

The Software Branch as an Engine of Innovation in the World Wide Web

The software branch is a major driving force of economic development in Saxony. About 1,400 software enterprises in the Federal State employ more than 23,000 people. Software is one of those technologies which are indispensable for the key fields of innovation. For example, Saxony's companies and research facilities play a decisive role when it comes to the global topics of the future – including, above all, cyber-physical systems as the basis for Industry 4.0 / Smart Factories, energy efficient production as well as future mobility.

Saxony's Software Competence for the Technologies of the Future

In Saxony, software technologies focus on such topics of the future as, for example, factory automation, software for embedded systems, big data / smart data, IT safety as well as business and branch software. Primarily manufacturers and users of electronic components, but also numerous other branches such as machine and plant construction, the automobile, printing, and pharmaceutical industries, biotechnology as well as other service providers all benefit from these multifaceted competences. That the software challenges of tomorrow are no longer a vision of the future in Saxony is aptly demonstrated by the many innovative software solutions developed here – whether it be for the sectors smart factory, smart mobility, smart city, or smart health.

The **AIS Automation GmbH** develops smart software solutions not only for transportation and rail technology, but also for factory and production automation in the PV, semiconductor, and automotive supply industries. Because integrated and flexible manufacturing creates enormous production benefits in modern, automated factories. The Dresden-based company provides innovative smart factory technologies from the control of machines all the way to production control systems (MES, i.e. manufacturing execution system) for complete factories.

Well on its way to become a smart city, Saxony's state capital Dresden aptly demonstrates how traffic flows can be controlled intelligently. The **Traffic Management System VAMOS** was developed in cooperation with Dresden University of Technology. The system integrates the more than 1,000 traffic detectors available in the region as well as the diverse traffic control and traffic management systems of the city's road network and the adjacent federal expressways. With the help of these detection points, the system identifies the current traffic situation, calculates variants of the optimal traffic flow, and controls Dresden's traffic fully automatically. The traffic data center, which is located at Dresden University of Technology, is the hub of the system.

In the smart health context, software experts in Saxony are working on solutions to improve the health care of an aging population. One of the objectives is to also make medical expertise available on mobile devices. Towards this end, the Dresden-based start-up enterprise **CareSocial GmbH** has developed an innovative software for nursing service providers which permits a more efficient planning, documentation, and billing of nursing services via an app.



Software from Saxony also ensures safe digital communication. The safety and authenticity of digital information during their transmission, for example, via email are the topic of the start-up **comcrypto GmbH** from Chemnitz. The Leipzig-based **Rhebo GmbH** has developed a system which analyzes and monitors the entire data transmission in industrial control networks.

Safeguarding and Assuring the Next Generation of Specialists for the Software Industry

The next generation of specialists is also being catered to: Every year, about 6,800 students are educated in computer science programs at 5 universities, 8 universities of applied sciences, and 4 universities of cooperative education in Saxony. Their prospects for the future are very promising: Saxony's software branch is developing rapidly while focusing on highly qualified, skilled employees who promote and advance the fields of innovation mentioned above.