



Federal Ministry  
of Education  
and Research

# Inter-company training – modern, digital and attractive

**Special Programme on Digitalization  
in Inter-Company Vocational Training Centres**





Dear Reader,

Digitalization is penetrating and transforming all areas of our world of work. Whether in the skilled trades, agriculture or logistics, the digital transformation has great potential for all sectors of the economy. We want to provide young people with the skills and the enthusiasm for the working worlds of today and tomorrow. To that end, we are investing in modern infrastructure for education and training and equipping learning venues with digital technology – the vocational schools by way of the Digital Pact for Schools, and the inter-company vocational training centres by means of the Special Programme on Digitalization. Inter-company vocational training centres are an important pillar of Germany's dual system of vocational education and training and serve as multipliers in the digital age. Their programmes help to support the training provided by small and medium-sized enterprises.

The Federal Ministry of Education and Research of Germany

## Strengthening vocational training: teaching up-to-date digital skills

State-of-the-art bakeries (“bakery 4.0”) can produce rolls with a signature, bread with specially requested ingredients and cakes with marzipan photos. 3D printers create bakery products to order for customers. Connected and automated ovens and machines help bakers to produce their goods. Computerized systems support them in reducing variations in the quality of their baked goods and in achieving greater production reliability.

This is just one example that shows the impact the digital transformation is having on work tasks and processes in different occupations. This applies not only to the baking trade but to all sectors of the economy. The advantages are obvious: businesses can save time and money with modern technology, specifically by monitoring machines remotely, fulfilling individual customer wishes, automating processes and also by reducing energy consumption. To be successful in using modern technology, they need well-trained staff.

But where do skilled workers acquire digital skills? Providing training that takes account of the latest developments in technology presents a major challenge for small and medium-sized enterprises (SMEs) in particular. As a result, many SMEs are unable to exploit the benefits of digitalization. Inter-company vocational training centres

help SMEs to provide up-to-date training. They supplement vocational training with digitally related content when businesses are unable to teach this themselves. The way the inter-company training centres provide instruction is also changing: for example, metalworkers learn to weld on simulators before they start using an actual welding machine, while painters and decorators learn to mix paint with a digital paint-mixing machine. This requires the inter-company training centres to procure innovative technology and to be continually developing learning scenarios.

The centres' training programmes help enhance the training offered by SMEs particularly in this era of digitalization. The dual system of vocational education in combination with work-based training is a crucial factor in Germany's successful economy and is in demand worldwide. It provides young people with the best possible preparation for their start in working life. Businesses that provide training can satisfy their own skills needs and remain competitive.

The Federal Ministry of Education and Research (BMBF) pays attention to the current and future needs for up-to-date skilled training. That is why the BMBF launched the Special Programme on Digitalization in 2016 to help inter-company training centres modernize their training programmes. The Federal Government has been providing financial support for the modernization of training centre equipment and buildings and their continuing development as skills centres for many decades. The experience of the coronavirus pandemic has shown just how important modern and digitally enabled programmes are for education and training.

The Special Programme is part of the Federal Government's Digital Strategy and the BMBF's umbrella initiative Vocational Education and Training 4.0 (VET 4.0).

Trainees are technology spreaders. They bring the digital skills they have learned into their companies. The inter-company vocational training centres help drive the digital transformation of businesses by the way they train the apprentices.

Dr Peter Marx,  
Managing Director,  
vem.die ilw gmbH – Industrie-Lehrwerkstatt Koblenz





## Modernizing training: funding for equipment

Inter-company vocational training centres need the relevant digital technologies in order to provide future-oriented training. State-of-the-art workshops and classrooms provide the appropriate conditions for teaching digital skills. Training staff can teach future skilled workers how to master digital technologies in training centres equipped with the latest technology. Workers with up-to-date training bring their knowledge of digital technologies to their places of work where they put it to profitable use.

The BMBF uses the Special Programme to provide incentives in the form of grants worth 90 percent of the purchase price. Grants are available for digital technologies and digital infrastructure, ranging from virtual reality technology to remote-controlled construction machines and robotics training devices. You can find which commonly required digital equipment is generally eligible for funding in the online equipment list. If the desired digital equipment is not listed, you may still apply for funding. In this case, you must additionally justify how you intend to use this item in practice for training in didactic and methodological terms.

