INDUSTRY OVERVIEW

The Lightweight Industry in Germany

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The development of lightweight construction, materials, and design ("lightweighting") has an important role to play in consolidating Germany's role as an international industry leader. Lightweight construction solutions represent not only significant weight savings with new system properties, but also open the door to new applications. This allows completely new products to be developed and produced – giving companies a significant competitive edge. Lightweight construction solutions are already of real importance for a number of domestic industries including the aerospace, automotive construction and transportation, construction, mechanical engineering, and production technology sectors. Moreover, lightweight construction is helping establish Germany as a lead provider of innovative energy and resource-efficient products for future markets as part of the country’s "Energy Transition." Lightweight construction solutions are also central to helping the country consolidate its leading international position in the production of innovative materials. The digital transformation is also creating future markets, with Germany well on its way to establishing itself as a global lead provider of cross-sector lightweight construction solutions.

Germany is a global hub for cross-sector lightweighting at the market crossroads of Europe.
Industry Status Quo

Lightweighting for the Manufacturing Sector
Technologies for the production, processing and handling of lightweight materials have gained real significance for Germany’s manufacturing sector in recent times. Lightweight construction solutions are already finding widespread use in German industry, with the aerospace, automotive and transportation sectors showing the way forward as the main drivers of innovation. Raw material and material costs make up approximately 45 percent of gross production value in the manufacturing sector. A reduction of 100 kg weight can reduce vehicle fuel consumption levels by around 0.5 liters for every 100 km travelled. For electric vehicles, each kilogram saved helps extend range. In aviation, 100 kg less weight can represent up to 10 thousand liter kerosene savings per aircraft each year.

Lightweighting in the Processing Industries
Almost a quarter of companies (24 percent) use corresponding processes in their production activities today. Process technologies for metallic lightweight construction are far and away the most important. In contrast, process technologies for composites are not yet so widely used, with just eight percent of companies using technologies of this nature. A differentiation of the manufacturing industry by sector highlights the major differences between the individual industry areas. Operations in the metal and electrical industries lead in terms of lightweight technology usage. User rates for lightweight construction process technologies in the metal production and metal product manufacturing, automotive, and mechanical engineering sectors represent more than a third of each respective sector.

Plastic and Metal Lightweighting
User rates are similarly high in the vehicle construction and associated supplier industries (almost 37 percent). The vehicle construction sector counts as a pioneer sector in terms of use of plastic-based composites, with around 20 percent of vehicle construction operations using corresponding process technologies. One third of companies use metal lightweighting technologies. The focus in the mechanical engineering sector clearly lies in the procession and handling of metal lightweight construction materials. Almost one third of operations deploy such technologies, compared to just eight percent that use plastic-based composites.

Lightweight Design – Core Industries and Industry Sector Relevance

Source: Forschungszentrum Jülich, Federal Ministry of Education and Research, Germany Trade & Invest 2016
Lightweight Construction Materials

Modern materials and composite materials for lightweight construction are finding use across all industry sectors to reduce production costs, improve product qualities, functionality, and increase resilience. The use of lightweight construction materials also helps harmonize modern production processes with the responsible use of available material resources.

High-performance Steel
Lightweighting is an important issue for the German steel industry. New high-strength and density-reduced steels, steel-based composite materials and modern processing technologies make it possible to produce lighter, energy-saving and resource-efficient products. Steel is and will continue to be the most important material used in German vehicle construction: both in the bodywork sector as well as in the power train and other vehicle components. Steel will also make a significant contribution to the electrification of mobility – particularly in the lower and middle vehicle class segments – as high production ratios of scale significantly reduce costs.

Carbon Composites
Germany has increased its share of glass fiber-reinforced production from around 13 percent at the start of the currency and financial crisis in 2007 to a current level of more than 20 percent. With composite production volume of over 220,000 tons, the country is now the largest production country in Europe. Strong growth is also forecast for the future, with strong production increases expected in carbon fiber-strengthened plastics alongside above average thermoplastic composite growth. Growth impetus in the region is, above all, expected to come from Germany. The mobility, aviation and infrastructure sectors are considered to be the most significant application growth drivers.

