

MARKETS

GERMANY

2/19

WELCOME TO OUTSOURCING 4.0

Driven by digitalization, the market for corporate services in Germany is growing. Big companies and SMEs are increasingly opting for local German contact centers.

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Aviation:

***Germany's SMEs
are steering the electric
flight revolution***

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Start-up Scene:

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technology companies
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***Germany helps Europe
become a center for
quantum computing***

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Outsourcing 4.0

Digitalization is driving growth in the corporate services sector in Germany, especially customer contact centers.

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TECHNOLOGY

INTERNATIONAL TRADE



Computing's Super-Future

Europe's bright future as a center for quantum computing and the pivotal role Germany will play

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GTAI turns 10!

Celebrating a decade of Germany Trade & Invest supporting international trade and investment in Germany

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on the basis of a decision
by the German Bundestag



»Germany is beefing up spending to promote R&D in supercomputers: one of many reasons for companies to invest.«

Dear Reader,

What should a company do in-house? What tasks and services for customers can be outsourced to external providers? And how is increasing digitalization changing the business services market? In our title story *Outsourcing 4.0*, *Markets Germany* examines a growing market in Germany that is highly attractive to foreign investors. Our expert Josefine Dutschmann cautions that if you want to be successful, however, you have to have a presence in the local market. The reasons for this and other considerations for investors are the topic of this issue's *Focus* pages.

Also in this issue, the European Commission wants to invest EUR 9.2 billion to make Europe a top destination for artificial intelligence, cyber security, and quantum computers. In this legislative period alone, Germany is beefing up spending to promote research and development into supercomputers by an additional EUR 650 million – one of many reasons for foreign companies to invest in Germany. Read on in our report *Computing's Super-Future*.

And 2018 saw a record annual amount of investment in German start-ups – EUR 4.4 billion. The German start-up scene is especially popular with Asian and U.S. investors. Find out why in our article *Germany's Unicorns Riding High*.

Dr. Robert Hermann, CEO

Email: invest@gtai.com



ONE TO WATCH

Photo: Gordon Welters/iaif



Ida Tin, co-founder and CEO of Clue

Ida Tin coined the term “Femtech” – “a business category where technology is used to solve the needs of women arising from biology.” Clue, the business she co-founded with her partner Hans Raffauf, is the embodiment of Femtech: a global app to help women track and understand their menstrual cycles and share the data with their partners and families. But it’s so much more. “It’s a place where women can gather data about themselves to help navigate life better,” says Tin. “When women understand their bodies, they have a stronger voice in the world. Reproductive health is connected to identity, mood, and gender roles.” Tin comes from an entrepreneurial family: “My parents were adventurers – I grew up with the feeling that you could

create your own work life in line your values,” she says. The idea for Clue arose before Tin had children (“I asked myself, why have there been no innovations in family planning since the 1950s?”), but she used the app to help conceive her second son.

Clue now boasts over 10m active users across 190 countries, but the strategy is to continue innovating with the main app rather than launch others. With Tin at the helm, Clue’s trajectory is bound to differ from most silicon start-ups. “We care about creating positive changes in the world,” she says. “We care about our content being scientifically valid. We care about our users and how we treat each other.” For a female entrepreneur, Berlin is the “ideal city” to thrive in.

Quick facts

Name Ida Tin

Age 40

Nationality Danish

Company name Clue

Founded 2012; app launched 2013

Based in Berlin

Industry Femtech

Number of employees 62

Capital invested €26.4m in total



www.helloclue.com



Inside the Leipzig office of Competence Call Center (CCC). Today, nine of their 22 international locations are based in Germany, Europe's biggest market, because of its progressive economic values and the innovation of its SMEs.

Outsourcing 4.0

Driven by digitalization, the market for corporate services in Germany is growing. More corporations and SMEs than ever are outsourcing their business processes and many are choosing to operate customer-delivery centers directly from Germany.

CUSTOMER FOCUS

Outsourcing and shared services

Germany is **one of Europe's biggest business service markets**. The country is home to domestic and international captive service centers (wholly owned subsidiaries) and business service provider operations. **Optimal infrastructure, high productivity, advanced technology, and highly qualified personnel** make Germany an attractive location for service delivery in general. With nearly **7,000 contact centers** employing around 540,000 people, the service provider market has a **market volume of EUR 40 billion**. The volume of the business and IT service market has been **growing by 2.5 percent a year** since 2014, with demand for quality and high-value services growing particularly strongly.

Source: GTAI Fact Sheet Business Services in Germany

Today, thankfully, things are changing. “We train artificial intelligence (AI) to automatically take over click work from screen to screen,” he explains. “And suddenly we can reduce the processing time for the entire process by 80 percent. It only takes a few weeks to develop and train such an algorithm. “Without the company itself having to change its IT infrastructure, we, as a service provider, can accelerate its processes in customer service enormously and at the same time relieve our own employees of this click work and employ them in more demanding activities.”

Digitalization is becoming a great opportunity for business process outsourcers and shared service centers to position themselves as supporters and partners for companies

Ask **Thomas Güther**, managing director of outsourcing solutions provider Capita Europe, to list the biggest changes his industry is facing right now, and he answers with a scenario: “Imagine a classic customer service case in which a customer wants to switch electricity or telecommunications providers...” He describes a complex, and largely manually-controlled process that begins at the back end: data is forwarded from one “IT input screen” (a template to which inputted data must conform) to the next and is subject to various approvals. Many companies already outsource this process to service providers such as Capita. “The processing of a service case like this takes two to three weeks,” says Güther.



»Without the company itself having to change its IT infrastructure, we as a service provider can use automation and artificial intelligence to accelerate its customer service processes enormously.«

Thomas Güther, Capita Europe

in the era of digital transformation. This is because of the drive of corporations and small and medium-sized enterprises (SMEs) in Germany to offer their customers faster, more up-to-date digital services. “Many companies in Germany, however, lack the internal specialists and expertise to implement the necessary automation in the back office themselves,” says Stephan Fricke, board member and chairman of the advisory board of the German Outsourcing Association (see interview on page 8). “Many companies therefore use external service providers in the IT and back office areas.”

This trend is contributing to major changes across the German economy. Germany has primarily been known internationally for its industrial production. Its reputation as a

service location has rarely extended beyond its own borders. But B2B companies that offer services to corporate customers are now booming in the country – and opportunities for growth extend to their foreign providers.

Now SMEs are outsourcing too

The outsourcing of processes in the areas of human resources, accounting, IT, and customer care is no longer solely something for large corporations. Even SMEs, which typify Germany’s economy, are increasingly open to cooperation with external service providers, if only under certain conditions, explains Josefine Dutschmann, industry expert at GTAI. “German SMEs are often so-called ‘hidden champions’ – they are internationally very successful in their respective niches,

but at the same time they are also strongly anchored in their home market,” she says. “In order to win the trust of German corporate customers, it is therefore very important to have a local team that is familiar with the local market conditions.” That doesn’t necessarily mean that foreign providers of corporate services have to set up large local teams, or that they can’t offer services from foreign locations, “but at least one German-speaking sales team should be based locally if you want to be successful here, and ideally there is a German-speaking delivery center with specialists who are in close contact with corporate customers.”

