GTAI GERMANY TRADE & INVEST

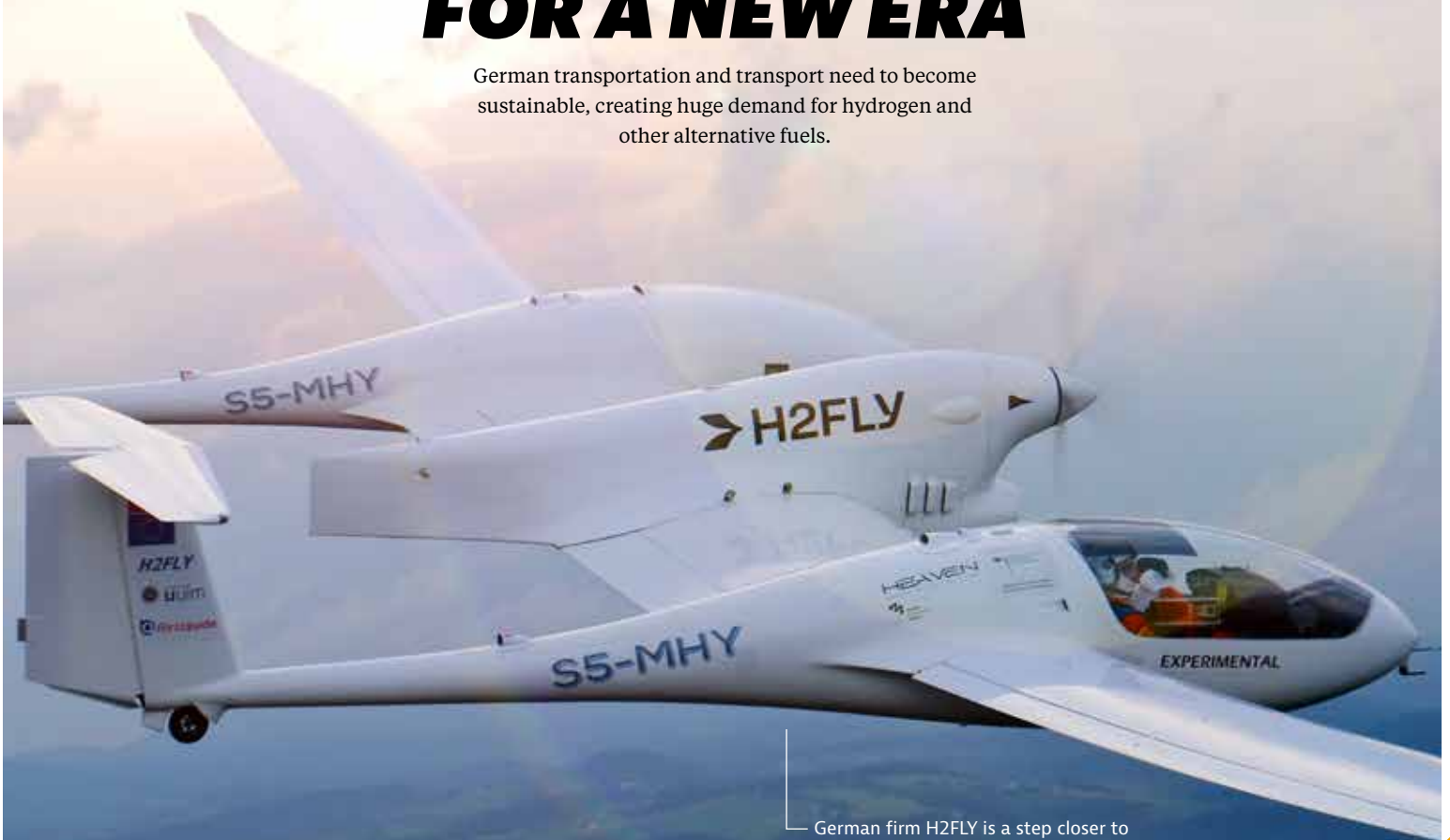
MARKETS

GERMANY

Insights into Europe's Biggest Economy 2/24

NEW FUELS FOR A NEW ERA

German transportation and transport need to become sustainable, creating huge demand for hydrogen and other alternative fuels.



German firm H2FLY is a step closer to making zero-emission commercial air travel a reality.

BIG THINGS IN PHARMA

The US pharma giant that is ramping up investment in Germany

Page 22

WILLKOMMEN INDIA!

Germany is attracting more investment from India with relaxed immigration rules

Page 28

Our magazine is 20!

We look back on the biggest stories and market trends

Page 32

FOCUS

NEW FUELS FOR A NEW ERA

Germany needs alternative fuels for the sustainable transportation of the future.

Page 4

PHARMACEUTICALS

Good Karma in Biotech and Pharma

The US pharma giant Eli Lilly is ramping up its presence in Germany and investing in start-ups.

Page 22

INTERNATIONAL COOPERATION

An Industrious Partnership

India and Germany are strengthening their trade ties, helped by legal reforms in Germany.

Page 28

ENERGY

Getting the Ball Rolling

GTAI organizes trade trips throughout the year for international companies thinking of expanding to Germany. Location scouting, networking and market conferences are some of the activities on offer.

Page 18

MORE ARTICLES IN THIS ISSUE:

Publisher: Germany Trade & Invest Gesellschaft für Außenwirtschaft und Standortmarketing mbH, Friedrichstraße 60, 10117 Berlin, T. +49 30 200 099-0, F. +49 30 200 099-111, office@gtai.de, www.gtai.com

Excecutive Board: Julia Braune, Chairwoman/CEO, Dr. Robert Hermann, CEO

Director Corporate Communications: Andreas Bilfinger

Managing and Content Editor: Eva Forinyak

Editor: Jefferson Chase

Editorial Team Kammann Rossi/wortwert: Imogen O'Rorke, Christoph Hus, Jürgen Jehle

Design and Layout: Arne Büdts, Verena Matl

Print: Kern GmbH, 66450 Bexbach, www.kerndruck.de

Circulation: 3,000

Distribution: *Markets Germany* is distributed solely by the publisher all over the world.

Order number: 21400

Main cover: picture alliance/ Cover Images | H2FLY/Cover Images

Cover India: picture alliance/ REUTERS | VIVEK PRAKASH

Federal Ministry for Economic Affairs and Climate Action

on the basis of a decision by the German Bundestag

Photo: Illing & Vossbeck Fotografie

"We're proud that this publication turns 20 this year. We look back at two decades of changes and developments."

Dear Reader,

Combatting climate change is not just about breaking old habits, but coming up with totally new ways of doing things. Innovation and invention will play a huge role in Germany's transition to clean energy. The same is true, of course, of the fuel we use for transport and transportation — which is the focus of our lead story in this edition of *Markets Germany*. Clean and sustainable fuels are particularly important for Germany because it's not only Europe's automotive powerhouse but also the continent's central transport and logistics hub.

Pharmaceuticals and biotech are also key to Germany's economic future. The German government regards this sector as a central pillar of German industry going forward. A series of legislative reforms is already in place to make it easier for companies that develop and test drugs in Germany — and those efforts are paying off. One of the world's leading pharma firms, Eli Lilly and Company, is planning to massively expand its activities in Germany — perhaps a sign that the country is ready to resume its historical role as "the world's pharmacy."

Finally, we're very proud that this publication turns 20 this year. So we're taking the opportunity to look back at two decades of changes and development — both for the magazine and Germany itself. So please enjoy this issue of Markets Germany. We hope it gives you lots of "fuel for thought."

YOUR OPINION COUNTS!

Take part in the ***Markets Germany* reader survey** and help us to improve your experience of the magazine!

https://survey.lamapoll.de/reader-survey-markets-germany-2024

Dr. Robert Hermann, *CEO*
Email: invest@gtai.de

ONE TO WATCH

Photo: Zeotap

Projjol Banerjea moved to Berlin in 2020, where he met his business partner and set up Zeotap, an innovative customer data management platform that is now used by Amazon and Virgin Media O2.

PROJJOL BANERJEA: *CDO AND CO-FOUNDER, ZEOTAP*

Customer data is like gold dust for companies. Used correctly, it enables them to analyze their customers' behavior to give them a better experience with personalized offers. Ten years ago, Projjol Banerjea and his business partner Daniel Heer recognized the rising value of customer data and founded Zeotap, a Berlin-based company that operates an innovative customer data platform.

Banerjea grew up in India, earned an MBA in the UK and moved to Berlin in 2010 to work for Fyber, a small venture-capital backed company in the mobile marketing sector. He met Heer in 2014 and connected immediately: "We were both deeply curious about the data space, so a customer data focused idea seemed predestined," Banerjea recalls. They founded Zeotap that same year.

Due to its strict data protection and compliance regulations, Germany is an ideal international test location. Location has proved an advantage for Zeotap over US providers in Europe, which often do not fulfill the strict requirements of the market.

"Germany and, in particular, Berlin also helped us overcome two of the biggest hurdles most people face in the first stages of an entrepreneurial endeavor: finding partners and investors," says Banerjea.

The marketing technology company raised more than USD 100 million in total to develop its platform. It went on to build a solid customer base of over 80 of the world's top 100 brands, including Amazon, Nestlé and Virgin Media O2, and now operates in 14 countries with eight offices. Zeotap achieved a 150 percent annual growth from 2022 to 2023. And the trend is set to continue, as its latest product, ID+, provides a data solution for cookie-less browsing.

Quick facts

NAME	Projjol Banerjea
JOB TITLE	Chief Digital Officer (CDO)
QUALIFICATION	M.Sc. in Human-Computer Interaction, MBA, Saïd Business School
COMPANY NAME	Zeotap
MAIN LOCATIONS	Berlin, London, Bangalore (Other locations: Barcelona, Milan, Mumbai, Paris, Madrid)
INDUSTRY	customer data management/martech
STAFF	180+
CLIENT BASE	70+

NEW FUELS FOR A NEW ERA

To protect the climate, the race is on to find more sustainable alternatives for transport vehicles, planes and ships. It's an imperative that will open many business opportunities in Germany, Europe's largest economy, and has the potential to be a game-changer in decarbonizing transportation.

GREEN METHANOL Volker Wissing (left), German minister for digital and transport, and Christian Vollmann, CEO of C1 Green Chemicals, open the Leuna100 methanol plant.

Photos: Paul-Philipp Braun, C1

LEUNA100 A visualization of the world's first pilot plant for the cost-efficient production of green methanol. It's part of the Leuna100 project funded in part by the German Ministry of Digital and Transport with EUR 10.4 million over three years.

LEUNA
SAXONY-ANHALT

Last year, on German test sites, two major breakthroughs occurred that have the potential to rewrite the history of transport. In November, exactly 100 years after engineers from the chemical giant BASF produced the first commercial methanol out of coal, a pilot plant opened in the eastern German town of Leuna, ready to produce regenerative marine fuels from non-fossil feedstocks CO_2 and green H_2. The German Minister of Digital and Transport, Volker Wissing, was there to celebrate the inauguration of the new Leuna100 facility, → *see above* which is central to the government's initiative to support the production of green methanol for airplanes and shipping.

