To Know How creates Know-How Business
Dresden - the hub where business meets science
Dresden counts as one of the strongest economic locations in Germany: this is the heart of the European microelectronics industry, and from here, innovations in the areas nanotechnology, new-generation materials, and life sciences unlock the markets of the future. This includes numerous companies with rich traditional history that have made a name for themselves in areas from mechanical engineering and aircraft construction to food production and cultural industries. This richly faceted diversity was and is a significant reason for the success of Dresden's economy and its sustainable growth. Companies domiciled here are constantly expanding their capacities, and German companies and companies from around the world are setting up branch offices here. At the same time Dresden, also known as the “Fraunhofer Capital”, has become a leading location for scientific activity. In 2012, the University of Technology Dresden was the only university in former East Germany to achieve the status “University of Excellence”.

Dresden, a city of longing

Not only successful, but also beautiful: Dresden, the capital of the Free State of Saxony, is enlivened by its culture, its orchestras, its museums, and its architecture... The splendor of the reborn “Florence of the Elbe” shines throughout the world. Dresden is a European city that must be seen, and the German newspaper DIE ZEIT has written that it has what it takes to become “a city of longing”.

The Italian writer Umberto Eco stated after visiting Dresden that “the people of Dresden don't ask you, if you think that the city is beautiful, they tell you that it is.” A rich culture, fascinating nature just beyond the city gates, and the best conditions for work and research make it a place where work and life live together in harmony. Welcome to Dresden. We're looking forward to meeting you!

Nine reasons to choose Dresden.
Dresden is ...

- more scientific
- more networked
- more technological
- more practical
- more helpful
- more talented
- more relevant
- more livable
- more dynamic

http://invest.dresden.de
A flourishing research landscape with a standard of excellence
Dresden: a city of science

The University of Technology (TU) is one of eleven universities in Germany to be named a University of Excellence, which provided Dresden with a lot of attention in 2012. However, the city had already enjoyed a reputation as a city of scientific research for many years. Since 2002, the German Research Association awarded six Dresden scientists the Leibniz Prize, the most important research grant prize in Germany. In 2011, a research group led by Prof. Dr. rer. nat. Karl Leo received the Deutscher Zukunftspreis, the German President’s award for technology and innovation, for their discoveries in the area of organic electronics.

Besides eleven universities and colleges, numerous research departments in companies and scientific service providers complement the institutions of large university-independent research organizations. The Fraunhofer Society alone operates ten institutions, more than any other city, which is why Dresden quietly qualifies as “Fraunhofer capital”. This is also why Dresden is number one in terms of employed scientific staff compared to the rest of Germany. A large number of research institutions are only present in megacities like Berlin, Munich, Hamburg, Cologne.

The most important research areas include microelectronics and information technology, nanotechnology, materials development, and life sciences/biotechnology. The state capital promotes the development of new research capacities and supports effective transfer of knowledge and technology by concentrating three research and innovation technopoles and companies involved with technology closely together.

Source: internal calculation based on Hochschul-Informations-System GmbH (HIS), ICEmbH, and the German Federal Statistical Office

Life sciences and material sciences are among the main research focuses of scientific activity in Dresden.

In 2011, Dresden researchers received the Deutscher Zukunftspreis, the German President’s award for technology and innovation, for their discoveries involving organic electronics.
Dynamic economy with prospects
Dresden: a city of business

Dresden qualifies as one of the leading business centers in Germany, and it has great prospects of further growth, success that is based on a robust policy of enhanced local economic development. Following the end of communist planned economy, investment was made in high-tech and the research connected to it. It was worth it.

In a short time, the city grew to become a top location in the areas of microelectronics, nanotechnology, new-generation materials, and life sciences. Globally leading companies such as Globalfoundries, Glaxo-Smith-Kline Biologicals, VON ARDENNE Anlagentechnik, and Novaled now operate in Dresden.