A trend toward more flexibility in purchasing outsourcing services can be seen in both large and small companies in Germany. “Companies are increasingly looking for specialists for certain IT topics and process optimizations,” says Dutschmann. “This is a reaction to the acceleration of innovation and product development processes.”

Local knowledge is key

Thomas Güther of Capita Europe takes a similar view. The international outsourcing service provider, which is headquartered in London, took over the German business process service provider Avocis in 2015 in order to gain a foothold in the German market. “Capita was thus able to plug into existing customer relationships with large corporations and medium-sized companies and could depend on an experienced local team,” says Güther. This is of great strategic importance for foreign companies entering the German market: local

»There is increasing demand for a combination of digital services and support from highly trained professionals.«

Thorsten Meyer, Competence Call Center (CCC)

service providers help to build the necessary trust. “When choosing their service partners, German companies want to be sure that they are familiar with German peculiarities such as industry regulations and labor law,” he says. This is particularly true because service providers are increasingly becoming strategic partners in digitalization. “And digitalization projects can only be successfully implemented in Germany if the complex regulations of

German and European data protection and labor law, for example, are observed very carefully,” he says.

Capita’s services in Germany focus on customer experience. “In this area, many companies are currently looking for innovation partners who can help them offer contemporary customer service across all communication channels and can advise them on the potential of new technological possibilities such as

artificial intelligence and robotics in customer service,” says Güther.

Only when local customer-facing teams are integrated into an international team of specialists can providers of corporate services be successful in the German market, explains Thorsten Meyer, director of German call centers at the Austrian service provider Competence Call Center (CCC). CCC has been active in the German market for 18 years.



FACTS & FIGURES

Outsourcing in Germany

80%

of German **contact centers** are in-house, with the remaining 20% in the hands of service providers.¹⁾

€21bn

Turnover generated by the 7,000 **call centers** in Germany, which employ around 540,000 people.¹⁾

50%

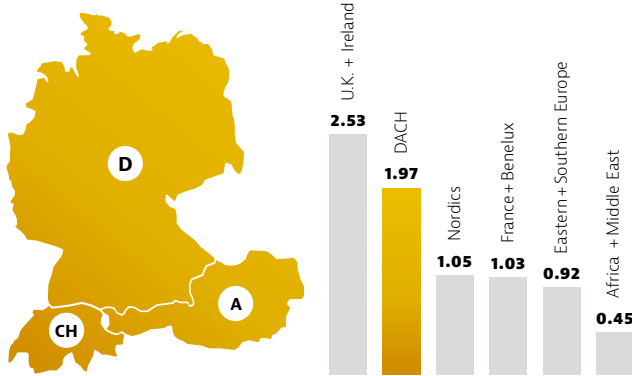
of contact centers are **active in** the financial services, telecommunications, and IT sectors.¹⁾

2.5%

Annual growth rate of the business and IT service market in Germany since 2014

DACH: a competitive business location

The German-speaking region (Germany/Austria/Switzerland or DACH) is one of the most important outsourcing markets in the EMEA region.⁴⁾



Outsourcing volume in EMEA in 2018 (in €bn)

Real estate costs in Germany are affordable

Office rental prices in German cities (EUR per square meter)²⁾

City	Good/Very Good	Medium	Basic
Berlin	18.00–32.50	11.00	8.00
Dortmund	9.80	7.80	5.70
Hamburg	16.00–26.00	10.90	7.50
Hannover	11.50–16.50	8.00	6.50
Magdeburg	7.00–12.25	5.80	3.80
Nuremberg	11.03	8.76	6.88
Saarbrücken	11.00	7.00	6.00

Customer experience and BPO are core services

Service provider core activities (top answers)³⁾



Inbound calls **80%**



Outbound calls **75%**



Email management **75%**



BPO **70%**



Complaints **67%**



Social media **65%**

1) Source: GTAI Fact Sheet Business Centers in Germany 2018; 2) Source: IVD-Gewerbe-Preispiegel 2018/2019; Note: without ancillary costs; 3) Source: Call Center Profi 2018; multiple responses possible; 4) Source: ISG Index 2019



*Stephan Fricke,
German Outsourcing Association*

»Process automation is still both a curse and a blessing.«

The digitalization of business services presents companies with significant challenges. Stephan Fricke, board member and chairman of the advisory board of the German Outsourcing Association, talks to *Markets Germany* about chatbots, changing job profiles, and the opportunities automation brings.

Mr. Fricke, digitalization, new technologies, and concepts like robotic process automation have a big impact on how companies handle their day-to-day operations now and in the future. What's your assessment of these developments?

Process automation in the back office is still both a curse and a blessing at the moment. A curse because there's a lack of specialists who can develop, implement and maintain such solutions. A blessing because this can lead to considerable savings and unprecedented flexibility.

What will be the consequences? For example, will we see a reduction in the workforce in the coming years?

This is a question that many managers are asking themselves today. The professional world and job profiles are seeing fundamental changes. This is nothing new. We need both specialists who understand, for example, the profession and activities of an accountant and also robots that ultimately carry out these activities. This requires not just a few highly specialized experts, but a large number of people.

Speaking of robots, chatbots are very popular in customer service operations today. Is this type of automation becoming standard?

The real potential for automation lies less in customer communication than in in-house departments and shared service center and business process outsourcing operations. Chatbots are by no means the best solution for direct customer communication. Rather, I see their potential, for instance, in data management, financial processes and documentation. This is because automation generally creates more quality, shortens processing times, is more flexible, and therefore also offers immense potential for savings.

Manfred Stockmann, president of the German Call Center Association for many years, has said, "Contact centers as they exist today will not be needed anymore in the year 2025." Do you concur with that statement?

I absolutely agree with Mr. Stockmann here. Some time ago, "contact centers" were still called "call centers." An interesting detail that couldn't better express the changes across the industry. The people who years ago handled customer contact exclusively over the telephone now use all available channels. This development will certainly continue. Nevertheless, I think in many cases person-to-person communication is irreplaceable.

"How can I help you?"
Chatbots are by no means
the best solution for direct
customer communication,
according to Stephan Fricke.



»International service providers need at least a small, preferably German-speaking local delivery center with specialists who are in close contact with corporate customers, if they want to be successful here.«

Dr. Josefine Dutschmann, GTAI

→ The Austrian company established its first location in Berlin in 2001. Today, nine out of 22 of their international locations are based in Germany. “Germany is the most important European market for us, because of the innovative strength of the local companies and the overall very progressive economic structure, which also attracts many foreign companies wanting to gain customers here,” says Meyer.

Mixing AI and human intelligence

Services in the social media domain are currently just as much in demand in the German market as automation solutions. “There is increasing demand for a combination of digital services and support from highly-trained specialists,” explains Meyer. Simple services should be delivered quickly and efficiently using robotics and AI solutions. At the same time, emotional and complex customer enquiries should end up with customer advisors. High-quality consulting is important because when it comes to customer service, German consumers have particularly high expectations and can easily become resentful. That is the result of a recent study by Zendesk, a customer service platform provider, focusing on the interaction between customer service operatives and consumers in Germany, Great Britain, and France. Not only do 81 percent of respondents in Germany remember bad customer service experiences a year or more in the past, they also tell others about those experiences.

FACTS & FIGURES

€40bn

Total value of the market for business services provision in Germany.

7,000

Number of contact service centers based in Germany, all of which benefit from local knowledge.

