The Development of Curricula in the German CVET and IVET System
Impulses for a Discussion

Kaiserslautern, 18 October 2017
Rolf Richard Rehbold
Agenda - Key Questions

- Introduction of the FBH - Build Up Skills Project as an example for curricula-related work
- General Principles of the Dual System in Germany and their Advantages
- Structural Principles for Curricula in the Crafts Sector
- Steps to a Curriculum and beneficial frame conditions in the development process
Activities: Projects in Research and Work Program, consultation and assistance within in the framework of basic tasks as well as scientific monitoring of third-party funded projects in the following exemplary topical areas:

- Vocational education and attitudes towards career choices in the transition from school to vocational training
- Career paths in the craft sector and “Berufslaufbahnkonzept” (career path concept)
- Entrepreneurship Education in Europe
- Regulations for vocational training, advanced vocational training and examinations with focus on the Meister („master“) certification training
- Developing curricula for vocational training and further training in the craft sector
- Design and organisation of job-related learning processes
- E-Learning design und evaluation
- Analysing qualification needs
- Skill determination and selection methods
- Human resources development in SMEs
- Acknowledgement procedures for formal and informal skills
- Support for special target groups in the skilled crafts sector
Example Project: Build Up Skills - Qualergy2020

First Step: Status Quo Analysis and Gap Analysis:
- Which qualifications are needed?
- How many skilled workers are needed?
- How can the current situation of skilled workers be described?
- Which offers do we have in the fields of initial and continuing VET?
- Where are gaps to be found?

Second Step: Development of National Roadmap
Example Project: Build Up Skills - Qualergy2020
Point of References for Curricular Work (and Analysis)

Processes in the enterprise

Advisory Services → Planning → Realisation → Approval → Maintenance and Repair → Disposal
Example Project: Build Up Skills - Qualergy2020
Point of References for Curricular Work (and Analysis)

Objects workers deal with

**Building Envelope**
- Building Shell
- Roof
- Facades
- Windows and Doors

**Infrastructure of Buildings**
- Interior Fitting
- Electrotechnology
- Heat Technology
- Ventilation and Air Conditioning

**Energy Supply**
- Geothermal Energy
- Biomass
- Solar Heat
- Photovoltaics
- Block Heat and Power Plant
- Wind Engine
Qualergy2020: Development of Analytical Grid for the qualitative Questions

First Step: One Table for every profession

<table>
<thead>
<tr>
<th>Relevant technological sectors</th>
<th>Processes (construction and reconstruction of buildings)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Advisory Services</td>
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<tr>
<td>Building envelope</td>
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<td>Building shell</td>
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</tbody>
</table>

Which qualification bundles are covered by the profession concerning fields of technology and processes within the technologies?
**Just for an impression...**

Wallpapering the offices with huge tables

<table>
<thead>
<tr>
<th>Beratung</th>
</tr>
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<tbody>
<tr>
<td>Bauwerkentwicklung (§ 5 Nr. 4)</td>
</tr>
<tr>
<td>Hausbauunternehmen (§ 5 Nr. 1)</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Planung</th>
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<tbody>
<tr>
<td>Architektur</td>
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<tr>
<td>Landwirtschaftliche Betriebe</td>
</tr>
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<table>
<thead>
<tr>
<th>Realisierung</th>
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<tr>
<td>Bauhütte, Holzbau- und Stahlbauunternehmen (§ 6 Abs. 1 Nr. 4)</td>
</tr>
<tr>
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</tbody>
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<tr>
<th>Abnahme / Übergabe</th>
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<tr>
<td>Rohbildmeß- und Materialprüfung</td>
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<th>Wartung / Reparatur / Instandhaltung</th>
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Necessary Skill sets are well-anchored in the apprenticeship frameworks and master craftsman examination regulations

'Gaps' in apprenticeship frameworks (intentionally: advisory, planning) are closed by master craftsman qualification

Potential improvements concerning dovetailing the different trades and understanding the building as an integrated system

315 additional CVET-programs, BUT:
• Number of participants too low and decreasing – incentives needed
• Intransparency concerning training opportunities

Dovetailing of systems for the early recognition of qualifications needed
Qualergy 2020: Roadmap

- total of 37 proposed measures
- rating according to the criteria *widespread effect, sustainability, acceptance* in order to settle implementation priority
- 24 specific action bundles (accepted and endorsed by relevant organisations)

**Overcoming quantitative gaps**
- Open up unused potential - target group analysis
- Increase attractiveness and image of professions
- Increase holding quota
- Promote mobility and integration

**Overcoming qualitative gaps**
- Improving the understanding of interfaces between trades and of the house as a system
- Overcome skill shortages in single individual processes / ensure quality of the implementation of craft services

**Overcoming barriers**
- Raise incentives for participation in training
- Ensure transparency of existing continuing VET opportunities
- Establish a system of early qualification screening
Example Project: Build Up Skills - Qualitrain

Key Factor: Involvement of relevant stakeholders

• BUILD UP Skills QUALITRAIN aims at the conception and implementation of large-scale qualification and training schemes as well as accompanying measures which ensure a sustainable system of lifelong qualification of blue-collar workers in the building sector.