A couple of months earlier, about four hours' drive to the northwest in Hamburg, another historic innovation in the future of fuel took place: the unveiling of a Dornier 328-100 airplane to be used to test hydrogen-based technologies. German Minister for Economic Affairs and Climate Action, Robert Habeck, was on hand at the German Aerospace Center (DLR) to mark the launch of its new "flying hydrogen laboratory."

The same month, validating the potential of these new fuels, H2FLY, a company founded by five DLR engineers, successfully completed the world's first piloted flight of an electric aircraft → *page 7* powered by liquid hydrogen. It's part of an international joint venture called HEAVEN, spearheaded by the DLR.

Pipistrel, an electric aircraft manufacturer from Slovenia, was involved with the collaboration, and its director of engineering and programs, Tine Tomažič, remembers the moment: "There's nothing more powerful than making something happen because immediately the mindset of everyone changes," he says. "That plane can do three hours with zero emissions at speeds that are twice as fast as cars on the highway. It is meaningful."

The successful test flight had been 15 years in the making. Tomažič remembers flying one of Pipistrel's electric battery planes in the

→

THE BOTTOM LINE

Germany's transport industry is increasingly aware that fighting climate change doesn't just mean putting more electric cars on the roads — it means finding new fuels for ships, planes and trucks to keep the world's infrastructure running. International companies can profit from this strategic shift.

"WE DON'T HAVE MANY NATURAL RESOURCES, BUT WE'RE GOOD AT PRODUCING THINGS."

Stefan Di Bitonto, GTAI's automotive industry expert, explains why Germany has a competitive advantage over its European neighbors on e-fuels.

Why is Germany where the engines of the future will be developed?

STEFAN DI BITONTO: There are several reasons. First of all, historical precedent: Germany has been a country of engineers for a long time, and German engineering has always been a beacon for the country. Germany started to specialize a long time ago, when it decided, "We don't have much in the way of natural resources, but we're good at producing things." The "Made in Germany" economy got off the ground. That's created a lot of wealth in Germany.

On top of that, I think Germans decided that, if we really want to stand out, then we need to concentrate on the top technologies available, because those are the ones that take more effort to bring to life. So the country has traditionally concentrated on a strategy of research and development, be it in mechanics, pharmaceuticals or whatever.

How close are sustainable mobility technologies to being commercially viable?

SDB: We've obviously been researching these technologies for a long time, but there has been a lot of investment into the hydrogen strategy in the last few years. Since the war in Ukraine, Germany realized that it can't keep relying on importing natural resources from other countries. It therefore has great interest in researching these kinds of technologies.

The regional states on the coast — Lower Saxony, Schleswig-Holstein and Mecklenburg Western-Pomerania — are quite involved with hydrogen technologies for shipping. And in the automotive sector, we see that Germany has more than a hundred hydrogen filling stations, which is the most in Europe. I think that in the next few years that infrastructure could be used for commercial vehicles that travel through the country.

Where in Germany are the most important clusters for these new technologies?

SDB: It's always where industry is. So for the automotive industry it's Baden-Württemberg and Bavaria, and Lower Saxony for Volkswagen, and in the chemical industry it's around North Rhine-Westphalia and Saxony-Anhalt. These are the powerhouses.

What advantages does Germany have over its regional rivals in Europe?

SDB: Firstly, Germany is a very wealthy country that is putting a lot of effort and a lot of money — much more than its neighbors — into the research and development of H_2 technologies. Secondly, we have a huge number of engineers and staff who are able to transform these assets into ideas and into products. And finally, we have higher incentives, for instance the Temporary Crisis and Transition Frameworks (TCTF) program for foreign companies that want to produce or do research and development here.

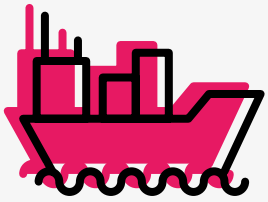
The TCTF is the European counterpart to the American Inflation Reduction Act and potentially matches whatever incentives are provided in the US.

In addition, Germany has the GRW cash incentives program. It essentially consists of grants to help reduce investor costs. And then there are national and regional state level funds for engineers employed by companies. So there are plenty of combinations of incentives available here. Germany certainly stands out on that score.

E-FUELS: THE MISSING LINK FOR ACHIEVING EMISSIONS TARGETS?

Share of individual modes of transport in the total greenhouse emissions of the transport sector in the EU27

72%
Road traffic



14%
Shipping traffic

13%
Air transport

Source: European Environment Agency, 2019

→ early 2000s when the maximum flying time was only six minutes. Tenacity and patience are key in this industry.

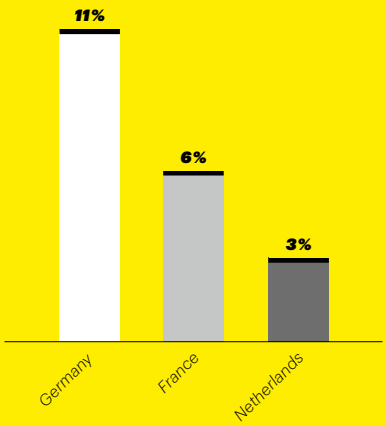
"Fifteen years ago, people were asking: 'How long is the cable you're dragging behind the plane?'" he says. "Today, Airbus is advertising that their next jetliner, the ZEROe, will be powered by hydrogen. → *page 11* It's an incredible change in mindset. The changeover from horse to car took 40 years, so 15 years is not a bad achievement."

Green methanol's great potential

Leuna100 and the HEAVEN project are just two examples of the pioneering projects being developed across Germany and in other countries in response to the climate crisis. But to keep up the momentum, large investments will be needed sooner rather than later, as the company behind the Leuna100 project, C1 Green Chemicals (www.carbon.one), knows only too well.

GERMANY LEADS EUROPE IN H_2 INNOVATION

EU countries with the largest share (worldwide) of hydrogen technology patent registrations (2011 to 2020)



Source: European Patent Office

C1 is working in tandem with Berlin research company CreativeQuantum and the Leibniz Institute for Catalysis (LIKAT). The project's scientists have created a high-efficiency catalyst that could revolutionize methanol production and will, with any luck, allow the company to produce zero-emissions fuel at scale within the next five years. "A major chemicals company would need about 15 years to get this project to the market — we want to do it in a third of the time," says C1 CEO Christian Vollmann.

Two years ago, Vollmann, a serial entrepreneur, was best known for his innovations in the digital sector, having co-founded a dating site, a video platform, and then an online neighborhood connection network. More recently, the 46-year-old decided to invest his energies into tackling the climate crisis. So in 2022 Vollmann founded C1, which in its own words wants to "write the next chapter of the methanol story." →

H2FLY is a step closer to making zero-emission commercial air travel a reality, having adapted its HY4 aircraft to use liquid H_2 ahead of ground testing next year. The aircraft, which is currently operated using pressurized gaseous hydrogen, is in the process of being modified to receive a new liquid H_2 tank, which will double the range capability of the aircraft.

Photo: picture alliance/Cover Images | H2Fly/Cover Images

FDI PERSPECTIVE: HYUNDAI MOBILITY GERMANY

Two years ago, a fleet of 27 brand new trucks hit Germany's roads — powered by Hyundai's Xcient hydrogen fuel cells. The heavy goods vehicles proved popular with German logistics, manufacturing and retail companies because Hyundai is known as a pioneer in hydrogen fuel technology. Hyundai, for its part, saw success in Germany as vital.

"Germany is the largest economic market in Europe, and it has the largest truck park, after Poland, so you have to be in Germany if you want to be a key player in Europe — which is why we decided to invest here," says Charles Cambournac, managing director of Hyundai Mobility Germany. "We truly believe that hydrogen is the solution for the future when it comes to zero emission mobility, and more companies are eager to break into this business."

On top of that, adds Cambournac , Germany has a competitive government subsidies program, and Hyundai benefitted from support from Germany's Ministry for Digital and Transport (BMDV). The program covered up to 80 percent of the cost difference between diesel- and hydrogen-powered trucks.

Hyundai's biggest partner in Germany is Hylane, a hydrogen-powered truck supplier that works together with logistics giants like DB Schenker but also provides trucks to major German supermarkets like Rewe and Edeka. "Hydrogen is part of Hyundai's long-term strategy, and we're here for the long run," says Cambournac.

2020
Hyundai brings the Xcient Fuel Cell onto the market

400 KILOMETERS
The maximum range of trucks powered by the Xcient Fuel Cell

33 %
of Hyundai Germany's new cars in 2022 were battery-powered.

HITTING THE ROAD Hyundai's first Xcient Fuel Cell-powered trucks are the world's first serially produced HGVs with H_2 fuel cell electric drives. A total of 50 Xcient trucks will be deployed in Switzerland in 2024 with a target of 1600 by 2025.

Photo: Hyundai Motor Deutschland GmbH

Photo: picture alliance/dpa | Axel Heimken

ALL THE WAY TO ZERO: The world's first large container ship to be powered by green methanol, the Ane Maersk, docks at the Eurogate Container Terminal in Hamburg. The ship, which is owned by the shipping company Maersk, was built by Hyundai Heavy Industries in South Korea and has a capacity of more than 16,000 standard containers.

→ "About two and a half years ago I met the inventor behind what we're doing here, Marek Checinski, a quantum chemist, who used quantum simulations to invent this new catalyst at a computer," Vollmann says. "He had registered the patent but didn't know exactly what to do with it."

That is a common story among researchers in Germany, says Vollmann. "We have very good scientists here; between around 1900 and 1930, the Germans invented almost everything that is still being used today," he says. "But what we're not so good at any more is founding companies out of that — and scaling that technology to the market." That's what C1 is trying to do. "We're trying to bring together the best out of two worlds: combining the speed and can-do attitude of the start-up world with scientific expertise," he says.

There is already major interest in the technology from shipping giants like Møller-Mærsk, which has ordered more than 20 ships with engines using the new fuel. The Danish multinational, one of the world's biggest shipping companies, is also one of C1's many investors and in January 2024 held a naming ceremony for the world's first large methanol-enabled container vessel, the Ane Mærsk. → *see above*

"What makes Germany so special," Vollmann points out, "is that, once again, we invented the method, and that means we connect with our century-old history of chemical expertise."

"What [clients] want is proximity and close cooperation with their partners, as well as service and maintenance. That's what we provide."

Manfred Limbrunner,
Director of Investor Relations and Communication at Proton Motor

Hydrogen solutions

Germany is a hotbed of hydrogen tech expertise. According to the European Patent Office, no other EU country has logged as many patents in this area.

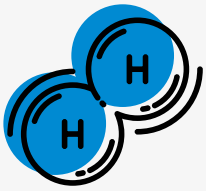
"Harnessing the potential of hydrogen is an essential part of the European strategy to achieve climate neutrality by 2050," said António Campinos, president of the European Patent Office, in a study last year. "But, innovation in a wide range of technologies is still urgently needed if hydrogen is to play an important role in reducing CO_2 emissions and tackling climate change."

Photo: Proton Motor Fuel Cell GmbH

"Germany plays a key role for us in the ramp-up of the hydrogen industry, as it is an important driver for achieving EU climate targets."