Aluminum
Lightweighting is one of the most important growth drivers for the development of the aluminum industry in Germany, creating dynamically growing demand for the material. Germany’s aluminum sector generated turnover of around EUR 20 billion in 2016, directly employing a workforce of around 61,500 people in small and medium-sized companies alongside larger concerns. The transport sector has become the most important industry client sector, with market share of 48 percent. Recycling has been an established process for the reintegration of aluminum into the raw materials cycle after its useful life to meet demand since its first industrial use. This is done for purely economic reasons, with scrap aluminum having a high market price. As a result, aluminum recycling rates have been 90 percent and above in all market sectors for a number of years.

Wood
The energetic use of the raw material wood in Germany has gone far beyond material use alone since 2010. A further increase, and an according rise in the price of wood as a raw material, is becoming apparent. Intelligent lightweight
New Material Design in Germany: From the Present to the Future

Construction allows, with the same or improved strength, material use savings of between 30 percent and 50 percent in furniture for example. This is complemented by additional cost savings advantages related to handling and transportation.

**Multi-Material Design**

Function-integrative system lightweight construction in multi-material design (Dresden model) provides numerous advantages over conventional construction methods and is set to be the existing materials science issue of the future – particularly in Germany. The Carbon Composites e.V. Multi-Material Design working group has established a platform for exchange and discussion – amongst an extended circle of experts from science and industry – to exploit these advantages and accelerate the industrial use of innovative mixed construction methods. The working group is concerned with the following areas: mixed-structure lightweight structures (e.g. fiber composite metal combinations), adapted joining and separation technologies, interface design and functionalization, functional integration (e.g. using sensors and actuators), component and hybrid component manufacturing technologies, construction, and simulation as well as hybrid structure characterization and testing.

**Ceramic Materials**

Germany is well positioned in the fields of ceramic composite research and industrial application. Examples of the first commercially available products include lightweight brakes for vehicles (e.g. brake pads and brake discs made from carbon fiber-reinforced silicon carbide composites) and rotor brakes for propeller planes.

**Titanium**

Titanium is also very light and characterized by very high strength properties. It is a popular material in Germany, being used in automotive engineering (particularly in the drive and driving area). Because of its high corrosion resistance and strength, it also finds use in the aerospace sector (most specifically in engine production).

**Technical Textiles**

The Kompetenzzentrum Textilbeton Aachen defines textile concrete as “a cement-bonded composite in which technical textiles from glass or carbon fibers are used as a reinforcing material.” Potential areas of application include, for example, delicate weight-bearing constructions. Further research and development activities in the field of textile-reinforced lightweight construction, for example in vehicle construction, have been or will be carried out by the TU Chemnitz-led Alliance Textile Lightweight Construction.
Application Industries

Innovative lightweight construction solutions are finding application in a diverse range of industry sectors as a result of the advent of Industrie 4.0 and the ongoing digital transformation. The aviation & aerospace and automotive sectors are driving developments, with other industries including the construction and medical technology sectors also finding increased use for these future technologies.

**Construction Sector**
The gross value added of the construction industry in Germany has increased by around 50 percent since 1991. Measured in terms of aggregate value added, the construction sector is of greater economic significance than the country’s automotive sector. Housing construction volume is expected to increase by 5.8 percent in 2018.

**Medical Technology Made in Germany**
The German medical technology industry, made up almost entirely of small and medium-sized enterprises, is highly innovative and generates a large share of its revenues from exports. Close collaboration between science and industry has helped establish Germany’s medical technology sector as an international benchmark of quality, performance and safety standards. Germany is home to more than 30 specialized cluster networks focusing on medical technology. Their goal is to achieve continuous innovation in research and development as well as in manufacturing by connecting companies, hospitals, universities, and other research institutions.