540k

Number of people employed in the call center market in Germany.

Sources: Zendesk and GTAI

Despite rising expectations, the outsourcing industry is still very cost-driven. “The access to skilled labor is crucial for our choice of location in Germany,” says Meyer. “The skilled labor situation in Germany is tense. Today it is hardly possible to build up a large location with 1,000 people. We therefore tend to focus on decentralized, smaller, distributed locations with two or three hundred employees in towns with good transport connections. In addition to Berlin, the leading examples are Leipzig, Dresden, Essen, Dortmund, and Aachen.”

Pathway to success

The advantage of this decentralized location strategy is that the provider is able to be close to company locations and economic centers in Germany (which are also very decentralized) and therefore establish good proximity to the customer.

Adapting to the needs of the dispersed, medium-sized economic structure of Germany, positioning as a partner even for highly-complex outsourcing projects, and setting up an experienced local team with local knowledge: these are the three strategies for success that foreign providers of corporate services should follow when entering the German market.



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GTAI expert for BPO/Shared Services

Global Going Local

TMF Group is a global professional services company that helps international companies set up businesses in new markets. *Markets Germany* talks to the managing director of TMF Germany, Ursula Rutovitz, about the current trends in the German market.

Ursula Rutovitz is an expert in helping foreign corporations to set up company locations in Germany. Rutovitz, a lawyer by profession in both U.S. and German law, has been working in this capacity for the TMF Group for 19 years – in fact, her employer was her first case. “When TMF entered the German market, I set up the first branch in Frankfurt/Main – my good knowledge of local legal and economic structures and my international work experience helped me to do this,” recalls Rutovitz, who is managing director of TMF Germany.

This combination of international networking and local market knowledge is at the heart of TMF’s business model. Or as their website puts it, “We believe that the only way to be truly ‘global’ is to put local first.” The Group has a team of 7,000 in-country experts operating in 83 countries (across 125 offices) to help businesses of all sizes succeed in new territories and be compliant with local and international regulations. At the last count, TMF had 15,000 clients worldwide.

Rutovitz explains the focus of the German offices: “We open up the local headquarters for companies wishing to enter the German market, handle the entire bureaucratic process of setting up a company, establish con-

SETTING UP IN GERMANY

€10bn

Value of the global market for provision of compliance and administrative services

TMF Group: a truly international player

TMF Group is a global professional services company employing more than 7,000 in-country experts across 83 jurisdictions worldwide. Headquartered in Amsterdam, TMF Group helps its clients operate internationally by ensuring they are properly set up to do business in any country and compliant with local and international regulations. The firm’s work includes helping companies of all sizes with business services including HR and payroll, accounting and tax, corporate secretarial, global governance and administration, and fiduciary services for capital markets, private clients, private equity, and real estate investments.

TMF Group has been active in Germany since 2001 and has 60 employees based at its two offices in Munich and Frankfurt/Main (Germany’s most important financial services location).

tacts with the authorities, and set up all back office services such as accounting and reporting, HR and payroll administration, tax and legal compliance services on site.”

Challenges for foreign companies

For foreign companies wanting to enter in the German market, these formal bureaucratic prerequisites are one of the biggest initial challenges. “The requirements of German and European law for financial transparency, reporting and data protection are very high,” says Rutovitz. “If you want to find business partners in Germany, you have to have the relevant processes under control right from the start. Then the strict German bureaucracy becomes an advantage: “The bureaucratic processes and regulations in Germany are very reliable and predictable. This gives companies planning security.”

Because Germany is such a stable base for launching a business in Europe, TMF Germany has seen rising demand from foreign enterprises that want to gain a foothold in the German market, reports Rutovitz. The growing and innovative German economy is attracting many enterprises from the U.S., Asia and other regions. “The demand for our services is high at present – HR and payroll in

particular, and also bookkeeping and corporate secretarial services. Because of the Brexit situation, we find that it is mainly financial sector businesses that want to develop locations in Germany.” The demand for professional services and for support for developing growth in Germany is also strong. “International companies are looking for partners who can highlight the special features of the market, who are up to date with current legal and technological developments, and who can point out risks and opportunities.”

In addition to the Frankfurt office, TMF set up an office in Munich six years ago. “Just like in Frankfurt, there are many large corporations and successful medium-sized



»Germany is an attractive market and offers companies great opportunities.«

*Ursula Rutovitz,
managing director, TMF Germany*

companies from various sectors as well as private equity companies based there,” says Rutovitz. Another critical factor influencing choice of location is workforce: Frankfurt and Munich offer a large pool of well-trained specialists within close proximity. As the process of digitalization demands ever more complex and sophisticated services, it is important to have access to technically qualified and multilingual specialists. “Germany is an attractive market that offers enterprises great chances,” summarizes Rutovitz. And since TMF Germany is part of a wholly-owned global group, it can help its clients to do business seamlessly across borders from the stable hub of Germany.



Frankfurt: a fine location

The economic center of the FrankfurtRheinMain region, Frankfurt/Main is home to some 43,000 companies and generates most of the employment for the region (650,000 jobs). While it is famous as a financial hub, it is also home to many key target industries: the creative industries, IT and telecommunications, life science and logistics, and industrial production. Its superb infrastructure, transport and proximity to institutions and educational facilities add to its attractiveness as a location.

With its modular integratable digital technology, the aCar helps improve access to medical care, education, and information in remote places.



Photo: Technical University of Munich

Electromobility

Green Cars for Africa

Tough, multi-purpose and affordable

It looks like a golf cart on steroids. But what it lacks in comfort, it makes up for in functionality and price. The aCar from Evum Motors of Munich aims to meet the cargo and passenger transportation needs of rural populations in developing countries such as those in sub-Saharan Africa. The fully electric all-rounder has two seats, all-wheel drive, a 1-ton payload and a modular cargo bed that can be turned into everything from a mobile doctor's office to a water treatment station. The 20kWh lithium-ion battery offers a range of 100-200km and can be fully charged in 6 hours. Evum hopes to be producing 700 aCars a year by 2020 and more than 100,000 by 2025, selling them at a target price of EUR 8,000 per unit. It is setting up a model factory in Europe but hopes to move some production and assembly to Africa to help local populations, as the 200-part vehicle can be assembled using just screwdrivers and welders.

www.evum-motors.com

Advertising



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E-commerce

Trade up Your Tractor

New homes for used
agricultural equipment

Need to find a bale shredder fast? Looking to sell that extra tractor at a good price? There's good news for farmers asking questions like these. A Hamburg-based start-up, E-Farm, now active on four continents, has developed a mobile app and online platform that makes it easy to advertise, search for, and purchase a wide range of second-hand farm machinery. The app allows E-Farm users to efficiently document vehicle data and conditions to make accurate valuations, while the website offers a search engine with multiple criteria to enable farmers to easily find what they need. Users particularly like E-Farm's low commission rates and transport fees. E-Farm has staff conversant in 20 languages, facilitates certification from independent inspection companies, and offers export financing.

