



Digitisation, AI and vocational education and training

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Federal Institute for Vocational Education and Training

Federal Institute for Vocational Education and Training

- Founded in 1970, under the legal supervision of the Federal Ministry of Education and Research (BMBF)
- Four specialist departments and one central department, around 850 employees
- Promotes innovations in national and international vocational education and training
- Develops new, practice-oriented solutions for initial and continuing vocational education and training

The German dual system of VET

Two venues for learning

In the company



Foto: BIBB/ES



Responsibility
of the Federal Government

At part-time
vocational
school



Foto: SIEMENS ProfessionalEducation



Responsibility
of the Länder

The modernized standard vocational training positions

- Organization of the training company, vocational training, and labor and collective bargaining law.
- Safety and health at work
- Environmental protection and sustainability (modernized)
- Digitized world of work (new)

Digitized World of work

Not primarily knowledge learning.

Much more **working independently on content in projects.**

Content can be:

1. How do I handle data safely?
2. How do I recognize fake news?
3. How does AI work?
4.

Research project: Group discussions with vocational school teachers

Hardware equipment

- Very different
- Partly no laptops available
- No uniform catch-all arrangements in place
- Access not self-evident
- Individual solutions by teachers

Digital skills

- Very different
- Unexpected deficits
- Email and pdf creation must be learned
- Handling keyboard and mouse partly difficult

This research work in the project "Competencies for the Digital World of Work (KoDiA) - Empowerment for Digitization" is funded by dtec.bw - Center for Digitization and Technology Research of the German Armed Forces. dtec.bw is funded by the European Union - NextGenerationEU. More info at: <https://dtecbw.de>

AI Plattform „Lernende Systeme“

Our goal: Shaping Artificial Intelligence for the needs of society and utilize its economic potential

The Plattform Lernende Systeme

- combines scientific, economic and social **expertise**.
- provides the infrastructure for **scientific exchange** and
- aims to secure Germany's leading role in the field of Artificial Intelligence.



What competencies are needed for digitization and AI?

For trainees as well as employees, the following competences are becoming increasingly relevant:

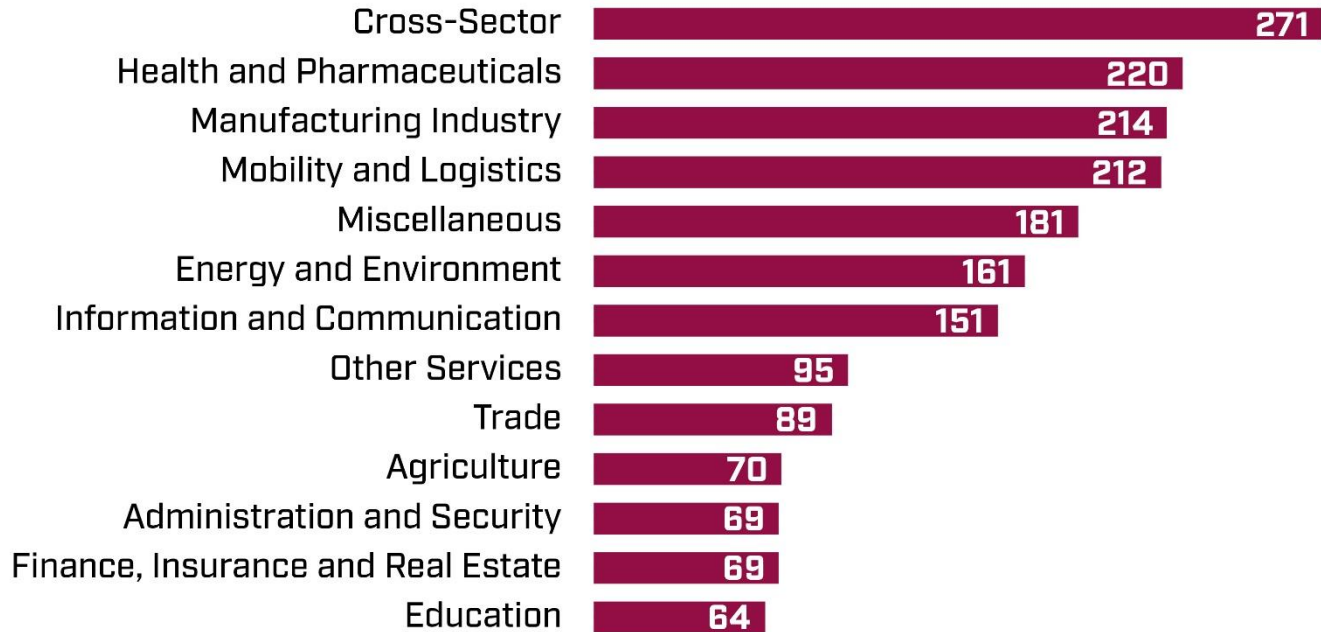
- Basic IT knowledge that goes beyond **pure user knowledge and a basic understanding** of AI technologies.
- New understanding of the **interaction between humans and technology**, especially with regard to ethical-social aspects.
- **Process-oriented, holistic thinking and acting.**
- Lifelong learning and "**learning to learn**".



