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Germany's 21st Century Energy Road Map

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

Chief Executives:
Dr. Jürgen Friedrich, Michael Pfeiffer
Managing Director Marketing & Communications: Peter Alltschekow
Director Publications: Andrea König
Editor: Eva Forinyak
Copy Editor: William MacDougall
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Photo: Anno Dittmer

Germany has a long tradition of environmental protection. The government's ambitious energy concept continues to cultivate the country's pioneering role in this area. Greenhouse gas emissions are expected to decrease by 40 percent by the end of the decade and at least 80 percent by 2050. At the same time, renewable energies should account for 18 percent of gross final energy consumption in Germany by 2020, increasing to 60 percent by 2050.

These goals confirm the magnitude of Germany's ongoing energy revolution. The government's energy road map will significantly influence the German economy in the coming decades, which is why we are dedicating our cover story to this crucial topic. We are happy to bring to you the highlights of the federal government's "Energy Concept for an Environmentally Sound, Reliable and Affordable Energy Supply" as well as the latest news from the main renewable energy segments in Germany.

Our agency works diligently to assist international companies looking to expand their business activities to Germany and enter our thriving renewable energy market. In recent years we have supported several international renewable energy companies in establishing a presence in Germany. The numerous new projects we have in the pipeline show that enthusiasm for Germany's renewable industry remains strong.

Germany's solar and wind energy sectors are not the only magnets for investors. As the fluctuating renewable energy supply continues to increase in Germany and elsewhere, there is a growing need for storage capabilities to compensate for off-peak energy generation gaps. As a result, the fuel cell and energy storage segment is set to take off in Germany, including the market for automotive batteries and fuel cell technology. Both are backed by dedicated initiatives and generous funding.

This issue shines a spotlight on the innovative character of the Germany economy with several stories about research and development in industries such as biotechnology and nanotechnology. We are also bringing you exciting industry features on organic electronics, plastics and IT. I wish you informative and entertaining reading.
Yours,

Dr. Jürgen Friedrich
Chief Executive

Germany's 21st Century Energy Road Map

The German Federal Government's "Energy Concept for an Environmentally Sound, Reliable and Affordable Energy Supply" promises to transform Germany's energy supply – and provides a road map to a truly genuine "renewable age."

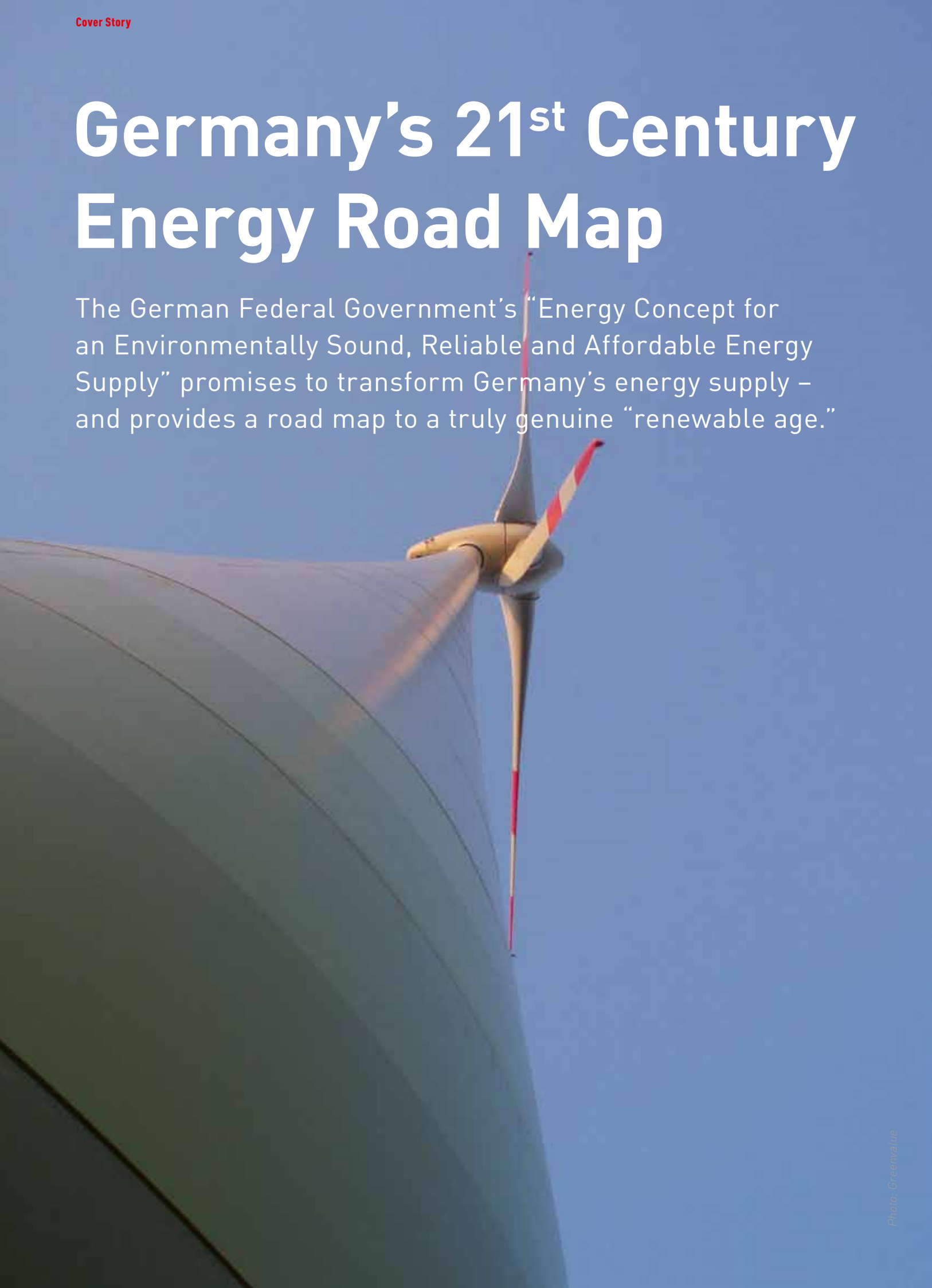


Photo: Greenvalue

Officially launched in fall 2010, Germany's "Energy Concept" is a long-term energy strategy for the period up to 2050. The aims of the plan are ambitious in their sweep but simple in their intent: the securing of a reliable, economically viable and environmentally sound energy supply to make Germany one of the most energy-efficient and green economies in the world. To do so, ambitious renewable energy targets of 30, 45, and 60 percent of gross energy consumption have been set for the years, 2030, 2040 and 2050 respectively. According to Federal Minister of Economics and Technology Rainer Brüderle, the central message of the country's visionary Energy Concept is simple, "we can make the age of renewable energy a reality."

The pressing challenge of sustainable energy provision is one born of long-term global trends and harsh energy realities. Transforming this energy vision into a renewable energy age reality is one of the greatest challenges of the 21st century, with global demand for energy expected to lead to a dramatic increase in energy prices in the medium to long term. As a result, dependence on energy imports will also increase significantly. This in turn leads to increased greenhouse gas emissions — the current energy mix accounting for 80 percent of all emissions at present.

For these reasons, renewable energy sources form the bedrock of the future energy mix, with renewable sources incrementally superseding conventional energy sources. Intrinsic to the Energy Concept is the need to ensure that the appropriate energy security and effective environmental and climate protection checks and balances are in place. Accordingly, the Energy Concept foresees the need to radically transform the present energy supply structures in Germany.

Windmill near Neustadt-Aisch

Germany: A Renewable Energy Pioneer

Germany has been blazing a renewable energy expansion trail for decades now, firmly establishing the country as both a European and international pioneer in energy, climate, and innovation policy matters. The creation of landmark framework conditions like the Renewable Energy Sources Act (EEG) has laid the security of investment groundwork for the current levels of growth in all renewable energy sectors. As such, the way has been paved for renewable energies to enjoy a growing role as an increasingly important pillar of energy supply and a driver of innovation in a changing energy infrastructure (e.g., flexible power plants, smart grids, energy storage, and other new technologies).

The defining activity areas of the forward-looking Energy Concept road map are as follows: The establishment of renewable energies as a cornerstone of future energy supply and energy efficiency. The creation of an efficient grid infrastructure for electricity and integration of renewable energy sources. Energy upgrades for buildings and energy efficient new buildings, and the country's mobility challenge (one million electric vehicles on the road by 2020 and six million by 2030). As Federal Chancellor Merkel has put it: "Through the list of measures of this energy concept we substantiate the age of renewable energies."

Energy Efficiency

The foreseen increase in renewable energies will be allied to comprehensive energy efficiency measures, the expansion of power grids, and the construction of new energy storage facilities. Newly constructed buildings which incorporate energy efficiency measures are one area with enormous potential.

The use of renewable energy-based heating (including heat pumps) in new buildings is a requirement laid out in the Renewable Energies Heat Act (EEWärmeG). In order to increase energy efficiency in buildings, energy standards were set at 50 kWh/m²/a in 2009. It is planned to tighten these efficiency standards by a further 30 percent in accordance with the Energy Saving Ordinance (EnEV) by 2012. Complementary to these acts and ordinances, several incentive programs promote efficient and renewable heating and cooling technologies.

Energy efficiency is also crucial to questions of global market competitiveness and industry innovation levels. Reports show that German industry could save up to EUR 10 billion a year through energy efficiency measures. This in mind, the German government is supporting a number of industry-led initiatives (e.g. Climate Protection and Energy Efficiency Partnership of the Association of German Chambers of Industry and Commerce) in order to promote increased efficiency.

Energy Storage

Dwindling natural resources, environmental issues and the thorny problem of guaranteed and affordable energy supply form the triptych of problems that bedevil notions of sustainable energy delivery. The fundamental shift to creating a truly sustainable world can only be achieved by developing new ways of combating these difficulties — energy storage technologies have emerged as a potential solution to questions of sustainable energy delivery. Renewable energies are all well and good, but they are subject to fluctuations — energy storage technologies allow these to be harnessed for the effective stabilization of the energy grid.

The German government will renew the Energy Act and exempt new storage plants — particularly pumped storage hydroelectricity and other forms of electricity storage — from grid access charges and open up the market regulatory powers for energy storage technologies. Adequate provision will be made to

ensure that sufficient incentives for biogas installations to temporarily store or feed biogas into the gas network in high wind periods — thereby shifting generation to low wind periods. This will be complemented by government support for existing biogas facilities which will allow installations to be equipped with additional generator as well as gas and thermal storage capacity.

Grid Infrastructure

The forecast scenarios show that wind energy will play a major role in electricity generation in 2050, creating the need for massive expansion of onshore and offshore wind power capacity. If the renewable energy mix envisioned for 2050 is to be effectively integrated and managed, the domestic and European power grids (i.e. a German overlay grid or "electricity highway" integrated into an interconnected European grid) will require expansion on a similar scale.

In order to support the future power grids, energy storage technologies will be established and smart metering supported. Moreover, the strategy also makes provision for a transparent and modern energy certification system and extensive energy saving regulations. "Securing the grid infrastructure is the most important strategic task for the development of renewable energies" says Norbert Röttgen, Federal Minister for the Environment, Nature Conservation and Nuclear Safety.

Inside of a windmill in Wallroth/Stork

Wind energy

Wind power is an important component of the energy mix in Germany. The German Federal Government intends to massively expand wind power potential by the year 2030. It is forecast that offshore wind park developments will generate power output of 25,000 MW by that time. Together with land-based wind energy farms, it will be possible to cover 25 percent of Germany's energy consumption needs according to the German Wind Energy Association (BWE).

With over 21,600 wind energy farms, a cumulated output of 27.2 GW and more than 46 GWh of potential energy yield in 2009, Germany is the largest consumer of wind energy in Europe. According to German Wind Energy Institute (DEWI) statistics, wind energy represents a share of almost 7.6 percent of gross electricity consumption — making wind energy the largest of the renewable energy sources in this field.

Massive investments are being made in offshore wind energy. Ninety wind park projects are planned in the North Sea and the Baltic Sea in the next 20 years alone. In many cases planning has not only been completed, but the projects have already been approved by the responsible authorities. In November 2009, the first offshore wind park — alpha ventus with twelve turbines — was completed in the German North Sea, 45 kilometers north of the island of Borkum.

The German government is stepping up its support of offshore wind farm construction. Although offshore operations incur more installation, maintenance and energy transportation costs than their onshore counterparts, the energy yield is significantly higher thanks to more full-load hours. Further offshore incentive is provided in the form of attractive EEG-regulated tariff payments.

Nevertheless, the electricity still has to be transported from the wind parks to the mainland and beyond. Current bottlenecks will be ironed out with the creation of high-performance electricity transmission grids commensurate with wind energy generation expansion plans. Around 3,600 kilometers of new transmission lines are required — equivalent to four times the distance between the city of Kiel in the north and Munich in the south. Another pressing task is the networking of household customers and large industrial sites, cities, and rural regions with differing power generation capacities.

Bioenergy

Central to the Energy Concept is the notion of sustainable and efficient use of bioenergy. As bioenergy offers a broad spectrum of uses and good storability, it will play an important role in future energy supply. The use of bioenergy as an important renewable energy source will be further expanded in all three areas of heating, electricity and fuel. The German government plans to press ahead with its policy of promoting sustainable biomass use for an environmentally friendly and secure energy supply.

Photo: Windpark Wallroth/Stork

The Silent Giant

In Germany, biomass currently contributes more to the supply of energy than other renewable energies. This is set to remain the case for the foreseeable future, as biomass offers many advantages in terms of availability and possible uses.

Biomass has an important position in terms of the supply of energy, as it not only provides electricity and heat but also provides a basis for fuels. Moreover, it is also possible to provide energy around the clock without the need for intermediate storage.

