



EU-Geschäftsstelle

Matching
Frames

Bezirksregierung Köln



DIE REGIERUNGSPRÄSIDENTIN

Outcome-orientation in the German frame curricula

European Agency

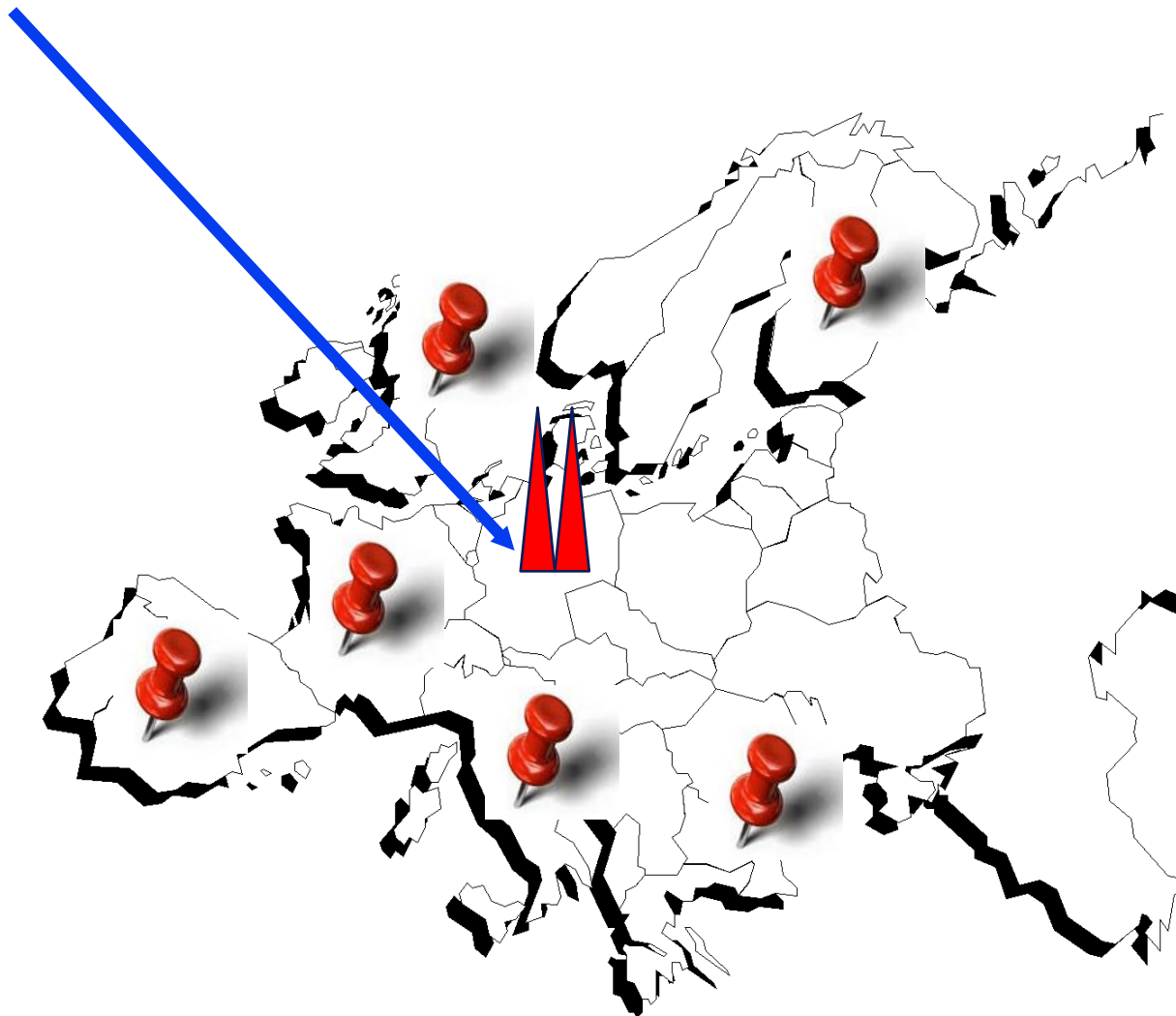
Vocational training/Trade & Industry

Government of Cologne



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Regional Government of Cologne North Rhine Westphalia

Department for Vocational Education and Training

58 VET-Schools (Berufskollegs)

20 Private VET´s

110.000 Students

4500 Teachers

5 Administratives for advice, controlling, curriculum development...



„Moreover a discussion should be initiated to clarify which type of qualified and educated person is required by the European Society (and not only by the economy) and how this qualification could be shaped.“

Spöttl, G.: VETNET-Opening, Berlin 2011



Projectwork

Matching of NQF and EQF

Matching of core work processes and frame curricula

Matching of existing elements of the school curriculum and the practice

Reflecting the levels



National References (KMK):

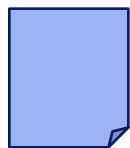
.... to promote transparency, permeability and recognition

- It is required to constitute a common learning outcome oriented structure within the regulatory instruments and to
- use competence descriptions based on the vocational areas of action

Status of ordinances für the Dual System in Germany:



Company: Research project „competence standards in the vocational education“ for the Federal Institute for Vocational Education and Training focused on the learning surrounding “enterprise/workshop” (BiBB, in process)



School: Recommendation for the development of the outline curriculum for the occupational education in vocational colleges (KMK, new 2011)



Recommendation for the development of the outline curriculum for the occupational education in vocational colleges

.....professional action competence develops by dealing with technique in phases of planning, developing, manufacturing, distributing, utilizing and removing.

