

INDUSTRY OVERVIEW

The Chemical Industry in Germany

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ISSUE 2021

Germany – Global Chemical Industry Heavyweight

“The investment in Germany is an integral part of our global strategy for our adhesives and sealants. Due to the highly qualified workers and efficient cost structure, on top of Germany’s leading position in the field of automotive expertise, Germany was the clear choice for our new production, European headquarters and R&D activities.”

Yoshihiro Nakata
Managing Director | Sunstar Engineering Europe GmbH

27%

of total chemical industry revenue in EU-28 generated by German companies

4.8%

average chemical revenue growth rate during the 60-year period 1960 to 2020

14%

reduction in energy consumption between 1990 and 2017 with 69% output increase

EUR 31.6 bn

German export surplus in 2019 – 5.7% more than in the previous year

EUR 4.4 bn

R&D spending (excluding pharmaceuticals) by German chemical companies in 2019

1/7

of chemical patents registered at the European Patent Office are made by German companies

Germany’s chemical industry is leading in Europe. The industry employs a highly trained workforce of 346 thousand people. Businesses and research institutes involved in the sector invest substantially in research and development activities. This makes the industry a driving force for innovation.

By developing new materials and high-performance chemicals and plastics, the chemical industry sets the benchmarks for advancing state-of-the-art technologies. This creates benefits for a number of different fields such as energy efficiency and storage and e-mobility.

Many leading international chemical companies choose to locate in Germany. They are attracted to Germany because of its excellent research landscape, state-of-the-art logistics, and world-class infrastructure.

Germany’s central geographical location at the heart of Europe provides a further decisive advantage, giving access to a market of around 450 million customers in the European Union.

Germany's Chemical Industry in Numbers

The Global Chemicals Market

The global chemicals market is in excellent shape. This is reflected primarily in the huge increase in global revenue from EUR 2,551 billion to EUR 3,669 billion during the decade 2009 to 2019 (equivalent to an average annual growth rate of almost 3.7 percent). Seen from this perspective, the global chemical industry appears not to have been adversely affected by the financial crisis of 2008. Chemical companies worldwide have in fact been recording growing revenue and profit levels – as well as mostly double-digit operating margins – since 2010. This development has been reinforced by the low-interest rate policies of the most influential central banks globally. Excellent credit ratings have allowed companies to refinance at lower interest rates and take out new loans more easily. This strategy has been used by a number of chemical companies to sharpen their portfolios through mergers and acquisitions (M&A) transactions and equity investments.

Germany: World Number Four

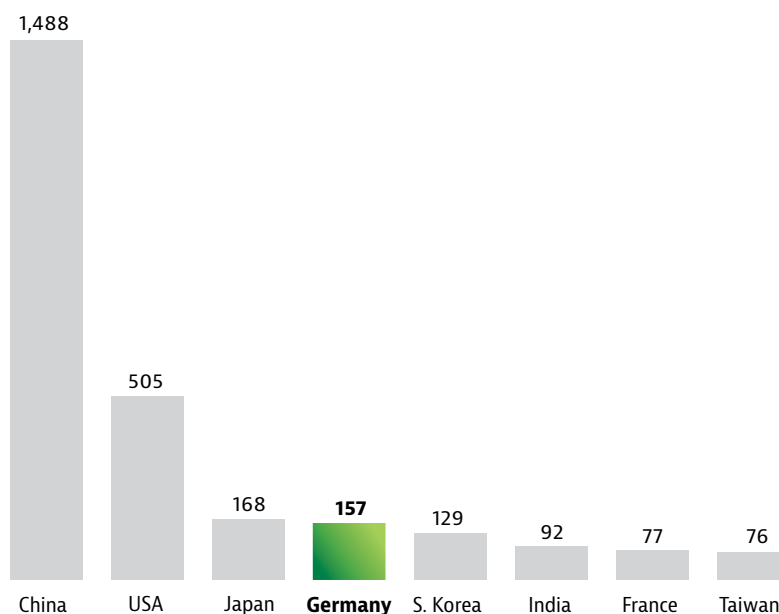
The balance of power in the global industry has shifted. The chemical industry in China – with revenue of EUR 1,448 billion and a global share of about 40 percent – was the biggest market in 2019, followed by the US (EUR 505 billion), Japan (EUR 168 billion), and Germany (EUR 157 billion). The Chinese chemical market is bigger than the EU-28 and North American markets combined (accounting for almost 16 percent of the international market each); this being due to incredible sales growth averaging around 11 percent annually during the period 2009 to 2019.

Europe's Chemicals Leader

The German Chemical Industry Association (VCI) reported that Germany accounted for 27 percent of the EUR 578 billion in sales in the total European market in 2019, thereby maintaining the lion's share of revenue. Europe's share of the global chemicals market has dropped from 29 percent to 16 percent over the past two decades. However, thanks to an increase in the size of the global market, this 13 percentage point decline actually describes growth from EUR 402 billion to EUR 578 billion in the period 1999 to 2019 – equivalent to a compound annual growth rate (CAGR) of around 1.8 percent.