However, it is not always possible to buy the digital equipment that fits a centre's needs precisely. In such cases, training centres can develop or adapt digital equipment or have it specially designed for them, depending on their specific needs. For example, training centres can have existing simulations adapted to their own learning scenarios or add new software to extend the simulations.

In this way, the BMBF enables inter-company training centres to realize their own ideas about trends in different industries as learning scenarios and thus to integrate new innovations in inter-company training. Training centres that want to employ newly developed technologies must also submit an appropriate plan for their use in teaching.

Further information about applying for funding is available (in German) at:  
[bibb.de/uebs-digitalisierung-ausstattungsfoerderung](http://bibb.de/uebs-digitalisierung-ausstattungsfoerderung)

“ At the inter-company training centre, I programmed digital control equipment that can be used for traffic lights, for example. That was especially satisfying because I could see the results immediately. ”

Angelika Spahn,  
Mechatronics technician at Stabilus GmbH in Koblenz



# Rethinking training: development and testing projects

Modern learning venues equipped with digital technology provide the conditions needed for attractive, future-oriented training. But in order to get the best out of using digital technology in inter-company training centres, appropriate training models are also required. That is why the BMBF uses the Special Programme to fund projects which integrate future-oriented technologies in inter-company training or adapt and further develop training models in line with the requirements of industry.

## Cooperation and networking

The projects work together with companies, vocational schools, universities and research institutions in the development and testing of their training models. Close cooperation enables the creation of programmes that are tailored to demand and the needs of industry. Many inter-company training centres are also excellently networked in the vocational training landscape.

## Sustainable transfer of results

The project teams also have the task of training the trainers, for example by creating appropriate skills development programmes for them. All the project leaders have a responsibility to ensure the sustainable transfer of the project outcomes. The project teams work together in transfer workshops on topics such as networking and dissemination strategies. In this way, they can learn from one another and make use of synergy effects. Where questions are not specific to individual occupations, the project staff can work together on developing solutions, for example for how trainees' inhibitions about using digital media can be overcome.

The project teams also develop strategies for transferring the results from the project work into the wider vocational education and training landscape. They make their findings available to other training centres via freely accessible media such as the website **foraus.de**, which provides extensive information for vocational trainers and teachers. These other training centres can use the insights the projects have generated to modernize their own training programmes.



### Scientific support

A particular aspect of the funding is that, in addition to funding for personnel, materials and investment in digital equipment, the BMBF supports the utilization of scientific expertise. The advantage of this is that the project teams can provide a scientific basis for the theoretical part of the training and upskilling models they have developed and for the methodological and didactic processes. For example, they can use the help of universities or vocational training research institutions to evaluate findings from the project work or design specific practical aspects on a sound theoretical basis taking account of the latest research.

Further information is available (in German) at:

**[bibb.de/uebs-digitalisierung-konzeptionelle-projekte](http://bibb.de/uebs-digitalisierung-konzeptionelle-projekte)**

### New projects started

The new development and testing projects started in September 2020. They involve inter-company training centres from the skilled trades, construction, agriculture, industry and commerce. In some of the projects, the focus is on identifying the requirements of business related to digitalization and implementing these in training courses. In the other projects, the focus is on incorporating new technology in inter-company training.



One example of the first category is GSIdigital – Digital Skills for Integrated Building Systems of Elektro Technologie Zentrum (etz) Stuttgart. The project leaders are developing inter-company training courses for the new occupation of Electronics Technician for Integrated Building Systems. These training courses will include digital learning approaches and materials as well as specifying appropriate “learning islands”. Another project working on the development of up-to-date training models is AudiTraMi – Training for the Digital Transformation of the Dairy Industry. It is based at the dairy training centre of the Lower Saxony Chamber of Agriculture. The project team is planning to integrate modern technologies such as digital milk processing within existing training approaches.

