The impact of technological developments and digitalisation on the skills needed by enterprises and workers for innovation – A combination of technical and soft skills?

Seminar “Game changing technologies and innovative approaches to the identification of new skills”

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General Findings

- Digitisation in the occupations already well advanced, with further potential
- Digitisation tends to be gradual, rarely comprehensive, dependent on the size of the company
- Factors supporting digitization: First and foremost, the cost-benefit ratio, further competitiveness, efficiency gains, productivity increase, more effective machine utilisation, et al.
- Findings on the status quo and future expectations regarding work activities and tasks:
  - Differences with regard to the intensity of the effect on single occupations and in-company use cases
  - Typical cross-occupational shifts in work activities and tasks
  - Increased importance of process-supporting activities
  - Changed function, position and responsibility of qualified workers

- The disparity of digitisation by company and occupation increases the diversification of workplace requirement and in the corresponding occupational profiles
- the effects of digitisation on central skills and competences of vocational action must be taken into account
- the expected accelerated pace of innovation has an impact on the processes by which occupational profiles are further developed
Findings with regard to changing work tasks

- Increased complexity of work tasks
- Process networks replace process chains
- Process control and responsibility is becoming more important
- Transfer of work activities, outsourcing of sub-processes
- Substitution of work activities and tasks between occupational profiles through automation and use of robots
- Enrichment of work tasks in the occupational profile

The growing dynamics of changing work tasks can best be mastered by strengthening a general occupation-related competence to act, in particular

- Process and system understanding
- Data protection, IT security
- Learning competence
Impetuses for updating/development of national Dual VET standards by the economy

Duration: max. 1 year

Employers and Trade Unions identify new tasks at the workplace requiring new occupational qualifications

Social partners and government negotiate and come up with new in-company training standards (training regulation) under guidance of BIBB

Development / updating of vocational education standard VET in vocational school (framework curricula) in coordination with in-company training standard (training regulation)

Dual VET standards guide delivery, monitoring, supervision and support of Dual VET nationwide

DGB Confederation of German Trade Unions, Executive Board, Education and Qualification Policy Department
Training Regulation

- Occupational Profile
- Training Framework Plan
- Examination Requirements
- If applicable: Additional Qualifications

Experts of the Social Partners and Federal Government

Experts of the Federal States

- Model Training Regulation
- Standard Occupational Profile Items
- Benchmarks of the Social Partners
- Sector and occupation screening

Framework Curriculum

Standards for In-Company-IVET

Standards for VET Schools

DGB Confederation of German Trade Unions, Executive Board, Education and Qualification Policy Department
What are standard occupational profile items?

- Cross-occupational knowledge, skills and competences are not taught separately in the dual system in Germany, but always in occupation-related VET.

- These cross-occupational knowledge, skills and competences are defined in so-called standard occupational profile items.

- The content of standard occupational profile items must be integrated into all training occupations. This means: these standards hat to been specified (broken down) and adapted for each training regulation / occupation.

- New standard occupational profile items are now adopted:
  - Environmental protection and sustainability
  - Digitalised world of work
  - Organisation of the entreprise; Vocational education, labour and collective bargaining law
  - Health and safety at work
standard occupational profile item:

ENVIRONMENTAL PROTECTION AND SUSTAINABILITY
a. Identifying possibilities to avoid operational burdens for the environment and society in one's own working field and contributing to further development.
b. In work processes and in regard to products, goods and services, using materials and energy in sustainable economic, social and environmental ways.
c. Complying with environmental protection regulations applicable in the company.
d. Avoiding waste, recycling / disposal (of) substances and materials in an environmentally friendly way.
e. Developing proposals for environmental action in one's own field of work.
f. Cooperating in compliance with company regulations for sustainable economic, social and environmental development and communicating according to the target group.
standard occupational profile item:

DIGITIZED WORKING WORLD
DIGITALISED WORLD OF WORK

a. Dealing with own and company-related data as well as with data of third parties and complying with the regulations on data protection and data security

b. Assessing risks in the use of digital media and information technology systems and complying with company regulations when using them

c. Communicating in a resource-saving, target group appropriate and efficient manner and documenting communication outcomes.

d. Recognizing disturbances in communication processes and contributing to their solution

e. Researching information in digital networks and obtaining it, as well as checking, evaluating and selecting information, including information from other sources

f. Applying learning and working techniques as well as methods of self-directed learning, use digital learning media and recognize and derive requirements of lifelong learning

g. Planning, processing and designing tasks together with those involved, including those from other work and business areas, also using digital media

h. Practicing appreciation of others while taking social diversity into account
Implementation of the new standard occupational profile items

- The new standards occupational profile items will come into force for all occupations on 1 August 2021.
- Implementation guide will also be developed by BIBB
Partial revision of
the metal + electrical professions
Participants in the Process

**Governments**
- Bundesministerium für Wirtschaft und Energie (BMWi)
- Bundesministerium für Bildung und Forschung (BMBF)
- Bundesinstitut für Berufsbildung (BIBB)
- KMK
- Kultusministerium BaWü
- Kultusministerium BY
- Rahmenlehrplanausschuss

**Federal States**
- ABB Berlin
- AUDI AG Ingolstadt
- Evonik AG
- B. Braun Melsungen AG
- CONTITECH GmbH
- Avacon Netz GmbH
- STRABAG Property and Facility Management GmbH
- bfw Berlin
- Currenta GmbH & Co. OHG
- AUDI AG Ingolstadt
- VW AG Emde
- BASF SE
- bfw Hamburg
- bfw Berlin
- AG der Dillinger Hüttenwerke
- Federal-Mogul Sealing Systems
- Meyer Werft
- Bosch Bambarg
- Meyer Werft
- Bundesnetzagentur Augsburg
- VW AG Emden
- Wisag Elektrotechnik
- Siemens Amberg

**Employers**
- Robert Bosch GmbH
- Miele & Cie KG
- Phoenix Contact
- Rohde & Schwarz
- Avacon Netz GmbH
- Continental Automotive GmbH
- Covestro Deutschland GmbH
- Qorvo Germany GmbH
- Festo AG
- Provadis
- Siemens AG
- WILD SE
- Daimler AG
- Premium Aerotec GmbH
- TRUMPF GmbH
- ZF Friedrichshafen AG
- Voith GmbH
- BASF SE
- ABB
- Currenta GmbH

DGB Confederation of German Trade Unions, Executive Board, Education and Qualification Policy Department
Affected metal+electric professions with new contracts 2017

- Regulation on vocational training in the industrial metal professions with the professions
  - Plant mechanic 1072
  - Industrial mechanic 12508
  - Construction mechanic 2506
  - Tool mechanic 3209
  - Cutting machine operator 5589

- Regulation on vocational training in the industrial electrical professions with the professions
  - Electronics technician for building and infrastructure systems 89
  - Electronics technician for automation technology 2034
  - Electronics technician for devices and systems 2120
  - Electronics technician for industrial engineering 6515
  - Electronics technician for information and systems technology 86

- Regulation on vocational training for
  - Mechatronic technician 7688

Total over 43,000 new contracts!
### Additional qualifications

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**Industrial metal professions**

**Industrial Electrical professions**

**Mechatronic technician**

- **Action requirements for in-company vocational training practice:**
  - Check whether additional qualifications are used in the training
  - Enable access for all trainees
  - Additional qualifications can also be used for further training in the company

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