Global Chemical Industry Revenue 2019

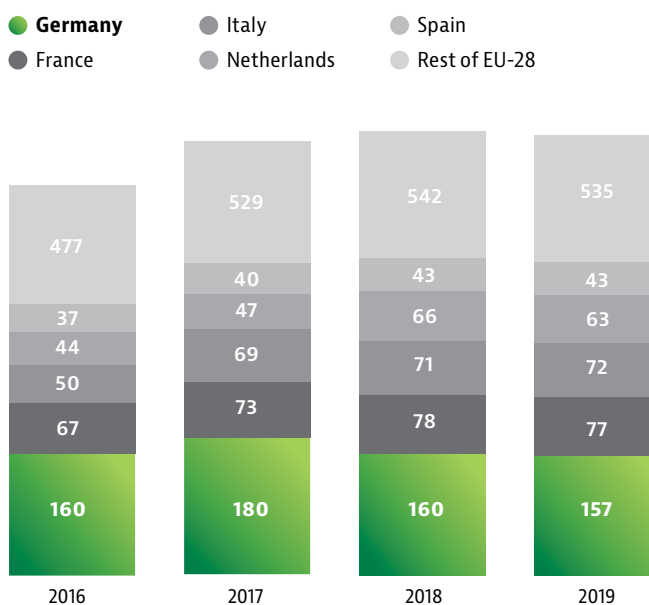
in EUR billion



Source: German Chemical Industry Association (VCI) 2020

European (EU-28) Chemical Industry Revenue

in EUR billion

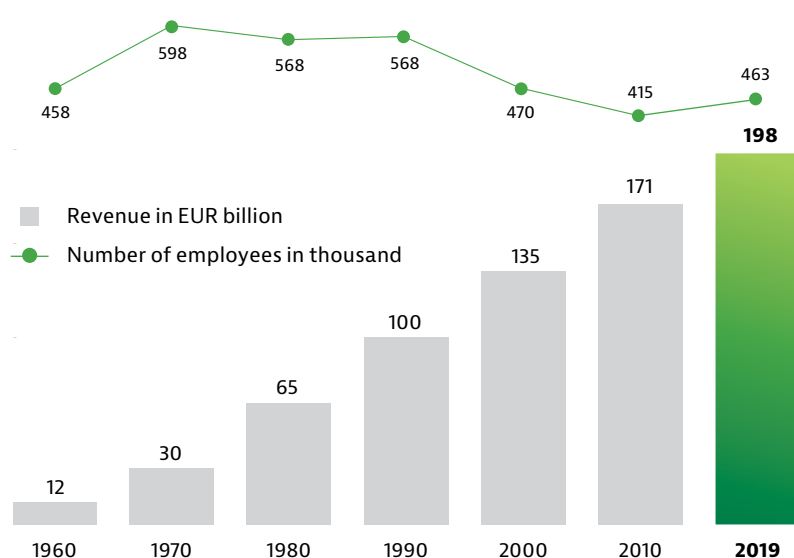


Source: VCI 2020

Growth Market Germany

During the period 1960 to 2019, chemical and pharmaceutical industry revenue in Germany increased from EUR 12 billion to EUR 198 billion – resulting in an average nominal growth rate of 4.9 percent per year (real growth rate: 3.8 percent per annum). Over the same period, the number of employees has fluctuated but today, at 463,000, it is about the same as it was in 1960 – increasing productivity sixteenfold as indicated by revenue per employee levels of around EUR 428,000 in 2019.

German Chemical Industry Revenue and Employee Development



Sources: Revenue and Number of employees: VCI; 1995 and 2008 new statistical classification; from 1991 on: 16 federal states; 1998 and 2003 new regional classification; Employees: from 2007 on month of reference September of each year; Rate of Inflation: Federal Statistical Office.

Optimized Efficiency

Improved performance through increased productivity has led to an increase in revenues. It also serves as a guarantor for the continued existence of a successful and thriving chemical industry in Europe. Alongside the streamlined workforce, the shape of the production landscape has slowly altered due to the increased migration of the low-margin and high-volume petrochemical and parts of the basic chemical sectors out of Europe. As a result of this consolidation, chemical companies are increasingly focusing their activities in the high-tech and high-margin specialty and fine chemicals segments. Surprisingly, the German chemical company picture remains largely unchanged.

Stable SME Environment

There were about 2,900 chemical companies in Germany in 2018, of which 96 percent were small and medium-sized enterprises (SMEs) with less than 500 employees. The country's globally renowned and highly innovative *Mittelstand* makes up the backbone of the chemical industry and generates around 30 percent of revenue with approximately 40 percent of the workforce.

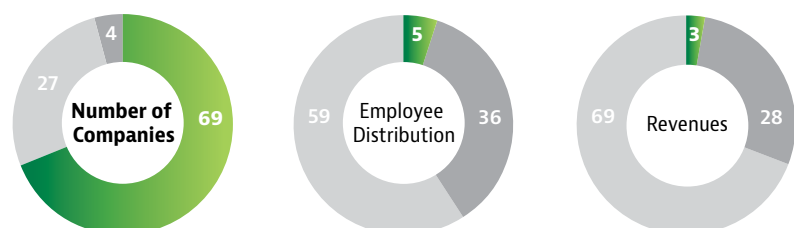
Major International Players

World-class company performance is imperative in the face of numerous global challenges. German companies have long been at the forefront in developing innovations and trends and continue to consolidate their global prominence. The country's top producers account for many globally active chemical companies such as BASF, Bayer, Henkel, Evonik, Covestro, Merck, Lanxess, Freudenberg, Wacker, and Altana.

German Chemical Company Structure 2019

in percent

- companies with 1-49 employees
- companies with 50-499 employees
- companies with >500 employees



Source: VCI 2020

Healthy Growth

Since the economic downturn in 2009, German chemical companies have continually improved their financial results. Almost all of the above-listed companies have growing sales numbers, double-digit earnings before interest and tax (EBIT) margins and consistently positive net margins. Their economic strength has also been reflected in a healthy dividend policy. Shareholders have received dividend payouts despite significant investments being made in production facilities, debt repayment and M&A activities. Dividend distribution rates have risen steadily since 2010, bearing comparison with the large stock indexes (e.g. DAX and S&P 500).

Europe's Manufacturing Hub

With around 10 percent of total manufacturing industry revenue in 2019, the chemical industry is the third-largest industrial sector in Germany after the automotive, mechanical and engineering sectors. The attractiveness of Germany as a production location for the chemical industry is based on specific strengths of innovation, productivity and resource efficiency. In the latter respect, Germany's chemical companies were able to reduce their energy needs by 14 percent between 1990 and 2017 – with output over the same period increasing by almost 70 percent. A 40 percent growth in output – based on an absolute energy consumption increase of just eight percent – will be recorded by 2030 should this development continue over the next decade.

Basic Chemical Production Constant

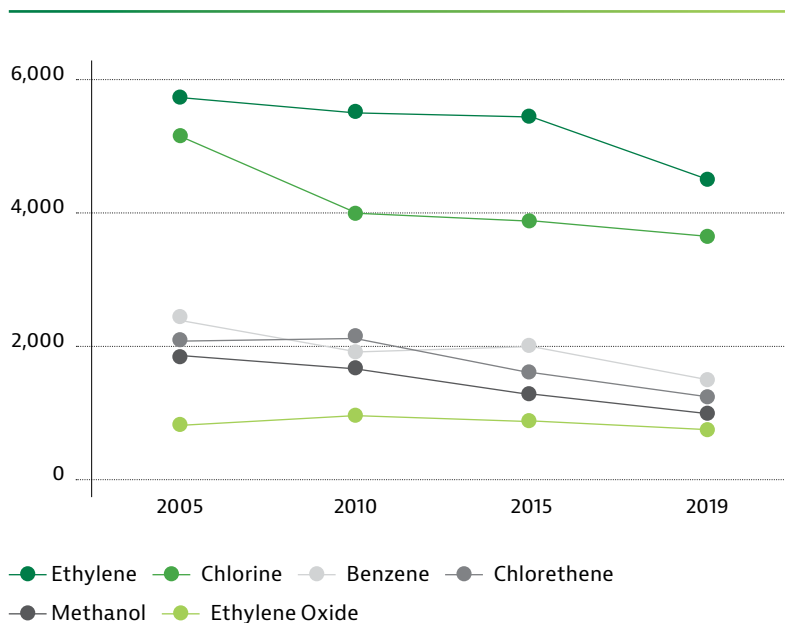
Production output of basic chemicals – including benzene, chlorine, and ethylene – has slightly declined since 2005. However, increased investment activity can be seen since the economic downturn in 2009. Contrary to popular belief, much of the investment is taking place in basic chemicals. The main drive for these investments is ensuring the global competitiveness of the respective facilities – which is why so many of the investments involve bringing the technology up to date. Equally, the attractiveness of the market defies the supposedly high energy costs, which can be deduced from the not insignificant amounts invested in chlor-alkali electrolysis, reflected by the almost constant production of chlorine at around 4,000 tons per year.