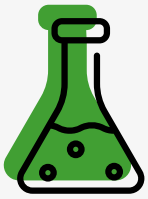
Cyril Dufau-Sansot, *CEO of Hy2gen*

FOUR TECHNOLOGIES WITH SERIOUS GROWTH POTENTIAL IN GERMANY



HYDROGEN

Germany has more hydrogen tech patents than any other EU country — the know-how is here, as are the subsidies to take new concepts to market.



GREEN METHANOL

The world's first commercial methanol facility was built in Germany in 1923. Today, non-carbon versions of the fuel are booming.

AMMONIA

The potential for ammonia-based technology has been known for decades; now there's new urgency in the research.

RENEWABLE NATURAL GAS

More and more companies are exploring the possibilities of clean biomethane in Germany, including for engines.

That is exactly the line taken by Manfred Limbrunner, Director of Investor Relations and Communication at Proton Motor, →*page 9* a German company with 25 years of experience in sustainable fuel technology, now wholly owned by its UK parent company, Proton Motor Power Systems. The entire industry needs to be ready for a seismic shift, says Limbrunner, "if we really are taking the target seriously." He continues: "We have to prepare for this shift — that means everyone in this sector has to invest now to be ready for that growth."

Proton Motor Fuel Cell is currently concentrating on the European B2B market, delivering hydrogen fuel cell systems for the stationery and mobile segments to partners all over Europe. The company knows that they have a lot to offer.

"Clients are always looking around Europe and asking: Where are the technology providers with a European supply chain who can provide systems like this?" Limbrunner says. "And if you look around Europe — in our performance class, with the development and service we can offer — there aren't many. What they want is proximity and close cooperation with their partners, as well as service and maintenance. That's what we provide."

A wealth of new fuels

Hydrogen is of course just one of many new fuels being developed. Just how many there are becomes clear from a glance at the products offered by Hy2gen. Originally founded in Germany in 2017, Hy2gen is now a global developer and financier of e-fuel plants, with locations across Europe and North America, producing ammonia, hydrogen, methanol, synthesized carbon-neutral kerosene and renewable natural gas. All harness waste heat in their production process.

Late last year, the Norwegian branch of Hy2gen signed a memorandum of understanding with Amogy, a US ammonia power solutions company, to work together to develop renewable ammonia-based power technology for shipping. Like hydrogen, the potential of ammonia as a power source has been known for decades, but the climate crisis gave it renewed urgency.

"The partnership with Amogy was initiated by the Norwegian branch of Hy2gen," Hy2gen CEO Cyril Dufau-Sansot →*see top left* explains. "We are very pleased that Amogy is supporting us as a renowned partner in Norway and

Photo: Cision

would very much welcome an expansion of this co-operation to other countries."

Dufau-Sansot says Hy2gen wants to make a global contribution to decarbonization. For that reason the company has expanded to Norway, Canada and France. But Germany, and specifically the area around the southern city of Wiesbaden, remains the heart of the firm's operations. To that end, Hy2gen recently acquired a plant for producing renewable hydrogen and e-methane under the name ATLANTIS in the town of Werlte. Further projects are to follow soon.

"For us, Wiesbaden in particular combines an employee-friendly region, internationalism and a central location in Germany and Europe," says Dufau-Sansot. "Germany plays a key role for us in the ramp-up of the hydrogen industry, as it is an important driver within the EU countries for achieving the EU climate targets." But for all the optimism and technological innovation, the bottom line is that the path to commercialization for hydrogen solutions remains complex, particularly in the current global economic situation.

Limbrunner, of Proton Motor Fuel Cell, cautions: "Everyone's talking about the hydrogen fuel cell market, though we have to see clearly that at the moment it's not a market, it's the idea of a market. But it will become a market. That's why I think at some point this shift needs to come, because the market needs to develop, and without hydrogen and fuel cells the climate goals can't be achieved."

55%

The European Union's reduction goal for carbon emissions by 2030 (base year 1990)

Source: European Commission

200,000

Minimum number of tons of sustainable paraffin to be produced by 2030 in Germany

Source: German Government

Interested in bringing your business to Germany?

CONTACT

stefan.dibtonto@gtai.de
GTAI expert for automotive & mobility

rainer.mueller@gtai.de
GTAI expert for aerospace

AIRBUS ZEROE: A illustration of a hydrogen-powered Airbus aircraft for 200 passengers. The blended-wing body's exceptionally wide interior will open up multiple options for H_2 storage and distribution. The European aviation conglomerate aims to bring to market a passenger aircraft with a hydrogen propulsion system by 2035. The project will require investments in the eleven-figure range.

Photo: picture alliance/dpa/Airbus

"THOSE WHO ARE HERE ***ARE SETTING STANDARDS.***"

Green hydrogen is considered one of the key technologies for decarbonizing industry and mobility in Europe. Germany is working flat out to expand its hydrogen network, and H_2 projects are being developed throughout the country. ***Raphael Goldstein,*** a hydrogen expert at Germany Trade & Invest, explains where the most exciting business opportunities lie for international companies.

The German government's National Hydrogen Strategy positioned Germany in theory to take a pioneering role in Europe's H_2 economy. How does it plan to achieve this in practice?

RAPHAEL GOLDSTEIN: The National Hydrogen Strategy, which was published in 2020, aims to establish hydrogen (H_2) as a primary means of decarbonization in order to accelerate the transition to a sustainable society. In addition to the production of green H_2, the focus is particularly on comprehensively expanding infrastructure for the transport and storage of hydrogen. To this end, the strategy is aimed at all players along the H_2 value chain, from production and import to transport, storage and further processing. The business opportunities for companies are therefore manifold.

THE BOTTOM LINE

Thanks to its central location in Europe, its focus on decarbonization and its well-developed gas pipeline network, Germany is a top location for the green hydrogen economy — along the entire value chain from production to processing.

Will the strategy give Germany a unique H_2 advantage over its neighbors?

RG: What is established in the growing H_2 market in Germany will be the blueprint for other markets — those who are involved here are setting standards. Even apart from the National Hydrogen Strategy, Germany is already a valuable market for the H_2 industry. Many people think of hydrogen in terms of fuel cells for the mobility of tomorrow, but it is also used as a substitute for fossil resources in the chemical, petrochemical and steel industries. Therefore, in combination with the country's decarbonization targets, this is very good news for the green hydrogen economy, as Germany is a leader in those industries.

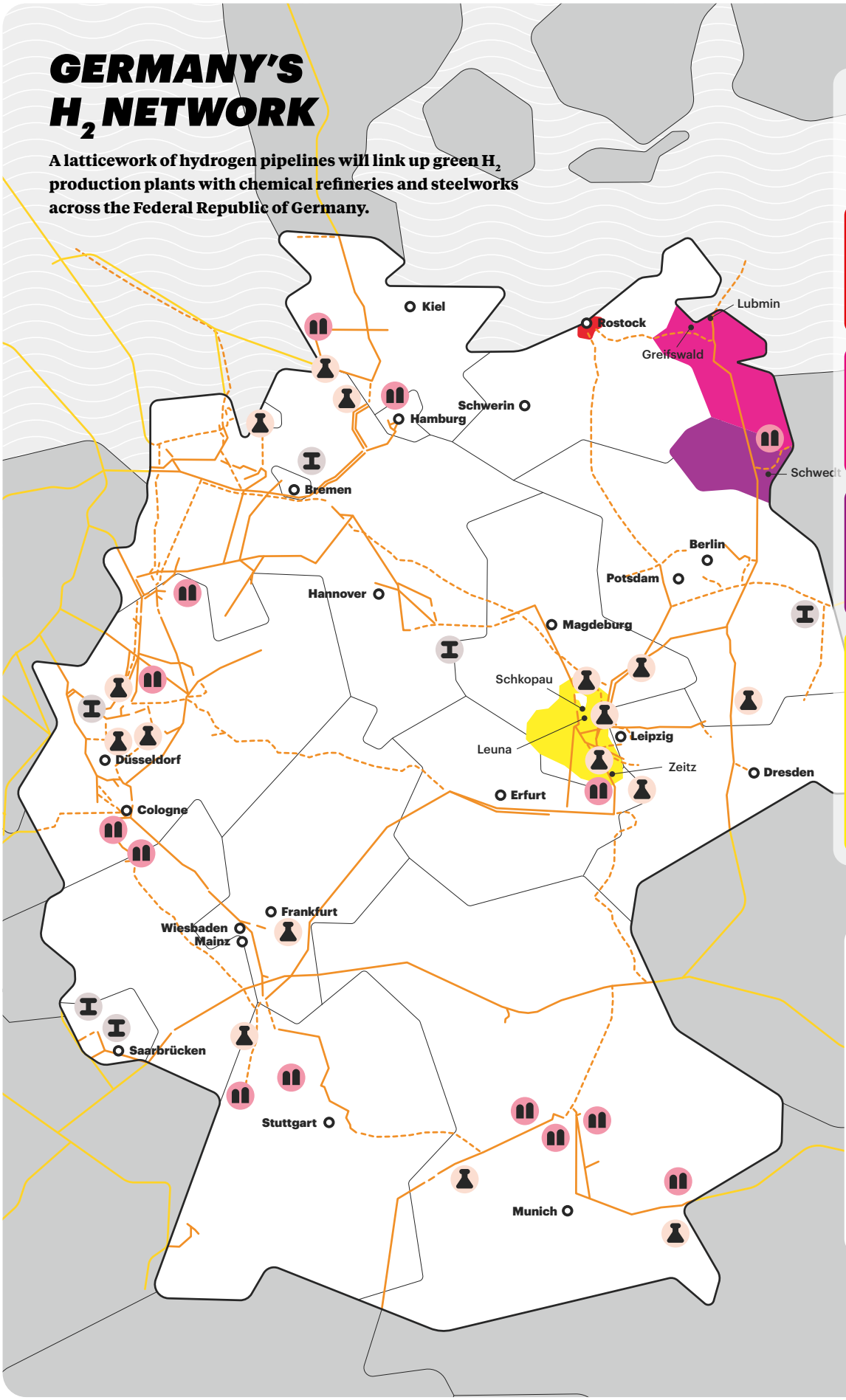
So it's sunny skies ahead for the hydrogen economy in Germany?

RG: A clear path might be the better metaphor. It is expected that by 2030, Germany will import 50 to 70 percent of the H_2 it needs. It's therefore important to develop the necessary import infrastructure now. Major business opportunities currently ex-

→

GERMANY'S H_2 NETWORK

A latticework of hydrogen pipelines will link up green H_2 production plants with chemical refineries and steelworks across the Federal Republic of Germany.



PUTTING THE H_2 ECONOMY ON THE MAP IN EASTERN GERMANY.