According to the National Biomass Action Plan, renewable energies should account for at least 18 percent of all final energy consumption in 2020. Bioenergy produced from biomass should account for roughly 11 percent of this amount. The German Bio-energy Industry Association (*BBE - Bundesverband Bio-Energie*) and the Agency for Renewable Energies (*Agentur für Erneuerbare Energien*) each forecast a 13 percent share. Based on this projection, the BBE expects annual turnover on a scale of EUR 20 billion by 2020.

Growing Bioenergy Market

In 2009, renewable energies accounted for 10.3 percent of final energy consumption in Germany, primarily as a result of the contribution made by bioenergy. This accounted for 7.2 percent alone. Wind energy provided 1.6 percent, and water power 0.8 percent of the final energy consumption. The remaining renewable energy share — including photovoltaics, solar thermal and geothermal energy — totaled 0.7 percent according to the Federal Ministry for the Environment.

In terms of primary energy production, the bioenergy sector was able to increase its 2009 share to 6.2 percent — almost one percentage point higher than the 2008 total of 5.3 percent. At the same time, the production of electricity from biogas particularly increased — reaching approximately 12 billion kWh in 2009. The supply of biogas electricity is remunerated with attractive tariffs set according to the renewable energies law. This is leading to strong expansion in the number of biogas systems. According to information from the German Biogas Industry Association, around 5,000 systems were installed by the end of 2009 with approximately 6,000 forecast for the end of 2010.

In terms of heat production, biomass — with a 92 percent share in 2009 — is clearly far ahead of the other renewable energies. According to data from the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, biomass combustion and biogas represent the most important sources. As Germany specifies the compulsory use of renewable heating in cogeneration in the new buildings sector, both biomass combustion and biogas are set to become increasingly important in the German heating market.

World's First Commercial Scale Biomass-to-Liquid Plant

A falling share was recorded for the production and sale of biofuels. The share of biofuels in terms of total fuel consumption fell from 7.2 percent to 5.5 percent between 2007 and 2009. In this context biodiesel sales fell but bioethanol sales increased, partly due to the introduction of E10 fuel on January 1, 2011.

According to the youngest regulations, a 6.25 percent share of (second generation) biofuels is to be used from 2010 onwards. Within this policy framework, Germany is constructing the first commercial-scale BtL (Biomass-to-Liquid) plant in the world. This will produce biofuels from renewable raw materials (i.e. materials which are not used as food products or as animal feed).

Biomass doesn't only have relevance as a fuel in the area of direct driving operations. It also plays an important role in the mobile future. In this context, with electric vehicles, the traction current is set to be covered with additional renewable energies as part of the national development plan for electrical mobility. This also applies to supplies with hydrogen, which can be produced with highly efficient electrolysis systems — powered by renewable energy — which is the current goal of the Federal Association of Biogenic and Renewable Fuels.

Indeed, vehicles can also be powered with biogas. However, this remains very much a niche sector. The feeding in biogas into the natural gas grid offers a high level of potential growth —once the raw biogas has been prepared to the required quality level. At present, only a few of these systems have been installed. However, the interest from local public utilities is considerable. The government is planning to extend supply with bio natural gas to over 1,000 systems in the year 2020.

Biogas facility in Güterglück

Photo: Green GECCO GmbH & Co.KG

Laying the foundation stone of the new Innotech production site in Halle

Norwegian Solar Producer Discovers Eastern Germany

One of the highlights of last year's investment decisions in the field of renewable energies was that of the Norwegian company Innotech Solar to set up its second European production site in Halle (Saale), Saxony-Anhalt. The solar company will invest around EUR 20 million into the first expansion step, providing 80 new jobs. A further 50 jobs are expected to be created as a result of future expansion steps. The production site is going to have a total floor space of 7,000 square meters.

Innotech Solar, headquartered in Narvik, Norway, purchases solar cells and uses industrial production techniques to increase the power output and guarantee the quality of the cells. The new factory is going to process up to 20.000 solar cells per hour from various manufacturers. In this process, contaminations of the cells are isolated and removed, restoring their full efficiency. This minimizes the energy and raw materials used for the production of high-quality solar cells. Innotech Solar is the only company world-wide specializing in this type of process. The company works with well-known producers such as Q-Cells or Bosch.

Competitive advantage

"Germany provides us with the ideal conditions to strengthen our business activities", said Innotech Solar CEO Thor Christian Tuv at the groundbreaking ceremony in October 2010. "A thriving photovoltaic industry cluster and outstanding infrastructure here are essential for us. We are sure the Halle site gives us a unique competitive advantage that will allow us to continue our company's extraordinary growth". The decision to invest in Germany is a testament to the country's well-developed PV industry. Manufacturers benefit from the "Made in Germany" reputation for high quality products, a well established industrial infrastructure, large equipment supplier base, and qualified workforce.

So once again, supporting the development of estates in areas with good infrastructure while creating an ideal environment for research and development through the establishment of the Fraunhofer Center for Silicon-Photovoltaics in Halle and Schkopau has paid off.

"Our decision was based on the infrastructure, such as the direct connection to the highway, state and municipal funding, availability of trained personnel and the efficient solar competence network in the region" — emphasized the Innotech Solar CEO.

Innotech Solar was assisted in the investment process by *Germany Trade & Invest* and the Investment and Marketing Corporation (IMG) Saxony-Anhalt.

Photo: Thomas Ziegler

World's Leading Solar Energy Producer

Germany is the world's leading producer of solar energy. With around 7 GWp of new photovoltaic (PV) installations in 2010, demand for PV systems has nearly doubled compared to 2009. This is no mean feat, considering the fact that Germany was already home to nearly half of the solar modules in operation worldwide at the end of 2010.

According to the latest figures, total accumulated PV capacity in Germany is approximately 17 GWp. There are over 70 manufacturers of silicon, wafers, cells, and modules active in Germany. In addition, there are over 200 PV material and equipment suppliers, more than 100 balance-of-system component manufacturers, and hundreds of project development, system integration and installation companies. These currently employ around 133,000 people in the German PV industry. PV manufacturers generated turnover of EUR 10 billion last year.

In order to meet strong future growth, the German PV industry made net investments of around EUR 1.8 billion in production capacities in 2009. A further investment of EUR 1 billion in R&D is planned for the period through 2013 — twice as much as the sum invested in the last four years.

The country is home to some of the world's biggest solar names including First Solar, Solarworld, Q-cells, Bosch Solar, Centrotherm, and Roth & Rau. First Solar and Avancis — as well as German PV companies SolarWorld and Juwi — announced large-scale expansion projects in Germany in 2010. All of these new investments will be made at sites in Eastern Germany, a major manufacturing hub for the country's globally renowned photovoltaic industry.

Sustainable Mobility

Germany's electric mobility strategy will be consistently pursued in line with the joint statement issued by industry and the German government on May 3, 2010. The aim is to have a million electric vehicles on the road by 2020 and six million by 2030. As part of the National Development Plan for Electric Mobility, the government will consistently push for the expansion of electric mobility and create the conditions for rapid market penetration.

Electric vehicles reduce oil dependence. However, electric vehicles only become virtually zero-emission vehicles when coupled with renewable energies. The image associated with a zero-emission vehicle (renewable electricity) is an important purchasing incentive for both fleet operators and first-time private buyers. The development of the National Hydrogen and Fuel Cell Technology Innovation Programme will continue. Thanks to their expanded range, fuel cell vehicles can make an important contribution to environmentally friendly and sustainable mobility in the long term — as long as the hydrogen used is produced from renewable sources.

Paradigm Shift

Germany's automotive industry stands on the verge of a paradigm shift away from the internal combustion engine toward electric mobility. The market for automotive batteries in Germany is expected to boom in the coming years. Electric mobility in Germany is backed by over EUR 500 million in federal funding through the National Development Plan for Electric Mobility. At the same time, industry players are also playing their part. All German manufacturers will have an alternative drive vehicle on the market this year and a fully electric vehicle by 2013.

There are currently eight model regions testing the application of battery-driven mobility within Germany. Thirteen additional locations are focusing on the smart grid infrastructure as well as information and communications technology for electric mobility. Partners range from carmakers (like Daimler and Volkswagen) to utilities, national and federal state ministries, and renowned research institutes. Pilot projects currently have several fleets of electric vehicles and are already building a charging infrastructure and testing applications including mail and cargo delivery. German researchers are addressing a wide range of electric mobility topics, covering such areas as battery capacity and light materials for auto bodies.

Charging an electric car

Contact renewables@gtai.com

Solar panels

Photos: RWE; Greenvalue

Indian Investments Flourish in the East

Indian investors are learning that Eastern Germany is a place where business can thrive.

Opening ceremony of the Kenersys plant in Wismar

A number of Indian projects in Germany's new federal states highlight Eastern Germany's strength in combining the benefits of western and eastern Europe in a unique way. The recent opening of a wind turbine production plant in the state of Mecklenburg-Vorpommern provides an excellent example. Last November, Kalyani Group subsidiary Kenersys inaugurated its first European plant in the port city of Wismar.

At the time, Kenersys spokesman Jochen Weick told reporters that the decision to invest at least EUR 7 million to build in the 800-year-old harbor town was all about "location, location, location." Weick said that the port facilities meant wind power generators could easily be shipped from Wismar to other European countries or the rest of the world. Moreover, Mecklenburg-Vorpommern provided plenty of space for the testing and demonstration of wind turbines and ready access to a highly qualified labor pool. Studies indicate that compared to Western Germany, labor costs are some 30 percent lower, though the training and educational level of the workforce is high. There also exist a number of incentive programs for investing in new and existing businesses in the east.

A Kenersys spokesman added that in the mid-term, the company expected to employ as many as 100 people at the plant which should eventually produce some 180 turbines annually. The new complex features two assembly bays that are 18 meters in height and equipped with crane bridges that can heft up to 100 tons. According to Weick, the plant built nine turbines destined for Sweden and Germany at the end of 2010, and 30 more were expected to be finished this year.

Speaking in an interview with *Manager Magazin*, the head of the Kalyani Group's flagship company Bharat Forge, Baba Kalyani, explained the motivation for India's investment in Germany succinctly: "We want to grow with high technology, and to do that, we need Germany." The company's activities reflect this. Bharat Forge has manufacturing operations in 11 locations in five countries: four in India, three in Germany, and the rest in the UK, the USA, Sweden, and China.

Perfect timing

Some of the attraction has to do with timing. India's growing economy is expanding abroad, particularly in the areas of renewable energies, microelectronics, machinery and equipment, and the automotive sector. The best-performing industries in Eastern Germany at present are renewable energies, microelectronics, machinery and equipment, and the automotive sector. Eastern German growth areas match well with Indian expansion plans.

Rajnish Tiwari confirms this assessment. At the Hamburg University of Technology, the researcher has been studying the investment behavior of Indian companies in Germany for years. In a 2010 study of Indo-German investment and cooperation, he noted that Indian firms prefer to invest in developed western countries. The report says that "the largest economy in Europe provides not only attractive market opportunities — but with its established technological prowess, high-quality infrastructure and reliable institutional set up, Germany is considered an excellent investment target by many Indian firms in their pursuit of the newest technologies and commercially viable cutting-edge innovations."

Photo: Kenersys GmbH

The story of Bharat Forge Aluminum Technik GmbH (BFAT) reflects not only India's need for German high-tech and engineering; it also illustrates the increasing tendency among Indian investors to expand into firms that can cover specialized niches in areas where the parent firm wants to grow. Many Indian investors have done this by acquiring struggling and obsolete German plants. BFAT is located in Brand-Erbisdorf, near Dresden. The company says its acquisition of CDP Aluminiumtechnik in 2004 marked the entry of Bharat Forge into the aluminum auto component business. The plant now supplies parts for car manufacturers such as BMW, Audi, Volkswagen, and Ford. BFAT describes itself as a significant player in Europe in the area of high-end aluminum forged components used in passenger cars and other automotive applications.

The operation employs some 100 people in the town, has an annual turnover of EUR 30 million, and is considered one of the most important employers in the area. It produces 1.7 million aluminum parts annually. Almost all of the people who work at the plant are local.

Long-term aims

BFAT plant manager Peter Hopp believes it was a major stroke of luck that Baba Kalyani bought the company six years ago, after its predecessor CDP Aluminiumtechnik went into insolvency. In an interview with the *Frankfurter Allgemeine Zeitung,* Hopp explained, "He [Kalyani] didn't come as a profiteer, he came with long-term aims. He wants us to earn our money here and reinvest it." Hopp added that "Baba" can produce better parts at a lower cost in Brand-Erbisdorf than he can in India, and that is why he chose to locate and keep the operation running in the region.

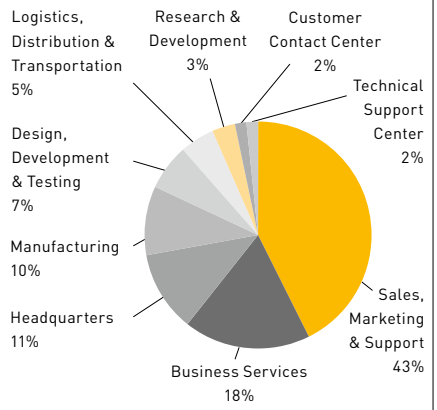
Another specialized automotive supplier and Indian subsidiary in the east is Eisenwerk Erla, of Schwarzenberg. A German foundry with a history of more than six centuries, it was taken over by Sanmar Metals Corporation, a Chennai-based group, just over four years ago.

The operation employs more than 250 highly skilled workers. Among its customers are Borg Warner, IHI, Audi, BMW, Honeywell, MAN, and Liebherr. The plant's annual capacity is 21,000 tons of castings.