• Duration: 32 months (Nov. 2013 – June 2016)
Example Project: Build Up Skills - Qualitrain

1. Management

2. System of early recognition of future qualification needs

3. Cross-trade CVET program

4. Train-the-Trainer seminar

5. Development of support structures for lifelong qualification

6. CVET consulting/ CVET database for the building sector

7. Communication

8. EU-Exchange
Example Project: Build Up Skills - Qualitrain
Example for a Curriculum Development Process

1. Analysis 1: Identification of "critical situations" in the building sector concerning
   - Interfaces between trades
   - Interdependencies between fields of technology

   Process analysis (BUS I – Tables) → Studies on construction damages → Workshops & Interviews with Experts → Survey

2. Analysis 2: Comparison of gained knowledge on interfaces and system thinking with qualification in existing CVET programs

3. Selection of particularly relevant "critical situations"

4. Curricula development

5. Development of a teaching concept

5. Testing, evaluation and transfer

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General Principles of the Dual System in Germany (IVET)

Dual refers to the two learning locations: Company and VET College

- "Berufsprinzip" (occupational principle)
- Joint State and Market Control
- Corporatism
- Germany's Federal System
General Principles of the Dual System in Germany

- **Responsibility**
  - Company: Federal government
  - VET college: State governments

- **Legal Base for the IVET Course**
  - Company: Apprenticeship contract
  - VET college: Compulsory vocational training

- **Legal Base for IVET in General**
  - Company: Vocational Training Act
  - VET college: Education Acts of the individual states

- **Legal Base for Apprenticed Trades**
  - Company: Apprenticeship framework
  - VET college: National curriculum

- **Advice & Monitoring**
  - Company: Responsible chambers
  - VET college: School supervisory agency
General Principles of the Dual System in Germany

Initiation

"Corner Stones"

Compilation apprenticeship framework

Compilation framework curriculum

Discussion and matching (joint session)

Approval by BIBB Steering Committee (Hauptausschuss) = recommendation

Adoption apprenticeship framework by ministry responsible

Publication of framework curriculum (KMK)
General Principles of the Dual System in Germany - Advantages

"Paying for apprentices means INVESTING."

Advantages for the company:

• ensuring availability of skilled personnel
• reducing costs of incorporation/introduction
• higher motivation and binding to the company
• qualification according to the needs of the company
• productive outcome of the apprentices

Advantages for the apprentices:

• broad qualification in a certain field of work
• good prospects on the job market
• well known and recognised certificate
• hands-on experience and knowledge
• money during learning process
Structural Principles for Curricula in the Crafts Sector

<table>
<thead>
<tr>
<th>Practical Situation</th>
<th>Competencies (Processes)</th>
<th>Content/Knowledge</th>
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- principle of competency-based structure.
- not to create a list of theoretical contents, but to let the learning process start with the practical situations from the field of work.
- Starting with specific problem situations from their joblife makes the participants aware of their learning needs and motivates them. Moreover they deliver the context for applying the learnt skills and knowledge to a problem solution process.
- it is useful to use a table with three columns, which is built up and read from the left-hand side to the right-hand side. The practical situations shall be described in the first column.
## Structural Principles for Curricula in the Crafts Sector

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| Setting up a workstation for the production of wooden furniture | • Cleaning, preparing workstation  
• Choosing tools and providing for the working process  
• Ensuring energy supply  
• Incorporating safety measures considering safety regulations and guidelines  
• Ensuring waste disposal | • Types of Tools  
• Safety regulations and guidelines  
• Regulations for disposal and recycling of material |
| Producing parts of wooden furniture                      | • Analysing and judging wood piles considering wood type, texture and moisture  
• Cutting to size pieces of woods in accordance with given measurements  
• Preparing parts for assembly  
• Putting together parts, especially by screwing, gluing and nailing  
• Checking quality of parts and functionality of furniture | • Wood Types and their properties  
• Influence of texture and moisture on the quality of the product  
• Measurement units and sketches  
• Cutting techniques with different tools  
• Techniques of fitting together parts |
Steps to a Curriculum

Step 1: Finding experts for committee (stakeholders: experts, employers, employees, confederations, trade unions, vocational training institutions)

Step 2: Analyzing working processes in different trades within the crafts sector

1. Analysing and understanding customer needs
2. Developing and planning solutions/products
3. Presenting and offering the solution/product
4. Planning and preparing the implementation of the solution
5. Executing the implementation or production
6. Controlling the result and handing/passing over result to customer

a) What are the practical situations?
b) Which level in the enterprise (employee, manager, owner) is dealing with which processes?

Step 3: Agreement on relevant situations for the intended program
Steps to a Curriculum

Step 4: Specifying the situations: competencies and content (columns two and three)

Each situation has to be described by the specific processes, which must be mastered. When thinking of the processes it is helpful raising the questions:

a) What are planning activities (e.g. analysing, developing, ...)?

b) What are implementing activities (e.g. producing, connecting, installing, ..)?

c) What are controlling activities (e.g. checking measurements, checking surfaces...)?

Step 5: Developing a concept for the implementation
Kontakt

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