



Partner Presentation Form

Name of the organisation :	Duale Hochschule Baden-Württemberg Baden-Wuerttemberg Cooperative State University	 <p style="margin: 0;">DHBW Duale Hochschule Baden-Württemberg Präsidium</p>
Address:	Friedrichstraße 14, 70174 Stuttgart	
Tel:	+49 711 / 320 660-0	
Fax:	+49 711 / 320 660-66	
Web site:	www.dhbw.de	

Name of the contact person :	Prof. Dr.-Ing. Christian Kuhn	
Function:	Head of Electrical Engineering Mosbach	
Address:	Lohrtalweg 10, 74821 Mosbach	
Tel:	+49 6261 939-540	
Fax:	+49 6261 / 939-504	
E-mail:	christian.kuhn@mosbach.dhbw.de	

Name of the contact person :	Prof. Dr.-Ing. Bernd Bachert	
Function:	Head of Construction and Development	
Address:	Lohrtalweg 10, 74821 Mosbach	
Tel:	+49 6261 939-440	
Fax:	+49 6261 939-425	
E-mail:	bernd.bachert@mosbach.dhbw.de	

Name of the contact person :	Reinhard Wenig	
Function:	Laboratory engineer	
Address:	Lohrtalweg 10, 74821 Mosbach	
Tel:	+49 6261 939-279	
Fax:	+49 6261 / 939-504	
E-mail:	reinhard.wenig@mosbach.dhbw.de	

Name of the contact person :	Sarah-Elisa Rothermel	
Function:	Research administration	
Address:	Lohrtalweg 10, 74821 Mosbach	
Tel:	+49 6261 939 - 231	
Fax:	+49 6261 / 939-504	
E-mail:	Sarah-Elisa.Rothermel@mosbach.dhbw.de	

Type of organisation:

SME School University Public Authority
 Training No Profit NGO

Other (Specify)

Fields of action :

SMEs Youth Universities Public Authorities
 Equal opportunities Schools Unemployed

Other (Specify)

Description of the organisation

Baden-Wuerttemberg Cooperative State University (Duale Hochschule Baden-Württemberg/DHBW) is the first higher education institution in Germany which combines on-the-job training and academic studies and, therefore, achieves a close integration of theory and practice, both being components of cooperative education. With around 34,000 enrolled students, over 9,000 partner companies and more than 145,000 graduates, DHBW counts as one of the largest higher education institutions in the German Federal State of Baden-Wuerttemberg and has appr. 650 full-time lecturers (professors) and much more part-time lecturers.

The university's official seat is in Stuttgart. Based on the US State University System, the organizational structure of DHBW is unique in Germany for it comprises both the central (DHBW headquarters) and the local level (DHBW locations and campuses). Throughout its nine locations and three campuses, the university offers a broad range of undergraduate study programmes in the field of business, engineering, and social work. All degree programmes are both nationally and internationally accredited, count as intensive study programmes and are worth 210 ECTS credits. In addition, DHBW offers postgraduate degree programmes with integrated on-the-job training.

The key feature of cooperative (work-integrated) education is the unique combination of theory and practice. The university's curriculum combines higher education and on-the-job training at numerous partner companies, aiming to provide both academic skills and work-related expertise. In that regard, the academic content conveyed in classroom is complemented with workplace experience, so that real-life situations immediately test the effectiveness of classroom theory and vice versa.

The DHBW Mosbach is one of nine locations of the Baden-Wuerttemberg Cooperative State University in the federal state of Baden-Wuerttemberg in southwestern Germany. More than 3.600 students are enrolled in our 33 undergraduate study degrees. In addition to their studies, the students work at one of the more than 1,100 companies, which cooperate with the university as corporate partners.

Experience of the organization in previous European projects

In terms of research, we take a cooperative approach, focusing on applied and transfer-oriented research, often in cooperation with our corporate partners. Cooperative research at the DHBW Mosbach develops innovative concepts, strategies and technologies and reflects current professional challenges in business and technology. This includes interdisciplinary research clusters like the „Production- and Information Management“ (Fertigungs- und Informationsmanagement, FIM), which focuses on researching the latest developments in the field of Industry 4.0, as well as networks like the „Kompetenzzentrum Marketing“ (KomMA), which conducts research in areas like Industrial Sales and Marketing or Digital Marketing.

On an international level, we are actively involved in diverse research projects. For example, we are member of the European Network of Cooperative and Work Integrated Higher Education (CWIHE), which consists of seven organizations from six different countries and analyzes different models of cooperative higher education in Europe.