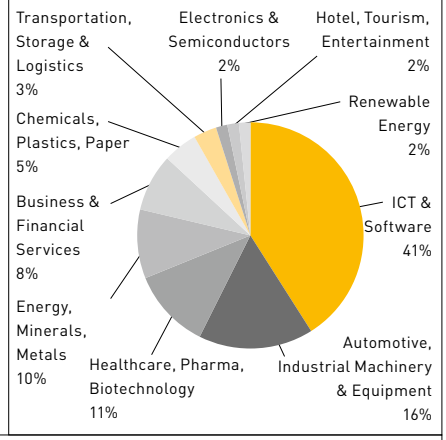
Dietmar Hahn is the senior managing director of Eisenwerk Erla. Speaking to the engineering publication *VDI Nachrichten* two years ago, he talked about Sanmar's investment in the plant. He explained that Sanmar was not working on a specific time frame, and explained the division of labor between the Sanmar's foundries in Chennai and the plant in Germany. The investment may come from India, but the benefits of the cooperation go both ways.

"Here in Saxony we planned a new foundry in India. It will carry out some of the finishing that would previously have been done at Erla, leaving the eastern German operation to focus more strongly on strategic, high-value products, for which the know-how is local," said Hahn.

Indian Projects in Germany by Business Activity (2003-2009)



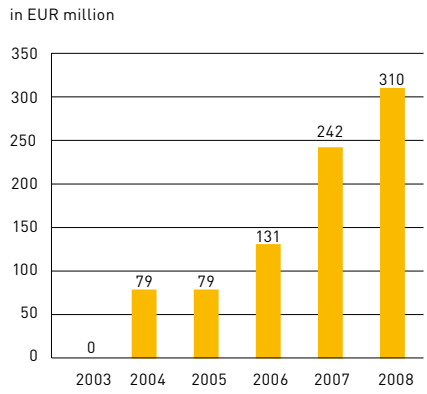
Indian Projects in Germany by Sector (2003-2009)



Note: FDI projects refer to greenfield and expansion investment projects. M&A projects are not included.

Source: fDi Markets, November 2010

Indian FDI Stocks in Germany (2003-2008)



Source: Bundesbank, 2010

Since then, Sanmar's Ferrotech Ltd. Plant has been built in Chennai. It serves both the German automotive industry and India's emerging market.

Contact asha-maria.sharma@gtai.com

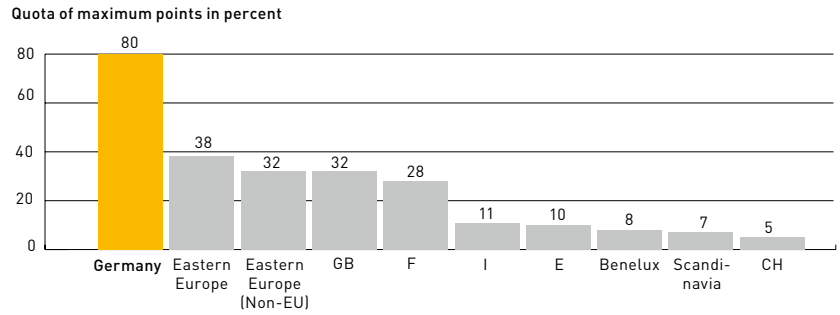
Germany: More Attractive than before the Crisis

International studies praise effective government strategies during the crisis

Germany chalked up excellent "crisis management" scores in a number of international business studies at the end of 2010. The government's swift handling of the global economic crisis also had a positive effect on the country's overall image.

According to the AmCham Business Barometer 2010, the annual publication of the US Chamber of Commerce in Germany, the country's attractiveness as a place to make investments has improved. In the same survey, Germany secured first place as the location for future main areas of investment in Europe. The country extended its lead as the most important European destination for US overseas investment, with 80 percent of the companies surveyed naming Germany as their first choice. "Besides the high process and product quality, US companies value the high quality of employees in Germany," explains Dr. Christian Veith, Head of BCG Germany. "During the crisis, the German domestic consumption, which is less vulnerable than other international counterparts, also had a positive effect on the propensity to invest." Fred B. Irwin, President of AmCham Germany, adds: "Our survey shows that US companies plan a long-term commitment in Germany."

Core area of investment in Europe in the next years



Ranking with points; grades 1-5 could be assigned only once Source: AmCham Business Barometer 2010

Europe's top location

Ernst & Young's annual European Attractiveness Survey arrives at a similar conclusion. As was the case in the previous year, Germany came out top as the most attractive investment location in Europe. According to Ernst & Young, managers questioned consider Germany to be the global leader in environmental technology, the center of research and development and the internationally leading center of education in the next 10 years. "The knowledge pool of excellently trained employees is one of the important bases for future success of Germany."

AmCham Germany emphasizes the importance of German productivity to these findings. "German virtues such as hard work, dedication and diligence" are also responsible for the country's strong showing, which also benefited from a high level of security and quality ratings. Productivity is consolidated by Germany's performance in the "best infrastructure of a less densely populated country with enormous distances" category. In a global ranking, only the city state of Hong Kong is above Germany.

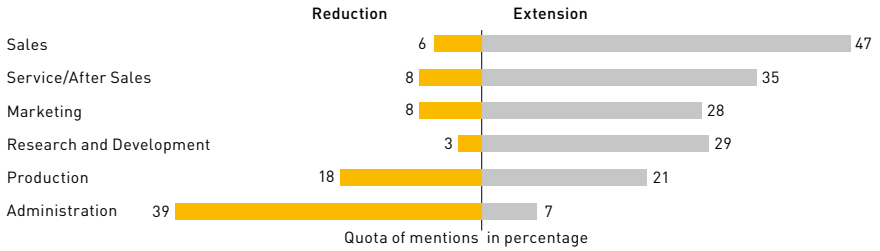
A further positive factor in Germany's favor is a healthy domestic market and its central location in Europe. The AmCham names stable domestic demand as an "essential seal of quality for the location Germany." As well as this, "the size and the maturity of the German market" plays a significant role.

Proximity to domestic customers is seen as an important source of innovation. For example, direct contact to automotive manufacturers carries significant weight for foreign automotive suppliers who choose to locate in Germany.

Effective government policies

While these are all reasons cited for excellent German performance in normal circumstances, a special factor has made itself felt during the global economic crisis: government policy. Both the AmCham and Ernst & Young emphasize that the measures implemented by the German government since the beginning of the crisis have been positive and effective in stimulating the economy. Measures made in the labor market were singled out for special praise by the AmCham, whose respondents were particularly satisfied with the country's "short-time" labor policy which allowed the existing labor force to be maintained despite the downturn. Forty-five percent of companies surveyed were able to maintain their labor base in this way, preparing them for the next economic upturn.

Planned changes in value creation in Germany



Quota of mentions of grade 1 and 2 ("Reduction") and of grade 4 and 5 ("Extension"); scale from grade 1- "substantial reduction" to grade 5- "substantial extension"

Source: AmCham Business Barometer 2010

Contact invest@gtai.com

None But the Brave Deserve the Fair

Germany is the recognized world leader in international conference events – with two thirds of all internationally leading industry exhibition and trade fair shows taking place on German soil.

This is in no small part thanks to the attractiveness of Germany to international exhibitors. According to the Institute of the German Trade Fair Industry (AUMA), foreign exhibitors have accounted for more than 50 percent of all "national trade fair" events for a number of years now. In 2009, 135 national trade fair events took place in Germany, attended by more than 150,000 exhibitors — of which 53 percent were overseas based. German trade fairs are widely considered to be an excellent platform for developing international business connections.

Messe Frankfurt

Strong EU Presence

International trade fairs in Germany are dominated by European Union (EU) companies: EU member state-based companies enjoy a 54 percent "foreign participation" share; their non-EU European counterparts a modest nine percent. Around one in four exhibiting companies are southeast central Asian in origin.

Companies from the USA and Canada had a share of six percent, followed by the regions of Latin America (two percent) and the Middle East and Africa (two percent respectively).

The German trade fair business was naturally affected by the economic crisis, recording a 4.3 percent downturn in 2009, but the situation has since stabilized. Preliminary results for the first half of 2010 point to an imminent end to the downturn, although exhibitors remain cautious. "There is an unchanged sensibility for the costs. Exhibitors look very closely to the efficiency of the fairs. They want to continue controlling the costs very tightly further on, even in times when turnovers are increasing after the crisis" —says Hans-Joachim Boekstegers, Chairman of AUMA.

World Trade Fair Leader

Germany's position as an undisputed leader in the international trade fair sector remains secure.

The country performs well in the large scale trade fair site (hall space of at least 100,000 m^2) category, with a total hall space of 2.21 million m^2 at ten locations. In comparison, Asia has a total hall area of 1.03 million m^2, the majority (0.79 million m^2) is in China at five locations, with the remaining space in Bangkok and Singapore.

There are an impressive seven German trade fair companies in the group of the 24 leading international organizers (annual turnover in excess of EUR 100 million). According to AUMA, the Messe Frankfurt was the strongest German trade fair organizer in 2009, with a turnover of EUR 424 million. 2011 started very promisingly too, with the *Heimtextil* trade fair in Frankfurt. "The home-textile highlight at the beginning of the year was a great success with five percent more exhibitors and three percent more trade visitors from 136 countries", said Detlef Braun, member of the Board of Management of Messe Frankfurt, summarizing the results of the world's biggest trade fair for home and contract textiles. "Important for us, however, is not just the growth in participant numbers but also the increased quality of the fair, which both exhibitors and visitors rated as being very good."

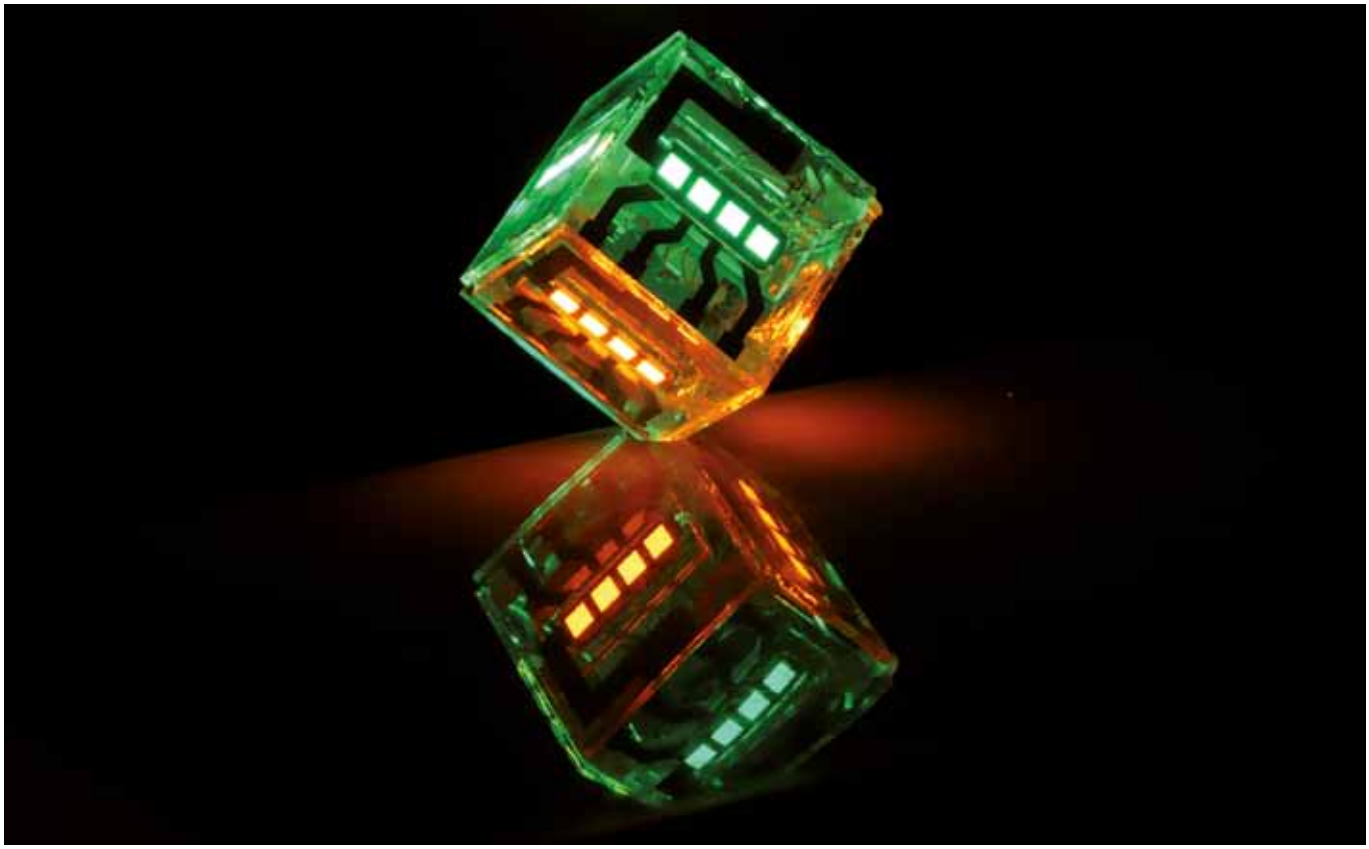
The significance of the German trade fair industry to the wider economy is considerable. A study conducted on behalf of AUMA by the Munich-based Ifo Institute provides an analysis for the period 2005 to 2008. On average, 821 national/international and regional trade fairs and events — with more than 331,100 exhibitors and 26.6 million visitors — took place during this period.

www.auma.de

Photo: Messe Frankfurt GmbH

Organic Electronics Get the Green Light

Organic technologies are on their way to becoming a breakthrough commercial success in Germany.



