. But as Germany Trade & Invest's managing director of Investor Consulting, Achim Hartig, explains, the overall outlook was rather positive.

Last year, there was a marked decline in the number of foreign businesses setting up shop in Germany and yet you seem upbeat about the results? Please explain ...

ACHIM HARTIG: Any decline is undesirable. But remember: All major OECD countries faced a negative GDP growth in the second quarter of 2020. Germany's 9.7 percent economic contraction was much smaller than in other European countries. So, a roughly corresponding decline in foreign direct investment projects is completely understandable and actually better than expected. To put the drop in perspective: The OECD saw a drop in greenfield projects in emerging markets and developing economies of 46 percent in the last quarter of 2020.

What were the reasons for this better-than-expected performance?

HARTIG: There were a few: Germany is an economic heavyweight with a risk diversification across more than three million small and medium-sized enterprises, so-called SMEs. These SMEs account for roughly 55 percent of German GDP and make the German economy very resilient. As a result, during the pandemic,



ACHIM HARTIG

Achim Hartig is Germany Trade & Invest's managing director of Investor Consulting. He heads a team of business experts and consultants around the world and in just about every area under the sun.

Germany Trade & Invest is the German government's national economic promotion agency, which assists international companies looking to set up shop in Germany, as well as German firms seeking to do business abroad.

investors did not lose faith in the German market and business opportunities.

What's more, Germany registered an impressive number of large-scale business expansion projects. Two in the field of new mobility were particularly notable: Tesla's decision to build its first-ever gigafactory in the eastern state of Brandenburg, just outside Berlin, and Chinese battery maker SVOLT's selection of Saarland in southwestern Germany as the location for a major production facility. There was obviously a very large dark cloud hanging over the entire world in 2020, but in Germany we found a surprising number of silver linings.

How is the outlook for 2021 so far?

HARTIG: It has dramatically improved. Since the beginning of 2021, we have seen the numbers of multinational companies seeking to enter the German market rebound to levels above previous years. The volume of the projects is larger and estimated job creation is also up. Many projects are in high-tech and future industries like semiconductors, hydrogen and mobility sectors. So, we see this as a recovery after a moderate dip and a positive signal to other businesses that they should consider re-initiating expansion plans disrupted by the pandemic.

Where are the businesses expanding into Germany from? And why are they coming here?

HARTIG: In 2020, more than 1,600 companies worldwide chose Germany for their greenfield investments. With 256 expansion projects, the US continued to lead the way. Switzerland is the new number two, overtaking China, which is now in third. It's followed by the Netherlands, Turkey, France and Japan. The leading region was the European Union.

Germany offers a number of key business advantages: a highly innovative research

Germany is an economic heavyweight with a risk diversification across more than three million SMEs. This makes the German economy highly resilient and is one of the reasons why – despite the pandemic – investors did not lose faith in the German market and its business opportunities.



Photo: Gettyimages/Joachim Rder/EyeEm

and development landscape, excellence in the production of high-tech and high-value goods and services, a very well-educated populace, attractive living conditions in a safe and reliable country, and, first and foremost, the most lucrative and largest market in Europe. All these factors combine to make Germany an ideal location for business expansion in various directions.

What sectors do the companies tend to work in?

HARTIG: The information and communication technologies sector – short: ICT – has been particularly attractive, representing 19 percent of greenfield investments, followed by 17 percent financial and business services companies. Machinery and electronics account for 15 percent, and healthcare, biotech and pharmaceuticals 8 percent. Almost 60 percent

of greenfield investments are directed toward traditional and innovative German B2B industry segments. Consumer goods markets also attracted a lot of interest.

Looking into your crystal ball, what do you think the FDI numbers for 2021 will look like?

HARTIG: Germany offers many of the factors that are mission-critical for successful business investments, but nothing is certain. The Covid-19 pandemic could take a turn for the worse, sending economies worldwide back into decline and convincing businesses to put their expansion plans back on ice. That said, I am personally optimistic because Germany is a safe haven for the world in times of crisis and a fantastic location for restarting existing businesses and establishing new ones.

Why should companies who want to crack the German market contact Germany Trade & Invest?

HARTIG: When companies expand into a new country, they encounter a number of variables. It can be hard to appraise the strength of their sector, the competition, regulatory aspects, tax laws and the procedures for setting up shop – to name just a few. We have expertise in all these areas. Our mission is to simplify the whole process. In a survey we did last year, the companies we worked with indicated that they were very satisfied with both the information and consulting services we provide. I encourage every company looking to expand to Germany to get in contact and give us a try. As a German government agency, all our services are free. So, our clients literally have nothing to lose and everything to gain.

Niklas Becker and Jan Feller work in close cooperation to create opportunities that promote business expansion.

GERMANY'S NEEDS ARE FINLAND'S EXPERTISE

Finland's technological prowess creates natural synergies with Germany. GTAI's Finland representative Niklas Becker and Jan Feller, head of the German-Finnish Chamber of Commerce, discuss future business prospects.

How much did the coronavirus pandemic affect the Finnish economy?

NIKLAS BECKER: Comparatively speaking in Europe, Finland's economy was hit less hard. One reason was the low numbers of Covid-19 cases. The high degree of digitalization also helped limit the effects of the pandemic. In 2020, GDP declined by 2.9 percent. In 2021, especially in the latter half of the year, robust growth is expected, and Finland should reach pre-corona economic levels by the start of next year at the latest. Private consumption and increased exports are driving the growth. That creates synergies that benefit not just the AHK and GTAI, but German and Finnish companies in particular.