Experience and Expertise of the organization in the project's subject area

The "Digital Transformation" will substantially change business - the implementation of the concepts of Industrie 4.0 is not a "can", but a "must" for all manufacturing companies, especially the SMEs. To pro-actively address the resulting profiles of the engineers of the future, we need new competence-oriented concepts – didactically, with regards to content and organizationally. The DHBW Mosbach has established an interdisciplinary competence center "Production and Information Management" which is embedded in a future-oriented teaching context.

"Interdisciplinary process knowledge is a crucial factor for the engineer of the future. In our digital factory we model and implement the whole process from order creation through the complete assembly and quality assurance to logistics and delivery, together with the information flow. This is an ideal platform for application-oriented research and teaching in the era of Industrie 4.0" (Prof. Dr. Christian Kuhn).

The "Digital Factory" at DHBW Mosbach was developed as an Industrie 4.0 model factory with practical

processes in production, logistics, service and plant management. Within a 'Living Lab' concept, the factory will be adapted continuously and expanded to reflect the latest developments. It is used in teaching and research, thus enabling practical training of students, but also the active participation of future engineers in the development of components, software and processes with the latest concepts and technologies from science. Specific application expertise with the possibility of demonstration and integration into teaching is available at the DHBW Mosbach. The foundation is the "Digital Factory", which serves as a "testbed" for new concepts, methods and technologies. This model factory will be adapted within the concept of a "Living Lab" continuously and expanded to reflect the latest developments. The aim is to map the real world of information technology and systems and automation technology in the actual extension and complexity. For this purpose, a variety of real industrial systems, components and technologies are fully integrated throughout the applications - in one room, with typical processes of production, logistics and service and plant management. A wide range of typical business processes have already been implemented completely with real systems, from the ERP system to the physical material flow.

Contributions that can be provided to the project

Our main activity is the definition of the path to the 'Engineer of the Future'. Within this context, we are discussing, defining and evaluating concepts and new approaches in teaching, especially combined teaching and research (Research-related teaching), but also new skills and competencies in the context of digital transformation. This is also exactly the area where we've major skills and expertise which we want to contribute in the project. The digital Transformation of the companies implicates a necessary transformation of the skills und competencies of engineers. To enable this, we need new teaching concepts with principles of STEAM and project/problem-based learning and very practical/application oriented context.

Reasons of involvement in the project

Goal is to set up a scalable seminar bundle 'Digital Engineer' with STEAM-methodology within the digital factory, implement and evaluate this seminar and spread the experience. For DHBW, this should be the major intellectual output of the project.

The developed concepts and content will be implemented in university practice, replicated and re-used. An evaluation (qualitative and quantitative) will be performed, and the implementation if possible re-iterated. Based on the results, the guidelines for the implementations will be created based on a common structure and format. The established seminar will be essential part of the curricula of several courses of study and improved on an iterative basis.

Contact Person's Experience and Expertise

Prof. Dr.-Ing. Christian Kuhn: The information-technological networks of business processes and participating organizations, people, systems and things, as well as digital transformation for innovative business processes and business models - these are the focal points of Christian Kuhn's activities. His research and teaching activities focus on the topics of 'Industry 4.0', the 'Internet of Things and Services' and the 'Work of the Future'. Prof. Kuhn is the initiator and co-speaker of the competence center 'Production and Information Management' at the DHBW Mosbach, which is particularly used as a bridge between teaching and research. Furthermore, he is the scientific director of the DHBW Master's program 'Integrated Engineering', with a focus on innovative information management for process support in industry in professional training. In addition, Mr. Kuhn has initiated and established an international English language semester (International Program in Engineering) to enable the exchange of German and international engineering students.

Prof. Dr.-Ing. Bernd Bachert studied mechanical engineering and is head of mechanical engineering at DHBW Mosbach. He has several international research experiences on the field of educational research projects (for example cooperative and work integrated Erasmus+ project CWIHE) as well as on the field of technical research projects (renewable energy engineering) for example in cooperation with the Technical University Munich.

DHBW will involve a set of proven and experienced lecturers and different classes of students in the project. Additionally, one or two scientific researchers will work on the outcome, together with several student

research works.

Dipl. Ing. Reinhard Wenig worked for an international software company for 20 years after finishing his studies in mechanical engineering. Among other things, he took responsibility for project, quality and risk management in strategic software development projects for enterprise management (ERP). Since 2010 he has been a lecturer at the DHBW Mosbach and since 2014 research assistant at the competence center 'Production and Information Management'. Here he develops and supervises realistic hands on exercises that provide insights into and deepen the understanding of comprehensive and integrated information flow in the enterprise. His tasks also include the support and further development of the software infrastructure of the Digital Factory of DHBW Mosbach. In the transfer research, among others, he contributed to projects on predictive maintenance and Industrial Internet of Things (IIoT).