Colored OLED-cube with three green and three orange OLED panels made by IAPP

We've already seen the lower case "e" and "i" prefixes appended to all kinds of 21st century technological innovations, such as in the area of online services (e-mail, e- government etc.) and consumer electronics goods (as in Apple's ubiquitous "i" product palette). Now another letter is aiming for individual fame, as it seeks to establish itself as a worthy competitor to its fellow vowels: the "o". And it's not just any "o." It's the big "O," meaning "organic." After a (significant) R&D phase, organic technologies are well on their way to becoming a breakthrough commercial success thanks to innovative developments taking place in Germany. They might mean nothing to you now, but the "OLED" and "OPVC" abbreviations will, in time, enjoy the sort of widespread cultural cachet currently afforded to the O's better known siblings "e" and "i".

The OLED technology

But what exactly are these technologies? OLED (organic light-emitting diode) technology is helping revolutionize the world of display lighting. OLEDs are already being used in MP3 players, mobile phones and for signage. But these applications are just the tip of a large iceberg, as the work being conducted by chemical company Merck in Darmstadt highlights. Since 2010, the company's research facility houses the world's biggest OLED display (produced as part of the Mitsubishi OLED Diamond Vision Series and fitted with Merck technology), measuring in at an impressive 3.8 x 2.3 meters (12 ft 5 in x 7 ft 6 in). OLEDs' suitability for large displays promises better picture contrast, increased pixel count and lower production costs. Moreover, they also promise energy efficiency benefits: self-emitting OLED materials only use energy when illuminated. This is not the case for conventional screens and monitors, whose liquid crystal technology requires a permanent back light.

These are still early days, but OLED lights developed in Germany will illuminate our houses and be implemented into our vehicles in the near future. According to some forecasts, approximately one third of all light sources will be LED-based by 2025. A number of companies are working hard to develop procedures for OLED light mass production, with prototypes already exhibited at last year's "Light+Building" trade fair in Frankfurt. In a radical break with conventional lighting production, OLED lamps can be manufactured using mass printing processes. These are incredibly flexible and more energy efficient than current energy-saving bulbs — an important selling point for the significant R&D investments being made. Steven

Photo: Carsten Wolf, IAPP-Institut für Angewandte Photophysik, TU Dresden

Parker, President of SLV Lighting in North America, has participated in and exhibited at the trade fair in Frankfurt several times over the last years. The main benefits for Parker, a member of the American Lighting Association's Engineering Committee, are the insights the show offers on the comparatively advanced technologies available on the European market. Parker's lingering concerns about LED light sources were diminished once he witnessed the progress that had been made, especially in regards to light levels defined by the color rendering index (CRI). Parker told US magazine *Residential Lighting*: "We definitely see [solid-state lighting] as the future [and this] as a pretty exciting time to be in the industry. Before, there were just compact fluorescent, halogen and incandescent [light sources], nothing really new and exciting. Now we can really think outside the 'bulb' with solid-state lighting and take advantage of the uniqueness of the technology and [the possible] shapes to come up with some very different light fixtures."

New design possibilites

Even light designers are discovering the story of "O". OLEDs allow completely new design possibilities for surface lighting, because they can be used as transparent wafer-thin layers on all surfaces. Munich-based light manufacturer OSRAM, a subsidiary of Siemens, has developed a marketable solution in its "PirOLED" product. This hybrid light combines a directed LED-share with a softer OLED light. The company presented the pioneering concept in Berlin (Bauhaus-Archiv Museum of Design) and Milan (SuperPui Design Trade Fair) in 2010 and is currently building a first product line for OLEDs in Regensburg. "We hold a leading position in the young and promising OLED market," says Martin Goetzeler, CEO at OSRAM. "We want to use the pilot production line to extend our lead, quickly [move] ahead with development of the technology and prepare for mass production [as soon as possible]."

But it's not just OLEDs that are trying to claim the "O" limelight. OPVCs (organic photovoltaic cells) represent a fine example of a technology's journey from the research lab to the commercial market. Dresden-based photovoltaic company Heliatek, in cooperation with the Institute of Applied Photophysics of the Technical University Dresden, has received international acclaim for its high-performance cells. The photovoltaic calibration laboratory at the Fraunhofer ISE has independently corroborated an efficiency level of 8.3 percent on an active surface of 1.1 cm^2 — a result that is the first of its kind worldwide. The cells represent an international milestone in efficient low-cost solar modules. Potential future areas of application include use in mobile electronic devices and in the field of membranes for extremely flat and lightweight roofs. The first products are expected on the market by 2012.

The European Union (EU) is also hitching its wagon to the growing "O" caravan. Research funds to the tune of EUR 12.5 million have been set aside for the OLED100.eu project to speed up the development of OLED technology. According to the project's participants, the efficiency of OLEDs — believed to be five times greater than that of incandescent lamps — could greatly contribute to reducing greenhouse gases. Some 15 research and industry institutions from across Europe have joined forces under the OLED100.eu umbrella — nine of which are based in Germany. The network is coordinated from Aachen in Germany by the research laboratories of the Philips Technologie Corporation and is the largest of three EU OLED research programs.

Contact evelyn.moeck@gtai.com

OSRAM's first OLED lamp

Photo: OSRAM GmbH

Franchising Gathers Pace in Germany

Franchising in Germany is taking off – thanks in no small part to international brands

Rapid company expansion with low capital expenditure and shared risk levels — that is the basic philosophy of franchising. The franchisor carries out the developmental work for products, technology and services, which are then provided to the franchisee for economic exploitation at an agreed fee.

The growth of this business model in Germany is borne out by 2010 figures provided by the Deutsche Franchise-Verband (DFV — German Franchise Association) which show that there are currently 64,000 franchisees in Germany. According to the DFV, this is 3,000 more than the previous year. The number of franchisors has also increased — from 980 in 2009 to one thousand in 2010. This development is connected to a clearly recognizable expansion of the franchise system to a wide spectrum of business models, accompanied by a noticeable increase in the number of employees and a massive growth in turnover. "In the franchise-economy innovative business ideas are multiplied by motivated franchisees. We expect also in the future an increasing number of franchisors in Germany" — says the managing director of DFV, Torben L. Brodersen.

A Decade of Market Growth

By the end of the 1990s, franchise turnover within Germany was still less than EUR 20 billion. Fast forward to 2010 and that figure has more than doubled, with the DFV estimating a total market value of EUR 48 billion. Curiously enough, the global downturn of 2009 has spurned many — uncertain about their long-term job prospects — on to the path of self-employment as a franchisee (paralleled by a year-on-year sales growth of EUR 4 billion). The franchising trend is continuing throughout the current economic upturn in Germany: 20,000 more employees were working in the franchise sector in 2010 than were in 2008.

Franchise business in Berlin

The service industry accounts for the lion's share of franchise market growth, with almost half of all franchises with a wide range of services — ranging from private tutoring services and estate agents to opticians and fitness centers. This is followed by trade and the hotel and gastronomy industry. Particular growth opportunities still exist in the handicraft sector, for which there is pronounced demand in Germany.

New Franchise Concepts and Trends

The leading suppliers of franchising systems in Germany include travel providers like TUI and fast food outlets such as McDonalds, as well as companies in the education sector such as student coaching. The *Franchise Direkt* industry portal lists more than 30 industries, in which would-be franchisees can search for business opportunities. The scope ranges from "Cars and Other Vehicles" to "Cosmetics," "Sports," and even "Pet Supplies." For 20 years, the German economic journal *Impulse* has been awarding a prize for the best franchise system. Suppliers from a huge range of industries have been awarded the prize: from specialized baby shops, to tea dealers and pet food distributors. Household names including Backwerk, Burger King and Fressnapf make up the running in Impulse's 2010 list of the top 100 franchise systems in Germany. However, 14 new systems including American tool provider Snap-on Tools and the German Tchibo retail brand have moved up the ranks. DFV's Brodersen observes a strong increase in franchise concepts in the German market, particularly in areas like nursing services. Plans are afoot to establish franchise concepts also for other services in the health care system such as doctors, nursing homes, hospitals and pharmacists.

Europe catches up

At present, a predominant proportion of German companies are still represented in Germany as franchisors. However, ten percent of the franchise systems already come from abroad: these are predominantly the major fast-food chains, of which some such as McDonalds and Burger King have been active in Germany for a very long time. In the past years, more and more fast-food companies have sprung up, such as Subway and Starbucks. A trend which is lasting: For example, in November 2010, Domino's Pizza opened its first branch in Germany — the chain is one of the market leaders of international fast-food chain gastronomy, with more than 9,000 franchisees in over 60 countries.

In comparison to the USA, the homeland of franchising, there is a series of regional characteristics in Europe which foreign franchising companies must take into account. For example, the International Franchise Association (IFA) with its headquarters in Washington D.C. makes reference in an analysis of the French market to the lack of English language skills of possible franchisees. The IFA evaluates the trend in Germany to be positive overall: constant growth in the sector can be clearly seen. This is also how Birgir Thor Bieltvedt, managing director of Domino's Pizza Germany, sees it. "Germany is an ideal location for our expansion plans," he said at the opening of the first franchise branch of his chain in November 2010 in Berlin. The market is large and Germans appreciate comfort and quality. This provides good opportunities for franchisees from abroad. **www.franchiseverband.com**

Contact daniel.lindel@gtai.com

Photo: GTAI

Europe's Stronghold for Plastics

From production to processing and recycling, German companies are European leaders thanks to their competitive and innovative products.

Germany accounted for approximately 7.5 percent of world plastics production in 2009, producing 17 million tons of the versatile material. The country is also the European center for plastics — not only in terms of production and turnover, but also in terms of investment in production capacity and R&D activities. German companies are also the European leaders when it comes to new patent applications.

Industry attracts foreign investment

As the impressive number of projects in recent years amply demonstrates, Germany has long since established itself as an attractive foreign investment location. According to figures from the German Federal Bank, between 2000 and 2008, foreign companies invested EUR 6 billion on average in the plastics and rubber industry each year.

The German plastics producers, processing industries, the industry-related research institutions and centers of excellence are setting the international standards with their excellent infrastructure, know-how and their results in research and development. Their innovative plastics and special products are developed and manufactured at over 40 chemicals and plastics clusters and 28 chemical parks — with full R&D infrastructure — that specialize in polymer production. On this basis, the complete plastics and rubber industry achieved a turnover volume of roughly EUR 88 billion in 2009.

According to PlasticsEurope Deutschland e.V., plastics production in 2009 generated turnover of EUR 34 billion (or volume of 9.9 million tons). Production levels have recovered swiftly from the collapse in demand experienced in 2009.

The plastics processing industrial segment alone achieved turnover of approximately EUR 48 billion. As the German Association for the Plastics Processing Industry (GKV) reported at the "K 2010" industry event in Düsseldorf last year, turnover increased by 15 percent in the first half of the year.

More than 72 percent of the plastics produced in Germany are sold within the European market. The biggest buyers are France, Italy, the Netherlands, and Poland. Conversely, German companies purchase 92 percent of their plastics from the member states of the EU. In 2009, plastics exports totaled 10.9 million tons compared with import levels of 7.2 million tons over the same period.

Contact peggy.padur@gtai.com

Photo: PlasticsEurope Deutschland e.V.

"K 2010" trade fair in Düsseldorf
Stand of PlasticsEurope: "Visions in Polymers"

"K" Trade Fair in Düsseldorf

The positive market trend was clearly felt at "K 2010," the world's biggest trade fair for the plastics and rubber industries held in Düsseldorf at the end of last year. The 3,102 exhibitors and 222,000 trade visitors were in an excellent mood: companies reported an overwhelming volume of contacts, a marked willingness amongst trade visitors to invest, promising new customer contacts, and many new business deals. Our agency was represented at the booth of the association PlasticsEurope Deutschland e.V. *Germany Trade & Invest* introduced the new brochure "The Plastics Industry in Germany," which was produced together with the association. The brochure shows how foreign companies benefit in Germany from the advantages of the single European market, the existing structures along the entire value chain and explains the good access to innovative clusters and high-quality research.

Around 57 percent of "K" visitors came from outside Germany. The biggest group here came from Asia — with approximately 30,000 experts. With 10,500 guests, the Indian subcontinent again accounted for the largest share of Asian visitors. Some 7,600 trade visitors came from the USA and Canada.

Plastics can look forward to a bright future as a material for creative ideas, particularly in the field of energy efficiency and saving resources.

The next K Düsseldorf event will be held from October 16 to 23, 2013.

www.k-online.de

High-Tech Germany Attracts Contact Centers

A highly qualified multilingual workforce makes Germany the preferred choice for contact center companies looking to enter the European market.

With almost 6,700 contact centers nationwide, the German contact center sector has attained considerable market significance, with the positive trend set to continue. In fact, the sector has recorded a 10 percent growth increase over the past 10 years. More than half a million people are employed in the domestic call center industry, with 100 thousand more expected over the next five years. It is a little known fact that the contact center sector is the fifth largest industry sector in Germany.

Businesses looking to serve specific markets require call center providers that can meet specific client needs. A number of leading international and German companies have already recognized this fact, and are currently serving the German market, either with their own activities in Germany or in close strategic partnerships with local partners.

Servicing domestic and European markets

With a population of 82 million, Germany offers a wealth of opportunities to serve clients. The German economy is both highly industrialized and diversified — with equal focus placed on services and production. Call center providers generally choose to base regional hubs in Germany to serve either the large German domestic market alone or in combination with other, smaller European markets. In 2008, contact centers in Germany registered an average of 23 million contacts with German customers per day.

World's best infrastructure

The country's state-of-the-art telecommunications infrastructure is able to support CRM operations ranging from customer service functions and sales and marketing to more complex operations such as healthcare, financial, and software consulting services. At the same time, the fully developed transport infrastructure within Germany provides optimum conditions for employees to reach their workplace quickly.

Quality personnel

Highly trained personnel underscore Germany's reputation as an excellent location for contact centers. The establishment of a "dialogue marketing and sales" training track in Germany has raised the profile of the call-center profession and improved the caliber of employees entering the industry.