www.e-farm.com

FinTech

Money Service for Migrants

Simplifying cross-border
bill payments

Companies that help ex-pats send money back home are nothing new. But a Leipzig-based FinTech company is helping immigrants in Europe and the U.S. pay bills and buy products and services for their loved ones worldwide – and it's all done safely, cheaply, and in real time. The B2B bill payment platform of Q-lipay links financial institutions and payment service providers (PSPs) to local utility companies as well as insurance, education and healthcare providers, and mobile wallet services across the globe. The sender saves on fees and controls how the money is spent, while the recipient no longer has to travel or wait to collect money or pay bills. Q-lipay promises real-time/near-time direct payments to service providers across a wide variety of emerging countries and offers multi-currency support.

www.qlipay.de

Digital Healthcare

The Proactive Pulse Pad

Real-time wireless monitoring
of vital signs

Forget the clutter and irritation of strap-on monitors, ECG electrodes and knots of cable. Just sit down and relax. The Berlin-based start-up Visseiro has come up with a simple, award-winning solution for monitoring key vital signs in real time: an ergonomically designed "smart pad" that can be used while seated through normal clothing, or even in a bed beneath a newborn baby. The contactless, radiation-free device safely, continuously and accurately monitors heart rate, heart rate variability, respiration rate, and respiration amplitude – and more vital signs are in the works. Whether in hospitals, care establishments or private homes, the comfortable, gel-filled device can immediately detect critical changes in vital signs and serve as a remotely-monitored, proactive alarm.

www.visseiro.com

Digitalization

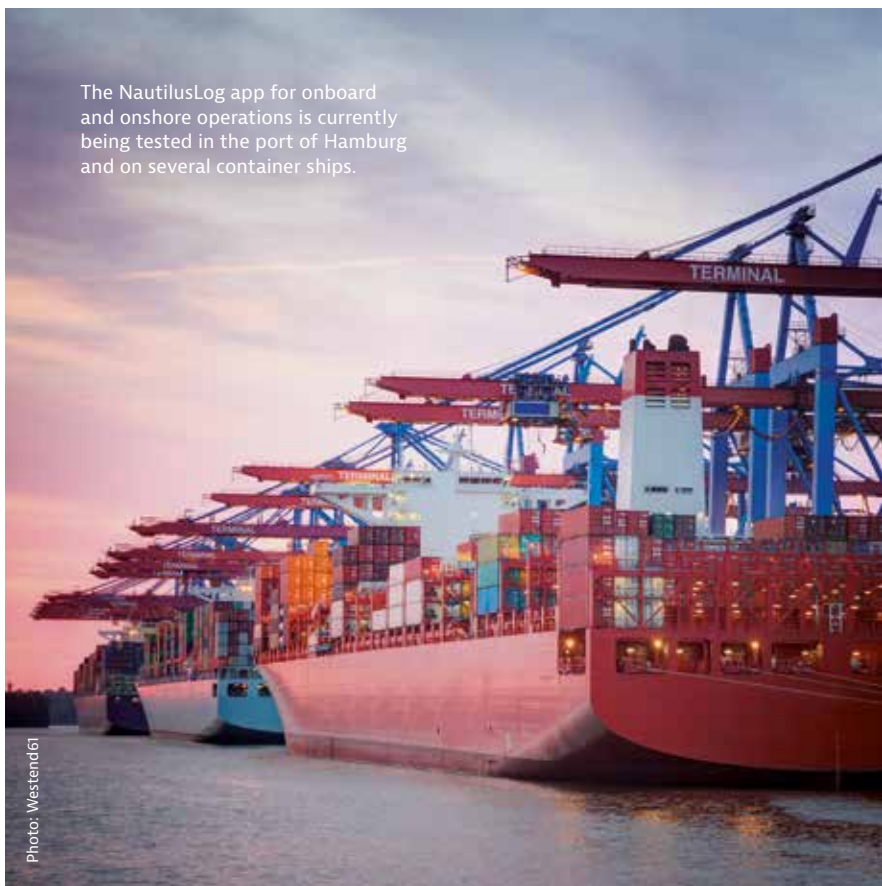
The Captain's App

E-logbook keeps ship & shore on same page

A Hamburg-based start-up is helping the shipping industry transition from hallowed tradition to cutting-edge technology. NautilusLog's new app allows captains to record crucial data – such as speed, course, position, cargo, weather info and daily events – on their smartphones and then store it in a cloud for simplified access and distribution. The app, which is currently being tested in the port of Hamburg and on several container ships, can also help the crew monitor their equipment and the condition of the vessel, stay abreast of their tasks and emissions, and maintain an inventory of any hazardous materials on board. Meanwhile, the app keeps external stakeholders on the shore up to date with progress reports and supports them in arranging port services such as inventories and inspections of ships, machinery, and safety equipment.

www.nautiluslog.com

The NautilusLog app for onboard and onshore operations is currently being tested in the port of Hamburg and on several container ships.



The Siemens Way

Siemens plans on investing up to EUR 600 million in its historic *Siemensstadt* (Siemens City) campus in Berlin. It is the largest single investment in the company's history and reflects Germany's strength as an innovation hub.

A new working and living environment is being created out of the old *Siemensstadt*, a historic industrial site in Berlin-Spandau. Entitled *Siemensstadt 2.0*, it is the electronics giant's largest development project ever.



More than a hundred years ago, Siemens purchased 200,000 square meters of land called the *Nonnenwiesen* between Berlin's Spandau and Charlottenburg districts. The company chose to site its manufacturing base there because of the ready supply of highly qualified workers – a decision that enabled its expansion through the 20th century and into the 21st. The firm's first factory opened on the site in 1899. Thirty years later the company built Europe's first high-rise factory, which manufactured switchgear products. By the end of World War II more than 11,000 people worked there. Now this industrial site is set to become an urban living and working quarter, funded by the largest single investment in Siemens' history.

€83bn

Total revenue generated
by Siemens in 2018

Source: Siemens

Over the next few years Siemens plans to invest up to EUR 600 million to convert the plant into a mixed-use development called *Siemensstadt* (Siemens City) 2.0. Commending Siemens' plans, Berlin Mayor Michael Müller says: "This commitment to Berlin will generate momentum for years to come. New jobs will be created, the city's status as a scientific center will be enhanced, and its infrastructure will be further developed." He adds that the project reflects how Berlin is becoming a so-called smart city, where "economic modernity and social responsibility go hand in hand and are being conceived, and lived."

Siemensstadt 2.0, which covers an area of 70 hectares, will not only function as a base for industrial production, research facilities, and start-ups but will also be a multi-use urban district, where work, research, living and learning are brought together. "We want to show what the future of work could look like," comments Cedrik Neike, a Siemens board



Cedrik Neike »Our German roots are of great importance.«

Berlin competes with tech cities all around the world. Cedrik Neike, member of the board of Siemens AG, discusses Berlin's perks and why talents should consider Germany over Silicon Valley.

Mr. Neike, what exactly are your plans in Berlin?

The basic idea is that we want to show what the future of work might look like. That's why we looked all around the world for possible locations and finally settled on Berlin. After all, Siemens was founded here 171 years ago. We want to create something new: an open campus where research, teaching, and production can take place.

What gave Berlin the edge over the other global locations you were considering?

We had enquiries from all over the world. In addition to our historical roots, the fact that we already have six plants and existing partnerships that we can expand here tipped the scales. Berlin is dynamic and inventive. A third of the start-ups in Germany are based in the city. Furthermore, we were looking for a tolerant and open-minded city because we want to create an open campus.

Many cities share those characteristics. Why choose Germany specifically?