Stable Market Segments

As with the chemical industry itself, the sector's client industries have consolidated and strengthened the domestic market after the financial crisis. This can be best observed by the fact that the individual segments within the chemical industry have remained almost constant since 2010. As a result, fine and specialty as well as basic chemicals continue to constitute the backbone of the German chemical production market. It can be seen that German chemical companies in particular have developed their downstream activities. Downstream products are to be found at the end of the chemical value chain, generally being branded products sold to industrial consumers.

Basic Chemical Production Volume in Germany

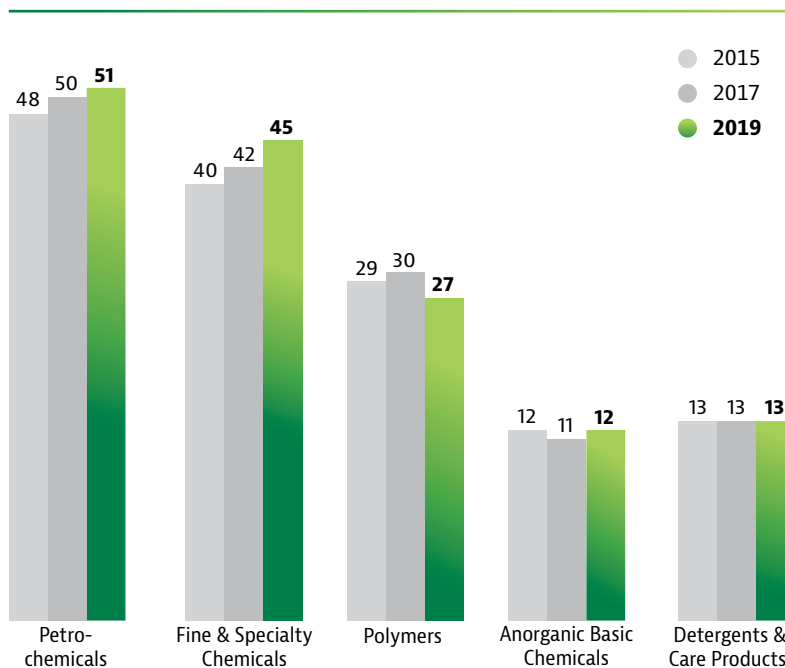
in tons



Source: VCI 2001-2020

Chemical Industry Market Segmentation by Revenues

in EUR billion



Source: VCI 2014-2020

European Export and Business Hub

Trading chemicals around the world promotes competition, develops new markets and stimulates production efficiency. The EU chemical industry in particular benefits from its historical export strength; registered by a solid recovery after the 2008 economic crisis and a record net trade surplus of around EUR 45 billion in 2018 – down by around 3 billion compared to 2017. A number of European countries belong to the world's leading export nations. They, like Germany, have maintained their strong position in recent years, whereby Germany accounts for around 70 percent of the EU export market.



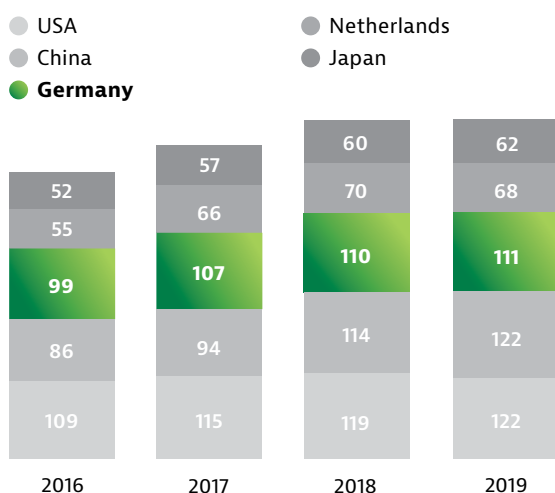
Germany is the world number three for chemical product exports.

Germany – Strong Export Market

In 2019, Germany was the world's third largest exporter of chemical products – with a value of EUR 111 billion and global market share of 9.1 percent (being surpassed only by the US and China). While export levels have remained constant amongst most exporting countries, China alone records growth, albeit at a level significantly behind sales growth. This is a clear indicator that China is still a net chemical importer. Emerging countries such as China and India have benefited more than industrial countries. Export values have increased substantially in China (2.8 times bigger in value in 2017 compared to 10 years ago), and India (2.2 times higher during the same period).

Top 6 Worldwide Chemical Industry Exports by Country

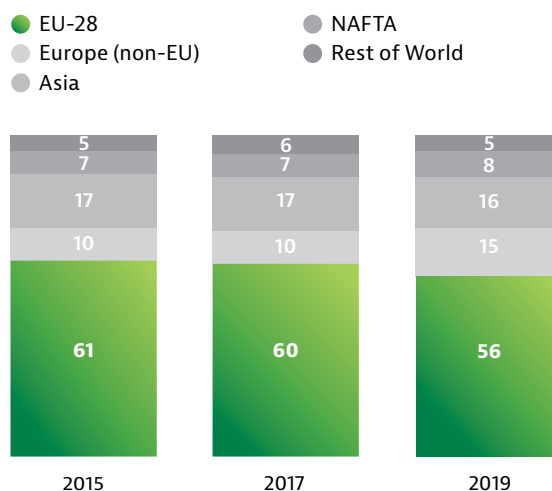
in EUR billion



Source: VCI 2017-2020

German Chemical Industry Exports by Destination

in percent



Source: VCI 2016-2020

Europe – Germany's Main Chemicals Customer

Germany's chemical industry exports around the globe. In 2019, more than 70 percent of German exports remained within Europe, while 16 percent and 8 percent were exported to Asia and North America (NAFTA) respectively. The four largest export countries were EU-28 countries: France (EUR 9.5 billion), the Netherlands (EUR 8.9 billion), Italy (EUR 7.6 billion), and Belgium (EUR 7.0 billion). By far the most important export countries outside Europe are the US (EUR 7.6 billion) and China (EUR 5.9 billion).

International Chemicals Business Hub

Germany is home to a number of the world's most prestigious chemicals, plastics and rubber industry trade fairs, making Germany an internationally leading chemicals business hub. As well as providing excellent business opportunities, visitors also have the chance to learn more about the latest-state-of-the-art innovations and developments in the sector. Important shows include:

- European Coatings Show, Nuremberg (biennial)
- Analytica, Munich (biennial)
- ACHEMA, Frankfurt (triennial)
- K, Düsseldorf (triennial)
- Composites Europe (annual)

Reliable Workforce

According to the IMD World Competitiveness Yearbook 2018, German employee motivation levels are greater than those of their counterparts in China, Russia, Poland, France, and the US. This can be derived from the fact that Germans work more than their international peers (40.3 hours per week) and lose less days per annum to industrial action than other market-determining European nations. There were a total of 15 strike days per thousand employees in the period between 2000 and 2018. This small number of days lost means that Germany experienced just one third and around one eighth of outages in Finland and France respectively during the same period. The high level of workforce satisfaction is also borne out by the fact that the last strike action in the German chemical industry took place in 1971. This also reflects the good cooperation between the IG BCE trade union and companies in the sector.