A comparison of the 100 largest enterprises’ figures revealed that turnovers tripled and the number of employees increased sevenfold from 2005 to 2012. In 2013, 49 enterprises enlarged and safeguarded 2,500 jobs. Furthermore, 13 new enterprises settled here and created 136 new jobs in Dresden. The number of companies has been increasing constantly since 2000. In Dresden, more people are employed than in 1990.

Thanks to the high density of companies in pioneering industries, a high number of highly qualified specialists are drawn to the Elbe. Nearly every second inhabitant now works in a technical, scientific profession or possesses a completed technical, scientific degree.

The high density of pioneering branches attracts plenty of specialists to Dresden.

The scientific structure of Dresden

The economy of Dresden has a number of pillars: the city is the largest industrial location in former East Germany. The number of self-employed entrepreneurs and companies as well as employees in scientific and technical services is increasing. As the capital city of the Free State of Saxony, Dresden also possesses a developed public sector. Mid-sized companies dominate every branch of the economy.

The high density of companies in pioneering industries is reflected in the economic data:

- GDP: 15.1 billion euros (2011)
- GDP growth: 52 percent (since 1995)
- Industrial export rate: 50.9 percent (2012)

Social insurance-obligated employees and unemployment rate

Dresden’s industrial export level is higher than that of Saxony and the national average.

Only three percent of companies employ more than 250 people.

Social insurance-obliged employees (as of 30 June)

Source: labour market statistic of the German Federal Labor Agency (BA)
Within the past 15 years, anything with a name and rank in the area of microelectronics has settled in and around Dresden. That includes companies like Globalfoundries and Infineon. In the meantime, 1,500 companies and research institutions with 48,000 employees make the region Europe’s number 1 microelectronics location. In 2010, companies in the industry achieved revenues of 8.7 billion euros, which is 48 percent more than in 2006. Every second chip in Europe is produced in Dresden, and every third new car worldwide drives with Infineon microcontrollers from the plant in Dresden.

From research cleanroom to gigafab

Starting with chip design and wafer production and processing to a broad range of supplier, service provider, and application industries, the entire microelectronics value creation chain is local. The location consistently focuses on “leading edge” technologies to open up new markets. The semiconductor industry is pioneering the introduction of 450 millimeter technology for serial production. At the “Cool Silicon” cluster, more than 60 partners in research and commerce are working on innovations to reduce energy consumption in information and communication technology significantly. Dresden is also pioneering areas like organic electronics, nanoelectronics, 3D systems integration, and software development.

Networked thinking

Business and science appreciate the close network of stakeholders as one of Dresden’s unique advantages. The Silicon Saxony e.V. network not only represents over 300 members externally, it also bundles their innovative power in the technical areas and work groups. Specialized networks like Organic Electronics Saxony e. V. complement this cooperation. Every two years, the world’s semiconductor industry meets at the Dresden trade fair SEMICON Europa.

Microelectronics companies and employees

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Companies</th>
<th>Number of Employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>800</td>
<td>19,600</td>
</tr>
<tr>
<td>2006</td>
<td>1,200</td>
<td>43,500</td>
</tr>
<tr>
<td>2010</td>
<td>1,400</td>
<td>48,200</td>
</tr>
</tbody>
</table>

Source: microelectronics industry analysis/IKT cluster Dresden region 2011, City of Dresden, Office of Economic Development
Concentrated know-how for the energy revolution
Nanotechnology and new-generation materials

www.dresden.de/nanotech

The region of Dresden qualifies as one of the leading nanotechnology locations in Germany. In 2012, the German Nanotechnology Association distinguished the TU Dresden as the best university for nanotechnology in Germany. This highly visible position is also indicative of a high level of company founding activity. In recent years, 25 startups have been founded in this sector. For example, 100 of the nation’s 1,000 nanotech companies and 45 institutes work and research here. Together with nearly around 2,000 materials scientists, they represent cross-section technologies that provide companies involved in microelectronics, life sciences, and machine, systems, and automotive construction with innovative advantages. Topics and technologies in this area of expertise are accordingly richly faceted.