The fourth industrial revolution, *Industrie 4.0*, and the *Energiewende* (energy transition) are already taking place in Europe. We want to combine research and production in one location. Also, our German roots are of great importance in an international context. When I travel in Asia, the perception of "Made in Germany" is very strong. We want to maintain this, strengthen it and develop it further on a new platform.

Is it easy to attract top talent for a job in Berlin?

Germany is quite strong in research, especially in mechanical engineering, energy and medical technology, in industrial automation and in mobility. However, many talented people are still drawn to Silicon Valley. We want to create an environment for them in Berlin in which they would like to do research and come up with big ideas.

member and initiator of the project. "Also, we wanted to combine research and production at one location." Joe Kaeser, CEO of Siemens AG, adds: "We want to lead the way in shaping *Industrie 4.0* in the socioeconomic environment. This environment includes a networked ecosystem with flexible working conditions, societal integration and affordable living space."

The decision to make this investment in Berlin was not an easy one, according to Siemens. The company also considered investing the money in China. "We had requests from all over the world," says Neike. There are two main reasons why Siemens ultimately chose Berlin. First, it is the birthplace of Siemens, and second, Berlin is widely perceived to have a bright future. Indeed, the company's decision to further invest in Berlin underlines the city's reputation for innovation – as well as that of Germany as a whole.

14%

Share of the German
market within Siemens'
total 2018 revenue

Source: Siemens

The next stage of the project will be the tendering process for the site's urban development, which is planned for late spring 2019. "We now have the exciting opportunity to plan a neighborhood with new buildings where people really enjoy being," Neike says. "On average, we spend more than 90 percent of our time in buildings. So we should make it as safe, enjoyable, and sustainable as possible." In the long term, Siemens wants to further develop key technologies such as decentralized energy systems, blockchain, *Industrie 4.0*, autonomous driving, and additive manufacturing at their new campus – to create a truly new model city.



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Computing's Super-Future

The European Commission has tasked itself with making Europe one of the leading locations for quantum computing. With its competitive research facilities and vast network of industrial partners, Germany is playing a key role in achieving that goal.

At the renowned Consumer Electronics Show in Las Vegas at the beginning of 2019, IBM unveiled a groundbreaking innovation: a quantum computing system that wasn't just for the scientific community but for commercial use too. The IBM Q System One applies the same approach to quantum computing that is used for regular computing systems and is comprised of a number of components that work together at a far greater speed. "A quantum is the smallest atom in existence," explains physicist Tommaso Calarco, director at the Peter Grünberg Institute. "Regular computers use bits as the smallest possible unit of information. Whereas bits can only take the values 0 and 1, so-called quantum bits can be both at the same time. Qubits can therefore hold much more information."

Quantum computers provide an answer to one of the main challenges in computing – the physical limits of regular computing power. For several years now, research facilities all over the world have been developing supercomputers that can operate at a far higher speed than regular systems. Quantum computing is ushering in the next generation of computing because the new systems are so much faster and have a greater computing power than even supercomputers.

Research facilities such as Forschungszentrum Jülich in North Rhine-Westphalia and Leibniz Supercomputing Center in Bavaria are driving developments in Germany. This not only strengthens the Federal Republic's position as a technology hotspot; it also adds to its attractiveness as a business location for foreign companies and overseas investors.

To push the development process forward, the European Union (E.U.) will invest EUR1 billion in quantum computer development over the next 10 years, and the German government will also contribute around EUR 650 million

to the research and development of quantum technologies during this legislative period. At Forschungszentrum Jülich, scientists are currently working on a 100-qubit computer that is scheduled to go into operation at the end of 2021. It is part of the European Commission's "Quantum Flagship" research initiative, which aims to take quantum technologies from the research lab into everyday applications.

Supercomputer for hire

In September 2018 scientists at Forschungszentrum Jülich put the JUWELS into operation, at the time the fastest supercomputer in Germany (at peak performance its power is equivalent to 60,000 regular computers). JUWELS is the result of a Franco-German cooperation between researchers from Forschungszentrum Jülich, Munich-based software company ParTex and French IT specialist Atos. It is mainly used by scientists to analyze large data volumes, for example, in climate research and neuroscience. Nevertheless, companies (including foreign companies located in the E.U.) can apply to use the supercomputer as well. Bosch, Siemens and Zeiss, for instance, have already shown interest in using JUWELS for research.

All those who apply for computing time have to submit to a peer review process and explain what they want to research and why

FACTS & FIGURES

€9.2bn

The sum the European Commission plans to invest in the first ever Digital Europe program to fund supercomputers, artificial intelligence, cyber security, digital skills, and wider use of these technologies.

Source: European Union

it can only be done with the help of a super-computer. The scientific community decides who qualifies and allocates the computing time. Calarco suggests that companies should partner with a research facility in order to be approved for JUWELS: “We definitely try to make it possible, especially for SMEs, but most of the computing time has to go to research.”

In the meantime, scientists at the Leibniz Supercomputing Center (LRZ) in Munich have developed a supercomputer that is even faster than JUWELS. The so-called SuperMUC-NG, which will be operational in the spring, has a computing power of 26.9 petaflops (a unit of computing speed equivalent to a quadrillion floating point operations per second or “FLOPS”). That makes it the eighth fastest computer in the world. Like JUWELS, it is government-financed, and it has cost EUR 96 million to date. “The development of

»Europe has recognized its shortcomings and is now investing heavily in super-computing.«

*Dorian Krause,
head of the High Performance
Computing Systems division at
Forschungszentrum Jülich*

a highly complex system like SuperMUC-NG requires close cooperation between manufacturers and operators such as the LRZ,” says its director Professor Dieter Kranzlmüller. “The supercomputer can be used in all areas of science, as well as by companies, if done in the context of a scientific cooperation.” Kranzlmüller and his team are currently looking into whether the LRZ is a suitable location for more in-depth quantum computing research. Meanwhile, the researchers at Forschungszentrum Jülich are working on ramping up JUWELS’s quantum system to create an even faster supercomputer that will raise the bar even higher.



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This is what a supercomputer looks like: the SuperMUC-NG occupies a large space at the Garching center, Bavaria. Following a visit from the state premier, this highly complex system is now officially operational.

Prepare for Takeoff

Electric flight is still in its infancy as an industry, but the technology is similar to that used in e-mobility and autonomous driving. Germany's SMEs will be the engine of innovation bringing us e-taxis and the unmanned flight solutions of tomorrow.



It's just the ideal time," says Florian Holzapfel, head of the Technical University Munich's Institute for Flight System Dynamics. "Three things are coming together: electric motors, autonomous control, and urban area mobility." If he were referring to driverless vehicles, this might sound like old news, but he is talking about electric flight and its emergence as an urban transport solution over the next decade. Within five years, Holzapfel believes, e-air taxis with an operator on board will be helping to ease road congestion. Californian company Kitty Hawk, for example, has already conducted extensive live tests for its self-flying taxis in New Zealand.

Over the last five years, some EUR 250 million of investment, much of it from China and the U.S., has poured into German small- and medium-sized enterprises (SMEs) working in e-flight. The engine of innovation

that is Germany's *Mittelstand* is developing a wide range of components for the aircraft.

E-flight hub near Munich

A cluster has sprung up in Bavaria, with several companies developing working prototypes. They include the U.S. company Lillium, which invested EUR 80 million last year, and China's AutoFlightX. There have already been some impressive results: one vehicle flew from Munich's main train station to the airport in seven minutes, while another was able to travel at speeds of 300km/h.