Germany is an international and multicultural country. More than 60 percent of the German population speaks English and a large number of Germans are capable of speaking other foreign languages. Over six million foreigners provide language skills that can complement an enterprise's needs when reaching a pan-European or global market.

Contact christian.holl@gtai.com

"Live Call Center" project at the "Call Center World 2010" congress in Berlin

Photo: Management Circle AG

20 years of German unity

IT Competence from Central Germany

The newly established *IT Mitteldeutschland* ("IT Central Germany") cluster is bringing together the innovative strengths of the industries in the region.

Ten IT companies from the states of Saxony, Saxony-Anhalt and Thuringia joined forces in 2010 to form the *Cluster IT Mitteldeutschland e.V. ("IT Central Germany")*. The aim of this initiative is to increase the innovative capabilities and the competitiveness of the IT location of central Germany and generate international awareness. "We aim at heightening the profile of the economic area of central Germany in the IT industry and attracting specialists, company founders and existing companies" said cluster chairman Ingo Schöbe, of Leipzig-based data processing company Perdata Gesellschaft für Informationsverarbeitung mbH. "In the last few years, companies from central Germany have successfully brought a range of IT innovations onto the market."

The IT Mitteldeutschland cluster will also ensure that future contact between young IT companies and potential investors from the venture capital field is optimized. As well as this, the IT cluster wants to support companies in gaining and retaining qualified employees. Demographic change in Germany means that there will be less young IT experts available in future. This initiative also seeks to show that the region can compete with IT locations in western Germany. Ingo Schöbe is clear on the subject. "The exodus of IT specialists to Munich, Frankfurt and Dusseldorf is accepted as being natural. We must achieve the result that such an exodus to Leipzig, Jena or Magdeburg is seen just as natural in the eyes of the expert world." To do so, the initiative targets IT specialists with information highlighting the benefits and high quality of life in the central belt.

High Innovative Capabilities

Information technology in central Germany is an extremely innovative and high-performance service industry with increasing cross-regional effects. Approximately 700 companies employ a workforce of over 25,000. Many businesses – mostly small and young companies – in the major regional centers of Saxony, Saxony-Anhalt and Thuringia work on individual solutions and web services for company networks. Cluster board member Gerhard Oppenhorst from ESC in Halle describes the situation thus: "In central Germany in the last few years, structures have been formed which enable the bringing together of competences and capacities in the IT field, in a way that does not exist in other areas. In particular, the many small but highly specialized IT providers can systematically complement the offers of large IT providers or easily combine services from the portfolio of these companies with their own services."

An example. This philosophy has proven successful for GeoContent, a company which specializes in the evaluation of aerial photographs. The large IT companies in the region are known as complete service providers. So, over the last few years, for example, they have continuously developed the appropriate IT solutions for the energy sector in Germany which is becoming more and more complex.

The Cluster is Growing

The founding members of the IT cluster employ over 3,000 employees in the region, working in everything from small software companies to large IT service providers. In November 2010, two further companies, PC-WARE and AV-Test GmbH, joined the initiative. The aims of the initiative are also supported by universities and research institutes in the region. The members of the IT Mitteldeutschland cluster are convinced that it is improving the region's competitive opportunities. Klemens Gutmann from regiocom in Magdeburg gets to the heart of the matter: "The economic region of central Germany is already a reality."

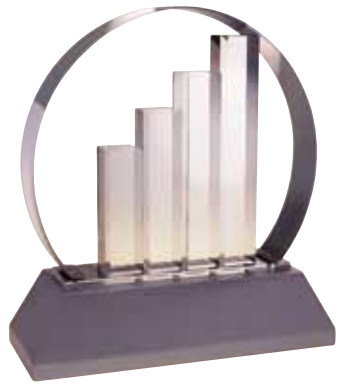
www.it-mitteldeutschland.de

Aerial view of the city of Magdeburg in Saxony Anhalt (created by GeoContent)

Photo: GeoContent GmbH

Germany's 2010 Entrepreneurs of the Year

Ernst & Young presented its "2010 Enterpreneur of the Year Award" to six German business leaders at the end of the year.



"This year's winners distinguished themselves through technical innovations, business foresight and personal courage," said Wolfgang Glauner, the award's organizer and project manager. Ernst & Young awards the prize in five categories (industry, retail, service, information and communication technology/media, and start-up). "The winners of each category convinced the jury not only with their success and growth rates but also with their courage in taking risks and their social commitment." One of the most prestigious business honors in Germany, the Entrepreneur of the Year Award show was held at a gala event in the Alte Oper concert hall in Frankfurt.

Entrepreneurs of the Year

Industry

Claus Hipp, managing partner of Bavaria-based organic baby food producer Hipp Werk Georg Hipp OHG. Hipp, 72, a pioneer in organic food production, has led the family-owned company since 1967. Under his management, Hipp has seen continued business growth, becoming the largest baby food producer in the world. The company has been making organic baby food since 1956.

In addition to Germany's Entrepreneur of the Year award for industry, Hipp was also nominated for the 2011 World Entrepreneur of the Year. The winner of the international competition, in which representatives from more than 50 countries take part, will be announced at an awards ceremony in Monte Carlo in June.

Retail

Dirk Rossmann, founder and chief executive of drugstore giant Dirk Rossmann GmbH in Lower Saxony. From opening his first discount drugstore in Hanover in 1972, Rossmann has watched his business grow to become the third largest drugstore chain in Germany. It has also expanded into foreign markets including Poland, Hungary, the Czech Republic, Albania, and Turkey.

Service

Thomas Riedel, founder and CEO of Riedel Communications in North Rhine-Westphalia. Founded in 1987, Riedel develops, manufactures and distributes highly specialized communications solutions for the broadcast, theater and event markets such as the Olympics and Formula 1. Riedel is also a leading provider of innovative solutions for data transport. Today, the company is spread over nine locations in Europe, Australia, Asia, and North America.

Information and Communications Technology/Media

Rainer Gläss, founder and CEO of GK Software AG in Saxony. Gläss has developed the group into a leading global engineer of software solutions for retail chain enterprises. Since its establishment in 1990, GK Software has — along with its customers — expanded throughout Europe, Asia, and North America and currently operates in over 30 countries.

Start-up

Robert Stöcklinger and Uwe Heinze, founders of G+R Technology Group AG in Bavaria. Established in 2006, G+R Technology has in a short time become one of Germany's green technology leaders. Stöcklinger and Heinze managed to turn an insolvent machine construction firm into a state-of-the-art company focused on diverse and innovative technologies and solutions for the creation of renewable energies, the solar and photovoltaic industry, biomass and waste water treatment, heating and cooling systems and the automotive, offshore, aerospace, and construction fields.

(From left to right): Wolfgang Glauner (Ernst & Young), Robert Stöcklinger and Uwe Heinze (G+R Technology Group AG), Rainer Gläss (GK SOFTWARE AG), Dirk Rossmann (Dirk Rossmann GmbH), Professor Claus Hipp (HIPP Werk Georg Hipp OHG), Hans Riedel (RIEDEL Communications GmbH & Co. KG)

Photo: Ernst & Young GmbH

20 years of German unity

Small Firm Sector a Winner in Eastern Germany

SMEs play a decisive role in improving the economic conditions in the east

A four-hundred year old firm in the Eastern German state of Saxony is in the money - quite literally. Saxonia Eurocoin is one of the world's biggest coin blank manufacturers. Every day the company, based in the village of Halsbrücke, produces 20 million blanks, helping generate annual turnover of EUR 80 million.

The firm is just one of many mid-sized operations in Eastern Germany that are helping to drive Germany's latest economic upswing, reports *Wirtschaftswoche*. Although Saxonia, which employs some 100 people, is part of DNick plc, a British limited company based in Schwerte, many of the eastern mid-sized firms are companies established and run by families or private individuals.

Winter garden and fiberglass furniture by Masson

Photo: Masson-Wawer Fiberglassmöbel GmbH

Fiberglass furniture a hit at home and abroad

One example is decorative fiberglass and aluminum systems manufacturer Masson, based in the state of Mecklenburg-Vorpommern. Just over twenty years ago, the family Masson-Wawer, established their company. In the intervening years the company has grown to employ 50 people — including the couple's son and daughter-in-law.

The firm is unique in Germany. Among its products are items of furniture made of fiberglass with the appearance of rattan. The items are a hit at home and abroad, with the company exporting to customers in UK, Russia, the Czech Rebublik, Austria, Belgium, Turkey, Denmark, Spain, Italy, Croatia, and other countries.

Industry experts believe that it is companies like Masson and Saxonia Eurocoin that are helping improve economic conditions in the east of the country. Jenoptik managing director Lothar Späth observed that "the most successful [firms] are those that start small and with specialized knowledge. They have grown into mid-sized companies with 100, 200, or frequently even 250 employees."

Supplying niche markets

Osteestaal is another small firm success story. The 10-year old company specializes in making made-to-measure structural building components cut from three-dimensionally formed steel plates. Serving the shipbuilding and metalworking industries, it employs around 160 people and is part of the Netherlands-based CIG Group.

The company supplies niche markets, yet when business in one area dries up, it starts looking for a new industry to serve. This happened recently when orders from shipbuilders lulled in 2009 as a result of the economic crisis. A short time later, Ostseestaal began cooperating with the Stralsund Technical College and University of Rostock to develop a patented process that could revolutionize the manufacture of large pieces of formed steel. Among the potential products that could arise from the innovation are steel wind turbine blades for the wind energy industry currently taking root in the east.

The EUR 5.6 million project is being supported with EUR 4.1 million from the Economics and Research Ministry of Mecklenburg-Vorpommern, with Ostseestaal covering the remaining EUR 1.5 million. The company says the steel rotor blades will range from 20 to 50 meters in length, have a superior service life, be recyclable, and be produced at a cost comparable to conventional blades made of reinforced carbon fiber or fiberglass synthetics.

A western German-based group of consultants recently conducted research into family firms operating in Eastern Germany. The results showed that family-run companies in Eastern Germany are generally satisfied with the location and rated the quality of highly-trained workers there as being good to satisfactory. Another finding was that Eastern German entrepreneurs tended to be strongly oriented towards the Anglo-Saxon market model.

Financing the Business Dream

Where can young entrepreneurs get much-needed start-up capital?

Young people are brimming with ideas for new businesses. But a promising idea and a well thought-out plan are often not enough — there's still the thorny issue of paying for everything that goes into starting a new company from scratch.

In fact, according to the KfW, Germany's government-owned development bank, 70 percent of potential German start-ups lack one vital ingredient: cash. And, according to a recent study by Microsoft Deutschland and the Center for European Economic Research (ZEW), a further 70 percent of those would-be companies that cannot secure funding simply give up.

Venture capital – 100 percent plus year-on-year increase

The hurdles to securing start-up funds in Germany are numerous. For one thing, Germany is not a land teeming with venture capitalists like the US — where over 800 of them court promising business ideas and pump billions into start-ups even in the roughest of times. Second, even though the economic crisis is behind us, investors are still much more interested in sure bets than they are in high risks (albeit with potentially high rewards). According to the Munich-based consulting firm Fleischhauer, Hoyer & Partner, German venture capitalists poured EUR 147 million into start-ups in the second quarter of 2010; a year-on-year increase of over 100 percent. However, the lion's share of these funds went to start-ups in the growth phase rather than those still crouched in the starter's blocks.

What makes Germany special though is the fact that business people can look to a range of other options for financial support — and it comes from a wide range of sources.

Germany top for public support

When it comes to public support, international experts rank Germany at the top. One source of support is Germany's Federal Employment Agency (www.arbeitsagentur.de), which provides grants to unemployed individuals wishing to become self-employed. The grants include transitional allowances and the business start-up subsidy *Ich-AG* ("Me Inc.") as well as nine months unemployment and social security payments with the possibility of EUR 300 in support for a further six months. Cashbits co-founder Lena Sönnichsen is a case in point. After quitting her job to make the leap into self-employment, a bank loan fell through. But the agency's funding helped Sönnichsen make ends meet while securing investors. This allowed the businesswoman to get her business — which lets shoppers collect bonus points from small online retailers — off the ground.

Through the KfW (www.kfw.de), Germany's federal government also offers entrepreneurs loans with lower interest rates and generous repayment schedules. For example, a EUR 100 thousand loan from the KfW helped three young men in Berlin launch Coffee Circle, an online retail platform for eco-friendly coffee that ploughs a share of its proceeds back to local producers in Ethiopia. As co-founder Robert Rudnick told leading German business weekly *Wirtschafts-woche*: "Without the KfW loan, we would have had to push our launch back." The state-owned banks of Germany's federal states provide similar loans.

Germany's Federal Ministry of Economics and Technology (BMWi) also helps deserving entrepreneurs get much-needed seed money. For example, there is the "EXIST" program (www.exist.de), whose business start-up grant offers would-be entrepreneurs studying at university, recent graduates and those working at non-university research establishments a stipend to cover living expenses for up to a year: EUR 5,000 for coaching and up to EUR 17,000 for materials and equipment needed to launch high-tech start-ups.

Start-up country Germany

In January 2010, the BMWi launched Gründerland Deutschland ("Start-up Country Germany" www.existenzgruender.de). In the words of Rainer Brüderle, Federal Minister of Economics and Technology, the initiative aims to foster "a stronger entrepreneurial culture" by giving potential start-ups more information and targeted support. Indeed, ac-

Staircase in the KfW Bank in Berlin

Photo: KfW-Bildarchiv / Fotoagentur: Studio Kohlmeier

cording to the ministry: "Even when they have very promising business ideas, too few people (in Germany) dare to take the leap into self-employment; too many people are afraid of failure." Under these circumstances, the initiative aims to "bring about a change in mentality and strengthen a societal climate that cultivates the entrepreneurial spirit and desire for self-employment." The program includes information events, business training in schools, a "German Entrepreneurship Week" as well as introducing a new competition for start-ups in the ICT industry and a new fund for high-tech start-ups.