The thinnest layers for maximum efficiency

One of Dresden’s specialties is the application of super-thin layers of layer systems onto components; a treasure of knowledge that plays a decisive role in the future topic of energy and energy efficiency. Dresden’s know-how makes batteries more powerful, solar systems more efficient, and vehicles lighter.

Saxony’s “European Center for Emerging Materials and Processes Dresden” (ECEMP) excellence cluster is working on new-generation materials for the three pioneering areas of energy technology, environmental technology, and light construction. In the area of batteries, Dresden has created a research cluster that is important across Germany, and numerous companies in the region complement this. Dresden’s expertise in materials development, nanotechnology, and microelectronics/IT for the energy storage structures are connected here in the best possible way. With nearly 2,000 employees and a close-knit network of suppliers, Dresden has currently developed into the largest cluster of vacuum technology systems construction in Europe.

Regionally and internationally networked

The contact to top research institutions that is essential for high-tech industries is maintained by networks like Europäische Forschungsgesellschaft für Dünne Schichten e. V. (European Society of Thin Films), Materialforschungsverbund Dresden (Dresden Materials Research Network) or Energy Saxony. Every two years, Europe’s nanotechnology industry meets at the “Florence of the Elbe” for Nanofair. This creates not only a positive external effect, it also contributes to the bundling of activities within this strongly diversified field of expertise.

Companies (selection)

- VON ARDENNE Anlagentechnik GmbH
- Applied Materials GmbH
- IMA Materialforschung und Anwendungstechnik GmbH
- Novaled GmbH
- CREAVAC – Creative Vakuumbeschichtung GmbH
- SOLARWATT AG
- SolarWorld AG
- AXO DRESDEN GmbH
- Li-Tec Battery GmbH
- QPoint Composite GmbH
- Heliatek GmbH
- eZelleron GmbH
- sunfire GmbH

New materials for cleaner cars
New processes for more efficient energy generation
Openness – the secret of success
Life sciences/biotechnology

Openness and an interdisciplinary approach make the Dresden region a unique location for the life sciences. Impulses from related areas of technologies are breaking through traditional borders thanks to open interfaces and interdisciplinary networking. Companies and research institutions in the region are tapping into Dresden's excellent scientific landscape involving microelectronics and information technology, nanotechnology and new-generation materials for life sciences. This is based on competitive advantages in pioneering areas like systems biology, molecular bioengineering, regenerative medicine, tissue engineering, and stem cell research. Today, this relatively new area of expertise continues over 100 years of success for Dresden’s pharmaceutical industry.

The secret of self-healing

The mainspring of this area is the excellent basic research and its interdisciplinary orientation. One milestone was the founding of the Zentrum für Regenerative Therapien Dresden (Center for Regenerative Therapies Dresden) and its focus on adult stem cells, which is unique throughout Germany. A paradigm shift in biomedicine is being introduced by the “excellence cluster” which will eschew the replacement of infected tissue or the use of immutable implants, encouraging and fostering the body’s self-healing mechanisms.

Innovating together

Science and business cooperate successfully with each other at the BioInnovationsZentrum (Biological Innovation Center). State-of-the-art research devices, technologies, and services are openly available to participants. These shared facilities also provide young companies and small research groups the chance to work with the most modern equipment, which otherwise is usually only possible at corporations and research institutes. The network of Biosaxony e. V. promotes collaboration and contributes significantly to the further development of the industry with the provision of services and know-how.

Companies (selection)
- Menarini von Heyden GmbH
- ApoGepha Arzneimittel GmbH
- GlaxoSmithKline Biologicals
- Pharmatec GmbH
- UroTiss GmbH
- Biotype Diagnostic GmbH
- Namos GmbH

Spin-offs in the life sciences industry (number)

<table>
<thead>
<tr>
<th>Period</th>
<th>Spin-offs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1991–1995</td>
<td>3</td>
</tr>
<tr>
<td>1996–2000</td>
<td>14</td>
</tr>
<tr>
<td>2001–2005</td>
<td>15</td>
</tr>
<tr>
<td>2006–2010</td>
<td>14</td>
</tr>
</tbody>
</table>

Source: BCNP Consultants, Ernst & Young 2006–2011

Likeable object of research: How does the self-healing process of an ajolote work?
Diverse talents, appreciated worldwide
A wide range of industries in Dresden

Besides the three key sectors, the high level of diversity in additional strong sectors is an important reason for the flexibility and continued success of Dresden’s economy. Numerous industries benefit from each other, contributing to an innovative atmosphere here with the market-oriented specialization of their products and technologies.