**Aviation and Aerospace**
The German aerospace industry has enjoyed unprecedented success over the last two decades. Since the mid-90’s, industry revenues have more than quadrupled – to over EUR 37 billion in 2016. Today it belongs to the country’s most innovative and best-performing industries. And the sector keeps on growing: Industry analysts forecast that between 30 to 35 thousand new aircraft will be put into service in the next 20 years to meet increasing global aviation demand – leading to a new golden age of aviation. As a global aerospace hub, Germany is home to leading players from all civil and defense aviation market segments. Aside from its supply and manufacturing power, the country is also home to two major passenger airlines as well as one of the world’s biggest freight and logistics carriers. The sector has recorded more than seven percent average annual growth since the mid-1990s, providing employment to a workforce of more than 108 thousand – of which more than 50 percent are engineers or highly qualified professionals. In 2016, the sector spent EUR 4 billion (or 11 percent) of annual revenue on research and development, making the industry one of the country’s most innovative sectors.

**Automotive**
Germany is recognized the world over for its outstanding automotive industry and excellence in engineering. From Asia to the Americas, German cars embody highly cherished values of innovation, reliability, safety, and design. Germany is by some distance Europe’s leading production and sales market. The country’s world-class R&D infrastructure, complete industry value chain integration, and highly qualified workforce create an internationally peerless automotive environment. It enables companies to develop cutting-edge technologies, which perfectly address tomorrow’s mobility needs. According to McKinsey, vehicle manufacturers will need to increase lightweight component levels from 30 percent to 70 percent by 2030 in order to compensate for electric drive weight increases and more efficient engine technology. Germany is Europe’s number one automotive market; accounting for over 30 percent of all passenger cars manufactured (5.75 million) and around 20 percent of all new car registrations (3.35 million). Germany is home to 41 automobile assembly and engine production plants with a capacity of more than one third of European automobile production.

**German Industry R&D Expenditures 2016**
in EUR billion

<table>
<thead>
<tr>
<th>Sector</th>
<th>Expenditures (billion)</th>
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<tbody>
<tr>
<td>Mobility Sector</td>
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</tr>
<tr>
<td>Mechanical Engineering</td>
<td>8</td>
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<tr>
<td>Chemical Industry</td>
<td>5</td>
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<tr>
<td>Other Sectors</td>
<td>40</td>
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</tbody>
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Source: Stifterverband Wissenschaft und Technik 2018

Industrial automation is critical for minimizing costs in lightweight construction. German expertise in engineering and automation is renowned throughout the world.
Machinery and Equipment
The machinery and equipment (M&E) sector is the second largest and most innovative industry sector in Germany. The German M&E sector is dominated by small and medium-sized companies that provide customized products and small series to meet the strong demand of both domestic and international manufacturing industries. The M&E industry is one of the technological motors that drive Germany as a high-tech nation, and a sector that combines all of the key future technologies including electronics, robotics, materials, and software. German M&E industry strength is propelled by a combination of Germany’s proven engineering tradition, its position as a technology development leader, and a highly diversified industrial base. Germany provides a multitude of competences for the transfer of ideas to mass production including machining of lightweight materials; machine peripheral and extraction system development; manufacturing equipment design, development, simulation, and calculation; and sensor integration for adaptive processing.

New Production Technologies
Digitalization is essential to lightweight construction, with material testing in the form of simulation and virtual testing playing a critical role in bringing production closer to development. This is partially leading to the introduction of completely new work methods and processes into companies and supply chains. Alongside suitable methods and materials, the production capability of hybrid and general lightweight construction solutions play a key role in their success, with quick and inexpensive mass production being the lever for market penetration. However, new production technologies and processes have to lead to linked, automated processes as quality assurance and recycling processes require new terms of reference. Lightweighting also creates further potential in the new processes of additive manufacturing (3D printing) that make structures previously unimaginable using conventional production methods a reality. Here, a great chance is seen to reproduce bionically formed support structures as well as internal hollow spaces in closed volumes capable of imitating the porous structure of bones.