Photo: DailyDeal

The DailyDeal management team: Fabian Heilemann and Ferry Heilemann

So-called "business angels" offer another possible avenue of funding. Unlike venture capitalists (who invest other people's money), business angels are private individuals willing to invest their own capital in return for a share of a new company. They often play an intermediary role for start-ups that have raised as much capital as they can from the trinity of "FFFs" ("friends, family and fools") before going on to attract venture capitalists with their initial success. Because angels are often successful business people themselves, they can also offer expertise, advice and contacts. According to Business Angel *Netzwerk Deutschland* (BAND, www.business-angels.de), there are around 5,000 active business angels. They are organized into 40 networks and invest between EUR 200 and EUR 300 million in young companies each year. All of these financing possibilities are of course also open to foreign businesses seeking to set up business in Germany.

Hot Start-ups

In fact, some of the angel investors assisting Germany's hottest start-ups are previously cash-strapped entrepreneurs themselves. Take the case of Avocado Store (www.avocadostore.de), the Hamburg-based start-up that won *WirtschaftsWoche's* prestigious start-up prize in 2010. Dubbed the "eco-Amazon," the company serves as a sales platform for sustainable material-sourced fashion and furnishing articles. After a long search for potential partners, Philipp Gloeckler found Stephan Uhrenbacher, who had already made a name for himself by starting the popular online rating site Qype. Uhrenbacher invested in the company, contributed hard-earned know-how and forged ties with other investors who, in turn, provided the required capital. Launched in 2010, the site now offers over 4,000 green products from 162 producers and has become Germany's largest eco marketplace.

Daily Deal (www.dailydeal.de) had a very similar experience. The Berlin-based start-up, which helps subscribers find amazing deals on local goods and services using the couponing model developed by Groupon, found angels who had been involved in launching successful companies such as StudiVZ, Skype and Facebook. Business angels also helped Hamburg-based Speach Media launch www.freiminuten.de, an online shopping portal offering bonus points that can be exchanged for free cell phone minutes and price reductions. Founded in 2009, the company has now attracted hundreds of thousands in venture capital.

Global Leader Germany has Eyes on Nanotech Prize

Around 800 organizations are working on the development, management and implementation of nanotechnology in Germany today.

Nanotechnology is enjoying ever greater attention in Germany as an important interdisciplinary approach. This is clear from the funds which are being made available by the government for research. From 2003 to 2008, public funds provided to support nanotechnology research increased from EUR 337 million to 440 million. This makes Germany the European leader. As well as this, a number of federal ministries are supporting the "Nano Action Plan 2015," which lays out the strategy for further nanotechnology development, innovation and public dialogue for the period 2010-2015. "Nanotechnology has moved into the everyday life of people. From this arise new challenges for politics which we allow for with the Nano Action Plan 2015" said Annette Schavan, Federal Minister of Education and Research.

Public dialogue

The action plan includes proposals for developing nanotechnology in five key areas: climate/energy, health/food and agriculture, mobility, communication, and security. Innovation is supported through a special emphasis on small and medium-sized companies and value chain development. Risk assessment is incorporated as well as improvement of framework conditions such as training, legislation, norms and standards. "Environment and health must not be endangered, this is why we will concentrate on risk assessment as well" said Federal Minister Schavan. The public dialogue on nanotechnology will be intensified through information and dialogue with citizens as well as stakeholders and NGOs. International cooperation will continue in the EU and OECD.

It is ultimately the companies who are implementing the research results in practical applications with their activities and investments and which are creating new business possibilities. In Germany, close cooperation has developed between researchers and product developers who are exploring the range of possible nanotechnology applications.

Progress in the area of nanotechnology is reported in the relevant sources of information almost every day. Developers are increasingly succeeding in managing and changing particles on the nanoscale under controlled conditions, and of achieving new and improved attributes for the materials. Invisibly and yet ubiquitously, nanotechnology is on the right path for changing a wide range of products in different industrial sectors in a big way.

Greatest demand in nano-tools

The German Ministry of Education and Research's nano.de-Report 2009 forecasts greatest demand in the area of nano-tools. These are instruments required for the use of nano-materials and nano procedures. For this reason, this segment should consist of a world market with a total size of USD 43 billion in 2010. For nano-materials themselves, turnover is expected to reach approx. USD 2 billion.

In its last nanotechnology report, the German Federal Office for Information Security forecast that, in the area of electronics in particular, the use of nanotechnology procedures offer considerable potential. Global turnover from nano-electronics should total more than EUR 80 billion in 2011, of which nano-storage units account for over EUR 65 billion, and displays with nanotechnology components for over EUR 7 billion.

Nanotechnology also promises improvements in the area of energy and the environment. In this context, nano-membranes are used for the filtration of water and also play a role in the development of new batteries (fuel cells and batteries for electric cars). Nano-biotechnology is currently experimenting with procedures that are transporting certain active pharmaceutical agents to certain places in the body where they set to work. Cancer is being fought more effectively with new treatments. Diagnostics can be refined further in this context, and implants can be manufactured in smaller and more durable form.

The list of industrial sectors and potential uses could be further extended. With its mix of large companies, a wide range of smaller operations and start-ups as well as specialist institutes, Germany is in the best position for benefiting from the commercialization of nanotechnology.

Contact rainer.mueller@gtai.com

The spherical shape of ceramic powder – used as a heat protection coating for turbine shovels – can be recognized under the scanning electron microscope.

Photo: Siemens-Pressebild

Highly Effective Personalized Drugs Thanks to Biotech

Germany investing in resources for research in medical biotechnology

In recent years, hardly any other field of research has developed quite as dynamically as medical biotechnology. One area proving particularly fertile is that of "iPS technology." Using this technology, researchers are able to reset normal somatic cells to a pluripotent state in order to develop all of the more than 200 cell types — such as embryonic stem cells — within the body.

Embryonic stem cells, for example, are a major weapon in the fight to combat a number of diseases.

And because no embryos are required to extract these cells, iPS cells do not pose any of the ethical dilemmas created by other cells. They can be produced in the laboratory, allowing disease to be researched within the confines of the culture dish. "In this way, it is not only possible to examine certain aspects of pathogenesis much easier than before, but iPS cells also provide for innovative options to identify new pharmaceutical agents," explains Professor Hans Schöler from the Max Planck Institute (MPI) of Molecular Biomedical Sciences in Münster.

The creation of the new Centre for Applied Regenerative Development Technologies (CARE) in Muenster, dedicated to the further development of iPS technology in cooperation with the MPI, will ensure that this important research can be maintained in the future.

The state of North Rhine-Westphalia and the German government intend to support CARE to the tune of EUR 80 million. "On the basis of this financial support, Germany will be able to secure a spot amongst the leading nations in the field of biomedical research" says Schöler. As a result, a center that is capable of competing on a level playing field with internationally respected institutions like the Harvard Stem Cell Institute will be established in North Rhine-Westphalia. The creation of the center paves the way for a change in the field of pharmaceutical agent research and provides a strong economic impulse according to the professor. However, CARE should also attract start-ups to set up business in the region.

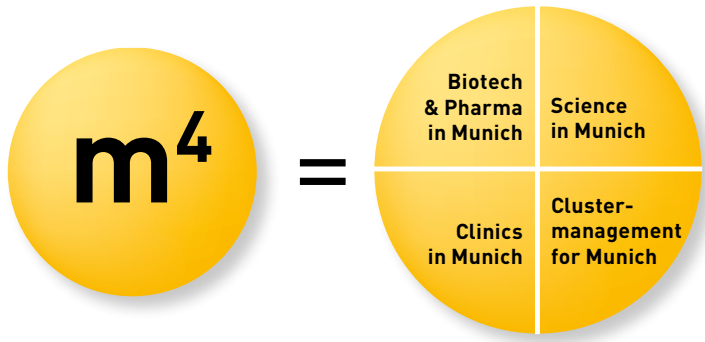
Fit for the future thanks to personalized medicine

Support in the field of medical biotechnology in Germany is both far-ranging and comprehensive. North Rhine-Westphalia has set up the PerMed.NRW (personalized medicine) initiative which includes a prize of EUR 19 million for the best ideas for medicines matched with individuals, for example in the fields of molecular imaging, lab-on-a-chip technologies, or biomarkers. The program focus is on the development of new diagnostic, therapeutic, and prevention opportunities for common diseases such as diabetes, Alzheimer's disease and cancer.

Made up of a broad alliance of approximately 100 Munich-based biotechnology and pharmaceutical companies and clinical research institutes, the cluster has developed the "m4" ("Personalized Medicine and Target-oriented Therapies: A New Dimension in Medicine Development") strategy concept to address the challenges in modern medicine development. As one of five winners of the Federal Ministry of Education and Research's top cluster competition in 2009, the program will benefit from a EUR 40 million public funding windfall. This money will help the Munich-based cluster to further consolidate its position as an international center of personalized and target-oriented medicine (further Bio-Region information can be found in the *Germany Trade & Invest* "Bio-Regions in Germany" brochure).

Research support: a recipe for competitiveness

The Federal Ministry of Education and Research (BMBF) regards the field of biotechnology as one of eight key technologies. A total of EUR 2.4 billion will be provided for biotechnology alone in the next six years in order to promote a bio-based economy. The top cluster competition initiated by the BMBF is one important campaign to support industry and science in medical biotech. Within the framework of this program, the biopharmaceutical company Corimmun, for example, will receive subsidies of EUR 1.62 million for the development of the COR-1 pharmaceutical — a therapeutic agent for the personalized therapy of cardiac degeneration. Annette Schavan, Federal Minister of Education and Research believes that the money is well invested, "because the quality of the German research- and innovation system decisively influences our international competitiveness." Of course, Germany's science and industry R&D resources are also available to foreign companies, provided that their business is located in Germany and work with German partners on-site.



Contact gabriel.flemming@gtai.com

What's the Big Idea? Germany Invests in R&D to Beat the Crisis

German companies made very few cuts to their R&D budgets during the crisis – one reason why they've rebounded from the crisis faster than expected.

Germany has long been synonymous with innovation: German companies are at the top of their industries in everything from cars to chemicals. While these companies' innovative products and ideas are mainly the result of hard work and inspiration on the part of their employees, there is one other undeniable contributing factor behind their success: investment in research and development.

In the last few years, German companies have led the way internationally interms of GDP invested in R&D — surpassing even the USA. German investment in R&D has increased rapidly, reaching nearly EUR 60 billion (or approximately 2.8 percent of GDP) in 2009. And unlike in past years, even small and medium-sized companies in Germany are a part of the recent trend. For 2011, experts expect that R&D expenditures will increase by a minimum of four percent, meaning that they could grow at a faster rate than the economy itself.

Even with the financial crisis putting a damper on economic progress in many areas, German companies made very few cuts to their R&D budgets in the last few years — a major reason why these companies have rebounded from the crisis faster than expected. The five major research industries in Germany — vehicle manufacturing, mechanical engineering, electrical engineering/IT, chemicals, and pharmaceuticals — account for three quarters of all R&D investment in Germany. German daily Handelsblatt gathered a few post-crisis success story examples from these major research sectors.

Vehicle Manufacturing – Volkswagen

With more than 700,000 employees in Germany, the automobile industry is one of the most important engines driving the German economy. It is also a sector where new technologies and innovation are pivotal to success. According to Volkswagen's CEO Martin Winterkorn, "Cutting edge technology is the key to maintaining vehicle manufacturing as Germany's flagship industry." For this reason, the company defied the trend during the financial crisis, increasing R&D investments by 4.5 percent. These investments have allowed Volkswagen to recover quickly from the crisis; the company is now preparing to challenge Toyota for leadership of the internation-

Gathering ideas: scientists discuss synthesis strategies for new substances against cancer

Photo: Bayer HealthCare AG

Wafer production at Infineon in Dresden

al auto industry with EUR 51.6 billion worth of investments in new technologies, products, and facilities over the next five years. And Volkswagen isn't alone: other German manufacturers are expected to increase their R&D expenditures by an average of five percent in the next two years, with EUR 10-12 billion going to the development of alternative engine technologies. Experts predict that the industry's demand for qualified professionals will exceed the supply within the next few years.

Mechanical Engineering – Trumpf

The Trumpf Group, a large mechanical engineering company based near Stuttgart, is another German R&D champion. Trumpf, which specializes in machines and laser technology, also managed to improve its R&D segment during the crisis. The total amount of money that the company invested in R&D may have decreased during the crisis, but the overall percentage of turnover invested grew from 9.3 percent to 9.7 percent in the 2009/10 fiscal year. The company also hired an additional 33 R&D employees during that time — making a total of more than 1,000 research staff. "We began driving development back at the start of the crisis in 2008, and we expanded the lower end of our product range so that we could offer things like cheaper basic machines," says a spokesperson of the company.

Electrical Engineering/IT – Infineon

At first glance, it might seem like microchip and semiconductor manufacturer Infineon actually slashed its R&D investments in 2010 — from 15 percent of overall turnover to 12 percent. But the numbers are deceptive: the company actually invested EUR 399 million more in R&D in 2010 than it did the previous year — its turnover simply increased by 50 percent in 2010. And while Infineon is one of the major spenders in the industry, it's certainly not alone in investing large sums in R&D. Computer technology and telecommunications companies invested around EUR 6.4 billion in 2010: more than any other branch of German industry. And the trend is expected to continue in 2011, climbing from three percent of turnover to more than eight percent. This means that innovation will also continue to be key for export-oriented German companies; as more than a quarter of all turnover in this industry is generated by products less than three years old.