- **Machines, limousines, aircraft**

Dresden’s skill in building machines and systems is appreciated around the world. The focus is placed on engineering special machines, for example for the photovoltaics and pharmaceutical industries. At the heart of the city, Volkswagen produces its luxury-class Phaeton model. A small but powerful aviation industry is also able to compete globally by converting passenger aircraft into freightliners and by providing specialized stress tests for aircraft.

- **Food, printing technology, packaging**

Saxony’s taste for indulgence is proverbial, and 100 companies in the Saxon state capital generate revenues of 450 million euros every year by producing Dresden Christstollen Christmas cake, gourmet food, wine, and tobacco.

The printing industry is also very respected. Not only are brochures and posters produced here, floor coverings and packaging are printed, and three-dimensional components are also produced using printing technology. Prinovis provides top-rate technical services, which is one of the most modern intaglio printers in Europe.

Companies in the packaging industry work in an equally innovative manner, and they offer everything from design and quality control to the production of the most diverse products and services, which makes the products available for transport and storage.

- **Shopping, conferencing, enjoying culture**

Dresden is one of the most important shopping cities in Germany and is highly attractive to guests from Russia, the Czech Republic, and Poland. The retail industry also displays powerful growth, which, like the hotel and catering industries, has profited from the increasing number of tourist visitors in recent years.

Dresden is also one of Germany’s top 10 cities for conferences and seminars. As a European cultural metropolis, the city also possesses a growing cultural and creative industry.
Development areas
Commercial properties and technology centers

Whether company founder, large company, or research institute: Dresden has space for the most diverse requirements. Technology and startup centers like the BioInnovationsZentrum (Biological Innovation Center), the Nanocenter, and the Gewerbehof Freiberger Strasse business center offer comparably low-cost laboratory and office premises with ideal infrastructure and comprehensive services for entrepreneurs and young companies.

The city’s business areas provide space for production and logistics institutions. Since 1992, the City of Dresden has invested more than 200 million euros into access to these locations and expansion of the local infrastructure. The dedicated application of financial grants provided by the Free State of Saxony, the federal government, and the EU has helped to make these areas available to companies that qualify for grants at low cost.

Technopoles: a place for cooperation

Companies and research institutions also profit from the dedicated development of Dresden’s technopoles, since business, science, and entrepreneurs involved in one area of technology are concentrated here. The short distances make the transfer of knowledge much more efficient, since contacts are maintained more intensely and the extensive research infrastructure is able to be utilized as a cooperative.

MiNaPolis, the center for micro and nanoelectronics and the nanocenter, is located in the north of Dresden, in the immediate vicinity of the airport, between Globalfoundries, Zentrum Mikroelektronik Dresden (ZMDI) AG (the Dresden Microelectronics Center), and Infineon Technologies Dresden. In the east of the city, close to the Fraunhofer Institute Center, MatPolis is where new materials are researched and areas of application for nanotechnology are tested. Johannstadt, which is close to the center, is the home of BioPolis. Besides the University Hospital Carl Gustav Carus Dresden, the Max Planck Institute for Molecular Cellular Biology and Genetics, and the Biological Innovation Center, numerous companies and research institutions active in the life sciences and biotechnology have also settled here. SciencePolis is being created in the environment of the University of Excellence TU Dresden.