Lightweight Design Value Chain: All Core Processes Available in Germany

Source: Fraunhofer IPA 2016
German Industry Clusters for Lightweight Technologies

Germany boasts a lightweight construction cluster network that covers the complete industry value chain. Located across the country, these clusters promote knowledge transfer between science and industry to develop and produce lightweight construction solutions for deployment in a number of industry sectors.

MARKET OPPORTUNITIES

Significant demand for lightweight technologies exists among Germany’s automotive and aerospace sectors – the main lightweight technology application industries to date.

Source: GTAI Research 2018
1. **Aachen Center for Integrative Lightweight Production (AZL)**
   The objective of the Aachen Centre for Integrative Lightweight Production is the transformation of lightweight design in mass production. This requires strict interdisciplinary collaboration between the material science and production technology carried out by the lightweight activities of the RWTH Aachen University. More than 700 scientists work on production technologies, lightweight materials and applications at the RWTH Aachen University's Melaten campus which provides access to all of the necessary value chain competencies.

2. **CFK Valley e.V.**
   The CFK Valley cluster in Stade is a world-leading network of excellence for the entire fiber reinforced composite value chain with more than 100 local, national and international members. Established in 2004, the CFK Valley Association has established itself as an internationally recognized network, drawing on Airbus Stade's more than 30 years of CFRP experience and the city's strengths as a major industry and services location within the wider Hamburg Metropolitan Region.

3. **Institute of Lightweight Engineering and Polymer Technology (ILK)**
   The Institute of Lightweight Engineering and Polymer Technology (ILK) is a research institution of Technische Universität Dresden's Faculty of Mechanical Science and Engineering and the "Friedrich List" Faculty of Transportation and Traffic Sciences. It conducts comprehensive research and development projects in resource-saving lightweight construction with high material and energy efficiency. Work at ILK is shaped by the Dresden model of "function-integrative system lightweight engineering in multi-material design" and is based on a cross-materials and cross-product approach.

4. **Leichtbau BW – The Development Agency for Lightweighting Baden-Wuerttemberg**
   Leichtbau BW is a public development agency that supports private companies and research institutions in the state of Baden-Württemberg. The agency facilitates know-how from within the state to promote innovative potential as well as expand academic and commercial training opportunities in the lightweight technology sector. Leichtbau BW's stated mission is to enhance the competitive potential of Baden-Württemberg as a center for innovation.

5. **MAI Carbon**
   The MAI Carbon Leading-Edge Cluster in the city triangle of Munich, Augsburg and Ingolstadt follows the objective of leading CFRP technology into serial production by 2020. Cluster partners, who are also members of the Carbon Composites network, pool their knowledge to expand their technological leadership in the use of CFRP components in mass production and to establish Germany as a global leader in fiber composite technology. Intensive cooperation in a range of application sectors including the automotive, aerospace, and M&E sectors as well as among fiber and semi-finished product producers provide the basis for new innovation.

6. **The Institute of Plastics Processing (IKV) at RWTH Aachen University**
   The Institute of Plastics Processing (IKV) in Industry and the Skilled Crafts at RWTH Aachen University is Europe’s leading research and training institute in the field of plastics technology. Close ties between science and industry are at the heart of the institution's research activities directed towards creating results for practical industry application. IKV's network covers all the areas of the plastics industry. With more than 290 members worldwide, the institute is in constant dialogue with industry actors, thereby ensuring the relevance of its research activities.

7. **EcoMaT**
   The EcoMaT (Center for Eco-efficient Materials & Technologies) research and technology center in Bremen bundles regional competences from science and industry in the field of lightweight construction. EcoMaT partners are dedicated to lightweight construction as a key technology in terms of systemic relevance through interdisciplinary and intersectoral cooperation. The center monitors and analyzes technologies as a system from an application-oriented perspective.
Technology Trends and R&D Landscape

Technology-neutral and efficient knowledge transfer in lightweight material development and production has a crucial role to play in consolidating industrial competitiveness and sustainable modernization of manufacturing production. The digital transformation provides a modern research and development toolkit for both science and industry.

