Digital transformation of Vocational Education and Training (VET)

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Science for policy

Our purpose

The Joint Research Centre provides independent, evidence-based knowledge and science, supporting EU policies to positively impact society.
We look at **skills and competences for the twin transition** covering both **education** (from a lifelong perspective) and **employment**.

- Identify and measure digital and green skills, as well as competences needs and gaps.
- Analyse how AI are affecting the job market through algorithmic management and platformisation of work.
- Examine the implications of new digital technologies and AI in education and training, including digital well-being.
- Support and evaluate education and training policy development for the twin transition.
Society is facing many challenges
Vocational Education and Training

iVET and cVET
Focus on VET: rationale behind

• VET: bridge between education and labour market

• Research on VET digital transformation is key to:
  - Research on VET digital transformation
  - To inform with evidence future policies
  - To ensure EU’s VET system to remain competitive and high quality education
 Related policies and initiatives from European Commission

• 2020 European Skills Agenda
  • Council Recommendation on VET for sustainable competitiveness, social fairness and resilience (recommending having a modern and digital provision of VET, according to the current and future requirements of the labour market)

• Digital Decade

• Digital Education Action Plan 2021-2027

• The Osnabrück Declaration on VET as an enabler of recovery and just transitions to digital and green economies.
JRC research on VET

Focus: support to the digital transformation of VET, including work-based learning modalities

Emerging trends and technologies in VET, from the practitioners’ side
The next internet
6G connecting cognition, space and action
digital twins

Immersive technologies
Virtual worlds, XR, AR

Datafication
Learning analytics, data spaces for education

Digital credentials
Verifiable, micro, decentralised

Artificial Intelligence
Learning companions

Distributed agency across computational systems and humans
Understanding digitalisation in VET

→ VET is more exposed to digital changes due to its proximity to digitalisation in the economy.

→ Changes in the workplace are the main drivers of digitalisation in VET.

→ Digital skills shortages are contributing to the shift towards using emerging technologies.

→ Digital learning in VET: Using digital tools for learning VS Learning to use digital technologies used in industry.
A new wave of technology

Emerging trends are changing the digitalisation of VET.

Benefits

- Learning more engaging
- Enabling more practical experiences
- Enhancing inclusion for learners

Challenges

- Rapid pace of change and speed of technological evolution
- Infrastructure and funding/investment,
- Teachers’ and trainers’ competences
- Concerns about engaging with private EdTech providers
Preliminary takeaways from research

• Need for a **better understanding** of how the **emerging trends**, (generative AI, virtual worlds…), **affect VET**.

• **Limited large scale research** showing the impact of them on education.

• The **opportunities** but also **challenges** that these trends could provide to VET are high, especially in relation to VET’s capacities **to respond to labour market needs**.

• Teachers’ skills and competences are key.

• **Digital divide**

• **Specific jobs skills requirement should be included in training.**
Enablers of digital transformation of VET
Enablers from literature

- Holistic development of learners' skills
- Teacher training for changing roles
- Pedagogical and transformative potential of digital technologies
- Flexible accreditation mechanisms
- Career education and guidance
- Development of information systems
- Ecological approach and collaborations
- Inclusion and sustainable human development
Digital technologies and competences/skills are crucial for competitiveness and inclusion.