ROSTOCK

HyTechHafen Rostock
Electrolyzer on the site of a former coal-fired power plant, 100 MW capacity, to be commissioned by 2027

WESTERN POMERANIA-GREIFSWALD

Lhyfe electrolyzer in ***Lubmin/Greifswald,*** 800 MW, to be commissioned by 2029

UCKERMARK

Raffinerie ***Schwedt:*** Production of green hydrogen planned at PCK refinery

SAALEKREIS, BURGENLANDKREIS

Chemical industry in ***Leuna, Schkopau, Zeitz***

Fraunhofer Hydrogen Labs, ***Leuna*** (+Bremerhaven and Görlitz)

DLR ***Leuna:*** Power-to-liquid technology platform, research on e-fuels by the German Aerospace Center (DLR)

Planned hydrogen core network
(as of November 2023)

- existing pipes to be shifted to H_2
- new pipes

- European Hydrogen Backbone 2030

Main points of H_2 consumption

- refinery
- chemical industry
- steel industry

At the inauguration of an H_2 production facility in the port of Brake, the partners break ground (left to right): Alexander Bedrunka (Lower Saxony H_2 Network), Tim Eshold (Glencore Nordenham), Holger Banik (MD, Lower Saxony Ports), Olaf Lies (Economic Minister of Lower Saxony), Luc Graré (Lhyfe), Michael Kurz (Mayor of Brake).

Photo: picture alliance/dpa | Sina Schuldt

→ ist in the production, import and transport of hydrogen. For example, the US company Air Products is investing over EUR 1 billion in an import terminal in Hamburg. Dutch and Belgian companies such as Gasunie and Fluxys are involved in the expansion of the hydrogen core network, which will connect all major consumers and producers in Germany; while Lhyfe from France and VoltH2 from the Netherlands have announced investments in electrolysis capacities for the production of green hydrogen. These are first steps. In the next phase, the companies that process green hydrogen — i.e., the H_2 consumers — will also find considerable advantages to being located in Germany. These might be chemical companies, for example. Compensation mechanisms like CCfDs are being set up for this purpose.

In which industries are the most exciting H_2 opportunities arising?

RG: The German government wants to see around 10 GW of electrolysis capacity installed by 2030 — this creates tangible business opportunities for hydrogen producers and manufacturers of electrolyzers. Also, new gas-fired power plants are required to be H_2-ready. Construction of them will be put out to tender. Companies who can supply this technology will be ahead of the game. Furthermore, while it may not be enshrined in law yet, the public sector is readying itself to buy decarbonized products such as steel made with green hydrogen. This augurs well for producers of green steel or preliminary products and the key technologies. For shipping, hydrogen will most likely be imported in the form of ammonia, so multiple "crackers" will also be needed in Germany to convert the ammonia into hydrogen.

The German chemical industry, for instance in Leuna, in the east, is strong. Why is the industry so vital in the H_2 value chain?

RG: In the so-called chemical triangle, which includes Leuna, there is already a hydrogen grid. The industry there does not need to be taught what to do with hydrogen, as it is already a key element of the business model. Moreover, there are strong legal incentives like the EU's Renewable Energy Directives, which will automatically lead chemical refineries to use green hydrogen. There is already the necessary skilled labor for handling hydrogen in this part of Germany.

What makes the technical infrastructure for H_2 in Germany so special?

RG: Germany accounts for 42 percent of the technical storage potential for H_2 in Europe and could quickly become a hub for trading hydrogen on the continent. Companies involved in infrastructure here can step into this growing market, currently worth EUR 32 billion when we include the development of storage assets. To expand the H_2 network, pipelines, compressors and sealing materials are needed, while infrastructure operators for networks and storage are also in demand.

By 2032, a core H_2 network more than 9500 kilometers long is set to connect all major feeders with all major consumers in Germany. What's the status of this huge infrastructure project?

RG: The hydrogen core network will be the "highway" of pipelines connecting important industrial centers, storage facilities, power plants and import corridors to the central national H_2 supply by 2032.

To make the "H_2 highway" a reality, Germany must build new pipelines and repurpose existing ones. The target is to have 1800 kilometers of hydrogen-ready pipelines by 2027/28.

Which regions are on course to becoming H_2 hubs?

RG: Four regions in particular could be described as the "green power bank of Germany": the coastal regions around Rostock and Greifswald/Lubmin as well as Leuna and the industrial regions around Schwedt in Brandenburg. Cross-border H_2 infrastructure is being developed in the port regions which connect with Scandinavian countries, as is on-site electrolysis capacity on the Baltic sea. The H_2 core network will connect these regions with the industrial complexes and refineries around Schwedt and Leuna. In future, a lot of hydrogen will be consumed there that cannot be produced entirely on site.

Are there special subsidies for projects relating to H_2 infrastructure?

RG: Firstly, there are PCIs (Projects of Common Interest). These include, for example, H_2 pipelines between two European countries. But there are further financing instruments along the entire hydrogen value chain such as IPCEIs (Important Projects of Common European Interest). These are joint state-subsidized projects between European companies.

One instrument (see box "Funding instruments") that primarily benefits investors in the Rostock, Greifswald/Lubmin, Schwedt and Leuna regions is GRW funding (GRW: Joint Task for the Improvement of Regional Economic Structures). Anyone launching projects to produce electricity and green hydrogen for self-consumption in these regions can benefit from GRW funding until 2032. Another EU funding framework called TCTF (Temporary Crisis and Transition Framework) is aimed at the production of technology and products for the generation and storage of green hydrogen. That list is anything but exhaustive.

In other words, Germany is investing in the foundations of a future H_2 economy in Europe?

RG: Germany is the largest economy in Europe. If we start seriously focusing on hydrogen, then that is a signal.

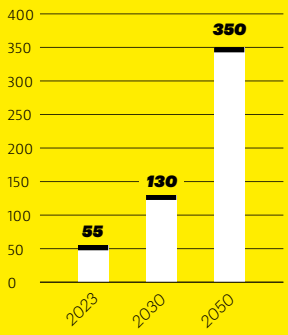
FUNDING INSTRUMENTS

Companies that want to produce renewable H_2 for their own use are eligible for a special subsidy program in some regions of Germany. National and regional state governments are providing a total of EUR 750 million over the next 15 years to encourage investment in the Saale, Burgenland, and Uckermark regions, as well as Western Pomerania-Greifswald districts and the city and district of Rostock.

The German government is providing an additional EUR 100 million over a period of five years to promote additional projects and is providing some EUR 50 million for supporting investments related to the reorganization of port infrastructure.

RAPID GROWTH

Predicted demand for hydrogen in Germany (in TWh)



Source: German Ministry for Economic Affairs and Climate Action

Want to learn more?

CONTACT
raphael.goldstein@gtai.de
GTAI expert for green hydrogen

INNOVATIONS

YOUR OPINION COUNTS!

Take part in the ***Markets Germany* reader survey** and help us improve your experience of themagazine!

The global business community admires the spirit of invention that drives the German economy. Here we highlight some of the most intriguing trends and research projects.

Neoscan's next generation MRI scanning system is more powerful, more compact, robust and sustainable.

Photo: Neoscan Solutions GmbH

WORLD'S MOST POWERFUL MRI

Magnetic resonance technology from Madgeburg will improve brain scans

Neoscan Solutions, a med tech company based in the eastern city of Magdeburg, is developing completely new MRI scanning systems.

The magnet used in the MRI technology is far lighter and more compact than those used in conventional MRI systems and can generate and withstand much higher magnetic fields without losing its superconducting properties. The magnetic resonance tomograph will also be 14 Tesla strong, compared to the previous record of 11.7 Tesla. The stronger the magnetic field, the more precise the images produced.

Furthermore, it's the only high-field magnet that doesn't need liquid helium for cooling. The start-up aims to set new sustainability standards: the new magnet can be repaired and recycled, unlike conventional magnets, which cost millions to replace.

Neoscan has already found its first major customers. Research institutes in the Netherlands, funded with EUR 19 million from the Dutch science organisation NWO, have ordered the new magnet. It will be used at Radboud University Nijmegen for basic research in neuroscience about how the brain works and how to cure diseases and tumors.

www.neoscan-solutions.com

MEMBRANE WOUND TREATMENT

An innovative "electrospun" mesh will speed up the healing process for injuries

Large wounds and burns require regular dressing changes and take a long time to get better. A team of researchers from the Fraunhofer Institute for Silicate Research (ISC) in Bavaria and the Fraunhofer Institute for Toxicology and Experimental Medicine (ITEM) in Lower Saxony have developed a novel "electrospun membrane" that helped wounds heal and is bioresorbable in the body.

When the fiber fleece with a silica gel membrane is placed in the wound and comes into contact with healthy skin cells, it stimulates connective tissue cells. "These fiber systems imitate the extracellular matrix, the fiber structures found in connective tissue, in the body and are very well tolerated by human cells for tissue regeneration," explains Bastian Christ from the ISC. "They cause no foreign body reactions and no internal scarring." Initial results are promising. In clinical trials, almost all diabetic foot wounds healed within six to eight weeks. However, further tests are needed before the product can be submitted for approval.

isc.fraunhofer.de, item.fraunhofer.de

Wounds heal faster with Fraunhofer's novel electrospun membrane.

Photo: Fraunhofer ISC

CLEANER BRAKE DISCS FOR CARS

Researchers in Dresden want to reduce one of the causes of road pollution

Researchers at the Fraunhofer Institute for Manufacturing Technology and Advanced Materials have developed super brake discs that emit virtually no particulate matter. "We expect a reduction in particulate matter of more than 98 percent," says project manager Johannes Trapp. The new brake discs are made of ceramic-reinforced metal composites (metals and other elements coated with ceramics) that are one-third lighter than conventional steel brake discs. Because of their light weight, the discs also promise to reduce automotive fuel and power consumption. A market launch is in the offing, and serial production is planned for 2030.

Ifam.fraunhofer.de

Photo: Adobe Stock/MMPhoto21 (generated with AI)

Database architecture that mimics human brain functions can make predictions about vast data sets.

DATABASE OF THE FUTURE

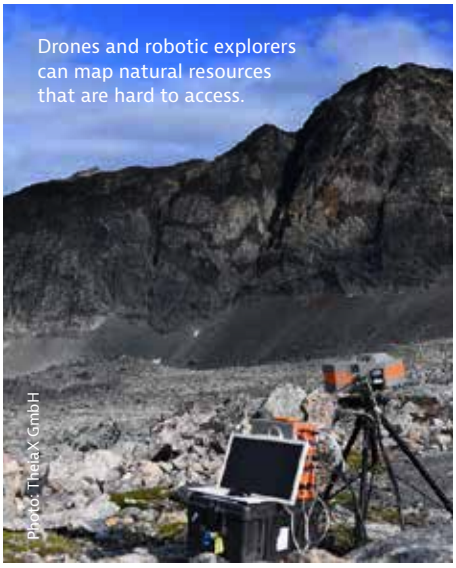
Database architecture from Saxony functions like the human brain

Cortex, a tech start-up from the northwest German town of Isernhagen, has developed a novel approach to database architecture. The groundbreaking system is named after the cerebral cortex because it mimics human brain functions. Unlike most databases, which process data retrospectively, the brain first makes predictions and then uses certain aspects and contexts to check whether they are confirmed. The Cortex database mirrors this process, taking into account the formation of relationships between even vast amounts of data from the outset. Co-founder and CEO Jan Buss says, "We have solved a fundamental problem of information processing in such a generic way that it can be used to solve a whole range of challenges." The system's architect, Peter Palm, sadly passed away recently, but his invention will live on to address the big data challenges of the future.

www.cortex-ag.com

SUSTAINABLE MINING

An eastern German start-up is launching an innovative mapping process for mining



Drones and robotic explorers can map natural resources that are hard to access.