Innovative Knowledge Transfer

The Fraunhofer-Gesellschaft has established itself as a leading international player in industrial research and development. The institutes that make up the Fraunhofer Alliance for Lightweight Design bring together expertise in a number of fields: materials and material composites, joining techniques and manufacturing processes for lightweight construction, numerical and experimental simulation, evaluation of components and systems, and nondestructive and destructive testing methods.

R&D in practice: Arena 2036

ARENA2036 is the largest and leading research platform for mobility in Germany. The entire value chain of tomorrow’s fully digitalized vehicles is being rethought and implemented as part of the initiative. Since the project launch in 2013, the research campus has focused its activities in core projects in four research areas including functional integrated lightweight design as part of the LeiFu project. Numerous actors from science and industry work together under the roof of the “flexible factory for the car of the future.” Partner competences are anchored in a variety of disciplines that range from simulation and lightweight construction to production technology and ergonomics. This mix of disciplines, competences and perspectives provides fertile soil for innovative project ideas.

Selected Fraunhofer Alliance for Lightweight Design Activity Areas

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<tr>
<th>Research Topic</th>
<th>Fraunhofer Institute</th>
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<td>Advanced Materials</td>
<td>IFAM – Bremen</td>
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<td>Production Technology</td>
<td>IPT-Aachen</td>
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<tr>
<td>Mechanics of Materials</td>
<td>IWM-Freiburg</td>
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<tr>
<td>Surface Engineering and Thin Films</td>
<td>IST-Braunschweig</td>
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<td>High Speed Dynamics</td>
<td>EMI-Freiburg</td>
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<tr>
<td>Microstructures of Materials and Systems</td>
<td>IMWS-Halle</td>
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<tr>
<td>Structural Durability and System Reliability</td>
<td>LBF-Darmstadt</td>
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<tr>
<td>Laser Technology</td>
<td>ILP-Aachen</td>
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<tr>
<td>Silicate Research</td>
<td>ISC-Würzburg</td>
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<tr>
<td>Ceramic Technologies and Systems</td>
<td>IKTS-Dresden</td>
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<tr>
<td>Industrial Mathematics (ITWM)</td>
<td>ITWM-Kaiserslautern</td>
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<tr>
<td>Material and Beam Technology</td>
<td>IWS-Dresden</td>
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<tr>
<td>Machine Tools and Forming Technologies</td>
<td>IWU-Chemnitz</td>
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<tr>
<td>Nondestructive Testing</td>
<td>IZFP-Saarbrücken</td>
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<tr>
<td>Integrated Circuits</td>
<td>IIS-Erlangen</td>
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Source: Fraunhofer-Allianz Leichtbau 2018
INVESTMENT CLIMATE

Supporting International Business

Engineering Tradition
Germany enjoys a long and successful tradition in mechanical engineering and manufacturing. Researchers, companies and employees alike continue to profit from the country’s global know-how. The “Made in Germany” quality seal has long been recognized as a sign of engineering excellence and precision across the globe. The lightweight industries, representing a fusion of the digital economy with classical production technologies, are in the vanguard of flagship “Made in Germany” industries.

Academic Excellence
According to the German Federal Statistical Office, Germany has a particularly high academic uptake rate. In the academic year 2017/2018, some 509,000 students – at more than 425 institutions of higher education – embarked on a course of academic study. Germany’s share of university students in the sciences, mathematics, computer sciences, and engineering is the second highest in the EU, with almost 37 percent of all students. Of particular note is the Technology Center Stade, which offers the only European-wide CFC engineering training program at the PFH private university.