Chemicals – Henkel

Despite a dip in turnover during the crisis, Henkel — manufacturer of Germany's popular Persil products — staunchly maintained its R&D budget at an average of EUR 100 million per quarter. The company's strategy involved investing its R&D funds in the development of new products that reduced overall costs, such as adhesives that allow packaging manufacturers to save on materials. The majority (57 percent) of Henkel's R&D budget went to adhesive development in 2009, while the rest was divided between developing innovative products for its Laundry/Home Care and Cosmetics/Toiletries segments. "If your research comes to a standstill, you might as well be moving backwards," says a Henkel representative.

Pharmaceuticals – Bayer

German pharmaceutical companies — particularly Bayer-Schering, Boehringer Ingelheim, and Merck-Serono — are bucking the global industry trend; increasing their R&D budgets while others are cutting costs. Bayer's R&D investment strategy has proven outstandingly successful in recent years: the company only invested the industry standard 16 percent of its pharmaceuticals turnover in R&D, but its product pipeline is relatively strong compared to the competition. Bayer is predicting returns of more than EUR 2 billion from its new thrombosis treatment, Xarelto. And the company's new CEO plans to further strengthen R&D in the coming years, particularly in the areas of health and plant-based biotechnology. Given the impressive returns that Bayer's advanced new products will produce, the company's value is expected to increase to EUR 11 billion — 50 percent more than Bayer invested in R&D in the last five years.

The innovative strength of all these German companies was supported by the German government, which helped spur R&D growth by exempting R&D expenditures from cost-cutting measures and investing five percent more in university and state research institutes in 2009. This pattern is set to continue in the foreseeable future. However, while experts agree that this support is vital, additional tax rebates for R&D investments from the German government will be essential to continuing this positive trend. Moreover, an increase in venture capital is required to drive further innovation in all branches of German industry.

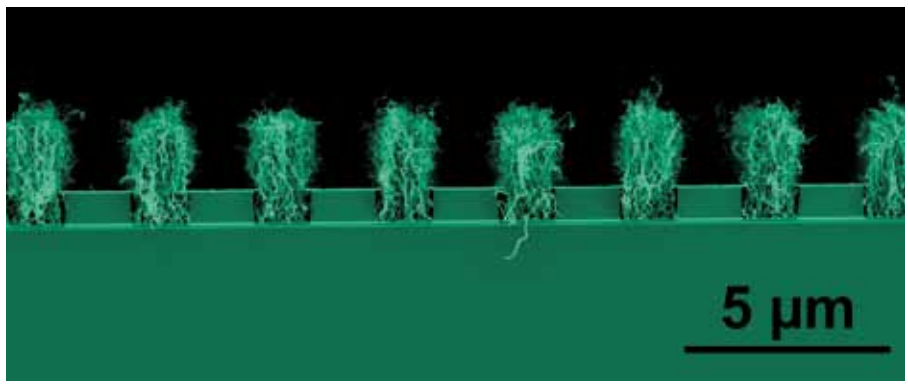
Photo: Infenion Technologies AG

20 years of German unity

Silicon Saxony: Pioneering Nano Research

Promising partnership with China of the future

"Made in Saxony." This quality seal stands for microelectronics at the highest technological level across the world. The federal state with the big electronics reputation is once again living up to its "Silicon Saxony" name, thanks to groundbreaking research being carried out in the city of Chemnitz.



Carbon nano tubes for wiring systems in integrated circuits

Here a group of young scientists are conducting research in the pioneering field of nanosystems. Early results have been so successful that the German Research Foundation (DFG) will continue to provide funding over four years to the tune of EUR 4.5 million to the "Materials and Concepts for Advanced Metallization Systems" program.

International Team

In cooperation with the Technical University Chemnitz, the international team of researchers comprises members from the Shanghai universities of Fudan and Shanghai Joao Tong, the Fraunhofer Institute for Electronic Nanosystems ENAS in Chemnitz, the Fraunhofer Institute for Reliability and Micro-integration in Berlin, and the Technical University Berlin.

"Nowadays, up to one billion transistors have to be placed on a single chip. This progressing miniaturization presents us researchers with the challenge to make future chip generations even smaller and even faster in regards to their performance," says Professor Thomas Gessner, spokesman for the program and director of the Fraunhofer Institute for Electronic Nanosystems (ENAS) and Centre for Microtechnologies in Chemnitz. Doctoral candidates in physics, chemistry, material sciences, microelectronics, and microsystems engineering are working to ensure that chip processing speeds remain intact as they are developed further. This involves researching new materials and technologies that will facilitate the production of nanoelectronic components and nanosystems. "At the end of the day, it is a question of how several million transistors can be wired on a few square centimeters in a way that they can quickly communicate with each other without any errors," says Gessner.

The international team of researchers in Chemnitz

Applied Research

The team hopes to intensify its nanoelectronics activities by 2015. The presence of global leaders, like chip manufacturer GLOBALFOUNDRIES in Dresden, has helped make Silicon Saxony the center of Europe's microelectronics industry. The region between Dresden and Chemnitz is characterized by a unique concentration of companies with an abundance of know-how in the fields of microelectronics and nanoelectronics, photovoltaics, organic and printed electronics, energy-efficient systems, telecommunications technology, and interconnected sensor technologies. Approximately 1,500 companies with more than 43,000 employees develop, manufacture, and market integrated circuits or are material and equipment suppliers for the chip industry.

The team of German and Chinese graduate students working on the Chemnitz program benefit from doctoral research exchange visits between Germany and China. So they are further strengthening the excellent partnership between the two countries.

Photos: Zentrum für Mikrotechnologien und Fraunhofer ENAS

Innovation News

Fighting above its Weight

Weighing in at just 10 kg, Joint Expert IFA Rotorion IFA's feather light car seat is taking on all-comers. The revolutionary seat, which is half the weight of conventional car seats thanks to its fiber-reinforced composite material construction, might not "float like a butterfly, sting like a bee" but it certainly packs a mighty punch. Weighing just ten kilograms, the car seat has no joints and consists of only twelve parts instead of the standard 80.

The first real series product should be developed within the next few years. The company has already established initial contact with major seat manufacturers and the material's springy properties offer many possibilities for use. "The super light weight is particularly interesting for manufacturers of electrical cars," says Oliver Schimpf, managing director of IFA-Technologies GmbH, the in-house research company for lightweight components.

The featherweight seat that is proving to be a knockout

The Haldensleben in Saxony-Anhalt-based company is a privately owned family firm. Privatized in 1992 by Heinrich von Nathusius, the firm has developed into one of the most successful production and development partners in Germany for global automotive manufacturers.

"Oil Dialysis"

More than 500,000 tons of waste oil is generated every year in Germany. Three hundred thousand tons of this alone is engine oil. If the invention of Markus Kemper, head of Innovative Maschinen Technologie GmbH (IMT) from Dessau-Rosslau catches on, at least half of this waste oil could be made use of. The entrepreneur has developed an "oil dialysis machine."

The first 25 machines are already in use and further oil dialysis machines are expected to be commissioned by the end of the year. The motto of the young company is "clean engine oil instead of changing it."

More than three years of research and development work have gone into making the, on first impressions, unimposing blue box on wheels the size of a small washing machine. And this is how it works: The engine oil is pumped out of the vehicle into the dialysis machine. Using a microfilter, water, rust and small metal particles are filtered out and the oil is fed back into the engine. "Cleaned in this way, it fulfils all the required lubrication functions and is in no way inferior to fresh oil. Just five percent of the engine oil must be topped up due to the filtering" says Kemper.

Oil dialysis for cars is also in the pipeline, with an appropriate machine expected to be launched on the market in the coming year. Subject to appropriate further development of the technology, the process can be applied in all areas of engine lubrication. As such, construction machinery, power station, ship, and even hydraulic and transmission oils could be reused.

"Oil Dialysis Machine" inventor Markus Kemper

Photos: IFA-Technologies GmbH; Innovative Maschinen Technologie GmbH (IMT)

High Value Products Directly from CO_2

Exciting developments in Germany in the field of carbon capture usage (CCU)

Heike Enke, Head of Research at Cyano Biofuels

When we think of carbon dioxide, a number of common uses for the chemical compound leap to mind: it puts the bubbles in soda, and is used to squeeze the last remaining gas from sources that are nearly depleted. But above all, CO_2 is probably best known for one thing — for being a potential culprit behind climate change.

Scientists and researchers in Germany are now working to turn the tide of climate change with new technologies that convert CO_2 emissions into chemicals, fuels, plastics and methane — useful substances for business and industry reports *Manager Magazin*. The field is known as carbon capture and usage (CCU), and it covers everything from "CO_2-eating," fuel-producing algae to plastics and innovative chemicals created by converting CO_2. "The refeeding of CO_2 in the cycle of materials of Earth is a pivotal task of mankind" says Professor Bernhard Rieger from the Technical University Munich.

"Dream Reaction"

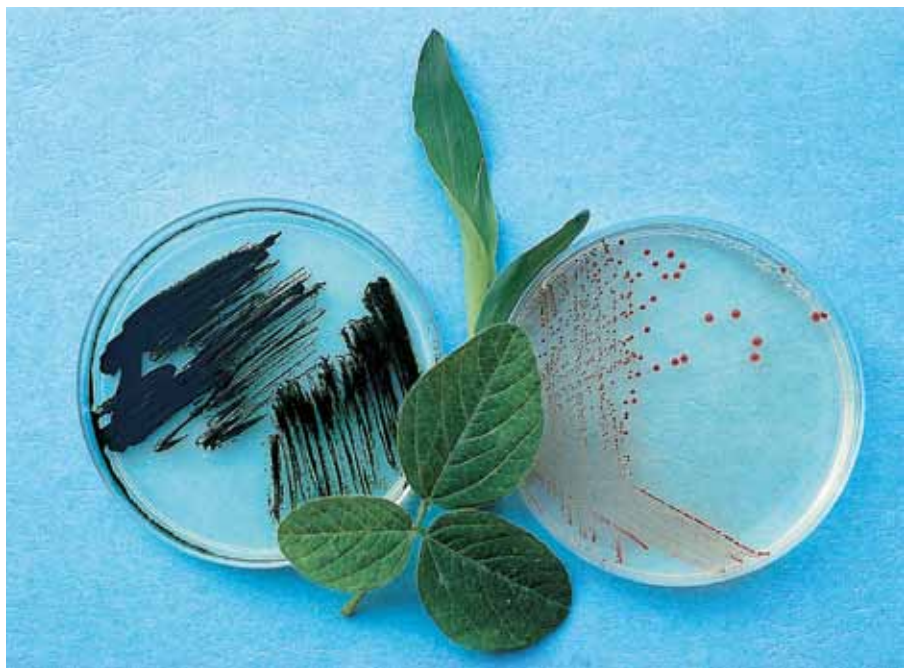
Each research team has its own ideas about what should become of the CO_2 at the end of the process. Christoph Gürtler, Head of the Catalytics Program at Bayer, and his team are working with Walter Leitner and his team at RWTH Aachen's Catalytic Center on what Gürtler terms a "Dream Reaction." The process turns CO_2 from power plants into a valuable resource: a polyurethane insulation that can be used in mattresses or footwear.

A product like this could be a viable replacement for oil-based chemicals. According to Bernhard Rieger, the economy is at the beginning of a slow transition process from oil-based to renewable technologies. Rieger himself is currently involved in the development of a new center for CO_2 catalysis, and he has big plans for a Desertec-style project entitled "CO_2-Tec" that will recover and reuse CO_2 on a large scale.

Turning expensive emissions into profit

While researchers have a vision for the future, most companies are concentrating on turnover in the here and now — CO_2 emissions are subjected to increasing fines, and companies are looking for new technologies to turn expensive emissions into profit. Large companies — including BASF, Bayer, RWE, and Siemens — have all invested in CCU technologies in the hope of using CO_2 to create chemicals, or biofuels. RWE Power, for instance, is investing EUR 25 million in CCU. "Rather than needing to purchase emissions credits, we prefer earning money from the CO_2 that our power plants produce," says RWE Power CEO Johannes Lambertz. In the medium term, he believes, a million tons of CO_2 could generate EUR 10 million from sales of the gas.

Photosynthesizing organisms at different levels of development: phototroph bacteria (right), cyano bacteria (left), higher plants (middle)



Photos: biotechnologie.de; Ruhr-Universität Bochum

RWE Power's CCU system is located at one of the world's largest lignite power plants near Cologne, Germany. From a small fraction of the plant's emissions, the pilot system captures up to 300 kilograms of CO_2 per hour. The process itself requires a great deal of energy, both to capture the CO_2 and to convert it to a usable intermediate; it also marginally reduces the plant's effectiveness by approximately eight percent. However, using power from an existing source, such as residual power produced by wind farms, makes the process somewhat less expensive. In this case, a chemical reaction between the captured CO_2 and hydrogen produced from water by way of electrolysis converts the excess wind energy to methane. This methane could then be stored in existing natural gas caverns or directly transmitted to existing gas pipelines and used to heat buildings or fuel natural gas-powered cars.

Number of pilot systems rising

The technology is still in the early stages of development, but German companies are leading the way forward: the Center for Solar Energy and Hydrogen Research in Stuttgart (ZSW), for example, has constructed a pilot system for producing methane from CO_2. At the moment, it is used solely for demonstration purposes, but the ZSW has been commissioned by an Austrian solar company to develop a commercial version by 2012.

The RWE facility near Cologne has also been experimenting with methane production in conjunction with Siemens. However, as the chemical conversion process is still very expensive, the company has partnered with Bremen-based company Phytolutions to develop a different system that adapts the process of plant photosynthesis for industrial use: algae absorbs the factory's CO_2 emissions which can then be processed into biofuels, or a range of chemical building blocks.