Photo: TheiaX GmbH

The mining industry is facing twin challenges: increasing demand for high-tech metals as well as pressure to reduce the negative impact of mining on the environment. TheiaX, a spin-off from the Helmholtz Institute Freiberg for Resource Technology (HIF), offers a solution: a mapping process for the sustainable exploration and extraction of raw materials.

Innovative TheiaX sensors are attached to drones and robotic devices to provide remote images of natural resources with minimal environmental impact. "We have hyperspectral imaging technologies that can capture images of a very large number of closely spaced wavelengths, which are combined with machine learning algorithms developed in house to create precise models of the subsurface," explains TheiaX co-founder Richard Gloaguen.

With interest in mining solutions running high, TheiaX hopes to grow from 13 to 20 employees within the next three years.

www.theiax.de

SMART HOUSE EXTERIOR

The exteriors of the future will be multifunctional climate control systems

Outside surfaces of buildings are playing an increasingly important role in sustainable construction, and the Fraunhofer Institute for Building Physics in Upper Bavaria has been quick to recognize this and act on the trend. A team there has developed a three-story modular test facility for energetic and indoor environments. It's known as VERU. The new facility will enable researchers to try out solutions for increasing resilience to climate change: outside surfaces that can keep out wind and weather, let in light, regulate temperature and generate energy.

For example, the researchers are working on photovoltaic modules as an all-in-one solution for heating, cooling and ventilation and on vertical greening systems using grasses, flowers and herbs. They are even looking at biomass production based on algae farms. "With VERU, we can visualize and simulate numerous conditions and circumstances on and in the building envelope as well as in the individual rooms, evaluate them and process the results," says team leader Herbert Sinnesbichler.

ibp.fraunhofer.de, umsicht.fraunhofer.de

EMISSIONS CAPTURE

Researchers at one of Germany's top universities are developing a polymer filter for capturing CO_2 emissions

The DeKarbon research group at the Friedrich Schiller University in the eastern German city of Jena is investigating how to reduce carbon dioxide emissions into the atmosphere. The researchers are focusing on an innovative carbon capture and utilization (CCU) method. "We are developing new polymer materials that can filter out and bind the greenhouse gas," explains project leader Prof. Martin Oschatz. Captured CO_2 can then be used as a raw material to produce methane, gasoline, diesel, paraffin and chemicals. The state of Thuringia is providing nearly one million euros for the project, which will run until the end of 2025.

Photo: Adobe Stock/strichfiguren

chemgeo.uni-jena.de

GETTING THE BALL ROLLING

The first step for many companies in expanding to Germany is an exploratory trade visit. Germany Trade & Invest organizes trips to the country for fact-finding, networking and location scouting aimed at international business decision-makers and entrepreneurs. These visits offer invaluable market insights.

Europe's largest economy has seen several recent high-profile business expansion projects. Tesla has built a megafab near Berlin, while Dresden will soon be home to a production facility for the world's largest semiconductor manufacturer TSMC. Projects on this scale are often years in the making — so how do they start?

Germany Trade & Invest, the country's international business promotion agency, is often the first port of call for companies wanting to benefit from being on the ground in Germany. To encourage interest, GTAI — in cooperation with the economic development agencies of Germany's 16 regional states — invites business delegations to the country. A dedicated ISW program ensures regions that are undergoing structural change are showcased to foreign investors as locations. It's all part of the German government's strategic plan to preserve the country's globalized economy while promoting the untapped potential of such areas.

"You have to see it in reality and in person. That is what this trip did. We saw a wide range of locations in Germany."

Garry Keller, *Vice President, StrategyCorp Inc (Canada)*

"The fact is that these regions typically offer the most attractive investment opportunities for international companies," says Silke Poppe, director of GTAI's division for regions of structural transformation.

Trade visits are organized several times per year. They allow international delegates to get to know a German region, meet local industry players and familiarize themselves with the business ecosystem. The trips have four focal points: insights into regional growth markets, funding and subsidy opportunities, preliminary site "reconnaissance" and networking with potential partners. →

Photo: GTAI

6 DAYS

In October 2023 GTAI hosted a whistlestop tour of the country's growing hydrogen economy for international decision-makers.

11 DELEGATES

Business leaders from Canada, Sweden, Poland, South Korea and the United Kingdom were shown potential locations and introduced to partner prospects.

Thuringia: International delegates visit Maximator Hydrogen, a developer of system solutions for H_2 technologies.

Photo: GTAI

The trade delegation is briefed on the German hydrogen market at Brainergy Park, North Rhine-Westphalia.

Photo: GTAI

HYDROGEN EXPLORATION

An international group of business leaders spent a week exploring opportunities in Germany's hydrogen economy.

In October 2023, GTAI invited business delegates from Canada, Sweden, Poland, South Korea and the United Kingdom — eleven in total — to Germany for a six-day trip to explore the country's growing hydrogen economy. During their stay, they checked out business locations, were introduced to local companies in the sector and discussed current opportunities in and routes into the German market with experts.

"One topic was the German government's plans to convert former coal mining areas into locations for the hydrogen economy," says GTAI's Silke Poppe. The trade visit yielded results very quickly. "Two of the participating companies now have a concrete interest in opening a site in Germany," says Poppe. "And the Canadian Hydrogen Quebec cluster wants to offer its members a webinar on the hydrogen economy in Germany in 2024 — in collaboration with GTAI."

"The agenda was impressive. We have met interesting people and seen exciting places."

Jacek Brzozowski,
Director, PGNiG Orlen Group (Poland)

"We went to Germany to continue to build relationships with our partners, but also to build new relationships with all of the key players in the industry."

Mariam Awara,
COO, Pulsenics Inc (Canada)

Photo: Mariam Awara/private

UP TO 130 TWH

Predicted demand for hydrogen in Germany in 2030

Source: BMWK

→

"The trip to Japan was very inspiring and broadened our perspective. It has already resulted in new Japanese–German collaborations."

Dr. Henning Müller, *German Research Center for Artificial Intelligence*

"The red carpet is rolled out," says Poppe. GTAI has a broad network, ensuring that international guests get to meet the most relevant local partners for them and their specific sector.

International networking works in the other direction, too. GTAI also organizes trips by German business delegations to other countries to make contact with potential commercial partners abroad. Conversely, these visits give trade contacts in the host country a sense of the opportunities in Germany and the business culture there. Sometimes these trips also lead foreign companies to expand to Germany — with benefits for both sides. Here are some examples. → ***see right***

2024 ISW

Would you like to find out about Germany's hidden champion business locations? Are you interested in taking part in one of our trade delegation trips to Germany? Get an overview of all the trips we are conducting in 2024.

www.gtai.com/delegations

CONTACT

structural-change@gtai.com
Silke Poppe, Director Eastern Germany/Structural Change

Photo: GTAI

A trade visit to AgVenture Lab to see design solutions for solving tomorrow's problems.

SMART FARMING IN NORTH JAPAN

During a week-long trip to Japan, one German delegation learned how smart farming is making agriculture there fit for the future.

When it comes to agriculture, Germany and Japan face similar challenges: climate change, a shortage of skilled workers and structural change. One solution could be smart farming. Japan is considered a pioneer in this field, which is why representatives from twelve German research institutions and companies, including the agricultural machinery manufacturers Krone and Claas, travelled to the "land of the rising sun" in May 2023. The aim was to gather information about digital and AI solutions in the sector to further develop business models of their own and establish international collaborations.

The participants visited agricultural areas in the Hokkaido region, where Japanese companies are testing innovative agricultural machinery for growing rice, soybeans and vegetables. There, the German visitors met with representatives from the Japanese agricultural machinery manufacturers Kubota and Yanmar. "This was a first step towards building trust and discussing possible cooperation and settlements," says Silke Poppe from GTAI, which organized the trip.

"We had the opportunity to meet industry, research and policy representatives in Japan, engage with forward-thinking farmers and gain insights into their agricultural business and their opportunities and challenges."

Martin Leinker, *Group Product Strategy, Claas KGaA mbH*

Photo: Martin Leinker/private

1 WEEK

On a seven-day trip to Hokkaido, the northernmost island of Japan, delegates learned about smart farming techniques for rice.

1 DELEGATION

Nine international international decision-makers were shown how automated and AI-based solutions can build agricultural resilience and increase food security in the future.

Demonstration of a robotic tractor for planting rice seedlings in the fields at Yamazaki Rice farm, Japan.

Photo: GTAI

Hokkaido: The international trade visitors are shown how rice is cultivated in vast greenhouses before the seedlings are planted outside.

Photo: GTAI

"The scope and intensity of research into autonomous machinery at Hokkaido University was impressive. All in all: a successful trip for networking and thinking outside the box."

Thorsten Schiermann,
Product Management,
KRONE GmbH & Co. KG

460M
US DOLLAR

Forecast market volume of smart farming solutions in Japan in 2026

Source: GTAI

GOOD KARMA IN BIOTECH AND PHARMA

American pharmaceutical giant Eli Lilly is radically expanding its presence in Germany. That's great news for the country, which sees biotech and pharmaceuticals as one of its main pillars for the years to come.

In April 2024, ground was broken on a flagship project that signals what the future may hold in store for Germany's pharmaceutical and biotech industries. US-based Eli Lilly is investing EUR 2.3 billion (USD 2.5 billion) in a new plant in the western German town of Alzey in the state of Rhineland-Palatinate. The company, which focuses on treating serious diseases like diabetes, obesity and dementia, aims to have the new facility up and running by 2027. Once operational, the high-tech site will employ up to one thousand people including engineers, operators and scientists.

THE BOTTOM LINE

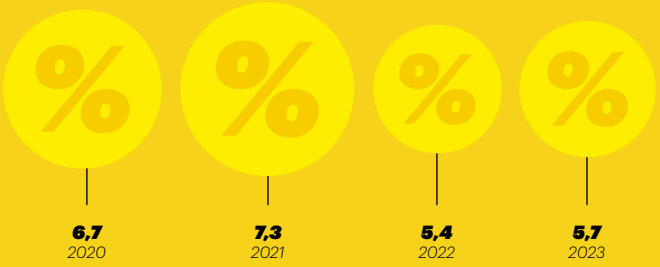
US pharma giant Eli Lilly is ramping up its presence in Germany, where it will benefit from the local talent pool and a rich ecosystem of biotech expertise and entrepreneurship. The project is part of a larger boom in German pharma.

Founded in 1876 and headquartered in Indianapolis, Indiana, Eli Lilly's investment in Germany reflects both a growth in global demand for its products and a desire to capitalize on the country's long tradition of pharmaceutical know-how. The company already has a presence in Germany, though so far it has been focused mainly on the areas of development, marketing and distribution. Alzey will be its first →

Photo: picture alliance/dpa | Sascha Lotz

Eli Lilly's HQ in Bad Homburg was established in the 1960s. The US pharmaceutical company is investing billions in a production site in the regional state of Rhineland Palatinate.