Much of the technology used in e-flying is generic, meaning Germany is well prepared. "Embedded, highly-reliable mini-computing power, communication systems and manufacturing technology are all areas crucial to electric flying," says Holzapfel. "Energy storage is also better now and diverse technologies such as hydrogen propulsion and hybrid propulsion systems are becoming possible. Everything is becoming safer and cheaper."

Everything is becoming safer and cheaper."

"There is a very high density of innovative tech companies in unmanned flying and urban e-mobility," he continues. Germany's *Mittelstand* will play a crucial role, as only they have the flexibility to react to the fast-changing conditions of an emerging industry. These SMEs offer numerous investment opportunities for companies looking to gain a foothold in this future-oriented business.

As Josef Kallo of the German Aerospace Center said recently, "Electric flying is definitely possible from a technological viewpoint – whether it will be implemented is a matter of investment."



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Google for Healthcare

Gunjan Bhardwaj chose Germany as the place to launch his advanced search and discovery solution. His company assists the healthcare industry by organizing and analyzing vast amounts of data using artificial intelligence.

Since its establishment in 2011, the highly specialized search and analysis engine Innoplexus has become a major player in the healthcare sector. Based in Eschborn, Germany, the company provides valuable information for pharmaceutical and biotechnology companies as well as researchers and doctors. By enabling users to access the most recent life science data much faster and more efficiently than previously possible, and by connecting all the different data points from structured and unstructured data, it also serves as a research and development accelerator, especially for pharmaceuticals.

Gunjan Bhardwaj, founder and CEO of the Innoplexus group, had always been interested in Germany as a business location. After graduating from the Indian Institute of Technology (IIT) in Mumbai in 2005, he had the chance to travel to Germany on a German Academic Exchange Service (DAAD) scholarship. He attended Pforzheim University of Applied Sciences in Baden-Württemberg before moving to the consultancy firm EY in Stuttgart, where he headed up a global performance think tank.

Organizing data for life science

Innoplexus grew out of Bhardwaj's efforts to find specific medical information after a friend had been diagnosed with cancer. Using artificial intelligence (AI), machine learning and blockchain-based analytics, the search system can track, assess, organize, connect

LIFE SCIENCE TECHNOLOGY

Organizing engine



As a student at the Indian Institute of Technology, Gunjan Bhardwaj dreamed of launching a company in Germany.

€8m

Estimated 2019 revenue derived primarily from healthcare

300+

Number of employees across Innoplexus facilities (Germany, India, U.S.)

97%

of all public life science information covered is covered by the iPlexus engine.

and analyze all the available information on specific diseases and therapies worldwide. "Innoplexus crawls and aggregates the entire published and unpublished digital universe in life science in real time and provides continuous analytics to pharmaceutical companies, research centers, hospitals and, hopefully very soon, patients," explains Bhardwaj in an article on entrepreneur.com. The problem is not the availability of data in healthcare but the fact it is often unstructured and disordered, which is a "huge problem in drug discovery," he tells *The Pharma Letter*. That, he says, hampers research and creates inefficiency.

AI-based global search solutions

Expanding on the need for such a platform at a TED talk in Darmstadt last year, Bhardwaj pointed out that by 2020, medical knowledge was expected to double every 73 days at the present rate, meaning that medical data at the beginning of 2020 would increase more than 32 times by the end of that year.

The next step for Innoplexus, which also has offices in the U.S. and India, is to expand the use of its technology and introduce it into other industries with the overarching goal of becoming a leading provider of AI analytics solutions. This year Bhardwaj is planning to branch out into the banking and financial sector with a comparable product.



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Ten Years of GTAI

In 2009 the agency was established by merging three state-financed institutions: Invest in Germany, BFAI (Federal Agency for Foreign Trade), and GfAI (Agency for Foreign Trade Information). Since then, the Invest Division of GTAI has promoted Germany as a premium location for business, investment, and technology. It helps foreign companies that want to expand their business to the German market.

Over the past 10 years, GTAI has supported several thousand projects, helped foreign investors to set up shop in Germany, and contributed greatly to the positive development and further internationalization of the German economy in general, and the creation of new businesses and jobs specifically.

Over 50 industry experts working in the Invest Division at GTAI's Berlin headquarters and in 14 other cities around the world are dedicated to supporting potential investors. → *see map* Markets Germany celebrates this 10th anniversary with the publication of some important statistics about investments in Germany and the most exciting investment projects of GTAI so far.

Our regional experts are always on hand to support and advise potential investors now and in the future. We cordially invite you to get in touch.



★ Locations of regional GTAI experts; North Pole centered Map.



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FACTS & FIGURES

Growth in foreign direct investment

€534bn

Value of FDI stocks in Germany in 2017. FDI has risen by 39% over the last seven years.¹⁾

51%

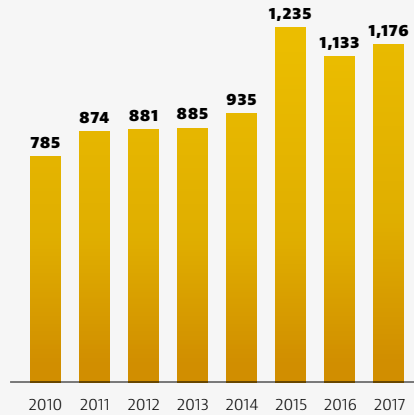
Share of FDI projects in Germany originating from Western Europe. The U.S. is the next biggest investor.²⁾

70,000

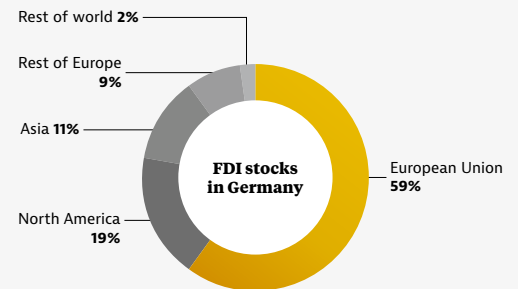
Number of foreign companies operating in Germany. Many have been advised and assisted by GTAI.³⁾