While the algae method is significantly more effective than other plant-based methods tested in the past, the amount of energy required for the process is still considerable. That's why Berlin-based Cyano Biofuels has developed a form of cyanobacteria (commonly known as "blue-green algae") that produces bioethanol directly when provided with CO_2 and light. In cooperation with American partner company Algenol, Cyano Biofuels will take part in testing a 100,000 square meter algae-based biofuel production facility in Texas; if the tests are successful, Mexican company BioFields is prepared to invest in the construction of cyano reactors on a 40,000 hectare area in the Sonoran Desert. This facility would convert eight million tons of CO_2 from a neighboring power plant into ethanol every year.

Microorganisms which digest CO_2

The promise of these technologies is undeniable. However, a facility like the one planned in the Sonoran Desert requires a great deal of space and even more sunlight. That's why Jürgen Eck, head of research at German biotech company BRAIN, is working on developing an alternative that requires little space and no light. His microorganism digests CO_2 directly, without photosynthesis.

Eck wanted to prevent the organisms from being recycled as biofuel and releasing CO_2 into the atmosphere again. For this reason, he designed them to produce important components for the chemical industry, such as pyruvates, which can easily be converted into succinic acid, a potential platform chemical. Eck and his team are currently developing a process to transfer their successful lab tests on an industrial scale.

While these "carbon killing" technologies alone may not be the solution to the CO_2 problem (researchers unanimously agree that producing less CO_2 overall should be the priority), they could make a significant contribution to reducing CO_2 emissions. CCU technologies have the potential to save more than 10 million tons of CO_2 in Germany annually.

Photosynthesizing cyano bacteria

This is an exciting time for the CCU technology. Until recently, most of these technologies remained in the experimental stage; now, pilot systems are popping up all over the world. While not all of the technologies have demonstrated a positive CO_2 balance yet, researchers like Christoph Gürtler are convinced that there is the potential for great strides in this area.

Contact thorsten.bug@gtai.com

Photo: biotechnologie.de

20 years of German unity

Check in to Eastern Germany for Business Success

Germany Trade & Invest's BBI Airport Road Show Hits Asia and North America

One of the special focuses of *Germany Trade & Invest* is highlighting the strengths of Eastern Germany and the outstanding opportunities for foreign companies and investors there. Eastern Germany has already established itself as a vibrant and modern business region which is strong in cutting-edge fields such as renewable energies, auto manufacturing and semiconductors.

Speakers of the executive dinner in Atlanta, USA (from left to right): Rolf Seliger, Head of Division Investor Services (Berlin Partner GmbH), Dan Hernandez, Executive Vice President, Global Strategy (Sykes Enterprises, Incorporated), Peter Alltschekow, Managing Director Marketing & Communications, Director Eastern Germany (Germany Trade & Invest), Andreas Ley, Senior Consultant Airline Marketing (Berlin Airports), Kenneth Bremer, Director, Chicago Office (Germany Trade & Invest).

BBI opens in 2012

But it will become even more attractive in summer 2012, when the Berlin Brandenburg International Airport (BBI) celebrates its long-awaited grand opening. Europe's largest airport project will handle up to 27 million business travelers and tourists each year and it can be developed to a capacity of 45 million. The first-rate air hub with state-of-the-art conveniences will be ideal for businesses intent on expanding in Europe. From a single location, strategically positioned at the heart of Europe, investors will enjoy connections to major cities around the world as well as destinations throughout Europe.

Germany Trade & Invest has launched a "Check in to Eastern Germany for European Business Success" road show to promote the benefits of the new airport for investment in the region. The road show is supported by the German Federal Ministry of the Interior. The program's events are particularly aimed at foreign business decision makers interested in or planning on investing in Europe.

Over dinner, attendees listen to a number of presentations: An airport representative describes the BBI project, its travel and logistical benefits, and its positive effects on the entire region. Officials from the business promotion agencies of the new federal states have the chance to showcase their states. Decision makers from companies that have already made successful investments in Eastern Germany share their experiences. And, over the course of the entire event, both hosts and guests get a chance to strengthen old ties and forge new ones.

From the USA to Singapore

In October 2010, the eyes of the world were turned to Germany as it celebrated 20 years of reunification. In the same month, the road show made its first stop in Atlanta to promote the new federal states in North America. On October 5, more than 80 guests attended an event with Dan Hernandez, Executive Vice President of Global Strategy for Sykes Enterprises, as its "success story" guest speaker. In 2010 Sykes Enterprises opened a new call center in Berlin which will have 600 employees at full operation.

It was only fitting that the road show should make its initial stop in the United States, since it is the number one source of foreign direct investment (FDI) in Eastern Germany (including companies such as Delta Airlines, First Solar, Amazon, General Electric, and Dell Computers). According to a recent survey conducted by the American Chamber of Commerce in Germany (AmCham), Germany remains the top business location for American companies in Europe.

Two days later, the road show stopped off in Toronto, where around 70 guests gathered for success stories delivered by Jacques L'Écuyer, the President and CEO of 5N Plus Inc., and Bernard Betts, the Vice President of Worldwide Distribution Operations at Future Electronics. Several major Canadian companies — including Bombardier, Arise Technologies, Novelis, and the speakers' own companies — have been a leading source of FDI in Eastern Germany.

In February 2011 the road show rolled onto Asia with stops in New Delhi and Pune, India, before heading on to Kuala Lumpur, Malaysia. The series of events will continue in May when the road show makes stops in Beijing, Taipei and Singapore.

Contact for event participation:

Contact anne.schettler@gtai.com

Photo: GTAI

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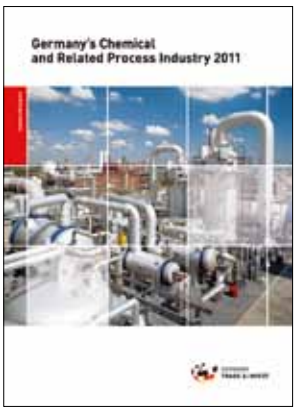
Plastics are part of almost everything in our lives – even the clothes we wear. Europe's largest plastics industry is in Germany, where 7,200 companies along the entire value chain generate annual sales of roughly EUR 88 billion. This brochure provides a compact but detailed overview of this thriving sector, with key production and demand data and up-to-date information on the sector's various application segments, Germany's unique cluster concept, partnership/synergy opportunities, the R&D landscape, and much more.

The Plastics Industry in Germany, 17 pages, order number: 15557 ☐

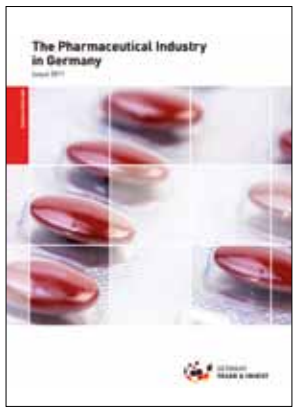
Interested in bringing your products to Europe's largest consumer goods market? Then look no further. This concise and informative guide will launch you on the path to making your products available to one of Europe's most affluent, stable and thriving private consumer markets. In addition to key, up-to-date data on the entire industry, it also includes brief segment profiles (consumer electronics, home & garden, and apparel) as well as a rundown of trends in the the booming franchise and e-commerce sectors.

The Consumer Goods Market in Germany, 17 pages, order number: 15719 ☐



Germany is Europe's top producer and the world's largest exporter of chemicals. One reason so many global companies chose to make it home are its unique, integrated "plug & play" production sites offering cost-saving shared services and synergies tailored to the needs of chemical and associated processing industries. This brochure provides investors with up-to-date facts on opportunities as well as profiles of 39 such sites, including logistical maps and potential business partners.

Germany's Chemical and Related Process Industry 2011, 104 pages, order number: 14237 ☐



Pharmaceuticals "made in Germany" are household names around the globe; coming from a long tradition of world-renowned scientists and first-class research dedicated to innovation and effectiveness. The newly updated *The Pharmaceuticals Industry in Germany* brochure provides a comprehensive overview of the research, production and sales environments, key industry figures, snapshots of the R&D and clinical trial landscapes, and information on all the other benefits that make Germany the perfect place for pharmaceutical production and sales.

The Pharmaceutical Industry in Germany, 16 pages, order number: 13686 ☐

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The German Way – Best Practice Example: Slovenia

Germany Trade & Invest and the German Chamber of Commerce Worldwide Network recently took part in the first ever FDI summit in Slovenia.

The German way of promoting foreign economic relations and winning foreign investors was one of the main topics at the first Slovenian FDI summit which was held at the end of 2010 in Bled, one of the most well-known congress venues in the country. The significance of this event was also highlighted by the presence of the Slovenian president, Danilo Türk, who delivered the opening address.

In Bled, the Managing Director of Investor Consulting at *Germany Trade & Invest*, Dr. Robert Hermann, presented the advantages of the investment location Germany, the global work of the agency and its cooperation with the German Chamber of Commerce. "Germany's economy is performing at a level not seen since reunification 20 years ago. This has set the stage for an increase in investor interest from across the globe. And with the already exceptional investment conditions in Germany, it is the right time for Slovakian companies to invest in Germany," said Hermann.

He continued: "The German Chamber Network is an essential partner for us worldwide and plays a crucial role in the support of international companies looking to Germany. In Slovenia and across the globe we work together to provide quick and reliable information on Germany's investment conditions." The German Chamber of Commerce in Slovenia also supported *Germany Trade & Invest* with the preparation and execution of this event. In addition, *Germany Trade & Invest* was the media partner at the inaugural German Ball given by German Chamber of Commerce in Portoroz in October 2010. This event, attended by 400 people, was a complete success. The recent economic recovery, in which many German companies in Slovenia were a part, may have been a reason for the great success of the ball, which took place in the Kempinski Hotel, with a brilliant program including many prominent Slovenian performers and groups.

Thanks to its cooperation with the German Chamber of Commerce, *Germany Trade & Invest* was represented at both the FDI summit in Bled and the German Ball with its own roll-up and with information material. The German Chamber of Commerce had also established a contact between Dr. Hermann and the FDI summit organizer, the English language newspaper "Slovenia Times." Prior to the FDI summit, an interview with Dr. Hermann also appeared in the Slovenian business newspaper "Finance."

The German Chamber of Commerce generally plays an important role in investor recruitment for the agency, as it establishes contact between Slovenian companies who are interested in investing in Germany and the agency head office in Berlin. This activity has led to several successful investments in recent years.

(from left to right) Dr. Robert Hermann, Managing Director Investor Consulting (Germany Trade & Invest), Katja Stadler, AHK Slovenia, Gertrud Rantzen, Executive Director (AHK Slovenia), Torsten Pauly (Germany Trade & Invest Representative in Slovenia).

Photo: AHK Slovenia

Three German Chamber of Commerce Members Named as Best Investors in Slovenia

Germany has been Slovenia's most important trade partner for a number of years — in both imports and exports. In 2009, exchange of goods between the countries amounted to EUR 6.3 billion. The next closest trading partner country, Italy, was quite some distance behind with EUR 4.9 billion.

Nothing makes the good reputation that German companies enjoy in Slovenia more apparent than the fact that all three 2010 "FDI Awards of the Year" at the summit in Bled went to members of the German Chamber of Commerce. These were awarded to the Bosch Siemens Home Appliances Group, Hella Saturnus (who provide light technology to the car industry), and the manufacturer of Carthago mobile homes. Despite the international economic crisis, all three firms have expanded their production in Slovenia since the end of 2008 and have been able to create new jobs.

Germany Trade & Invest and the German Chamber of Commerce in Slovenia have worked together for a number of years to analyze the economic situation and to prepare reports on business opportunities in Slovenia. In the last few years both institutions have produced the publication "Slovenia as a logistic location" and a country economic guide book.

The German Chamber of Commerce in Slovenia also receives a business cycle analysis from the *Germany Trade & Invest* correspondents responsible for Slovenia in each of their year books and also publishes *Germany Trade & Invest* articles. Correspondents also enjoy contact with German Chamber of Commerce members and benefit from the close cooperation with the CEO, Ms. Gertrud Rantzen, and her employees. This cooperation also extends to joint briefings with the embassy and occasional company delegations.

Contact liaison@gtai.com

What is Smart?

That's the question *Germany Trade & Invest* put to international business decision makers in its recent international advertising campaign.

"WHAT IS SMART?" was the question posed in a series of TV ads which ran end of January through April on CNN. The three spots are part of *Germany Trade & Invest's* "Germany. Smart solutions. Smarter business." international media campaign promoting Germany as the "smart" business and technology solutions location.

The period surrounding the 20th anniversary of German reunification in October 2010 provided the perfect opportunity to begin the campaign with a series of print and online articles and ads ("GERMANY. 20 YEARS OF SMARTER BUSINESS SOLUTIONS.") in the Wall Street Journal and BusinessWeek publications. These served to get the campaign ball rolling by highlighting Germany's world-class knowledge transfer credentials and global innovation leader status.

In cooperation with CNN, the "WHAT IS SMART?" TV campaign was rolled out (in the Asia/Southeast Asia, EMEA, and USA target regions) at the end of January 2011. The three specially created 30 second ads were carefully put together to highlight Germany as the "smart solution" for international business thanks to its leading R&D position in Europe, its reputation as the fastest-growing innovation nation, and its global leadership in delivering sustainable energy solutions.

"What is Smart?" CNN television ad screenshot

The three spots were flanked by specially created branded content including a special Germany edition of the channel's flagship "i-List" programme strand, presented by award-winning CNN International anchor man Jim Clancy. The "i-List Germany" CNN campaign included short daily features and reports on the current cultural, economic and political situation in Germany during a week of broadcasts in March. Personal profiles and interviews with prominent business leaders and public figures with international appeal also featured. Further country-specific information and reports could be viewed online at the CNN "i-List Germany" microsite. Preliminary index measure results point to the campaign being a major success, with figures obtained to date outperforming normal benchmark rankings.

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The German Chamber Network AHK

AHK Deutsche Auslandshandelskammern

Contact:
Association of German Chambers of Industry and Commerce
D-11052 Berlin | Germany
Tel. ++49-(0)30-20308-0 | Fax ++49-(0)30-20308-1000
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