Stable Labor Costs

The labor cost gap between Germany and its eastern European neighbors has been significantly reduced. Since 2010, wages have risen in most European countries (EU-28) with a growth rate averaging 2.3 percent. While some countries – particularly those in Eastern Europe – experienced a rise of up to five percent, Germany recorded one of the lowest labor cost growth rates at just about two percent.

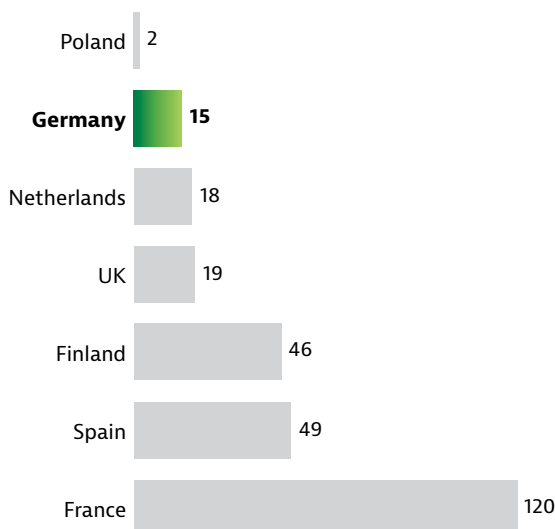
Academic Excellence

The chemicals industry has responded to the growing pressure to be innovative by significantly increasing the number of academics in the overall workforce over the past few decades. Today, nearly every seventh employee has an academic background – compared to less than one in 10 in the 1980s and around one in eight employees in the 1990s.

Germany's excellent university training provides the basis for the development of future-proof and innovative new products in the chemicals industry. A decline in the general population notwithstanding, the number of students embarking on chemistry studies has steadily increased. Germany has the highest share of university students in the sciences, mathematics, computer sciences, and engineering in the EU (36 percent of all students), where the number of new chemistry students has increased from around 5,000 in 2009 to 5,700 in 2019. The number of doctoral students has risen

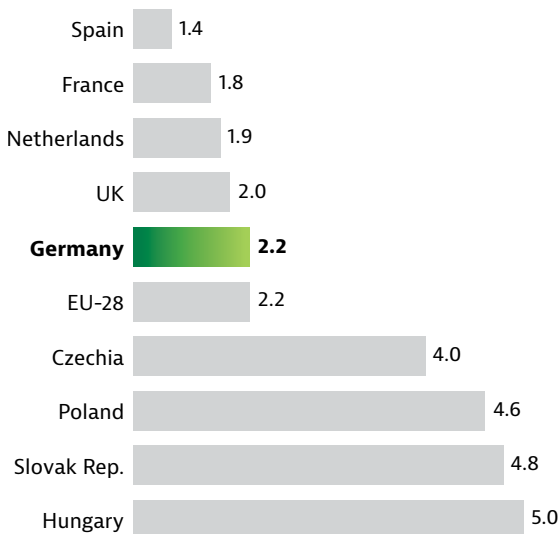
from 6,400 to 9,400 during the same period. Similarly, the number of doctoral graduates available to the industry each year swings around the 2,000 mark since 2006.

Days not Worked due to Industrial Action per 1,000 Employees 2001-2018



Source: ETUI 2020

Labor Cost Growth in Manufacturing 2007-2017



Note: Annual average growth in percent
Source: Eurostat 2019

Germany's Research Strategy

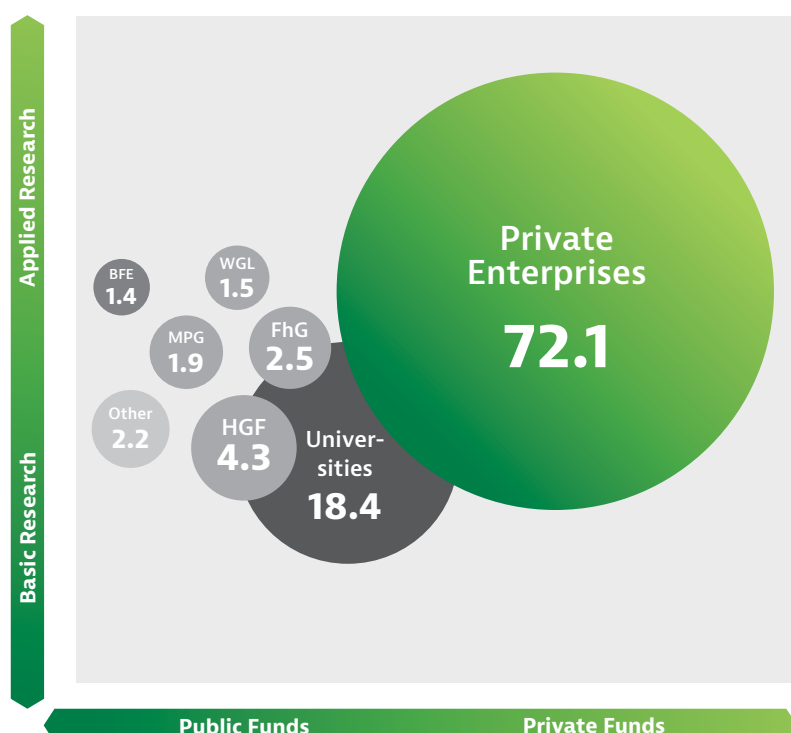
Germany is Europe's biggest research investor, with total research and development (R&D) expenditure of around EUR 105 billion in 2018. During the 20-year period 1998 to 2018, R&D spending rose from around EUR 45 billion to EUR 105 billion – equivalent to an average annual growth rate of around four percent. Growth in the period 2017 to 2018 was about EUR 6 billion; taking R&D spending up to the EUR 105 billion mark. This is equivalent to about three percent of gross domestic product and meets the EU goal as set out in the *Europe 2020* strategy. The industry sector is responsible for the largest share of R&D spending, with companies responsible for 69 percent (EUR 62 billion) of R&D expenditure. The federal government accounts for about 25 percent (EUR 26 billion) of spending, most of which is allocated to universities and non-university research institutions like the Leibniz Association. Approximately 780 thousand people were employed in R&D in 2018 – equivalent to around 25 percent or 180 thousand more people than ten years before.

Applied Chemical Research

Germany is home to four globally renowned non-university research organizations active in dealing with the challenges posed by future chemical issues. These are the Max Planck Society (14 institutes), Fraunhofer-Gesellschaft (6 institutes), Helmholtz Association (4 institutes), and the Leibniz Association (5 institutes). They are autonomous and able to respond to the dynamic changes and demands of the industry thanks to their financing structure. Quality assurance through peer review and patent marketing units ensure basic research at the highest international level. They all undertake applied research that drives economic development and creates benefits for society. The majority of their respective workforces are scientists and engineers, with most of their budgets being generated by contract research for industry. Thanks to international collaborations with excellent research partners combined with a focus on the key chemical technologies of the future, German applied research institutes play a prominent role in the European innovation process.