FDI projects in Germany and institutional FDI statistics

Number of projects in Germany (2010–2017)²⁾

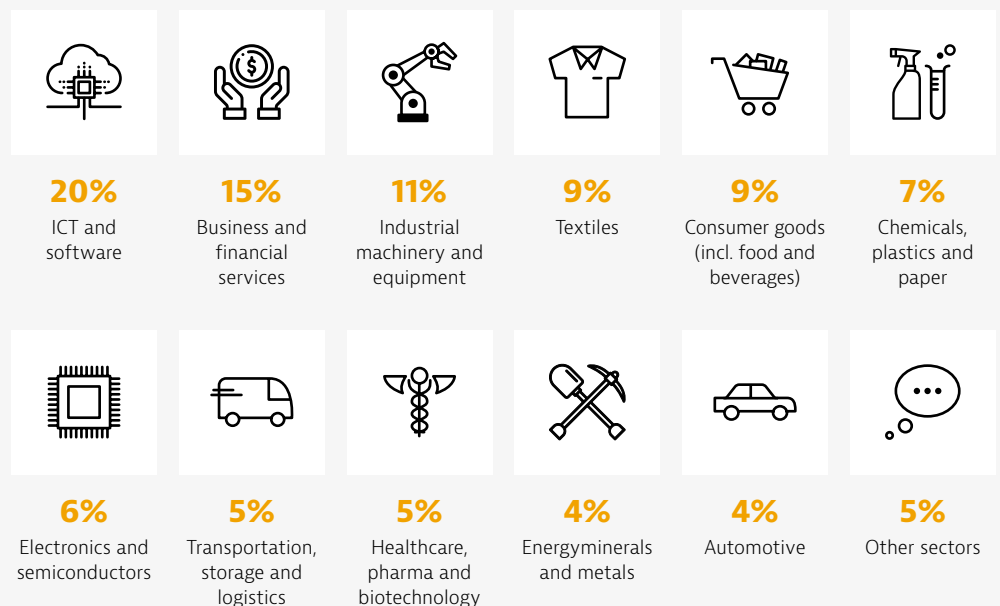


Origin of investors by world region (2017)¹⁾



FDI projects in Germany

Percentage of projects in Germany by sector (2010–2017)²⁾



Best of the Decade

Markets Germany asked the four industrial divisions of Germany Trade & Invest to name their most significant or interesting investment case studies over the past 10 years.

Energy Division

The German-Swiss software start-up **enersis suisse AG** from Bern opened a new location in Kleinmachnow, near Berlin, in 2015 – enersis europe GmbH. The company first made contact with Germany Trade & Invest in 2013, who advised them on the move. The Brandenburg Economic Development Corporation (WFBB) also provided support on site over the following years.

The company specializes in visual energy analytics and has positioned itself to make a substantial contribution to a successful digital energy transition by targeting utilities, DSOs, and municipalities. Its energy-specific software platform GRIDS applies a state-of-the-art proprietary data model as well analytics, machine learning, and visualization technologies and is compatible with major Internet of Things platforms in the field. Enersis plans to invest up to EUR 10 million by 2020/21 and hire 50-60 employees in sales, operations and development in Kleinmachnow.



Photo: enersis suisse AG



Photo: Bloomberg/Kontributor

Mechanical & Electronic Technologies Division

In 2018 one of the world's leading battery cell manufacturers, the Chinese company **Contemporary Amperex Technology Ltd. (CATL)**, decided to construct its first factory outside China at the Erfurter Kreuz industrial estate in Thuringia, Germany. The planned EUR 240 million investment, which will provide employment for 1,000 people, could ultimately turn out to be even bigger: the company recently announced that the original plan for 14 gigawatt hours (GWh) of capacity at the factory could be extended to 100 GWh by 2025.

GTAI industry expert Markus Hempel initiated the contact with CATL while working as the director of GTAI's Shanghai office in China. GTAI offered the company several location options in Germany, providing extensive information on critical factors affecting the location choice. CATL compared these with offers from other European countries and opted for a base in eastern Germany. The Economic Development Agency of Thuringia (LEG Thuringen) supported the investment on site.

Ultimately, Germany was chosen for a number of reasons: the availability of qualified workers, the legally secure investment framework, the well-developed infrastructure and proximity to customers and, finally, the country's political and economic policy, which supports more energy-efficient cell production.

Chemicals & Healthcare Division

Teva Pharmaceutical Industries Ltd. is an Israeli multinational pharmaceutical company and the largest generic drug manufacturer in the world.

In 2015 GTAI was contacted by a U.S. consulting company hired to identify an ideal production site for biopharmaceuticals. Working closely with local economic development agencies, GTAI supplied a vast amount of data for suitable sites across Germany. The decision in favor of a location in Germany – Ulm, Baden-Württemberg – was finally made about a year later.

The EUR 500 million production facility is currently under construction and will employ 300 new staff. On a recent visit, Kåre Schultz, president and CEO of Teva Pharmaceuticals, said: “One of our strategic goals is to become a global leader in biopharmaceuticals. Teva’s German location has an important strategic role to play in the future.”



Consumer Industries Division

Tadim, the leading Turkish packaged nuts and dried fruits brand made its first contact with Germany Trade & Invest in 2013. They decided to set up a production facility in Emsdetten, North-Rhine Westphalia, one year later. Since then the family-run firm (which is based in Gebze) has invested around EUR 7 million in the plant, which exports to Europe, the U.S., and Canada. In just two years, annual sales have reached EUR 12 million.

In 2017 Tadim announced it was investing an additional EUR 12 million to build a bigger production hall and office complex to boost output and increase its presence on European shelves. It takes unprocessed goods bought directly from the producer, processes them in a production line featuring state-of-the-art machinery without human contact, then packs and delivers them to the consumer at their freshest.

Germany's Unicorns Riding High

The hype around Germany's tech scene is turning into reality, as the investment data from 2018 shows. With a sharp spike in mega-round investments, an increase in funding from overseas and a new generation of unicorns, the future is looking bright.

Berlin is home to over half of the technology companies Dealroom has identified as "future unicorns." Unicorns are companies valued at over USD 1 billion.



Investment in German start-ups is at an all-time high with a total of EUR 4.4 billion invested in 2018 (compared to EUR 3.2 billion in 2017), according to the global company-growth database Dealroom. The rise is largely driven by a dramatic increase of mega-rounds into “Growth Equity” and “Series A” German companies (investments of EUR 87 million plus). The latest data shows that Germany – which overtook France in 2016 to become the No.2 tech hub in Europe after the U.K. – is significantly improving its position in the start-up solar system.

So, what are the factors driving growth? Firstly, Seed and Series A funding rounds in Germany are bigger than in the U.K., France or the rest of Europe – an indicator of future success and perhaps a shifting center of gravity to mainland Europe. Set against the background of a general bias toward early-stage investment in Europe and the strength of its start-up scene as a whole (Europe saw nearly double the number of IPOs than the U.S. in 2017), the German sector is thriving.

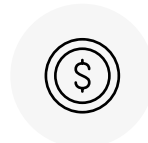
Germany's future unicorns

One example is the performance of Germany's tech unicorns since the mid-2000s (companies valued at over USD 1 billion, which now include Omio, N26, NuCom, and Celonis): over a third of them (nine) became unicorns in 2018 alone. While the U.K. is still the premier breeding ground for unicorns (it has 60 compared to Germany's 28), there is room for growth. Brexit has already destabilized the U.K.'s dominance in the sector and Europe's upcoming tech hubs of Berlin, Paris, Zug, and Munich are ready to pick up the slack.

Berlin, for example, is home to over half of the companies Dealroom has identified as “future unicorns.” Senior analyst Lotf Belych explains the reasons why: “The success of German unicorns is driven mainly by a well-connected ecosystem of talent and start-up enablers, along with the rapidly-growing list of their international customer base, especially for the tech unicorns (Celonis, BioN-Tech). This increases the investors' appetite for global expansion.”

FACTS & FIGURES

Capital crunch on German start-ups



€4.4bn
Total investment in German start-ups in 2018



€1.8bn
Total investment in German start-ups from the U.S. and Asia in 2018



€1.7bn
Value of mega-rounds (over \$100m) in 2018 (more than double 2017)



€106bn
Combined value of Germany's 28 unicorns created since 2000

German start-up characteristics

Deutscher Startup Monitor interviewed 1,550 start-ups in 2018, providing insight into the character of German entrepreneurship.