.....within the process of theoretical clarification and instruction of practice this professional action competence evolves.

.....

.....professional action competence can be interpreted or designed as a process of acquiring knowledge, skills and competencies up to a level of theoretically-grounded, autonomous and responsible comprehending and shaping of technique.

(KMK 2011)

*Development from input to outcome in
german frame curricula since 1996*



Comparison: structures of competence KMK/NQF

Kompetenzstruktur (KMK, 2011)

active competence und learning competence (integratively)

.... harmonization

Level indicator

Structure of requirements (DQR)



Analysis of the existing ordinances for VET-Schools (Industrial Mechanic)

1. Does a cognitive approach exist to describe knowledge, skills and competences in a learning outcome oriented way (theoretical clarification)

type of information	types of actions			
facts	remember	understand	analyse	
condition				evaluate
process		apply	connect	



Frame Curricula: Learning Fields (excerpt)

Zielformulierung

Fertigen von Bauelementen mit handgeführten Werkzeugen

1. Ausbildungsjahr / Zeitrichtwert 80 Stunden

competences



content

allischer Werkstoffe, Kunststoffe

Halbzeuge und Normteile

Bankwerkzeuge, Elektrowerkzeuge

Grundlagen und Verfahren des Trennens und des Umformens

Prüfen

Normen



Findings

- The cognitive process dimensions / types of actions are reproduced widely, if one assumes that the dimensions gear into each other (e.g. remember incloses analyse).
- Motional, motivational and emotional dimensions are not mentioned
- Two types of competence models are to identify: output (competence disposition) and outcome perspective (action competence)
- The mentioned contents vary according to the degree of detailing (e.g. source of information / plastics) and according to knowledge and skills (norms, examination).
- They don't lead to an indication of minimum standards or completeness (...comprehending and shaping of technique).
- Project thesis: The Learning Fields should distinguish professional activities from action competence**



2. Is the frame curriculum coherent with the existing competence-structure

Findings:

- The professional action competence is interpreted mainly from the practical level in workshops.

School curricula to develop action competence has to be supported by science

- The aims don't include personal and social competences.

Project thesis: The learning fields have to be re-formulated in a learn and teach logical learning outcome oriented way. They should include personal and social Competences. They have to be sequenced sector-specifically.

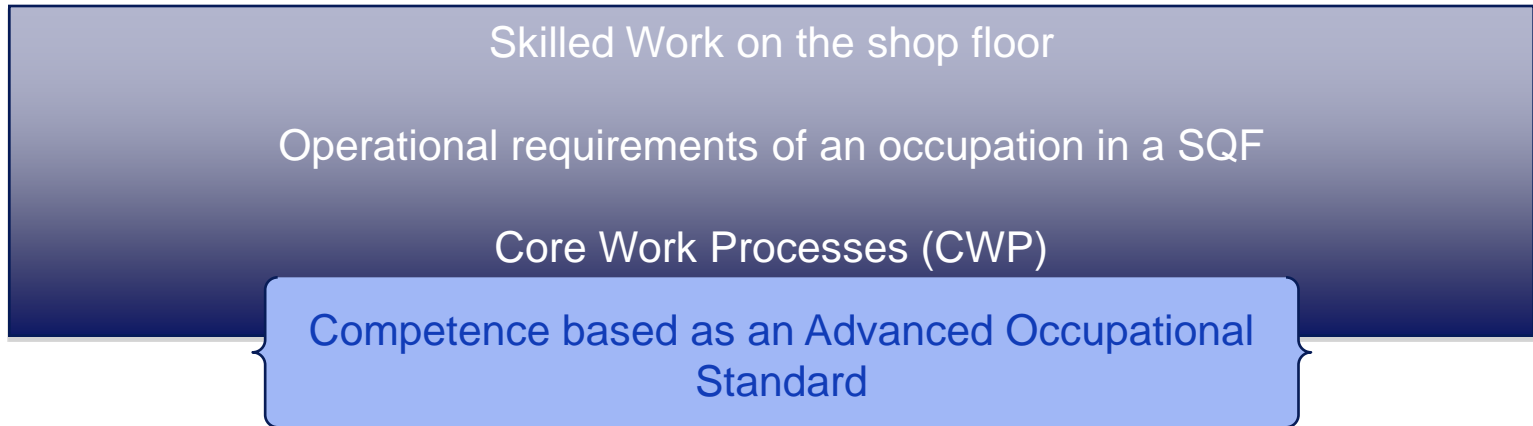


3. Are the occupational profiles for the training in companies outcome-orientated?

Findings:

- The descriptions are more content-orientated than workprocess-orientated. The differ between integrative and professional knowledge, skills and abilities

Project thesis: The standards and core work processes of the project MatchingFrames can replace the positions of the occupational profile





CORE WORK PROCESS: Manufacturing Standard Work Pieces

Using hand-tools is a common requirement for workers in this occupational field. They often have to manufacture or to fit mechanical standard items by using hand tools and manual working techniques.

The competence to read and understand detailed part drawings, shop material lists, and keep to geometric data are basic requirements for assuring quality work. These basic requirements adhere to the measurements that are part of the ISO-standards. Workers in this occupational field have to be experienced in using all kinds of hand-tools like different hand vices, saws, chisels, shears, marking devices, drilling devices, prick punches, and thread cutting tools. They manufacture usual metal parts by applying manual working techniques, especially drilling, countersinking, reaming, scouring, bending, shearing, cutting and joining techniques like welding, soldering, gas torch cutting or carrying out bolting and riveting connections.

LIST OF CORE COMPETENCIES:

For mastering “**Manufacturing Standard Work Pieces**” the following core competencies are required:

The competency to...

...read detailed technical drawings of single three-dimensional mechanical

... parts and assembly drawings

...read tolerances and ISO-fits

...carry out length measurement referring to tolerances and ISO-fits by using sling callipers, gauges and dial gauges

...provide and prepare raw and semi finished materials referring to workshop material lists and detail drawings

...mark off limiting lines by using marking devices

...carry out manual metal cutting, scouring, shearing and bending techniques

...carry out manual metal joining techniques: bolted and screw connections, riveting, cylinder and taper pins taking into account ISO-standards

...manufacture simple sheet metal parts by applying cutting, scouring, shearing, bending, welding and soldering techniques



Shaping of new regulations for the Dual System with respect of the NQF

Skilled Work on the shop floor
Operational requirements of an occupation in a SQF
Core Work Processes (CWP)



<p>Training Curricula</p> <p>Core Competences Shop Floor (objects / tools, methods, organisation / requirements..)</p>	<p>German Frame Curricula</p> <p>Educational Requirements /Set of Standard situations Vocational School (profession, individuum and society)</p>
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NQF
Knowledge, Skills, Social Competence and Autonomy



Core Work Processes (CWP)

Criteria for outcome orientated regulations

substance, situation/context, action, reflection

in variety of **complexity, dynamic, autonomy and innovation**

<p>Training Curricula</p> <p>Core Competencies</p> <p>Shop Floor (objects / tools, methods, organisation / requirements..)</p> <p>Operating, testing, analysing,</p>	<p>German Frame Curricula</p> <p>Set of Standard situations</p> <p>Educational Requirements Vocational School (profession, individuum and society)</p> <p>Exemplarily, simulated, exercising, repeating and practicing, reflectively,.....</p>
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NQF

Knowledge, Skills, Social Competence and Autonomy



The students have are able to manufacture single three-dimensional work pieces duly and varying by using hand tools and pay attention to the operational procedures of the company (Example LF1)

cognitive

The students **analyse** detail, group or assembly drawings, technical documents, sources of information and operation manuals **to collect** ISO standards and tolerances and **to describe and differentiate** the function of the work pieces.

The students **systematize semi-finished** materials and standard parts according to their application.

autonomy

The students **determine** all necessary technological data and **realise** the calculations needed (material-, labour- and tool costs, measurements of assembly groups, calculation of quantity) **to comprehend** the constructive design and avoid manufacturing mistakes.

They **distinguish** the material characteristics concerning the application area and **consolidate** their knowledge about technical terms in the learning group.

social

The students **accept responsibility** for the work safety, they **talk to each other and present** issues and statutory provisions. They **internalise** effects by do not caring for accident prevention regulations in the company and for themselves

They students **reflect** the manufacturing process and the used procedures, **present** the work results **as part of a team** and **discuss alternatives** concerning technical and economic feasibilities. They are able **to deduce** educational and working objectives and **ponder their own and foreign interests**.



Validation of outcome orientated regulations

Core work processes CWP

- Are the CWP´s used as the basis for the description
- Are suitable requirements being defined for qualifications
- Are requirements according to the individuum and the society represented
- Are the CWP´s structured in a sectoral framework

Competences

- Are they coherent and understandable
- Are the working processes indicated
- Are the objectives action orientated
- Are they learning-outcome orientated
- Are the educational objectives indicated

Recognition

- Are options of recognition defined in terms of qualifications

NQF

- Are the levels of NQF represented
- Are the descriptors being consistent represented



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Thank you!