R&D Expenditure and Type of Research by Actor 2018

in EUR billion



Intensive exchange between non-university R&D institutions and companies ensures a constant source of new patents and commercial development and revenue.

- Private Enterprises
- Universities
- Federal, State and Communal R&D Institutions (BFE)
- **Government-funded R&D Institutions**
 - Helmholtz-Zentren (HGF)
 - Max-Planck-Gesellschaft (MPG)
 - Fraunhofer-Gesellschaft (FhG)
 - Leibniz-Gemeinschaft (WGL)
- Other Publicly Funded R&D Institutions, Scientific Libraries and Museums (Other)

Source: Statistisches Bundesamt 2020

Chemical Industry R&D Spending

Commercial innovation is becoming increasingly important for the competitiveness of individual regions. However, the ratio of R&D spending to sales (R&D intensity) within the chemical industry has remained almost unchanged since 2008. Japan's R&D intensity (2008 – 3.9 percent; 2018 – 3.9 percent) level is more than double that of the EU (2008 – 1.5 percent; 2018 – 1.8 percent) and the US (2008 – 1.7 percent; 2018 – 1.8 percent) over the same period.

Europe's Chemical Innovation Hub

As the largest chemicals market in Europe, Germany has one of the highest R&D intensity levels in Europe, with 2.6 percent spending in 2019 making it the continent's innovation hub. Chemical industry R&D expenditure for developing new products is traditionally very high. In 2019, industry R&D expenditure was EUR 4.8 billion, making the sector the fifth strongest R&D industry after renowned industries like the automotive, electrical engineering, mechanical engineering, and pharmaceuticals sectors.

Innovation Meets the Market

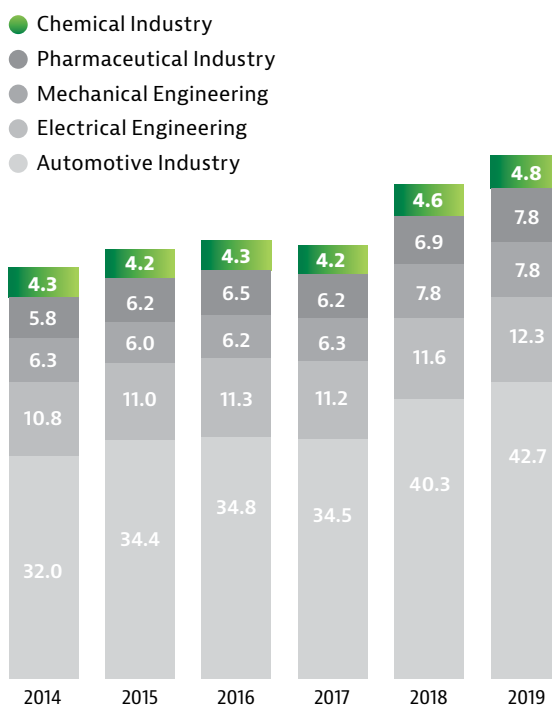
The combined efforts of Germany's research strategy and the applied research conducted by both research institutions and companies alike has allowed the country to consolidate its number two spot for European chemical patent registrations behind the US. Within Europe, Germany is the leading innovation hub, maintaining high productivity with the newest technologies at its production facilities in a stable market.

Global Megatrends

Although chemical companies do not expect as many breakthroughs and radical innovations in products, it nevertheless remains the top innovation priority. In a product-driven environment this makes sense, but the priority accorded to individual products has been changing in recent years. Many industry actors are seeking to grow their business in the area of global megatrends (e.g. energy transition, intelligent mobility, and agriculture and nutrition). Chemical companies are spending large sums of their R&D budgets in future-driven projects in areas as diverse as lithium-ion battery materials, high-purity silicon for solar panels, and biotechnological processes for the post-oil economy.

R&D Expenditure in Germany by Industry

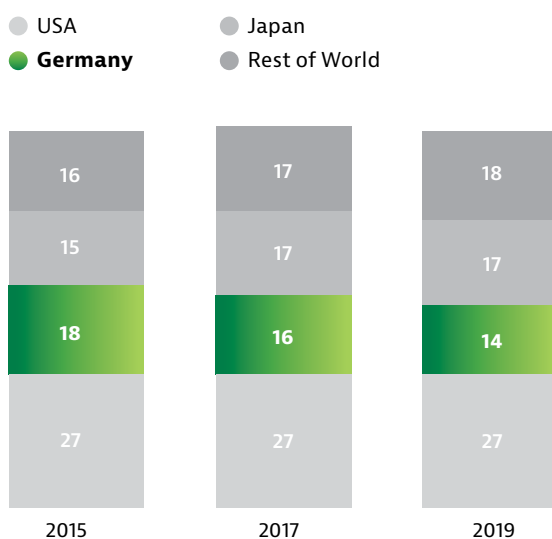
in EUR billion



Source: VCI 2015-2020

Chemical Patents Granted by the European Patent Office by Source Country

in percent



Source: European Patent Office 2016-2020

Chemical Parks

Germany is globally recognized as a profitable production location for the chemical industry and ranks first in Europe. Many global chemical companies already have production facilities in Germany and continue to invest here. The traditional chemical production sites have, through strategic investment and production optimization, been integrated into a network of production sites: Germany's unique „Chemical Parks“. The country's chemical complexes are served by excellent logistics networks – from road and rail to waterways and pipelines. With their “plug-and-play” concept, the German chemical parks offer cost-efficient conditions for investors. Sites commonly offer a comprehensive range of services tailored to the needs of potential investors. Optional services such as warehousing, logistics, and analytics can also be requested as needed. The comprehensive service portfolio also ensures that investors can continue to produce profitably if their business model changes over time. Furthermore, German chemical parks increase cost effectiveness by splitting costs and overheads such as the fire brigade – a benefit to both the site operator and investor.

Supporting Different Business Models

Chemical parks offer a wide range of business models. Subject to the investor's individual requirements, land can be leased or purchased in order to establish a production unit. At the other end of the scale, a site operator invests in and operates the new plant for the investor on a custom or toll manufacturing basis.

+ *Cost-competitive production through flexible site operators*

Planning Support Services

Investors are supported by a number of investment planning and construction services. The most sought-after service is for permit applications. Licensing procedures are completed quickly and efficiently with the competent public authorities assisting in the process from a very early stage.