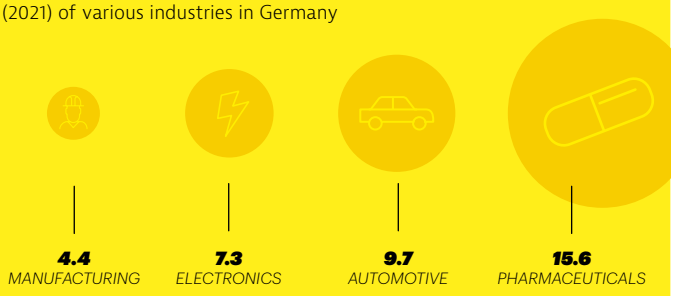
SALES GROWTH OF THE OVERALL PHARMACEUTICAL MARKET IN GERMANY



Source: statista

RESEARCH INVESTMENTS BY SECTOR

Percentage of total revenue re-invested in research and development (2021) of various industries in Germany



Source: Bundesverband der Pharmazeutischen Industrie

€2.3

billion is the size of Eli Lilly's ***INVESTMENT*** in a new facility in the town of Alzey in western Germany.

2900

Total number of ***JOBS*** that will be created as a result of Eli Lilly's investment (1000 permanent jobs at Alzey facility and 1900 throughout the construction process).

25%

of Eli Lilly's employees worldwide work in R&D, with the company having conducted research in over ***50 COUNTRIES.***

1876

The year Eli Lilly was founded. In the intervening ***148 YEARS,*** it has become one of the biggest pharma companies in the world, with more than 42,000 employees.

→ production site and will benefit from its proximity to Lilly's other European manufacturing sites, most notably Fegersheim, France. The company's expanded European presence will help to foster cooperation with universities and governments and to create local partnerships.

Choosing a location

"Germany inside the European Union is still a highly attractive place," says Gerd Kräh, a government affairs executive at Eli Lilly, adding that the country's reputation as a "cradle of the pharmaceutical industry" was an additional pull.

The facility at Alzey will primarily focus on producing Mounjaro, an injectable prescription drug used to treat Type 2 diabetes and in some cases obesity. Goldman Sachs estimates the potential global market for obesity drugs could reach USD 100 billion by the year 2030. In the future, Eli Lilly may also expand its output to include other incretins (drugs that promote a reduction in blood glucose levels).

When scouting for a suitable site for the plant, Eli Lilly turned to Germany Trade & Invest (GTAI), the government's international business promotion agency. "We found that they were very helpful in terms of using their database, their knowledge and their expertise to find our requirements in terms of what would be a proper location," says Kräh.

Accelerating biotech innovation

In addition to its investment in Alzey, Eli Lilly also plans to spend up to EUR 92 million (USD 100 million) on life science and biotech start-ups in Germany. The money will be put into relevant venture capital funds with the aim of building strategic partnerships and speeding up innovation in research and development.

ON THE SHELVES

Eli Lilly's new weight-loss drug, Zepbound, is the latest iteration of the popular diabetes medication Mounjaro. The US Food and Drug Administration has approved the medication, which is administered by injection pen.

Photo: picture alliance / REUTERS | BRENDAN MCDERMID

Eli Lilly's investment in Germany's biotech scene comes at the same time as a government drive to speed up the approval of clinical trials in the country — a commitment enshrined in the Medical Research Act, which forms a core part of the new National Pharma Strategy. → *see page 26*

"The health ministry's Medical Research Act presents the right approach," says Kai Joachimsen, CEO of the German Pharmaceutical Industry Association (BPI), a trade group representing the interests of around 270 pharma companies. "Now the focus must turn to speed of implementation — pharma-level speed!"

Eli Lilly is not alone in its conviction that Germany excels in pharmaceutical manufacturing. Last year Swiss pharmaceutical giant Roche invested a total of EUR 1.4 billion in the country, expanding its various facilities to include a new research center and global customer service hub. A further EUR 1 billion has been earmarked for its German operations over the next three years.

The western German regional states of Rhineland-Palatinate, Hesse and Baden-Württemberg in particular have made a name for themselves as R&D hubs. Industry titans Boehringer Ingelheim, Merck and BioNTech are all headquartered in the region, with other big players, including US biomedical company AbbVie, employing some 3,000 people there. Now Eli Lilly is joining the club.

Interested in bringing your business to Germany?

CONTACT
marcus.schmidt@gtai.de
Director chemicals & healthcare

"Biotechnology was really under the radar in Germany until the pandemic"

When Eli Lilly decided to make a major investment in Germany, they turned to GTAI for help selecting the perfect location for a future production site. They had very specific requirements, says Marcus Schmidt, GTAI's Chemicals and Health director.

Marcus, first of all, could you give us a brief overview of the importance of Germany's pharmaceutical sector and what makes it stand out?

MARCUS SCHMIDT: Germany is the fourth-largest pharmaceutical market worldwide, after the United States, China and Japan. In terms of the sheer number of medications available per country, Germany comes out on top in the European Union. It only takes about 50 days on average from regulatory approval until a patient actually has access to a medication on the shelves. The EU average is about 500 days, so ten times as long. That's because in Germany there's a parallel process for price negotiations, while in most other countries they first negotiate prices and then decide whether to introduce a drug or not.

How did GTAI support Eli Lilly in completing its big investment in Germany?

MS: The main service was to help in the site selection process. They had very specific requirements, not just for the size of property, but for logistics, utilities, workforce availability and timelines that had to be met for the start of construction. We worked very closely with our local partners on a state and regional level and evaluated possible sites. There were probably about 60 sites we looked into in more detail until we found a really good match.

As well as its new production plant at Alzey, Eli Lilly is also making a significant investment in Germany's biotech scene. How much of an impact will that have?

MS: I think biotechnology was really under the radar for many years in Germany until the pandemic happened. And then BioNTech came into the limelight and people realized what huge potential there is in Germany. And it's not just BioNTech. There are so many other innovative life sciences companies here, many of them not really known to the public. They work well with large pharmaceutical companies, and together they develop new products and bring them to market. I think Lilly is very smart to invest in these and tap into this huge potential. This venture capital investment will benefit both the biotech companies as well as the pharmaceutical companies — it's sometimes a little hard to distinguish between the two because they are so closely linked. This is certainly great news for Germany.

PHARMA: A PILLAR ***OF GERMANY'S FUTURE***

The German government has made pharmaceuticals one of the country's main economic focuses in the years to come. This is not only to ensure the country has the medications it needs, but to attract new business opportunities.

Photo: Adobe Stock/MdKamrul (Generiert mit KI)

It was a perfect storm. Infections were up as weakened immune systems emerged from years of coronavirus restrictions. Global supply chains were disrupted, and the war in Ukraine highlighted the need for greater resilience, while Germany's public health insurers were bound by rules requiring them to buy the cheapest drug on the market. The result: empty shelves in pharmacies, parents scrambling to source painkillers for their children and a shortage of common antibiotics.

The medicine shortage experienced across Europe in the winter of 2022 may seem far away now, but it reinforced what had already become apparent during the pandemic: Medical supply chains are complex and fragile. A single geopolitical conflict or the emergence of a new virus is enough to disrupt the entire system.

THE BOTTOM LINE

Germany is attracting pharmaceutical and biotech companies with financial incentives, a vibrant R&D environment and a raft of reforms aimed at making it easier to conduct clinical trials and access high-quality data.

German Health Minister Karl Lauterbach's response was multi-pronged. In December 2022, he made the decision to lift drug price caps, enabling public insurers to buy sought-after medicines they might otherwise have been priced out of. Greater flexibility around purchasing was one part of the solution. But a longer-term strategy was also required: The easiest way for Germany to ensure a ready supply of medicine was to boost the number of pharmaceutical companies operating in the country.

"In the long term, we of course have to make sure that the production of pharmaceuticals comes back to Europe," Lauterbach (a trained

GERMANY'S NEW PHARMACEUTICAL STRATEGY: FOUR KEY AREAS

MADE IN GERMANY

Germany is providing financial incentives for companies to set up end-to-end production of antibiotics and cancer treatments in the country.

CLINICAL STUDIES

The process of approving clinical trials is being accelerated. A single interdisciplinary body will now assess urgent requests.

ACCESS TO DATA

For the first time, pharma companies will be able to apply for access to high-quality datasets from the government's FDZ research center.

INTELLECTUAL PROPERTY

Germany continues to safeguard intellectual property rights as key to sustaining long-term investment in R&D.

epidemiologist) said in the summer of 2023, while talks were underway about launching a new national pharma strategy. "Anyone who wants to get exclusive deals with German health insurers will have to demonstrate that at least half of their production is in Europe."

Mercurial success stories

In 2020, a little-known German biotech company rose to international prominence, having co-developed an mRNA-based vaccine against Covid-19 with US pharma giant Pfizer. Since then, close to five billion of its jabs have been administered around the world. BioNTech is now a household name.

The dizzying success story, a reminder of what can be achieved when needs are great and the best minds collaborate, stands in contrast to some of the other lessons the German pharmaceutical industry was dealt during the pandemic. The most sobering of these was the extent to which it had become reliant on foreign production, especially in China and India.

The German government is taking action. In December 2023, it launched its new National Pharma Strategy, which includes the Medical Research Act. The latter is a set of reforms to streamline and speed up the approval of clinical trials. Identifying areas for change has involved a degree of soul-searching. Germany's pharmaceutical industry is the fourth biggest in the world behind the United States, China and Japan, but in recent years Germany's attractiveness as a location to conduct clinical trials has waned in comparison to that of its European peers, partly due to excessive red tape.

"When you conduct clinical trials in several regional states, you have to deal with multiple ethics committees," says Marcus Schmidt, chemicals and health director at Germany Trade & Invest. To address that challenge, a single interdisciplinary body will now take charge of assessing urgent or complex study applications, a process that will make it "faster, easier and less expensive," says Schmidt.

Pharmaceutical companies will also be offered financial incentives to manufacture their products in Germany, with the aim of establishing end-to-end production of important medicines. Public insurance companies, which cover almost 90 percent of the population, will now indeed award at least half of their discounted contracts for antibiotics and some cancer treatments to companies that manufacture within either the country or the EU.

Germany will also continue to safeguard intellectual property rights across the bloc by opposing measures that would mandate technology transfer or allow exceptions to IP rules.

"The German government has taken our concerns seriously. As a leading industry, we have been listened to," says Hagen Pfundner, chairman of Roche Germany, stressing the need to involve the business community in the implementation of the pharma strategy.

As well as offering financial incentives for local manufacturing, the new strategy also revolutionizes access to data. For the first time, pharmaceutical companies will be able to apply to access information from the Federal Statistical Office's Research Data Center, a privilege previously only afforded to a pre-selected list of entities. Crucially, they will also be able to access genomic data related to cancer and rare diseases, potentially a game changer for innovation.