Technopoles in Dresden

Technology centers like the BioInnovationsZentrum are a starting point for successful companies.
Modern infrastructure, a growing city
Dresden’s high quality of life

Dresden is located in the picturesque Elbe valley at the mid-point between Berlin and Prague. Thanks to a modern network of transportation routes, Saxony’s capital city may be reached quickly from any direction. Tourists and business people from German and international cities like Zurich, Basel, London, Barcelona, Moscow, Frankfurt, and Munich arrive via the city’s airport. Three highways intersect in the city, and it also features two ICE railway stations, an inland harbor, and a high-performance public transportation system. As a node between Western and Eastern Europe, Dresden attracts millions of guests every year.

A flourishing city

More than half a million inhabitants call Dresden home. After all, it’s easy to find a balance between career, family, and recreation here. Thanks to a high number of people moving to the city and a high birth rate, Dresden is one of Germany’s fastest growing cities.

Demographics researchers are forecasting that 550,000 people will call Dresden home by 2025. The region along the Elbe already counts over one million inhabitants.

Dresden’s quality of life is attractive: stylish villas with large gardens characterize life along the slopes of the Elbe. Luxurious multi-family homes define the appearance of Gründerzeit, or Founder Epoch neighborhoods. Urban life in the trendy Neustadt neighborhood promises to be hip. No matter whether detached house, spacious loft, or modern apartment, the distances to the center are always short, public transportation is well-developed, and the Elbe and verdant nature are always close by. The rents are also comparably low.

Forecasted demographic development

Source: City of Dresden, Municipal Statistics Office

Dresden is located in the center of Europe, halfway between Berlin and Prague.
From sandstone baroque to trendy scene
Culture for any taste

www.dresden.de/leben
www.dresden.de/culture

As a European cultural metropolis, Dresden offers visitors top-quality attractions. More than 800 years of history converge here with modern developments in architecture, art, music, and theatre.

The historical city center and its unique ensemble of landmarks including the Zwinger, Semperoper, Residenzschloss, Brühlische Terrasse, and Frauenkirche are world famous. A trip over the Augustusbrücke takes you to the north side of the Elbe and the reconstructed town houses in the interior of the Neustadt neighborhood. Main attractions include Markthalle, Socieätstheater, and the restored Königstrasse. Literally just a few steps away, is the heart of Dresden’s club, restaurant, and party scene.

NEW POLISH FOR OLD MIRRORS – HIGH-TECH FOR PRESERVING ART TREASURES

300 years ago, mirrors were coated with a tin composition, and they appeared much darker than today’s more common silver mirrors. During a reconstruction, the original optical impression needs to be recovered. By using a special thin-layer technology, so-called “magnetron sputtering”, quicksilver-free tin mirrors are able to be produced at the Dresden Fraunhofer Institute for Electron Beam and Plasma Technology FEP, and their reflective and color properties may be adjusted exactly. Visit the historical Green Vault to admire these masterpieces.

■ Old splendor and new art

Artworks by Rubens, Tizian, and Rembrandt provide the basis for the fame of Dresden’s Old Masters Picture Gallery. Paintings by Caspar David Friedrich to Gerhard Richter are on display in the New Masters Gallery. Just a few steps away, the famous Green Vault offers its fantastic collection of historical treasures to viewers. Besides its high culture, a young, fresh arts scene boasting plenty of events is also becoming prominent in Dresden. “OSTRALE – The International Modern Arts Exhibition” takes place every summer at the Ostrainsel park area. CYNETART, the annual international festival for computer-based art, is dedicated to digital creativity.

■ Sound and movement

Music, dance, and theatre enjoy a long tradition in the city on the Elbe. The Sächsische Staatskapelle state orchestra provides Dresden with one of the best orchestras in the world, and it’s the only organization that has played this level of music uninterruptedly for four and a half hundred years. The international dance scene regularly meets at the Hellerau European Arts Center, and the Palucca University of Dance is a ballet school that enjoys a high reputation.
Recreation and nature

Forests and greenery make up three fifths of the Dresden city area. Broad meadows and vineyards stretch along the left and right sides of the Elbe. Cafes, beer gardens, and seasonal wine taverns invite visitors to enjoy the hospitality and the view. The nearly two kilometer-square Great Garden featuring a zoo and a botanical garden is close to the old city center, a green space that offers plenty of room for peace and quiet in the middle of the city.