The second category of projects includes those where virtual and augmented reality technologies are employed. One example is the collaborative project DALiB – Digital Work and Learning in the Operation of Construction Machines. The project team has the goal of modernizing inter-company training courses in the area of construction machine operation using digital technologies such as fully automated grading machines. The trainees will learn how to operate the machines in a three-stage approach starting with online modules, followed by training in simulators and finally using the construction machines in real life.

The BMBF selected all the projects in a process supported by training and research experts.

Further information about the new projects and their work can be found (in German) at [foraus.de](https://www.foraus.de) under *Themen/Sonderprogramm zur Digitalisierung in ÜBS*



“ With the GSIdigital project, we are already anticipating the requirements for learning an occupation that is set entirely in a digital environment. We will teach our future trainees to understand the system of digital connectivity. ”

Dr Jürgen Jarosch,  
GSIdigital project manager at etz Stuttgart



### Results from the first eight projects

Eight development and testing projects have already been completed. They examined the consequences of digitalization for inter-company training in various occupations and adapted the training programmes accordingly. One project, “Bau’s mit BIM” (Build it with Building Information Modelling) run by Bau Bildung Sachsen in Saxony, linked learning content with a digital building information model. In the developed digital model settlement, trainees are not only prepared for their various future tasks in civil engineering, building construction and construction finishing. The digital model provides clear visualized depictions of the various work steps to be carried out in and outside the building and aids self-directed learning. It also helps the instructors in illustrating complex relationships in their teaching as well as in the management of teaching materials and saving results.

The project Dental Digital<sup>3</sup> of the Freiburg Chamber of Skilled Trades addressed digitalization in the occupation of dental technician. The project team integrated digital technologies in two new inter-company training courses. Starting with simple designs and ending up with complicated dental implants, trainees tested working with the new technologies. The project team presented the pilot courses to the Association of German Dental Technicians’ Guilds (VDZI) with the aim of having the training courses integrated in the “ZAHN” inter-company training series concerned with dental occupations, as part of the modernization of training in this field. As a member of the Pädagogischer Arbeitskreis Zahntechnik (working group of dental technician teachers and trainers), the team is now drawing up proposals for new regulations under this process.

### Making use of the project results

The project teams presented their findings in various bodies, thus helping to shape the modernization of training. They also passed on their knowledge and results in other inter-company training centres and at specialist events.

Online learning modules were developed in some of the projects. For example, they enable trainees to acquire knowledge about building control, locking and security technology as part of blended learning. Learning modules on the topic of implant technology can be taken online for the occupation of dental technician. These and other results are available online where they can be consulted by other inter-company training centres.

The project teams also produced videos which explain various tasks to be performed while working on a customer order and which provide other trainers with ideas for the design of their training programmes.

Online learning modules, explanatory videos and more information on the first eight projects can be found (in German) at the website for vocational trainers **foraus.de** under *Themen/Sonderprogramm zur Digitalisierung in ÜBS*.



**Published by**

Bundesministerium für Bildung und  
Forschung / Federal Ministry of Education  
and Research (BMBF)  
Division “Innovation in Vocational Training”  
53170 Bonn, Germany

This specialized publication of the Federal  
Ministry of Education and Research is  
available free of charge. It is not for sale and  
may not be used by political parties or groups  
for electoral campaigning.

**Orders**

In writing to  
Publikationsversand der Bundesregierung  
Postfach 48 10 09  
18132 Rostock, Germany  
E-mail: publikationen@bundesregierung.de  
or by  
Phone: +49 30 18 272 272 1  
Fax: +49 30 18 10 272 272 1

**September 2020**

**Conceived and edited by**

Federal Institute for Vocational Education  
and Training (BIBB)  
Division “Inter-Company Vocational Training  
Centres; Special Programme on Digitalization”

**Layout**

BMBF

**Printed by**

BMBF

**Photo credits**

Cover: Getty Images/Westend61  
p 3, 5: vem.die ilw gGmbH  
p 7: Adobe Stock/Gorodenkoff  
p 8: Elektro Technologie Zentrum (etz)  
p 9: BFW Bau Sachsen e.V.  
p 10: Adobe Stock/Seventyfour