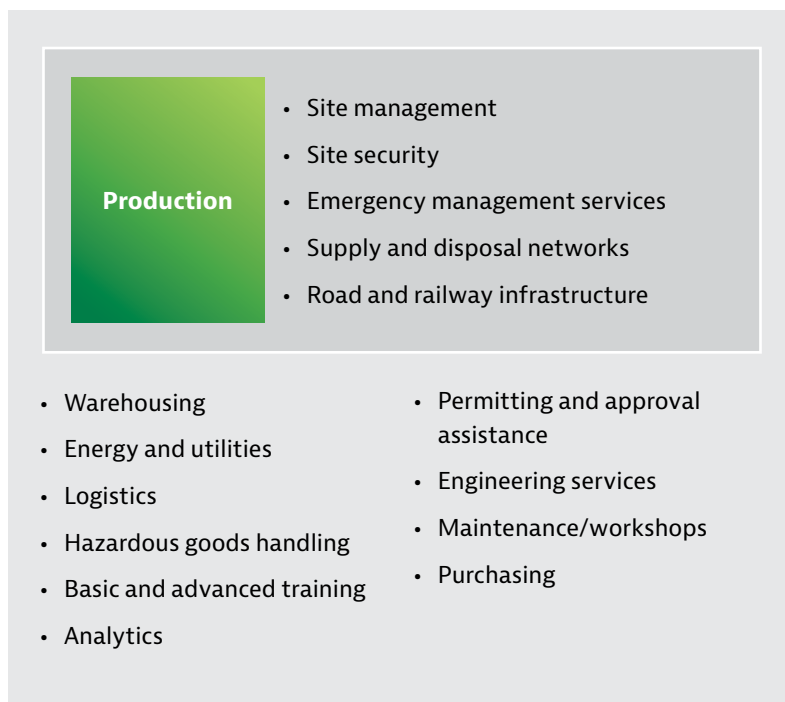
+ *Fast implementation of the new business*

Provision of Utilities and Services

Services such as wastewater treatment, thermal treatment of production residue, emergency services, industrial safety, fire protection, environmental services, analysis and testing services, rail dispatching, and product storage are all widely available at chemical parks.

+ *All chemical services available on-site*

Plug and Play Production Concept



Powering Chemical Parks

Secure power supply is imperative for profitable industrial plant operation. Chemical parks are made secure through the provision of a number of redundant supply lines. Most chemical parks operate their own on-site power plants in order to secure supply. An undisrupted supply of steam and overall energy cost are also key success factors. By generating both heat and power from various primary energy sources, chemical parks are well placed to utilize the high efficiencies found with combined cycle heat and power (CHP) generation. Plants within any one chemical park are linked to duplicate transmission networks that ensure stable supply in the case of disruption of one line. Supply by two independent systems ensures continuity even in the event of random acts of nature. This power supply set-up makes chemical parks ideal sites for investors in the process industries.

+ *Secure power supply*

Chemical Infrastructure

The country's chemical complexes are served by excellent logistics networks – from road and rail to waterway and pipeline. Investment is being made all the time to improve provision across the existing logistics infrastructure.

Pipelines

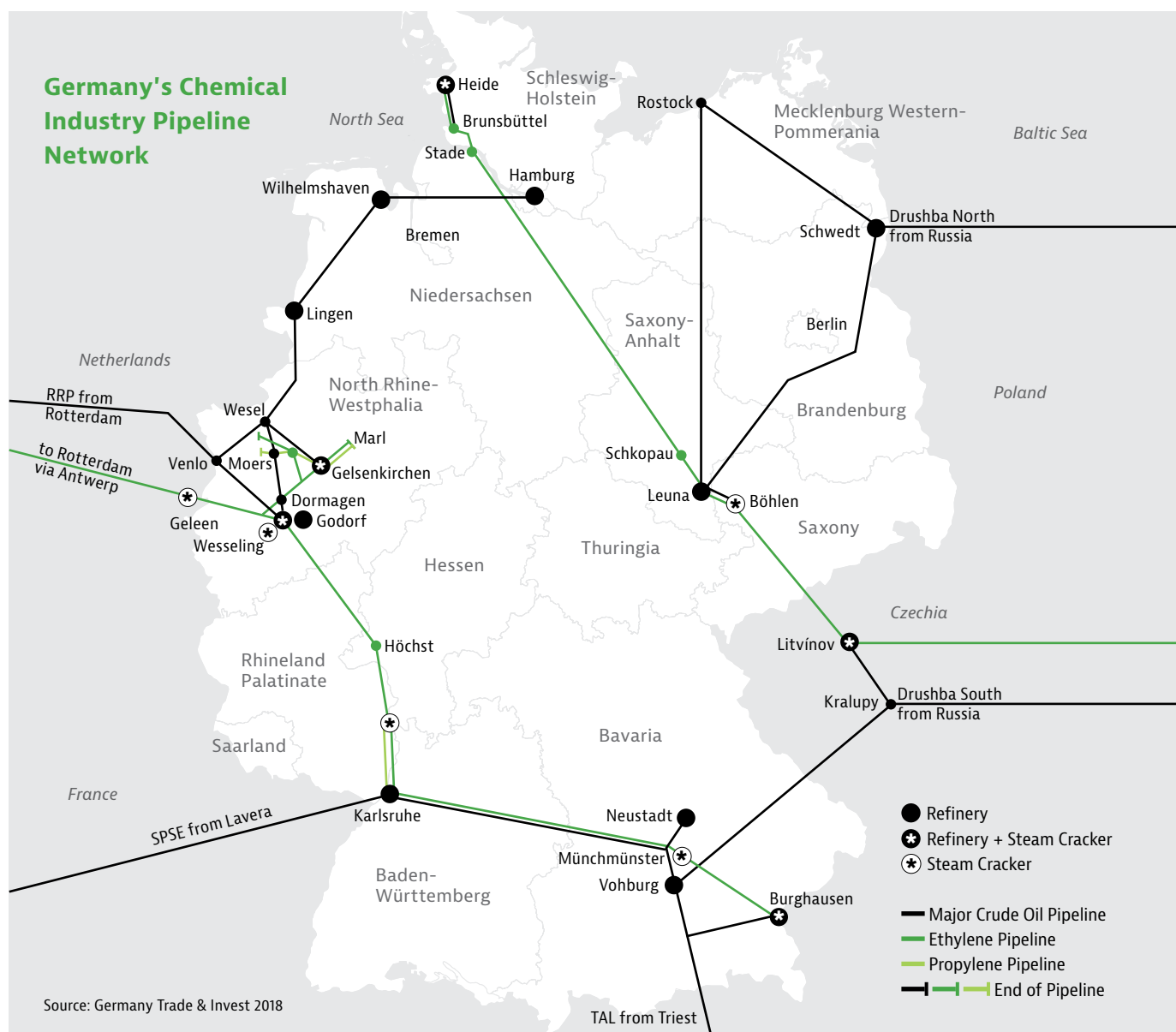
Around one third of chemicals are transported by pipeline. Major chemical sites are interconnected through an advanced network of pipelines transporting raw materials such as propylene, ethylene and crude oil. Thirteen refineries and eight steam crackers supply Germany's chemical industry with all of the necessary building blocks for organic chemistry.

Road and Rail

The country's highway system has one of the highest highway kilometer-density levels in Europe. Germany's high-speed railway network is the eighth largest in the world – its 43,470 km of railway track being almost enough to circle the globe – and connects Germany with its nine neighboring countries.

Waterways

Among the highlights of the country's network infrastructure are Europe's second largest port measured in container port traffic (Hamburg) and Europe's largest port container terminal (Bremerhaven) and over 250 inland ports.



