



# S3 Platform Peer Review Workshop

## 13th - 14th of March 2013 in Brno, Czech Republic

### Region of Saxony – Background Information

#### Location and Population

The Free State of Saxony (Freistaat Sachsen) is located at the heart of Europe sharing its borders with Brandenburg, Saxony Anhalt, Thuringia, Bavaria, the Czech Republic and Poland. Saxony has a population of almost 4.2 million people.



#### TRANSPORT INFRASTRUCTURE

##### Road System

The Saxon road network is well developed. Some gaps remain.

##### Railway System

A better integration of Saxony to the routes of long-distance rail traffic is the primary goal, e.g., new route Dresden-Prague as part of the Trans-European Transport Network (TEN-T).

##### Air Transport

With the airports Leipzig/Halle and Dresden, Saxony is well integrated into international air traffic network.

Leipzig/Halle is the second-largest cargo airport in Germany, and no. five in Europe.

##### European Projects

Saxony is included in the Pan-European Transport Corridors III and IV as well as the priority projects 1 and 22 of the Trans-European Transport Network.

## **Economic Situation**

Saxony has a gross domestic product (GDP) of 22,970 euros per capita. This represents the highest economic performance among all East German states. However, the distance to the average of all German states (31,440 euros per capita) is still significantly high, in spite of the outstanding growth of GDP per capita totalling approx. 25 per cent since 2000.

The industry made a significant contribution to the economic success of the Free State of Saxony. Since 1995 it has grown stronger than the German industry on average. The number of persons employed in the Saxon industry increased by 2.6 per cent since 2000. This increase is well above the West German trend (-9.4 per cent) and also above the East German average (+1.9 per cent). Saxony's high-performing research landscape and its highly skilled labour force are key drivers for the competitiveness of the Saxon industry.

The economic success is also reflected in Saxony's labour market. With 474 employees per thousand inhabitants the employment density is by far the highest in East Germany. From 2011 to 2012 the number of unemployed people in Saxony decreased by 9.2 per cent, while in West Germany it declined by only 1.3 per cent and in East Germany by 6.4 per cent. However, the unemployment rate in Saxony (9 per cent) is still higher than the German average (6.5 per cent).

Small and medium enterprises (SME) play a key role within the Saxon economy. The majority of firms (98 per cent) employ less than 100 people. Almost 80 per cent of the employees (subject to social insurance contributions) are working in SMEs. Small and medium enterprises are responsible for about 70 per cent of the revenues generated in Saxony.

In 2011 exports from Saxony reached nearly 30 billion euros. Compared to 2009 this is an increase of about 50 per cent. The main export targets are China, the USA, and France. Trade relations with Saxony's neighbours, Poland and the Czech Republic are developing dynamically.

## **High-tech and Medium High-tech in Saxony**

The Saxon high-tech and medium high-tech sector is composed of many different images, and every image tells a different story: The digital heart of the chip industry beats in Dresden. In Leipzig and Dresden researchers and young entrepreneurs work hand in hand in the fields of biotechnology and environmental engineering. The traditional heart of Saxony's industry beats in the region around Chemnitz and Zwickau. Whether it is mechanical engineering or 100 years of "Autoland Saxony" – an industry rich in tradition has developed from smart ideas and intelligent solutions. Today, Saxony is a prime business venue for global players.