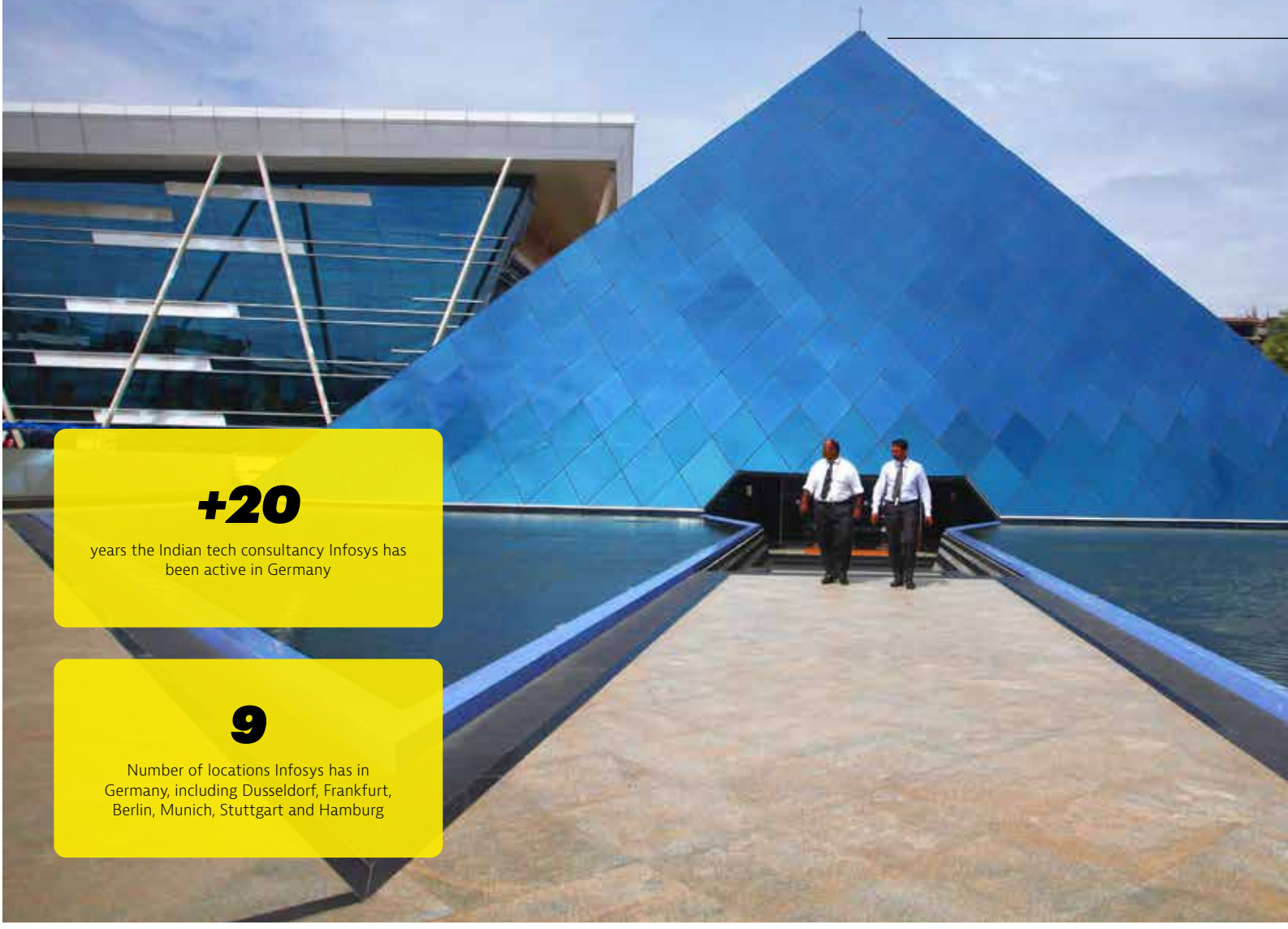
"With this strategy, Germany will once again rise to the very top in terms of international competitiveness in science," said Minister Lauterbach about the Medical Research Act. "We've long had the brains. It's the opportunities that have often been missing."

Could you be a part of German pharma?

CONTACT
marcus.schmidt@gtai.de
Director chemicals & healthcare

AN INDUSTRIOUS **PARTNERSHIP**

Indian companies are discovering Germany as a great location for expanding their operations beyond the subcontinent. The growing ties between the traditional European industrial giant and the burgeoning Asian economic power augur well for both countries.



+20

years the Indian tech consultancy Infosys has been active in Germany

9

Number of locations Infosys has in Germany, including Dusseldorf, Frankfurt, Berlin, Munich, Stuttgart and Hamburg

INFOSYS: FROM INDIA TO GERMANY

A futuristic iconic pyramid building for a future-focused Asian IT giant: the Infosys headquarters in the Electronic City area of Bangalore, on the outskirts of India's silicon valley.

The Indian global technology leader has had a presence in Germany for over two decades. Headquartered in Frankfurt, it's constantly expanding its business activities, among other things in business process management and IT consulting. Overall, it employs around 4000 people of over 40 different nationalities at its nine locations in Germany.

Photo: picture alliance / REUTERS | VIVEK PRAKASH

JoshiJampala Engineering from the city of Satara in Maharashtra state is testing the waters in Europe's largest market. The company, which is a leading manufacturer of fabricated valves in India, set up their international marketing headquarters in the western German regional state North Rhine-Westphalia in early 2024. The move was the culmination of months of research and planning with support from GTAI's office in Mumbai.

Co-founder Bhalchandra Joshi says his rapidly growing company was keen to be associated with Germany's prowess. "Germany has long been an industrial powerhouse, and the significance of building a presence in a place with that reputation can be considered as one of the main reasons we chose Germany," he says.

Germany is attracting more and more business investments from India across a number of growth sectors. Companies that provide ICT solutions and business services are major drivers of this trend, as giants like Infosys expand their operations in the heart of the EU.

But JoshiJampala Engineering's choice of location indicates that Germany's traditional economic strength and technological prowess continues to excite the imaginations of Indian businesspeople. Seema Bhardwaj, director of GTAI India, believes Germany's manufacturing story is a major selling point for potential FDI partners.

"The 'Made in Germany' brand plays a huge role, especially in engineering," she says. "Of course, Indian companies can participate in that if they invest and produce in Germany. There has been a shift in the investments from India in the past three years towards diversifying and building resilient, sustainable supply chains."

Many FDI projects from Indian companies are also supporting Germany's sustainability goals. The engineering and IT know-how of Indian companies plays a vital role in the drive to automate industrial production in Germany and make it more resource-efficient.

THE BOTTOM LINE

Germany's industrial tradition makes the country an attractive destination for innovative Indian companies, and a recent relaxation of immigration policies for skilled workers opens up even more possibilities for collaboration.

Welcome changes

Between 2015 and 2022, Germany was the third most popular destination for FDI projects globally, so it's no wonder the country is attracting interest from India, one the of world's fastest growing economies. The industrial heartland of North Rhine-Westphalia was one of the most popular states for Indian investment during that period. So too were the wealthy and picturesque southern German regional state of Bavaria and Hesse in western Germany, which contains the financial hub of Frankfurt.

In recent years, the German government has taken steps to encourage FDI projects from India, giving those companies even more reasons to expand their operations here. In 2022, India and Germany signed a migration and mobility agreement. And last year, Germany further relaxed its residence laws to make it easier for foreigners with in-demand skills to enter the country and work here. The EU Blue Card is now available to a greater number of skilled workers as a result of the lowered salary threshold. The scope of the EU Blue Card for professions in special demand has also been significantly expanded. Statistics from 2023 show that by far the largest number of EU Blue Card holders are Indian nationals. →

INDIA MOVES TOWARDS GERMANY

The Germany economy needs considerable input from abroad, and recent legal changes have further bolsteren Indian–German business ties, says ***Rajesh Nath,*** managing director of the Indian branch of the German Engineering Federation (VDMA). It is one of the institutions that helps connect Indian companies with German partners.

What makes India such an important trading partner for German industry? And in which sectors is there most scope for collaboration?

RAJESH NATH: We have a lot of members who are primarily in the engineering sector. We are finding increased interest among VDMA member companies when it comes to sourcing from India. There's a lot of focus on manufacturing in India at the moment, and the domestic capacity is growing. For example, India is striving to become a USD 5 trillion economy by 2027/28. When we move towards the USD 5 trillion economy, we will surpass Japan and Germany to become the third largest economy. The present share of manufacturing in our GDP is about 16 percent roughly. The government is trying to push this up to about 25 percent by 2027/28.

What makes Germany an attractive location for Indian companies? And why does having a presence here make a difference?

RN: After establishing a good presence in the domestic market and good products, the next step and aspiration for Indian companies is to go global. Germany is a strong partner for Indian manufacturers in this regard, due to its strategic location in the heart of Europe. Basically, companies that have a footprint or presence in Germany will find it easier to cover the whole of Europe. Germany is also the second largest export market for industrial machinery after China. So that is why having a presence in Germany really adds a lot of value to the Indian companies, and that's why we are seeing interest.

How important are demographic changes to the relationship between German and Indian industry?

RN: Unlike India, Germany has an aging population, so the requirement for skilled workers in Germany is pretty high. For example, there's a shortage of around 400,000 engineers in Germany presently. With the average age increasing in Germany, India can really help plug this gap. They say between 2020 to 2040, India is going to add about 120 million people to the workforce. On the other hand, most of the European countries and China are suffering a lack of population growth. Furthermore, last year we saw 43,000 Indian students going to Germany to study — that's the largest foreign student population in the country.

Will government legislation like the Skilled Workers Immigration Act boost investment from India?

RN: We certainly encourage any act that eases the movement of skilled labor. When Indian companies invest in Germany, either by acquiring an existing company or by setting up a new company there, it is now easier to get senior people over from India to run the operation. The presence in India of the German government agency Germany Trade & Invest, along with various regional state government agencies, including North Rhine-Westphalia, Bavaria and Hamburg, helps and supports investment in Germany. Other German states are following this example — we recently hosted a delegation from Saxony which visited Coimbatore and Tamil Nadu. These initiatives really help Indian companies to move to Germany. And with a far greater amount of information available, the whole process has become much easier. So, it's a culmination of various factors coming together, which is really helping in this movement of Indian companies towards Germany.

Photo: picture alliance/dpa | Michael Kappeler

STRENGTHENING ECONOMIC TIES

German Chancellor Olaf Scholz visited India in 2023 for meetings with elite politicians, including Indian Prime Minister Narendra Modi, as well as business leaders. The two nations, both of which are among the largest five economies in the world, did a record USD 33 billion in trade with one another last year. So it's no wonder that economic ties are closer than ever. More than 200 Indian companies have come to Germany, investing over EUR 6.5 billion in various areas, most prominently in engineering technologies and new IT and AI solutions, as well as in automotive, pharma and biotechnology. Meanwhile, more than 1700 German companies are active in India, among them big names like Mercedes-Benz, Volkswagen, Siemens and SAP. The number of Indian students attending German universities is at an all-time high, and the two countries collaborate intensively on research and development.

Source: German Foreign Ministry

GERMAN BUSINESS LOOKS TO INDIA

This year's Asia-Pacific Conference of German Business (APK) is taking place on November 25-26 in New Delhi, India. It's the flagship event for business leaders, executives and political representatives to discuss and promote economic relations between Germany and Asia-Pacific (APAC). Since 1986, the conference has been held biennially in various locations across the APAC region. The APK is jointly organized by the Asia-Pacific Committee of German Business (APA), the German Ministry for Economic Affairs and Climate Action (BMWK), and the German Chambers of Commerce Abroad (AHK) in the Asia-Pacific.The conference provides a platform to deepen dialogue on current economic developments in Europe and the APAC region while building and strengthening personal and economic ties.

www.asiapacificconference.com

→ Peggy Görlitz, a senior investment consultant of GTAI, sees this as a key development in keeping Germany at the cutting edge. "The conditions we're putting in place to attract skilled workers to Germany are very important for industry," she says. "I think we will only see more investment in Germany by Indian companies once everything is in place."