Energy Security

Security of energy supply is a crucial factor in the energy-intensive chemical industry; particularly when choosing an investment location and determining the market prospects of any planned facility.

Low Power Outages

The security of Germany's electricity supply is very high by international standards. Unlike some countries in Europe where major blackouts are recurrent, power outages are definitely the exception in Germany. In 2016, the amount of time lost due to unplanned interruptions in Poland was three hours, around one hour in Czechia and approximately one hour in Spain. Both Italy and the UK suffer from outages of around 40 minutes per year. These all exceed the most stable grids in Denmark and Germany with losses of just five and three minutes per year in 2016 respectively. The situation for unplanned interruptions is similar. Countries with outages longer than an hour also have at least one unforeseen failure. Conversely, the level of unplanned interruptions in those countries with stable networks – where outages are usually planned – is significantly below 0.5 times a year.



Germany's secure power supply ensures chemical industry success.

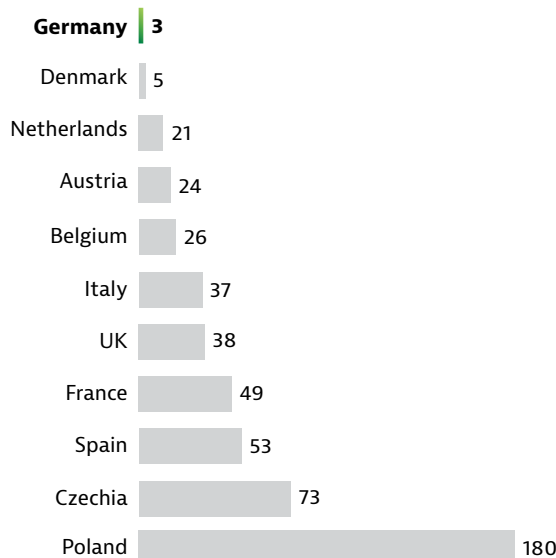
Nord-Stream-Pipeline

The Baltic pipeline from Wyborg in Russia to Lubmin in northeast Germany – with a length of more than 1,200 km – has helped establish Germany as the hub for Russian gas in Europe since 2011. Germany will also become Europe's preeminent trading market for natural gas, with an additional capacity of 55 billion m³ per year. With the second gas pipeline, Nord Stream 2, Europe will have access to an additional capacity of 55 billion m³ per year, providing further security of supply.

Diversity of Supply

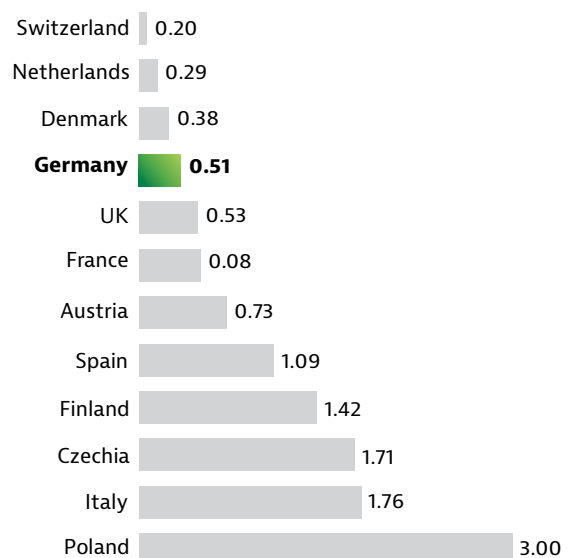
Germany has to rely on imports for around 40 percent of its energy supply – a situation similar to that of many other industrial countries. However, in marked contrast to its counterparts, Germany's energy mix is very broadly diversified, resulting in secure energy supply. Lignite and hard coal account for around 40 percent of electricity generation, followed by nuclear power (13 percent) and natural gas (9 percent). Renewable energy already accounts for 38 percent of Germany's energy mix.

Minutes Lost to Power Outages 2016 without exceptional events



Source: Council of European Energy Regulators (CEER) 2018

Interruptions per Year 2016 including exceptional events



Source: Council of European Energy Regulators (CEER) 2018

Attractive Investment Location

Germany's greatest appeal for chemical companies is its market size within Europe. This is largely due to the presence of strong client industries including the automotive sector. The country's historical export strength and research environment are also attractive factors. Specific strengths in innovation, productivity and resource efficiency all help establish Germany as an attractive chemical industry production location. These factors, together with sensible labor market reforms, have led to the German chemical industry consolidating its market-leading position in Europe since the economic crisis of 2008. This is best evidenced in the strong increase in foreign direct investment and M&A activity.

Europe's FDI Leader

In line with the seemingly limitless growth of China's chemical market, investment in China continues apace. The investment volume in China increased threefold to almost EUR 90 billion during the period 2008 to 2018 thus surpassing the entire chemical investment from the "rest of the world" in 2018.

However, since the economic downturn in 2008 increasing investment activities can also be seen in the mature European market. The main driver for these investments, in contrast to the investments in new plants in China, is ensuring the global competitiveness of the respective facilities, which is why so many of the investments involve bringing the technology up to date. Investment levels within Europe were comparable to the size of the respective markets. As such, most investment for the period 2015 to 2019 occurred in Germany, followed by the UK, France and Spain (who account for less than half of total investment levels).

Profitable M&A Activity

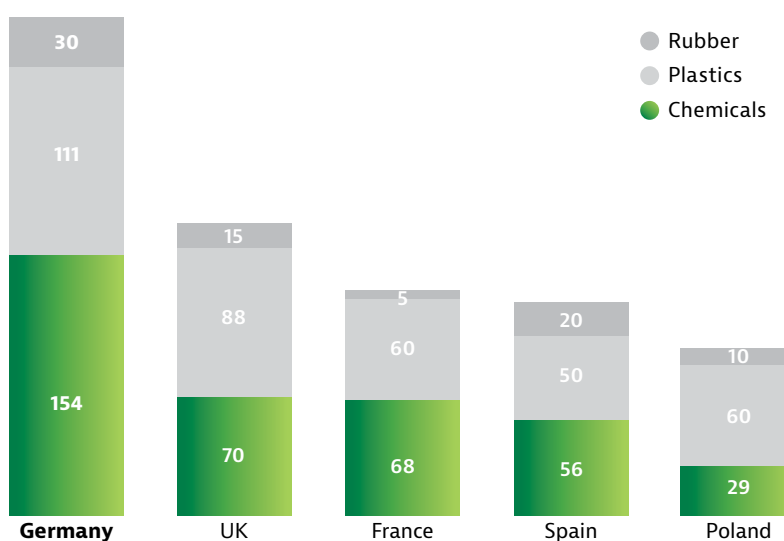
Since the drop in sales in 2009, German chemical companies have been financially well positioned and seeking investment activity in growth segments with the lowest level of cyclical behavior. The dazzling level of capital available today, particularly for those German chemical companies with investment grade status, has led them to aggressively seek out new growth segments. As such, the last decade has seen several multibillion dollar deals in the chemical and pharmaceutical sector. Germany-based Merck KGaA acquired

US-based research chemicals company Sigma-Aldrich for USD 17 billion. Germany's Bayer has stood out, especially for pharmaceutical and agricultural acquisitions, in the past years. The company integrated US-based Merck & Co's over-the-counter (OTC) business for USD 14 billion in 2014 and acquired Monsanto for USD 66 billion in 2017.