The surrounding area also features numerous recreational opportunities and natural beauties. The spectacular Sächsische Schweiz National Park, the Eastern Ore Mountains, and the lake area around Moritzburg Castle are just three destinations, and the region features endless options for relaxation away from the city or for athletic pastimes. Apropos sports: Dresden is always happy to host sporting events. For example, the city provided one of the venues for the FIFA Women's World Championships in 2011.

Music, films, and celebrations

Several events take place here every year, like the Dresden Music Festival, the Semperoper Ball, the International Dixieland Festival, and the Jazztage Dresden, making the city a magnet for visitors interested in culture from far and wide. An acclaimed short film festival, a number of program cinemas, and the “Film Nights on the Banks of the Elbe”, which take place against the baroque background of Dresden's old city, are all developing the city into a real Mecca for movie fans.

Dresden's inhabitants are not only thinkers and tinkerers, they also enjoy celebrating and indulging. The trendy “Äußere Neustadt” neighborhood, numerous student clubs, the narrow side streets of the old city, and a number of outstanding restaurants provide excellent opportunities for diversion. People here know how to live!
**Children are welcome**

*Value placed on the next generation*

[www.dresden.de/education](http://www.dresden.de/education)

People tend to start families where they feel at home, and more children are born in Dresden than in any other city in Germany. The birth rate is constantly increasing versus the national trend, and there are currently 116 new children born for every 10,000 inhabitants. This development is supported by the provision of high-quality child support services in civic, public, and private daycares and kindergartens.

**Room for young talent to thrive**

To ensure that the number of students continues to grow and the high-tech city of Dresden is able to take advantage of qualified staff, the younger generation needs to be nurtured and encouraged to develop interest in science and technology. Dresden maintains the Children’s University at the University of Technology Dresden, eight students’ laboratories in various technical disciplines (e.g. biotechnology and vaccine research), the students’ computing center, and the “Long Night of Science” for this reason. A number of free schools and high schools with special performance profiles offer excellent educational opportunities. The Dresden International School (preschool, primary school, and secondary school) is one of them, where 530 children and youths from 40 nations currently study together.

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**Comparison of birth rates in German cities**

*Number of births per 10,000 inhabitants (2012)*

<table>
<thead>
<tr>
<th>City</th>
<th>Births per 10,000 inhabitants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dresden</td>
<td>116</td>
</tr>
<tr>
<td>Frankfurt / Main</td>
<td>113</td>
</tr>
<tr>
<td>Munich</td>
<td>113</td>
</tr>
<tr>
<td>Leipzig</td>
<td>110</td>
</tr>
</tbody>
</table>

*Source: Free State of Saxony Statistics Office / National and State Statistics Offices*
“Think global – act local”—this is the motto of the City of Dresden’s economic development office for maintaining and expanding the growth conditions necessary for internationally competitive and sustainable development of business, education, and research in Dresden.

The Office of Economic Development supports companies based here and entrepreneurs with their diverse questions, supports international investors, and coordinates approval processes.

Business service
The Dresden Business service provided by the Office of Economic Development represents the central information and consulting office for companies at the Dresden civic offices. Dresden Business Service provides:

- Information and support with application and approval processes, e.g. for business permits, construction permits and approvals
- Start-up advice
- Financing and funding advice
- Commercial space and real estate service
- Inward investment service
- Information and consulting events for Dresden companies
- Point of single contact for businesses

Business Service Contact:
City of Dresden
Office of Economic Development
Business Service
World Trade Center, Ammonstrasse 74, 2nd floor
01067 Dresden, Germany
Telephone +49 (0) 3 51 4 88 87 87
Telefax +49 (0) 3 51 4 88 87 23
Email: wirtschaftsservice@dresden.de
www.dresden.de/business-service

More information is available at www.dresden.de/business and at invest.dresden.de