

Application of Artificial Intelligence in VET

POLICY DEVELOPMENT**STRATEGY/ACTION PLAN****GERMANY**

Timeline

2025 Implementation**ID number 49683**

Background

Digitalisation, automation, and data-driven production and business models are reshaping occupations and qualification requirements. Artificial intelligence (AI) is increasingly integrated into everyday work processes, influencing how people learn and perform their jobs.

Many sectors in Germany already face a shortage of skilled workers who possess competences in data management, data analysis, and AI systems. Vocational education and training (VET) must therefore adapt to prepare apprentices, trainees, and professionals for emerging technological and organisational demands.

To address this transformation, Germany has developed several strategies and action plans, led by ministries such as the Federal Ministry of Education and Research (BMBF) and the Federal Ministry of Labour and Social Affairs (BMAS). These strategies combine research funding, infrastructure development, ethical and legal frameworks, and educational reform.

At the same time, surveys show that young people view AI competences as crucial for their future careers but often feel inadequately prepared by their current training pathways. This underlines the importance of integrating AI-related learning opportunities across the vocational system.

Ethical, social, and data protection considerations also play a major role in policy development. The focus is on ensuring that AI applications are used responsibly, transparently, and in a human-centred way—balancing innovation with trust, fairness, and inclusiveness.

Objectives

The main objectives of Germany's AI-related initiatives in VET can be summarised as follows:

- (a) competence development – to promote technical knowledge in fields such as AI, data analytics, and machine learning, while also fostering transversal skills like ethical reflection, problem-solving, and adaptability.
- (b) integration into training and further education – to move beyond isolated pilot courses and embed AI systematically into training regulations, curricula, and qualification standards.

- (c) innovation and knowledge transfer – to ensure that research findings and AI solutions are effectively transferred into real business practice, particularly supporting small and medium-sized enterprises (SMEs).
- (d) capacity building for educational and research institutions – to provide professional development for teachers and trainers, improve infrastructure, and ensure legal and organisational readiness.
- (e) ethical and inclusive development – to guarantee that AI implementation in education respects social values, ensures data protection, and promotes equal opportunities for all learners.

Description

In 2018, the German Federal Government adopted and launched its AI Strategy, which provides the overarching policy framework, and also launched its AI action plan. These include investments in AI research, digital infrastructure, teacher and workforce development, and ethical governance. The strategy also supports international cooperation and monitoring through milestones and performance indicators.

One of the flagship projects is KI B³ – 'Integrating AI into VET', which was launched end of 2020. The project develops additional qualifications in technical and commercial occupations, alongside two new continuing education degrees corresponding to Levels 5 and 6 of the German Qualifications Framework (DQR). These qualifications enable skilled workers to acquire AI-related competences relevant to their occupational field. The project is a collaborative effort involving vocational schools, chambers of commerce, enterprises, and training professionals. It runs over approximately four years, with pilot regions testing and evaluating the approach before a broader rollout is planned across Germany.

2025 Implementation

In 2025, the KI B³ project was active in several German regions. AI-related qualifications and continuing education frameworks were designed and then piloted and evaluated. Early results indicate growing interest among both companies and training institutions.

The dissemination of good practice had also accelerated. Increasing numbers of vocational schools, training centres, and enterprises were experimenting with AI-supported learning environments, such as adaptive learning software and chatbots. The Hermann Schmidt Prize helped to identify and make visible exemplary initiatives in this field.

According to surveys by BIBB, around 60 % of employees had already used AI technologies informally in their daily work. However, formalised structures in vocational education – such as curricula and qualification frameworks – had still been in the process of being updated to reflect these developments.

Bodies responsible

- Chambers of industry and commerce (IHKs)
- Federal Government
- Federal Ministry of Labour and Social Affairs (BMAS)
- Federal Institute for Vocational Education and Training (BIBB)

Target group

Learners

Learners in upper secondary, including apprentices
Young people (15-29 years old)
Adult learners

Education professionals

Teachers

Trainers

Entities providing VET

VET providers (all kinds)

Thematic categories

Modernising VET infrastructure

Improving digital infrastructure of VET provision

Modernising VET offer and delivery

Modernising VET standards, curricula, programmes and training courses

Acquiring key competences

Integrating digital skills and competences in VET curricula and programmes

Teachers, trainers and school leaders competences

Supporting teachers and trainers for and through digital

European priorities in VET

VET Recommendation

VET agile in adapting to labour market challenges

VET as a driver for innovation and growth preparing for digital and green transitions and occupations in high demand

VET as an attractive choice based on modern and digitalised provision of training and skills

Osnabrück Declaration

Establishing a new lifelong learning culture - relevance of continuing VET and digitalisation

Subsystem

IVET CVET

Further reading

[National AI strategy and action plan](#)

[BIBB Survey on AI in Work and Training \(2025\)](#)

[Project "KI B3"](#)

[Examples of AI training courses](#)

Related policy developments

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

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.



GERMANY

Type of development

Practical
measure/Initiative

Subsystem

IVET CVET

2025 Implementation

Promoting innovations for excellent VET - InnoVET programmes

In January 2019, the Federal Ministry of Education and Research (BMBF) launched the project Shaping the future – innovations for excellent vocational training (InnoVET) and ran the first call.



GERMANY

Type of development

Practical

Subsystem

IVET CVET



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