Germany has clearly established itself as an attractive labor market with major earning potential for Indian employees. On average, Indians are more highly paid than any other immigrant group in the country. Now with the easing of barriers to starting a new life in Europe, it has become even easier for Indian companies to sell the idea of relocating to their home-grown employees.

With an ever-growing demand in Germany for skilled workers in fields like engineering and IT, Germany is a highly attractive destination for India's higher education graduates with the right skillsets. As of the 2022/23 winter semester, India had more students studying at German universities than any other foreign nation, and the majority of those (60 percent) were enrolled in engineering courses.

Both countries stand to benefit from building and strengthening business ties with each other. The combination of Germany's industrial know-how, crafted and developed over two centuries, with India's vast potential could prove to be a winning formula in the next stage of industrialization. "India has raw, young and talented manpower, whereas Germany has more skilled, experienced world class professionals," says Bhalchandra Joshi. "Such a combination will be unbeatable by other companies, and also other countries."

Want to bring an Indian business to Germany?

CONTACT

seema.bhardwaj@gtai.de
GTAI Director India

peggy.goerlitz@gtai.de
GTAI Investor Consulting, Electronics & Automation Industry

MARKETS GERMANY TURNS 20!

For two decades, Germany Trade & Invest's thrice-yearly magazine has been reporting on industrial transformation, innovation and market opportunities for international companies in Germany. We look back at some of the major trends and highlights.

2004

GTAI is celebrating the twentieth birthday of ***Markets Germany magazine,*** a publication full of market insights for international companies interested in coming to Germany or in taking advantage of business opportunities here. The idea was born in 2004 in the Office of the Commissioner for Foreign Investment in Germany, one of GTAI's predecessors. The goal was to raise Germany's profile as a business location and to demystify the process of setting up shop here, as well as to report on major business stories and trends.

The very first issue of ***Invest in Germany Magazine,*** as it was known back then, examined the question "Why do Chinese companies invest in Germany?" and depicted Chancellor Gerhard Schröder fearlessly sticking his hand into the mouth of a Chinese dragon. It also looked at the inner workings of Germany's world-famous beer brewing industry.

2009

The economy never stands still, and we've constantly worked to develop our magazine and take it in new directions. In 2009, we renamed the publication ***Germany Investment Magazine.*** In 2012 we settled on the title ***Markets Germany.***

TREND#1
INNOVATIONS FROM DIGITALIZATION TO AI

Over the years, the magazine has mirrored the trends, challenges and opportunities of Germany's economy at various times. It's a story of growth, diversity and change.

From 3D printing and robotics to nanotechnology — German manufacturing companies have been at the forefront of the past two decades' tech trends. AI and nanotechnology in particular have been featured on average in every second issue since 2008. We've also reported on the areas that have been affected and have benefited from digital development and AI — including education and healthcare.

TREND#2
BIG CHANGES IN THE ENERGY SECTOR

Our feature stories have also documented the transformation of major industries, including the major changes that have reshaped the German energy sector. As far back as 2007, the idea of a transition to sustainable forms of energy, the *Energiewende,* has guided the remaking of the country's energy infrastructure.

TREND#3
NEW ROUTES FOR THE AUTOMOTIVE INDUSTRY

The German automotive industry has always been a global leader. The magazine has tracked the transformation of Germany's flagship industry in detail — from the electromobility revolution to the transformation of German mobility as a whole.

TREND#4
HEALTHCARE AND PHARMACEUTICAL EVOLUTION

Another highly innovative sector that has featured prominently in the magazine is pharma and life sciences. Several cover stories have examined research breakthroughs and production developments in this traditionally strong and uniquely German industry — as well as the opportunities it presents to international companies.

To be continued ...

"BRAZIL CAN HELP GERMANY MEET ITS CLIMATE GOALS."

Brazil and Germany did almost EUR 20 billion worth of trade in 2022. Barbara Konner, head of the German–Brazilian Chamber of Industry and Commerce, shares her insights into the growing connections between the largest economies in Europe and South America.

Barbara Konner hopes to strengthen the trade bonds between the two countries.

Photo: AHK São Paulo

Brazil's economy has recovered after the coronavirus pandemic, but the growth forecast for the coming years is rather subdued. Against this backdrop, how important are international economic relations — for example with Europe and Germany — for Brazilian companies?

BARBARA KONNER: With their technological know-how, German companies are ideal partners to accelerate Brazil's "neo-industrialization" agenda (a drive from the Ministry of Development, Industry, Trade and Services to revitalize manufacturing and industry), therefore increasing Brazil's international competitiveness. A relevant challenge for German companies, however, is the lack of a level playing field in the Brazilian market. Of particular concern is the absence of a double taxation agreement. Countries such as China already have long-standing agreements with Brazil. German businesses in Brazil urgently need a level playing field to ensure that established German companies here do not fall behind and that there is fair competition as far as business investments are concerned.

How do Brazilian companies rate Germany as a business location?

BK: Brazilian companies see Germany as an innovative country with a focus on sustainability and technology. They understand that strategic partnerships and long-term relationships can promote the development of industry at home through the transfer of technological expertise. Brazil is quite advanced in fintech and the digitalization of public services, making it a source of inspiration. We recently resumed our trade delegation trips, especially in conjunction with renewable energy, start-ups and trade fairs — and so we expect a growing interest in business collaborations with German companies and in going international generally.

Why is trade with Germany so important to Brazil (compared to other developed economies)?

BK: Brazil is an important economic and political partner for Germany, with a long, shared history dating back to the nineteenth century. Since 2008, Brazil has been Germany's only strategic partner in Latin America. Germany continues to stand for reliability, and as the new Brazilian government steers the country out of a period of foreign isolation, it will strengthen the relationship between the two countries. Germany embodies the tradition of commercial heritage through its solid SME sector and is known for its pragmatic and solution-focused approach to political and social issues — so it's a good match. And of course geographically, it is at the center of Europe and is one of the continent's strongest economies.

Which sectors in Germany are currently looking to Brazil as a favorable business location?

BK: Due to the growing demand for green energy, Brazil is becoming an increasingly important business investment location for Germany. Brazil already produces a good 80 percent of its electricity from hydroelectric power plants, solar parks and wind farms. The country is therefore predestined to be a global supplier of green hydrogen and, as a strategic partner of Germany, can make a significant contribution to decarbonization and meeting climate and environmental policy goals. It can also play an important role in the diversification of sustainable supply and value chains.

Brazil is also one of the countries in Latin America focusing primarily on the development of Industry 4.0 and logistics. Let's not forget that the country is huge — almost a continent in itself — and has a lot of potential, especially as it's focusing on the development of digitalization, automation and artificial intelligence. Brazil has moved into a new phase of technological innovation, preparing the way for the expansion of the 5G network, telecommunications and information technology.

Interested in bringing your business to Germany?

CONTACT

ahkbrasil@ahkbrasil.com
AHK Sao Paulo – Foreign Trade Department

joachim.weber@gtai.de
GTAI director Executive Unit Strategic Partnerships and liaison to the German Chambers of Commerce Abroad

How Germany Works
BRINGING NEW DRUGS TO MARKET FASTER

Before medications can be marketed in Germany, they first have to be approved. But despite the country's reputation for rigorous standards, the process is remarkably quick. The time it takes for new medications to reach the pharmacy shelves in Germany is a fraction of what it is in other European countries. That's because Germany prioritizes the availability of medicines. The European Medicines Agency (EMA) first verifies the efficiency and safety of drugs, drawing on the scientific expertise from EU member states. In Germany, the state bodies responsible for approving clinical trials are the Federal Institute for Drugs and Medical Devices (BfArM for short) and the Federal Institute for Vaccines and Biomedicines — also known as the Paul Ehrlich Institute. They are the largest institutions of their kind in Europe. Companies are allowed to set their own prices for a limited time while they undergo an assessment procedure. New medications are reimbursed by the statutory health insurance (SHI) funds as soon as they are authorized. At the same time, the new drugs undergo the so-called AMNOG procedure with benefit assessment and price negotiation. These reimbursement rules incentivize the rapid market launch and supply of innovative medicines. When prices are fixed, they often serve as a reference for other countries — in the EU and beyond.

HOW MEDICATIONS GET TO MARKET IN GERMANY

If a pharmaceutical company wants to market a new prescription drug in Germany, the drug is subject to two procedures:

#1

Regulatory approval ("marketing authorization") must be sought first before the drug can be sold in Germany with coverage of costs by the statutory health insurance (SHI) funds.

#2

Early benefit assessment: This phase determines the extent of coverage by the SHI funds after the free pricing period of the first six months.

THREE DECADES OF CONSISTENT INNOVATION

Number of market launches of drugs with new active ingredients per year in Germany (excluding biosimilars)

Source: German Association of Research-Based Pharmaceutical Companies (vfa) 2024

WHAT ARE DOSSIER ASSESSMENTS?

Dossier assessments answer the question of whether a new drug has a greater (i.e., an "added") benefit for patients than the current standard treatment.

DRUGS enter the market in Germany immediately after approval. The extent to which statutory health insurance reimburses the manufacturers depends on the added benefit versus the current standard treatment.

Initially, the manufacturer determines the price...

...and submits a dossier on the added benefit.

IQWIG then assesses the drug using the dossier.

The Federal Joint Committee (G-BA) decides.

Added benefit proven: The new drug is more beneficial than the current standard treatment. A higher price is therefore justified.

Added benefit not proven: The data in the dossier do not show a greater benefit of the new drug or show even less benefit than the standard treatment.

WHAT IS IQWIG AND WHAT DOES IT DO?

The Institute for Quality and Efficiency in Health Care (IQWIG) assesses the benefits and harms of medical interventions for patients. It usually receives its commissions from the highest body of self-government in the German health care system, the Federal Joint Committee (G-BA).

GTAI GERMANY TRADE & INVEST

At your service!

SET UP BUSINESS IN GERMANY

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

GETTING STARTED IN GERMANY

Our experts are there to help you in all phases of establishing a business in Germany.

www.gtai.de/gtai-en/invest

Germany Trade & Invest (GTAI) is the foreign trade and inward investment agency of the Federal Republic of Germany. We advise and support international companies planning to expand into the German market and assist German companies seeking to enter global markets.

Our consulting services for international companies looking to expand and seeking to establish an own subsidiary or branch office in Germany include:

- Assistance with finding the right site location for their business
- Information on financing and incentives for businesses
- Tax and legal information on setting up a company
- Information, data and statistics about key industries in Germany

All investment-related services and inquiries are treated with the utmost confidentiality and are provided free of charge.

Get in touch with our Investor Support Service

Alexander Walter
alexander.walter@gtai.de

Germany Trade & Invest
Friedrichstraße 60, 10117 Berlin
T. +49 30 200 099-0
info@gtai.de