Beyond the pharmaceutical segment, specialty chemicals are playing a major role. Germany's BASF in particular has made a number of major investments. In the past 15 years these have included over USD 5.2 billion in US-based Engelhard (well-known for its expertise in catalysts); EUR 2.7 billion in the construction chemicals business of Degussa (now Evonik); more than CHF 6.1 billion in Ciba Specialty; EUR 3.1 billion for Cognis in 2010; USD 3.2 billion for Chemetall in 2016 and, most recently, EUR 1.3 billion for the polyamide business from Solvay in 2020.

On the other hand, a number of chemical companies have offloaded products and business units whose margins have declined in recent years. These were often large-volume products such as styrene (BASF divesting Styrolution JV to INEOS) or titanium dioxide (Rockwood selling to Huntsman).

Top 5 Chemical Industry FDI Destinations in Europe 2015-2019
number of projects



Source: fDi markets 2020

Germany Trade & Invest Helps You

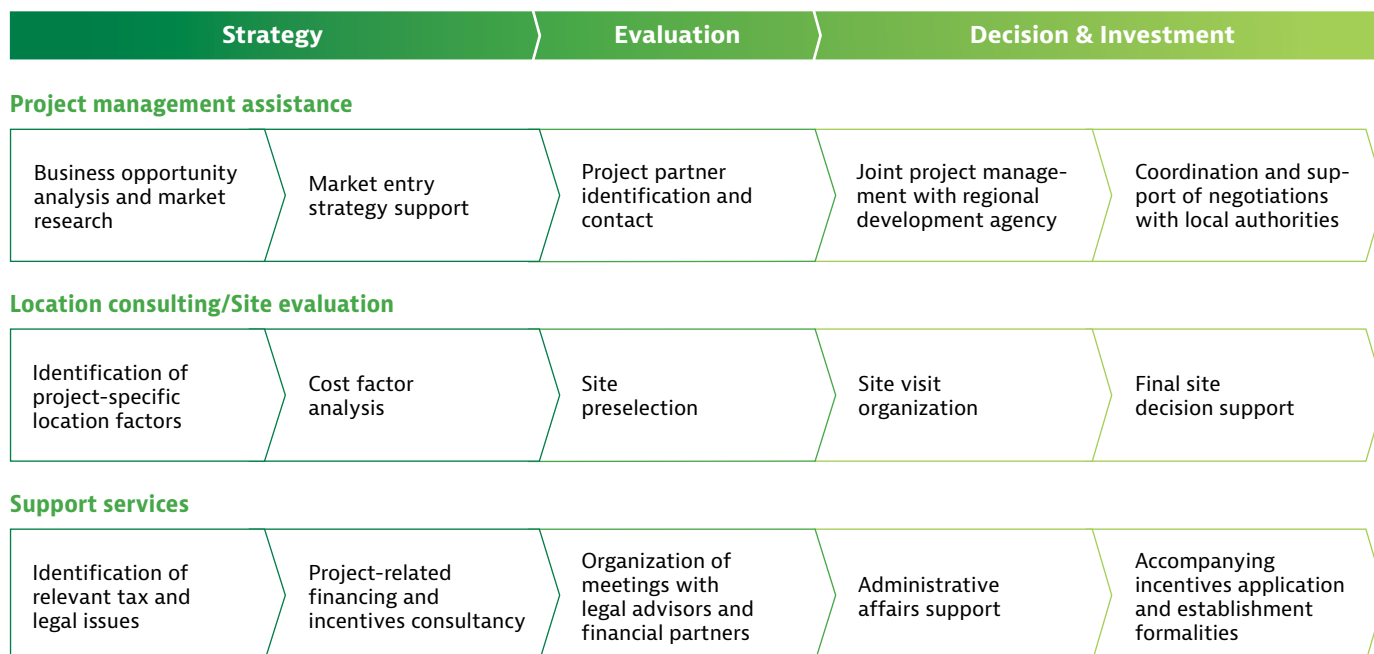
Germany Trade & Invest's (GTAI) teams of industry experts will assist you in setting up your operations in Germany. We support your project management activities from the earliest stages of your expansion strategy.

We provide you with all of the industry information you need – covering everything from key markets and related supply and application sectors to the R&D landscape. Foreign companies profit from our rich experience in identifying the business locations which best meet their specific investment criteria. We help turn your requirements into concrete investment site proposals; providing consulting services to ensure you make the right location decision. We coordinate site visits, meetings with potential partners, universi-

ties, and other institutes active in the industry. Our team of consultants is at hand to provide you with the relevant background information on Germany's tax and legal system, industry regulations, and the domestic labor market. Germany Trade & Invest's experts help you create the appropriate financial package for your investment and put you in contact with suitable financial partners. Our incentives specialists provide you with detailed information about available incentives, support you with the application process, and arrange contacts with local economic development corporations.

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Our support services for your investment project



Investor Consulting

Dr. Thorsten Bug is the senior manager responsible for the chemical industry in Germany Trade & Invest's Chemicals & Healthcare team within the agency's Investor Consulting division. An acknowledged industry expert, he has advised numerous international chemical companies seeking to set up operations in Germany since joining the agency in 2008. Dr. Bug, who completed his doctoral thesis on the "Nucleophilic reactivity of diazo compounds and stabilized carbanions" in Munich in 2003, was also active as a senior asset management consultant for five years prior to taking up his current position.

Projects successfully supported to date cover the complete chemical industry value chain and include the establishment of sales office operations, production and R&D facilities as well as pilot plant investments across Germany. The list of international investment project clients who have benefited from Dr. Bug's advisory and consultancy services to date includes Brazilian petrochemical, Japanese chemicals and plastics, and North American adhesives companies.

For questions on how to establish your chemicals business in Germany, please contact Thorsten Bug at **thorsten.bug@gtai.com**

For more information about the chemicals industry in Germany, please visit our website **www.gtai.com/chemicals**

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Imprint

Publisher

Germany Trade and Invest
Gesellschaft für Außenwirtschaft
und Standortmarketing mbH
Friedrichstraße 60
10117 Berlin
Germany

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Print

Kern GmbH, 66450 Bexbach
www.kerndruck.de

Picture Credits

Cover: iStockphoto/pedrosala

Notes

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December 2020

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Order Number

20915

Supported by:



Federal Ministry
for Economic Affairs
and Energy

on the basis of a decision
by the German Bundestag



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Germany Trade & Invest (GTAI) is the economic development agency of the Federal Republic of Germany. The company helps create and secure extra employment opportunities, strengthening Germany as a business location. With more than 50 offices in Germany and abroad and its network of partners throughout the world, GTAI supports German companies setting up in foreign markets, promotes Germany as a business location and assists foreign companies setting up in Germany. All investment services and related publications are free of charge.

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