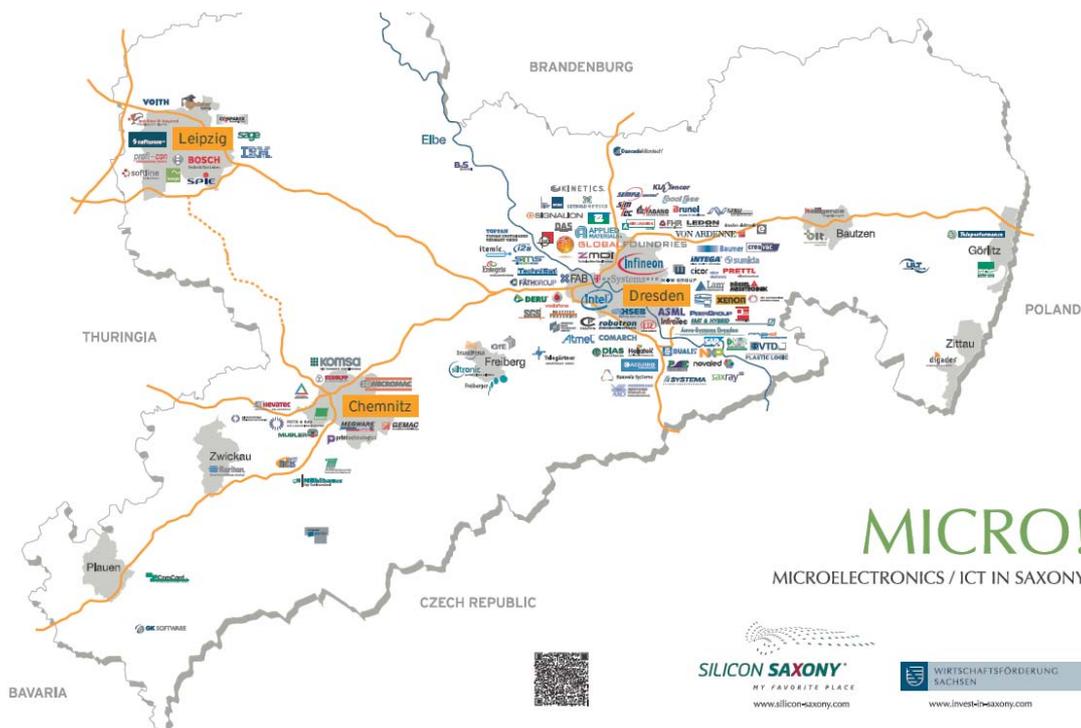
### *Automotive Industry in Figures*

- three car manufacturers (OEM): BMW, Porsche, Volkswagen
- more than 500 automotive suppliers (approx. 750 companies including service providers and equipment suppliers)
- over 70,000 employees
- key areas: automobile assembly, drive systems/chassis, automobile electronics, interior/passenger protection systems, car body, automotive engineering, plant construction and toolmaking, commercial vehicles, automobile logistics
- automobile industry is also the driving force for Saxony's manufacturing trade
- networks: Saxony Automotive Supplier Network (AMZ)



### Microelectronics/IT in Figures

- 2,100 companies with about 51,000 employees, among them more than 300 companies with about 25,000 employees active in microelectronics
- sectors micro- and nanoelectronics, photovoltaics, organic & printed electronics, energy-efficient and smart systems, telecommunication and integrated sensor technology are concentrated in the region between Chemnitz, Dresden and Freiberg
- advanced software development settled and grows in Dresden and Leipzig
- every second chip produced in Europe bears the label “Made in Saxony”
- networks: Silicon Saxony (Europe`s largest cluster for the microelectronic industry), Nanotechnology Center of Competence „Ultrathin Functional Films“ (Nano-CC-UFF), Organic Electronics Saxony



## Mechanical Engineering in Figures

- over 380 companies with around 38,000 employees
- industry structure: manufacturing of machine tools as well as of printing, textile and special machines
- training/research: 3 universities, 5 universities of applied sciences, 2 vocational academies, 4 Leibniz institutes, 10 Fraunhofer institutes
- networks: Cooperative Initiative Mechanical Engineering (VEMAS)



## Environmental and Energy Technology

- environmental technology contributes more than 6 per cent to Saxony's GDP
- more than 20,000 people employed in this sector
- Saxony's enterprises assume a leading position, above all, in such key markets as power generation and energy storage as well as recycling management

## Life Sciences – Biotechnology, Pharmaceuticals and Medical Technology

- around 116 life science companies with a total of around 6,300 employees.
- over 30 university and non-university research institutions focusing on the fields of regenerative medicine/therapies, molecular bioengineering, bioinformatics, nanobiotechnology and pharmacogenetics
- networks: biosaxony (Leipzig, Dresden), BIO CITY Leipzig (biotechnology-biomedical center), BioInnovationCenter Dresden (location for Science and Business to foster start-ups)

Saxony also has specific strengths in the following fields of technology:

## Nanotechnology

- nanotechnological application fields such as the application of very thin nanoscaled layers and the use of nanoparticles in different branches of industry
- a major contributing factor is the state's outstanding research infrastructure, which links numerous universities and several non-university research institutes

- networks: Nanotechnology Center of Competence „Ultrathin Functional Films“ (Nano-CC-UFF)

#### *Advanced Materials/Advanced Manufacturing Systems*

- strong ties to mechanical engineering and automotive industry
- high number of SMEs involved in lightweight engineering
- focus on increasing resource efficiency, multi-material and function-integrated lightweight structures
- Federal Cluster of Excellence “Merge Technologies for Multifunctional Lightweight Structures” in Chemnitz
- “European Centre for Emerging Materials and Processes Dresden” (ECEMP)

### **Education and Skills in Saxony**

According to the Education Monitor 2010 Saxony has the most efficient educational system of all German states. Saxony’s specific strong points primarily include its support infrastructure, overall school quality, internationalisation, reduction of educational disadvantages, and the so-called MINT qualifications, i.e. mathematics, informatics, natural sciences, and technology. Saxony’s pupils also achieve top rankings in PISA tests.

Saxony offers skilled personnel qualified above average. One out of three people in working age holds a university or equivalent degree. In West Germany this applies to only one out of four. Almost all Saxons (96 per cent) have completed secondary education (OECD average: 74 per cent).

Saxony is the number one incubator of young engineers in Germany. Around a quarter of all college graduates completed their studies with a degree in engineering sciences here. This is the best result for all of Germany. Saxony has the highest number of graduates (16 per cent above the OECD average) and the highest share of engineering doctorates in Germany. The leading subjects are Mechanical and Electrical Engineering. The TU Dresden is the largest technical university in Germany.

Instead of dull theory, practice-oriented instruction is provided by Saxony’s universities and colleges – in close cooperation with regional enterprises. The Zwickau University of Applied Sciences (WHZ), for instance, provides special study programmes for future motor vehicle specialists. Together with the Volkswagen Bildungsinstitut, the educational institute of the Volkswagen Group, and industrial partners, the WHZ provides practice-oriented cooperative study programmes. What makes this type of education so attractive is that those who graduate from this program earn both a diploma as a skilled worker and a university degree. Another example: The “International Max Planck Research School for Molecular Cell Biology and Bioengineering” (IMPRS-MCBB) is jointly supported by the TU Dresden and the Max Planck Institute for Molecular Cell Biology and Genetics (MPI-CBG) in Dresden.

### **Research, Development, and Innovation in Saxony**

Saxony has the third highest university density of all German federal states. Leipzig University – founded in 1409 – is Germany’s second oldest university, and the Freiberg University of Mining and Technology is the world’s oldest educational institution focusing on mining and geosciences. The Dresden University of Technology today is one of the ten largest universities in Germany.

Saxony offers excellent universities throughout the country covering differentiated fields of studies and degrees. There are five universities (amongst them TU Dresden), five art academies, five universities of applied science, the University of Cooperative Education in Saxony, private universities and ecclesiastical colleges, 17 Fraunhofer institutes, six Max Planck institutes, six Leibniz institutes, and four research centres of the Helmholtz Association.

Being multifaceted and structurally well-equilibrated the research landscape in Saxony is excellently positioned. Since 2012 the TU Dresden is one of eleven German universities that were identified as an “excellence university”. With this title the German government and the scientific community honours outstanding German research universities.

Saxon scientists dedicate their research effort to microelectronics, nanotechnology, mechanical engineering, vehicle construction, materials science, biotechnology, and others.

According to the Regional Innovation Scoreboard 2012 Saxony is one of the most innovative regions in Europe and belongs to the so called innovation leaders. Within the group of innovation leaders Saxony, however, is a region with a larger backlog. While the Free State achieved fairly good results with respect to public R&D expenditures and the proportion of SMEs that have introduced innovations, it performs relatively poor in the remaining areas, particularly with regard to SMEs innovating in-house and cooperation in innovation activities.

For additional information please see:

[http://www.youtube.com/watch?feature=player\\_embedded&v=l66bKSb3nNU](http://www.youtube.com/watch?feature=player_embedded&v=l66bKSb3nNU)