What are the main reasons for Finnish companies to expand into Germany?

JAN FELLER: Germany is Finland's largest trading partner. The Finns export more every year to Germany than to North and South America combined. That alone is a major reason. For some years now, Finland has also been Europe's most highly digitalized country, and now it's ranked number one in the UN report of sustainable development. Germany needs innovations in both areas. Our task is to open up opportunities for Finnish companies with our go-to-market services. Once a company has

had some success on the German market, the next step is to set up a company there. Having a subsidiary on the local level is important, especially when working with German SMEs.

How much further foreign expansion do you predict? What role will Germany play?

BECKER: Finnish companies have recently expanded more and more abroad. Even in 2020. And Germany has been the top market recently. Because of the size of its market and its high demand for technologies in which Finland is considered groundbreaking, Germany will play a major role.

Which sectors did the companies you've recently helped come from?

FELLER: Finland's advantage in digitalization has made itself felt with the companies we have helped to expand into Germany. In recent years, these have primarily been firms working in software, artificial intelligence and analytics.

How do the German-Finnish Chamber of Commerce (AHK Finland) and GTAI cooperate in Helsinki?

FELLER: Since I started here in 2015, our work together has been completely and pragmatically oriented toward our common goal of promoting the economies of both countries. We

complement one another with our expertise. In terms of Finnish exports to Germany, an impressive 80 percent come from our member companies. This represents a valuable pool of contacts for promoting trade.

BECKER: We work in close cooperation and actively include one another in various projects.



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How Germany Works

MITTELSTAND

International businesspeople doing business with Germany will frequently encounter the German term *Mittelstand*. The word traditionally means “middle class,” but in modern times it usually refers

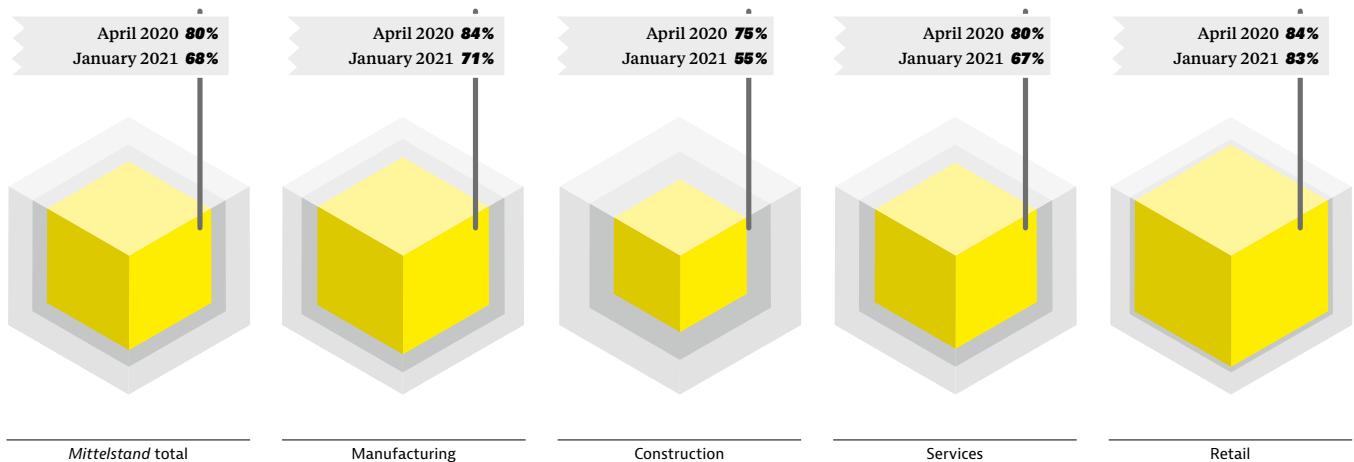
collectively to small and medium-sized, family-founded businesses (SMEs) where the owners are still directly involved in everyday management. The *Mittelstand* is the backbone of Ger-

many’s economy. Its robustness can be attributed to its members’ hardworking mentality, closeness to customers, insistence on quality for all their products and services and, increasingly, their

international ambitions. This group’s flexibility, together with vigorous government assistance, has helped the country navigate the economic downturn caused by the coronavirus pandemic.

QUICK TO COPE WITH CORONA

Rate of *Mittelstand* companies in Germany defining themselves as struggling during the pandemic



GERMANY'S BIGGEST EMPLOYERS AND TRAINING PROVIDERS

Mittelstand companies in Germany

3.5 million
(99.5% of total)

Apprenticeship training provided by the *Mittelstand*

81.7%

THE GERMAN MITTELSTAND AT A GLANCE

Mittelstand employees in Germany

58%

German *Mittelstand* revenue in 2018

€2.4 trillion
(34.4% of total)

97.1%

of German exporters are *Mittelstand* companies

15.9%

is the German *Mittelstand*'s share of export revenue (€213.8bn in 2018)

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Want to be part of Europe's largest market? We're your first point of contact. **Germany Trade & Invest** (GTAI) provides international businesspeople with free, reliable information on the latest opportunities and risks in the German market.

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- Recommendations concerning financing & funding opportunities
- Project partner identification and contact (location and financial)
- Site identification, site visit support

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Get in touch to find out what we can do for you.



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