



Saxony-Anhalt universities distinguish themselves as innovation partners for economy

Knowledge transfer in the leading mobility and logistics market is a two-way street

Growing mobility needs, traffic growth, demographic change, limitation of CO₂ emissions, increasing energy costs and industry 4.0 across the globe are all challenges for society, as well as leaders in mobility and logistics development. As part of the “Saxony-Anhalt Regional Innovation Strategy 2014 to 2020”, the state government sees the economic future of this leading market as follows: “As a supplier for innovative drive technology and efficient energy sources, Saxony-Anhalt solidifies its position amongst both national and international competition. Field-testing for intelligent logistics concepts and traffic systems are improving the traffic situation on the roads”. The increasing technical complexity and ever shorter product cycles, however, make the development of new products a huge challenge for many companies. These companies therefore require innovative concepts. More importantly, however, they need partners with whom they can implement these concepts.

Current projects and collaborations are proof that cooperation between science and economics can be extremely efficient. In Saxony-Anhalt, they are not just practising logistics. Instead, they are also intensively researching the further development of logistics processes and systems at two universities, four applied science universities, and an array of institutes and laboratories. Here, research, development, and production all go hand-in-hand.

New ideas need brilliant minds

In applied science universities across the state, the link between research and knowledge transfer towards economics is already established as part of the students’ education. Anhalt University of Applied Science is no different: the Master course Logistics and Air Traffic Management (MLM), run by the School of Economics on the Bernburg campus, works closely with the affiliated logistics institute, a leader in the field of logistics research. The institute compiles research to be used as teaching content as part of the MLM course and then the affiliated institute simply picks up the work where students’ projects left off. Conversely, any findings made by the institute are then integrated into the teaching. The majority of the projects are linked to the core sector of logistics management in the automotive industry, pharmaceutical industry, retail and medical logistics. Right from the start of the Master course, there is the chance to work successfully with the DHL Hub in Leipzig. Both MLM students and the affiliated logistics institute are involved with the DHL Hub. One of the projects included the development of a mobility concept for the Leipzig Hub employees, with the aim of improving employees’ commutes to and from work. “The project shows that it is not always about classic cost-saving in logistics. We wanted to show how we could increase employee satisfaction. Strategically it’s not so important, but it’s fundamental for employees,” explains Professor Frank Himpel, MLM course director. These projects enable students to gain specific experience as well as giving them the opportunity to work on an urgent problem. With these projects, Professor Himpel is trying to create transparency in cause-effect-research as the approach of solving logistics-related problems through cause-effect analysis is still relatively new. “We are learning to refine the methodology with practice partners. It is only through the collaboration between companies and prospective experts that theory and practice can be best intertwined. It’s a win-win situation for all involved”. In order to further improve this transfer of knowledge, this semester a logistics lab will be set up at the Anhalt University of Applied Sciences which aims to act as another interface for the exchange of knowledge between the logistics institute, the MLM course, and practice partners.

From concepts to prototype solutions

Even the Competence Network for Applied and Transfer-oriented Research (KAT), which is unique in Germany, acts as an interface and promotes the exchange of know-how between logistics-economics and applied research throughout the country. The cooperation of universities with small and medium-sized companies is at the heart of this network and its work is getting results. For example, at the Merseburg University of Applied Sciences, employees and students in the department of Logistics Systems and Networks and Supply Chain Management are currently working on two large projects: route planning in waste disposal for Halesche Wasser- und Stadtwirtschaft GmbH and big data analysis for the logistics service provider Radial Fulfillment GmbH. “In order to improve route planning in waste disposal, we asked ourselves the questions, which areas can be stopped at and with how many vehicles, and what is the best order to do so in. We are developing concepts and processes and then implementing a prototype for these so that Halesche Wasser- und Stadtwirtschaft can use these processes to provide a better, more efficient waste disposal service. We have been working on the project for a couple of years and we are almost finished,” explained Professor Dirk Sackmann from the Merseburg University of Applied Sciences. It’s also all about improving work processes in the recently launched project between the university and the logistics service provider Radial Fulfillment. “The most important is what we can deduce from the customer’s order data and the context of the order in relation to the company’s logistics concept. That means assessing which goods are being ordered and which must be packaged. If I can find this information out, when putting together the data, I can organise my warehouse so that commissioning goes more quickly, effort is reduced and packaging is more efficient. Another focus is on the impact of online campaigns on the demand. The goal here is to find out how demand for items advertised in the campaign changes. We also investigate changes in demand for items that have not been explicitly advertised. Big data analytics thus allows us to draw conclusions on organisation, employee planning and warehouse logistics,” explained Professor Sackmann.

Long-standing partnership results in more and more new products

At the Institute for Logistics and Material Flow Technology (ILM) at the Otto von Guericke University in Magdeburg, the transfer of technology and knowledge between science and economics is a central task. On one side there are research and development projects with concrete economic tasks and, on the other, joint projects with several partners in the field of economics, which are usually financed by funding institutions such as the BMBF [German Federal Ministry of Education and Research] and BMVI [German Federal Ministry of Transport and Digital Infrastructure] or by the state of Saxony-Anhalt in collaboration with the EU under its Regional Innovation Strategy (RIS). There are also more and more training and in-house seminars taking place for employees of commercial enterprises. Cooperation between industrial engineering students majoring in logistics and commercial enterprises is just as important when writing final dissertations. “Our institute oversees over one hundred final dissertations per year, around two thirds of which are completed in collaboration with practical work. In doing so, students are able to use their analytical mind and method knowledge,” Professor Hartmut Zadek from ILM explained.

New questions are constantly arising from the long-standing partnership between the institute and the company during research and development projects. “This is why we are always a valued research partner for Logisch GmbH in Magdeburg when developing and testing innovative material flow systems, for example looking at system elements for baggage handling systems. For the Barleben-based medical equipment manufacturer, EKF-diagnostic GmbH, we were able to redesign the internal material flow from the receipt of goods to the installation of the devices right up to dispatch”. Thanks to the research funding granted for the first time last year by the Ministry of Economics, Science and Digitalisation and its leading mobility and logistics market as part of the Regional Innovation Strategy (RIS), ILM is now hoping to sustain the momentum throughout Saxony-Anhalt. “We are currently working with companies across the state on proposals for joint projects, with the aim of strengthening the region’s manufacturing industry in the long-term. But the EU-funded initiative for Innovative Transport Systems (IVS) led by the Ministry of Transport and Regional Development, will also create momentum for joint projects between commercial enterprises and our institute, in the electro-mobility sector, for example.”

Fund research, intensify collaboration

Universities and applied science institutes are supported by the Federal Logistics Association (BVA) in some research projects. The BVL also regularly host work groups on current topics in the logistics industry, giving representatives from the fields of economics and science the opportunity to come together and work on solutions. In order to intensify the collaboration between universities and companies across the region, in cooperation with the Saxony-Anhalt Ministry of Transport and Regional Development, the Saxony-Anhalt branch of the German Transport Science Association (DVWG) recently launched the mobility and logistics transfer price aiming to honour the best dissertations in this field, which have proven to be very beneficial for companies in Saxony-Anhalt, each year from now on.

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