Dual Education System
In order to secure the economy’s demand for highly qualified personnel, Germany developed a dual system in vocational training – combining the benefits of classroom-based and on-the-job training over a period of two to three years. In close cooperation with the German government, the German Chambers of Industry and Commerce (IHKs) and the German Confederation of Skilled Crafts (ZDH) ensure that exacting standards are rigidly adhered to, guaranteeing the quality of training provided across Germany. One in five German companies take part in the dual vocational training system, thereby turning apprentices into specialists that fit each company’s needs. Most apprentices receive an employment contract after training. In production-based industries more than 70 percent are taken on as employees, underlining the importance of the training system. More than 1.3 million young people are currently in vocational training in Germany.

Reliable Logistics Infrastructure
Germany’s infrastructure excellence is confirmed by a number of recent studies including the Swiss IMD’s World Competitiveness Yearbook and various investor surveys conducted by institutions including the WEF and Ernst & Young. The 2016 Logistics Performance Index of the World Bank ranked Germany first worldwide for its logistic proficiency; singling out Germany’s quality of trade and transport infrastructure. Accumulated in this score for Germany are high marks for the quality of roads and air transport, excellent railroads and port infrastructure, as well as its information infrastructure.

Investment and R&D Incentives
When it comes to setting up production and service facilities, investors can count on a number of different public funding programs. These programs complement investment project financing. Most important are cash incentives provided in the form of non-repayable grants applicable to co-finance investment-related expenditures such as new buildings, equipment and machinery. R&D project funding is made available through a number of different incentives programs targeted at reducing the operating costs of R&D projects. Programs operate at the regional, national, and European level and are wholly independent from investment incentives.

Workforce in Germany by Level of Professional Education 2015
percent of total workforce

- Dual Education Apprentices
- University Graduates
- Vocational College Graduates
- Unskilled

Source: Federal Statistical Office 2017
Best Practice Example: Faurecia Clean Mobility

Germany Trade & Invest provides a range of inward investment services to international investors. After careful consultation with the individual investor, a support program of consultancy and information services is drawn up to help set the stage for investment success. Here we provide a typical example of the services provided to a recent investment project.

Company Information
French company Faurecia is one of the world’s leading automotive industry suppliers. The group generated turnover of EUR 18.7 billion in 2016. Faurecia employs a workforce of around 100 thousand people at 300 sites (including research and development centers) in 35 countries. The group's three divisions provide innovative solutions and equipment in the areas of seating, interiors and clean mobility. Faurecia is listed on the NYSE Euronext Paris and US OTC market exchanges. www/faurecia.de

Location Requirements
The company required a site in Germany close to German premium OEMs and internationally recognized partners active in the field of fiber composite technology research and knowledge transfer (universities, research institutes, development companies). The company decided on the city of Augsburg, home to one of Europe’s leading carbon fiber lightweight construction technology centers with building blocks right along the entire value chain. The presence of the Augsburg Innovation Park and the publicly operated Augsburg Technology Center with technology center areas and extensive services provided a further attraction. Proximity to lightweight construction clusters – including the MAI Carbon Leading-Edge Cluster and Carbon Composites e.V. network – added further to the attractiveness of Augsburg as a location.

Project Information
Faurecia wanted to establish a site from which it could develop cost-effective and industry-compatible manufacturing process for the mass production of carbon fiber composite components. Carbon fibers are lighter and more stable than other materials and contribute significantly to the vehicle weight and CO2 reduction goals of auto manufacturers. Lightweight construction is also an important theme in the area of electric mobility. The project has a planned duration of several years and a corresponding budget of several million euros. Between 10 to 15 employees will work on the project with external partners in the first two years.

Germany Trade & Invest Support
- Identification of lightweight construction competence regions in Europe
- Summary of the location advantages of the target region Augsburg
- Networking with other German “know-how” carriers
- Identification of further important project partners

“We are very proud to be part of the German ‘Carbon Network’ and are pursuing the clear goal of making carbon fiber useful for the mass production of vehicles by the start of the 2020s.”

