

# VET 4.0 project: effects of digital innovation on vocational training

**POLICY DEVELOPMENT****PRACTICAL MEASURE/INITIATIVE** GERMANY

## Timeline

**2016 Implementation** **2017 Implementation** **2018 Implementation****2019 Implementation** **2020 Implementation** **2021 Implementation****2022 Completed****ID number 28126**

## Background

Digital innovation affects manufacturing processes, work organisation and qualification profiles.

## Objectives

VET 4.0 aims to contribute to the implementation of the digital agenda through continuous exchange of information between academia, policy-making and practice. The outcomes will determine the changes needed for appropriate qualification profiles, training regulations and curricula.

## Description

The Federal Ministry of Education and Research (BMBF), in cooperation with the Federal Institute for VET (BIBB), started the initiative VET 4.0 for the period from February 2016 to April 2018. The initiative is based on three pillars.

- (a) Pillar 1: occupation and sector screening. The focus was on the analysis of selected training occupations, advanced training regulations and sectors, already partially or fully affected by digital transformation. The goal was to develop recommendations for the next steps in the organisation of initial and continuing VET and in the further development of systemic framework conditions.
- (b) Pillar 2: media competence. There is currently no single definition for media competence as an entry requirement and as a key competence across occupations in vocational training. Based on the results of the BIBB research project, Use and production of media - development of media competences in VET, a definition was developed.
- (c) Pillar 3: demand for skilled workers. The plan was to establish a monitoring and forecasting system across occupations and sectors from the perspective of the labour market and the demands it places on employees.

Various projects have been brought together under the umbrella initiative VET 4.0, such as the research initiative Skills, qualifications and competences for the digitised work of tomorrow, the preliminary examination of the potential restructuring of IT occupations, and the following programmes:

- (a) promoting digitalisation in competence centres and inter-company training centres (ÜBS);
- (b) digital media in VET programme;
- (c) supporting SMEs in the digitalisation process (JOBSTARTER plus);
- (d) ASCOT+ initiative, measuring competences in VET.

### 2016 Implementation

### 2017 Implementation

### 2018 Implementation

### 2019 Implementation

The VET 4.0 initiative has developed its own dynamics with follow-up projects beyond 2018, such as:

- (a) Skilled labour demand – Economy 4.0 scenario: a model-based impact assessment of the economy 4.0 on the labour market and the overall economy in Germany was carried out within the framework of VET 4.0. The results were published in 2019;
- (b) seminar concept Media and IT competence for training personnel: the project (March 2019 – February 2020) aims to develop, test and make available nationwide a concept for the promotion of vocational media and IT competences among training personnel to provide the necessary knowledge for the design of sustainable in-company training practice;
- (c) Sustainability and digitalisation in VET: what skills do professionals need to keep pace with the transformation processes of digitalisation and sustainability? A BIBB project team is working on this question until June 2020 on behalf of the Federal Ministry of Education and Research.

In October 2019, BIBB launched a new series of events 'Digitisation of the world of work and occupations – implementation examples from practice, on shaping VET 4.0'. The aim is to promote dialogue on implementation between stakeholders, multipliers and interested parties.

### 2020 Implementation

Since the start of the event series 'Digitisation of the world of work and occupations – implementation examples from practice, on shaping VET 4.0', four events took place in 2020 and January 2021.

One example is the virtual event You ask – we answer: the new IT occupations, held by BIBB on 10.12.2020. More than 250 participants from various practical fields of IT initial and continuing education and training attended the event, asked questions and learned about the outcome of the reorganisation and the implementation process of the new IT occupations.

In 2020, BIBB published/updated the following selected information/publications in the context of VET 4.0.

- (a) update of the selected bibliography on VET 4.0;
- (b) publishing of an issue on the occupation Sewage technology specialist in screening (No. 212, Author: Ranft, Sebastian) in its series WDP (Academic research discussion papers, *Wissenschaftliche Diskussionspapiere*);
- (c) final report on Competence requirements for sustainability in VET in the context of digitalisation (in DE only; *Kompetenzanforderungen für Nachhaltigkeit in der beruflichen Bildung im Kontext der Digitalisierung*).

### **2021 Implementation**

In connection with the Vocational Training 4.0 activity, events were held in 2021 on the following topics:

- (a) industrial clerks and the digitised work of tomorrow,
- (b) vocational training in the agricultural engineering sector on the road to the future,
- (c) training regulations and framework curricula for skilled electrical trades that came into force on 1 August 2021.

### **2022 Completed**

The project has been completed.