(Source: ACATEC Plattform Lernende Systeme)

AI in Germany

Applications by Application Market



n=1100, Multiple answers possible

Source: AI Map of Plattform Lernende Systeme (Status July 2021)

AI – a central topic for further training

- The topic of "Artificial Intelligence (AI)" is currently being discussed primarily at the strategic company level and in an explorative context.
- The introduction of AI is dominated by a technical-functional view; human-centred aspects or the corresponding need for qualification appear at second glance.
- There is a considerable need for further training of skilled workers and managers, which will become more constant in the course of the technological progress of AI.
- Training offers refer primarily to qualified decision-makers or technicians in the 30-39 age group. Training measures for low-skilled workers (including temporary workers) are addressed to a smaller extent.
- Knowledge is built up primarily through in-house qualification measures, but also through the recruitment of experts on the labour markets.
- Qualification measures are preferably carried out as "on-the-job training" or "in-house seminars". The integration of learning and action is intended to strengthen the operational application reference.

THE AI-BASED MODEL

IS ABLE TO...

have natural-sounding conversations

CREATE ALL KINDS OF TEXTS
(essays, poems, recipes etc.)

MIMIC THE DESIRED STYLE

GENERATE PROGRAM CODE

translate texts

...



BUT:

ALWAYS PROVIDES AN ANSWER

(even if the database does not provide sufficient information on the request)

sometimes invents content or sources („**HALLUCINATES**“)

has only access to information no newer than 2021

WORKS ...

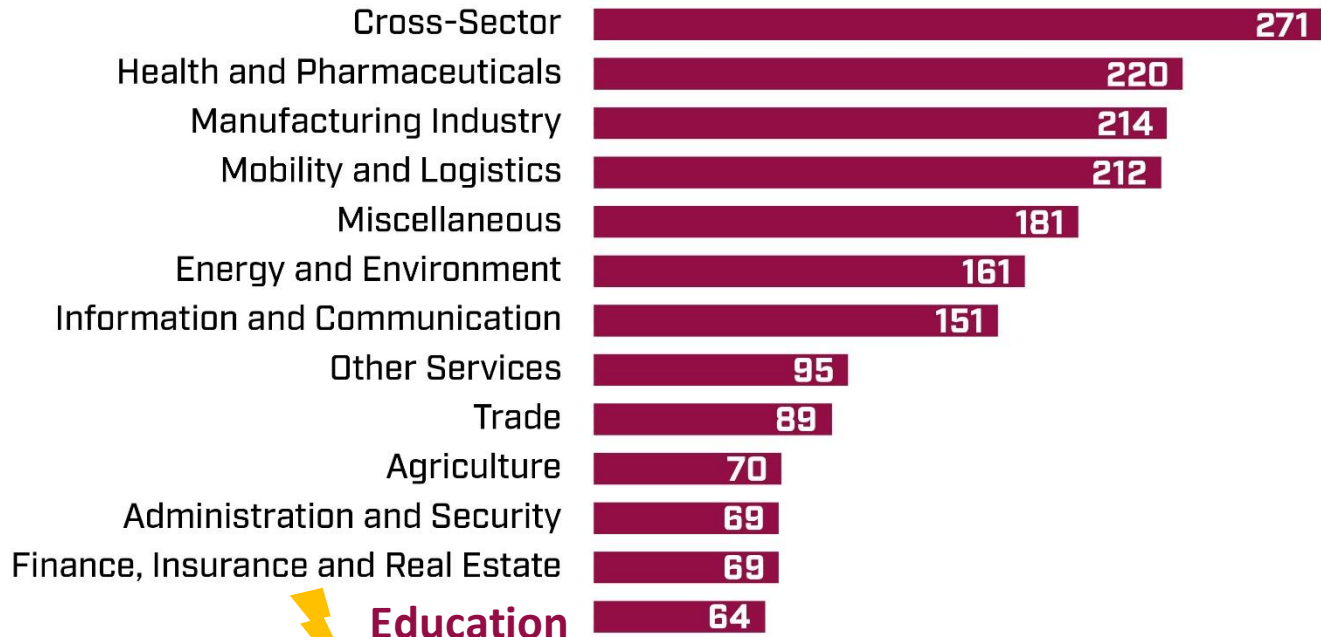
on the basis of **PROBABILITIES**

by means of **AI ALGORITHMS**, extensive training and **HUMAN FEEDBACK**



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Thank you for your attention!

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