Christophe Schmitt, Executive Vice President, Faurecia Clean Mobility

SUCCESS STORY

Industry Overview 2018/19 | gtai.com
Our Expertise Network

Germany Trade & Invest provides direct access to all of the relevant actors in the German economy. As the hub for a far-reaching network at both home and abroad, GTAI maintains close relations with a number of partners important to international investors setting up business in Germany.

Gesamtverband der Aluminiumindustrie e.V. (GDA)
Gesamtverband der Aluminiumindustrie e.V. (GDA), with headquarters in Düsseldorf, Germany, is an association of aluminum companies that produce raw aluminum or aluminum products, including composites with other materials.

Verband Deutscher Maschinen- und Anlagenbauer (VDMA) – Hybrid Lightweight Technologies Working Group
The VDMA represents more than 3,200 member companies in the SME-dominated mechanical and systems engineering industry in Germany and Europe. The more than 200 members of the Forum Composite Technology will address the issue of composite metal combinations in the future.

Composites Germany
With their trade association "Composites Germany," the AVK-Federation of Reinforced Plastics e.V., Carbon Composites e.V. (CCeV), CFK Valley (CFK-Valley) and Hybrid Lightweight Technologies working group within VDMA is bundling its powers to further future-oriented themes, high performance composites, and automated production technologies which are particularly relevant in Germany.

Steel Institute VDEh
The Düsseldorf-based Steel Institute VDEh is the forum for dealing with technical-scientific and technical-economic aspects of the steel industry. The Steel Institute currently has around 6,300 members in Germany and abroad, as well as 160 supporting and collaborative member companies in the steel and supplier industry.

igel – Lightweight Construction Association
The Interessengemeinschaft Leichtbau (igel – Lightweight Construction Association) was established with the aim of creating a cooperation network promoting lightweight construction ideals in interior design and the furniture industry. The non-profit organization consists of around 90 members.

IG Metall
With more than 2.2 million members, IG Metal (Industriegewerkschaft Metall) is the single largest trade union in Germany and the largest employee representative in the world. IG Metal represents employees in the metal and electrical, steel, textiles and clothing, wood and plastics, and communication technology industry sectors.

Federal Ministry for Economic Affairs and Energy (BMWi) – Initiative Leichtbau
The Federal Ministry’s ‘Lightweighting Initiative’ headquartered in Berlin, supports German companies – particularly SMEs – implement their lightweight construction activities and accompanies cross-sector technology transfer (from complementary initiative measures to broad industrial application and serial production suitability). As the central contact point for industry, science and policymaker actors, the office coordinates the form of digital structural change in industry from a lightweight construction sector perspective.

Lightweighting Map for Germany
The map is an interactive online portal of all lightweight construction-relevant competences available in the country – covering all materials and technologies – that allows science and industry the opportunity to network. A comprehensive catalogue of around 250 criteria that allows providers and partners to be identified has been developed in close cooperation with all of the major sector players. Potential cross-sectoral suppliers and partners can be identified using the tool’s comprehensive sector-neutral search function. Registered organizations can also create and publish their own profile.
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, universities, 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.

All of our investor-related services are treated with the utmost confidentiality and provided free of charge.
Dr. Rainer Müller is the senior manager responsible for the lightweight industries in Germany Trade & Invest’s Mechanical & Electronics Technologies team within the agency’s Investor Consulting division. Dr. Müller advises foreign companies who are interested in joining the German lightweighting community through a direct corporate investment or joint R&D with German partners.

Prior to taking up his post at GTAI, he held a number of positions at regional and federal public agencies with activities including market intelligence, global scientific marketing and helping international companies set up their business operations in Germany, particularly in the nanotechnology and lightweight industry sectors.

For questions on how to establish your business in Germany, please contact Dr. Rainer Müller at rainer.mueller@gtai.com

For more information about lightweight technologies in Germany, please visit our website www.gtai.com/lightweight-industries

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About Us
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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