## **Bodies responsible**

- Federal Ministry of Education and Research (BMBF) (until 2025)
- Federal Institute for Vocational Education and Training (BIBB)

## **Target group**

### **Learners**

Learners in upper secondary, including apprentices

## **Thematic categories**

### **Governance of VET and lifelong learning**

Further developing national quality assurance systems

Establishing and developing skills intelligence systems

### **Modernising VET infrastructure**

Improving digital infrastructure of VET provision

### **Modernising VET offer and delivery**

Acquiring key competences

Integrating digital skills and competences in VET curricula and programmes

### **Teachers, trainers and school leaders competences**

Systematic approaches to and opportunities for initial and continuous professional development of school leaders, teachers and trainers

Supporting teachers and trainers for and through digital

### **Supporting lifelong learning culture and increasing participation**

Promotion strategies and campaigns for VET and lifelong learning

## **Subsystem**

IVET CVET

## Further reading

[BIBB website on VET 4.0 \(2020\)](#)

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[BIBB selected bibliography on VET 4.0 \(05/2020\)](#)

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[Description of project VET 4.0 - 2016-18 \(in German\)](#)

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[Launch of VET 4.0 in 2016 \(BIBB website in English\)](#)

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[Wolter, M. I. et al. \(2019\). Economy 4.0 and the consequences for the labour market and the economy: Scenario calculation within the framework of the fifth wave of BIBB-IAB Skills and occupation projections.](#)

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[Sewage technology specialist in screening \(No. 212, Author: Ranft, Sebastian\)](#)

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[Final report on Competence requirements for sustainability in VET in the context of digitalisation \[Kompetenzanforderungen für Nachhaltigkeit in der beruflichen Bildung im Kontext der Digitalisierung\] \(in German only\)](#)

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[Series of events Digitisation of the world of work and occupations - implementation examples from practice, on shaping VET 4.0](#)

## Related policy developments

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**2025 Implementation**

### Supporting excellent inter-company training (ÜBA) and CoVE centres (ÜBS)

The Federal Ministry of Education and Research (BMBF) initiated the programme of promoting digitalisation in competence centres and inter-company training centres in 2016.

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#### Type of development

Practical  
measure/Initiative

#### Subsystem

IVET CVET

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**2025 Implementation**

### Supporting SMEs to provide future-proof VET

Under the umbrella initiative, VET 4.0, the Federal Ministry of Education and Research (BMBF) initiated a special funding line (Initial and continuing vocational training in the economy 4.0 – Support structures for SMEs in the adaptation process of in-company training) within the JOBSTARTER plus

 GERMANY

#### Type of development

Practical  
measure/Initiative

**Subsystem**

IVET CVET

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**2025 Implementation**

## Qualifying trainers for the future world of VET

Since 2015, BIBB has funded eighteen 'VET for sustainable development' projects (BBNE). They experimented and evaluated relevant curriculum concepts, digital teaching, learning materials and examination questions on green skills for initial and continuing VET, e.g.

 GERMANY

**Type of development**

Practical  
measure/Initiative

**Subsystem**

CVET

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**2025 Implementation**

## Digital education and upskilling of VET teachers

Under its *Digital pact for schools* programme (2019-24), the Federal Government aims to fund the digital infrastructure in all German schools, including vocational schools, to promote the uptake of digital skills.

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**Type of development**

Practical  
measure/Initiative

**Subsystem**

IVET CVET

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**2025 Implementation**

## Adapting vocational qualifications to progress in digitalisation

The preliminary examination of the potential restructuring of IT occupations carried out by the Federal Institute for VET (BIBB) in 2015-16 and the subsequent research initiative 'Skills, qualifications and competences for the digitised work of tomorrow' on 14 occupations (2016-18) touched upon d

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**Type of development**

Practical

measure/Initiative

**Subsystem**

IVET CVET

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**2024 Completed**

## Digital media and innovative technology in VET

The web portal, Digital media in VET, has provided information since 2015 on the use of digital media in VET and selected project findings.

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**Type of development**

Practical  
measure/Initiative

**Subsystem**

IVET CVET

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**2025 Implementation**

## Sustainable development in VET

In 2015, the Federal Institute for VET (BIBB) started 12 pilot projects in VET aiming to ensure a sustainable development (*Berufsbildung für nachhaltige Entwicklung BBNE*). With the EUR 12 million budget, the projects intend to develop vocational competences in sustainability.

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**Type of development**

Practical  
measure/Initiative

**Subsystem**

IVET CVET

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**2025 Implementation**

## National Skills Strategy

In November 2018, the Federal Ministry of Labour and Social Affairs (BMAS) and the Federal Ministry of Education and Research (BMBF) launched a committee to develop a National continuing education strategy (*Nationale Weiterbildungsstrategie*).

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**Type of development**

Strategy/Action  
plan

**Subsystem**

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**2024 Completed**

## Measuring competences in VET - ASCOT+ project

The ASCOT+ initiative (2019-22) focussed on measuring the achievements of apprentices more objectively and further developing competence-oriented examinations.

 GERMANY

### Type of development

Practical  
measure/Initiative

### Subsystem

IVET

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**2025 Implementation**

## Modernising VET qualifications

The regulated qualifications of apprenticeships and advanced training occupations are based on examinations with nationwide uniform examination regulations.

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### Type of development

Regulation/Legislation

### Subsystem

IVET CVET

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### “ ... ” Cite as

Cedefop, & ReferNet. (2026). VET 4.0 project: effects of digital innovation on vocational training: Germany. In Cedefop, & ReferNet. (2026). *Timeline of VET policies in Europe* (2025 update) [Online tool].

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