51.8%

raised external capital in 2018

31.6%

classified themselves as ICT

60%

say AI has or will influence business models

32%

consider themselves part of the green economy and/or social entrepreneurship

15.1%

have a female founder (increasing year on year)

Source: Dealroom.co, Deutscher Startup Monitor (DSM) 2018

Another key driver is the marked increase in foreign direct investment (FDI) into Germany over the past year: investment from the U.S. and Asia alone was EUR 1.8 billion in 2018 compared to EUR 0.4 billion in 2016. Insight, Sequoia, Goldman Sachs, and Rakuten are some of 2018's highest profile investors, while South Africa's Naspers made a significant single investment. So why does Germany remain attractive when intercontinental FDI is slowing down around the world – a mega-trend which has been labelled “Slowbalization?” Achim Hartig, head of investor recruitment at Germany Trade & Invest, has some ideas: “The stability of the political system is a cornerstone of the E.U. as a free market and facilitates trade and investment worldwide,” he says. “The German government supports SMEs developing innovative products, services, technologies and processes. Start-ups in Germany are cooperating with traditional companies. As a result, we are attracting more international start-ups.”

Europe strong on sustainability

Dealroom has identified FinTech, mobility, and deep tech as Germany's principle investment growth areas, but the Digital Hub Initiative is fostering innovation in a number of specialist fields. The *Deutscher Startup Monitor 2018* found that, besides digitalization, sustainability and ethical business practices were high on the priority list for start-ups.

Florian Nöll, chairman of the board of the German Startups Association, believes European and especially German start-ups have an opportunity to change the game: “There are many topics out there that the big [U.S.] tech companies haven't addressed sufficiently like transparency and sustainability. This is a big opportunity for European start-ups, many of which solve current and future problems, and we need to spread the word. If we can do that, the future tech giants will be based in Paris, Warsaw, Berlin and Lisbon.”



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Deals Down Under

Heiko Stumpf has been in charge of the Germany Trade & Invest (GTAI) office in Sydney, Australia since August 2018. *Markets Germany* talked to him about his experiences so far "Down Under."

You have been with GTAI in Sydney for 10 months. What are your impressions of the city and Australia?

HEIKO STUMPF: I find the friendliness and open-mindedness of the Australians especially pleasant. The social hierarchies are rather flat, which also means that people are more approachable in business circles. Widespread optimism is also apparent. The country has not experienced a recession for 27 years, meaning young people have never known crisis periods. The country's population is growing rapidly due to immigration from all over the world. As a result, Sydney is a vibrant multicultural melting pot. Australians are also quick to adopt technical innovations, making the country an interesting test market.

What image do Australians have of Germany? Is "Made in Germany" recognized as a mark of quality? Are Australian investors interested in Germany?

STUMPF: Germany is perceived very positively here. Australians, like New Zealanders, are very fond of traveling, and many take long trips to Europe in their youth. So it is not unusual to meet people with personal connections to Germany. German quality standards are highly regarded. Australians particularly appreciate the reliability of German products as well as the good after-sales service. On the other hand, Australian companies are also interested in Germany. As the Australian market is comparatively small, with a population of 25 million people, companies often seek



»Germany is perceived very positively here.«

In addition to attracting investors to Germany, Heiko Stumpf also provides German companies with information about business opportunities in Australia and New Zealand. He previously worked for GTAI in southern Africa for six years. From 2008 to 2012 he assisted foreign investors with legal issues in Berlin.

out growth opportunities overseas. Interest in Germany should continue to increase in the coming years if the free trade agreement currently being negotiated between Australia and the European Union (E.U.) is successfully concluded.

Which industrial sectors are thriving in Australia and New Zealand and are seen as offering significant investment opportunities by GTAI?

STUMPF: Both Australia and New Zealand have a very good research environment, which has spurred the development of innovative medical-technology companies. Germany, the largest European healthcare market, offers them many opportunities. Companies like Cochlear (Australia), Resmed (Australia) or Fischer & Paykel (New Zealand) are already

active in Germany. The IT sector is also booming. Australia also has a thriving start-up scene with some 1,500 companies evolving around numerous supporting institutions, such as the Sydney Startup Hub. These hubs are focused on important areas, including artificial intelligence, agricultural technology and FinTech. Moreover, New Zealand's technology sector is booming: the country's 200 largest tech companies increased their sales by 11 percent between 2017 and 2018.

GTAI works closely with the AHK in Sydney. How does this cooperation benefit investors?

STUMPF: GTAI and AHK share information, and their services complement each other well. For example, local companies interested in the German market can take advantage of delegation trips or a business partner placement organized by AHK. Meanwhile, if a concrete opportunity arises in Germany, GTAI can help with finding a location and provide information about possible subsidies.



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Sum of its Parts

A new economic report shows that Germany's decentralized economy is one of its greatest strengths. Mario Ohoven, president of the German Association for Small and Medium-sized Businesses, explains how fragmentation has led to greater prosperity.



»Decentralization is the magic word.«

Mario Ohoven, president of the German Association for Small and Medium-sized Businesses

I **mag**ine Great Britain without London, France without Paris or Austria without Vienna. Of course, a nation is more than its capital, but many European capitals are also the political and economic centers of their country, far exceeding other cities in prosperity and power.

A study conducted by the German Economic Institute calculated how much per capita income would decrease in each European country if its capital were removed from the equation. The result: Austria's per capita income would be six percent lower, Great Britain without London would be down by 11 percent, and prosperity in France would decline by 15 percent. Germany represents an anomaly. If Berlin were excluded from the sum of gross domestic product (GDP) per inhabitant, its GDP would be 0.2 percent higher. This is down in part to the city's history. But it also shows, above all, that the economic strength of our country is not based on a single region. From an economic perspective, Berlin is one urban area among many in the Federal Republic, and not the most important.

Distributed prosperity

In addition to booming exports, a high employment rate and its innovative *Mittelstand*

VAUDE is one of Germany's "hidden champions" – a family-run business from the provinces which enjoys success on the global stage. The renowned manufacturer of mountaineering equipment and mountain sports gear has its headquarters in the tranquil setting of Tettang-Obereisenbach (population 19,000) in Baden-Württemberg.



(SMEs), Germany's fragmentation is a major contributor to its economic success. Decentralization has prevented the emergence of a prosperity gap within the nation. Almost every state has at least one area of high economic and entrepreneurial productivity. The heart of the maritime industry beats in northern Germany, big IT and high-tech companies have settled in and around Munich, and a dynamic start-up scene is booming in Berlin. In the eastern states, too, a highly innovative *Mittelstand* has developed since Germany's reunification.

Two thirds of Germany's SMEs and at least half of its 2,700 "hidden champions" (our world-leading SMEs) are based outside

the urban areas. For example, *BHS Corrugated Maschinen- und Anlagenbau*, the world's largest supplier of solutions for the corrugated board industry, is located in Weiherhammer in Upper Palatinate, a town with less than 4,000 inhabitants. In the age of digitalization, location is not as important as it was 20 years ago. The prerequisite for success is optimal infrastructure, beginning with transport connections and extending to a super-fast broadband connection. And this continues to be a huge problem in Germany. Politicians must support the *Mittelstand* through investment-friendly framework conditions, so that success can continue to be achieved in decentralized way.

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