



Exploring institutional change and its implications for German VET centres

Project Workshop

The Future of VET in Europe: Pathways to vocational excellence

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**BEGLEIT-
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GEFÖRDERT VOM



Bundesministerium
für Bildung
und Forschung

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Berufsbildung

Agenda

1. Initial Situation: Current challenges in VET and the InnoVET program as a chance to meet them
2. Change in and implications for VET centres
3. First results from InnoVET projects *BIRD* and *UpTrain*
4. Project *Accompanying Research InnoVET*: Derivation of questions for the design of a program support concept
5. Outlook and discussion

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1. Initial situation: Current challenges in VET and the InnoVET program as a chance

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Modernisation of the German VET system:
 Increase the attractiveness, quality and equivalence
 of VET and initiate new learning environment
 cooperation

vocational schools
 companies

consulting institutions

inter-company vocational
 training centres (ÜBS)

research institutions
 Universities

chambers of commerce
 and industry

technical colleges

InnoVET program – 6 thematic clusters



Creating equivalency



Strengthening sectors



Shaping digital change



Increasing the quality of training



Expanding cooperation between learning centres



Testing hybrid education models

Source: https://www.inno-vet.de/innovet/de/die-projekte/die-projekte_node.html?sessionId=54EBF366949E29E9B8A7D6658E689D50.live721 [30.08.2022]

InnoVET program – permeability of educational domains

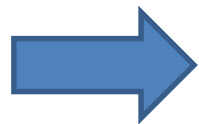
Designing permeability on the EQF level 5 (H-VET) (cf. Bingöl 2022)

- Industry 4.0 gains popularity due to vivid technological improvements along the value chain
- however: human aspect is essential in the successful application of newly developed digitalization or automatization technologies (acatech 2016, 7)
- **Transformation of occupational profiles** (industrial mechatronics, investigate failures in data connections, interpreting production data intuitively, signalling control technology)
- **Construction of a dynamic, adaptive, permeable and flexible VET system**

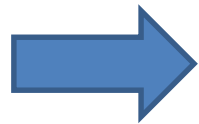
EQF level 5 and higher levels can fulfil the need
for qualified professionals

2. Change in and implications for VET centres

What does the institutional change bring along?



cooperation with further institutions and companies on new **curricular concepts and learning centres, trainings of educational staff**



networking between science, politics, and practice for innovation transfer

3. First results from InnoVET Project „BIRD“

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BIRD

BIRD – Cross-curricular education for industry 4.0 on the platform of NQF 5 level as a catalyst for permeability

Aim of the project:

- develop new qualifications to give a profile to the further education level "Certified Professional Specialist" created in the new Vocational Training Act
- pursues the implementation of permeable and transferable education and guidance offers in initial and continuing VET and in academic education

Involved VET providers: 2 chambers of commerce and industry, 4 vocational schools, 2 universities

BIRD – Cross-curricular educational opportunities for industry 4.0 on the platform of EQF 5 level as a catalyst for permeability

Product: new further training certificate
„Certified Professional Specialist for Industrial Transformation“ (NQF level 5, 400h)

- modular training program qualifies trainees, students, drop-outs and persons interested in further training having a qualification at NQF level 4
- topic of digital transformation
- industrial-technical / commercial education: further training builds on the training programs "industrial clerk", "industrial mechanic" and "mechatronics technician",
- trial takes place in the rural and urban area in Bavaria
- cooperation of vocational schools, Universities, CCI






***BIRD* – didactic concept**

Concept of **horizontal coupling**:

- education programs of different educational areas are combined with jointly created curricular frameworks
- permeability

Goal of didactic concept of the coupled further training:
skilled workforce (company perspective)
individual advancement, reorientation (learner perspective)

BIRD - Structure of the further training as a Certified Professional Specialist for Industrial Transformation (excerpt from framework curriculum)

Module	Module	Module	Module
<p>Digital transformation and cross-interface communication</p> 	<p>Commercial work in the digital industry and technical communication</p>  <p>Technical work in the digital industry and commercial communication</p> 	<p>Cooperation in industrial processes</p> 	<p>Project work in the company</p> 
interdisciplinary	subject-specific	interdisciplinary	subject-specific
100h	100h	100h	100h

BIRD – the curricular-didactic concept of the module ***Digital transformation and cross-interface communication***

Digital
transformation
and cross-
interface
communication



Competence category	Learning objective	less ons
Process competence	<ul style="list-style-type: none"> Capture operational processes (e.g. <i>apply fundamentals within a digital modeling language to visualize process chains</i>) 	25
	<ul style="list-style-type: none"> Finding one's way in the industrial digital economy (e.g. <i>understand Cyberphysical Systems and Artificial Intelligence</i>) 	20
	<ul style="list-style-type: none"> Prepare data along business process (e.g., <i>apply advanced spreadsheet application capabilities in a practical manner</i>) 	30
Project management competence	<ul style="list-style-type: none"> Plan, control, complete projects (e.g., <i>apply project management methods and identify project risks</i>) 	25

3. First results from InnoVET Project „UpTrain“



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UPTRAIN

UpTrain – three-parted further training – permeable, digital

Aim of the project:

- develop a holistic further training model for the public transport sector with two new advanced training courses in the industrial-technical field (NQF 5 and 7)
- education and career counseling for the public transport industry
- testing of further training model within the framework of learning centre cooperation between transport companies, universities and industrial companies

Involved VET providers: training academy, transport companies, universities and industry

UpTrain – three-parted further training – permeable, digital Curricular work

Products: two new further trainings

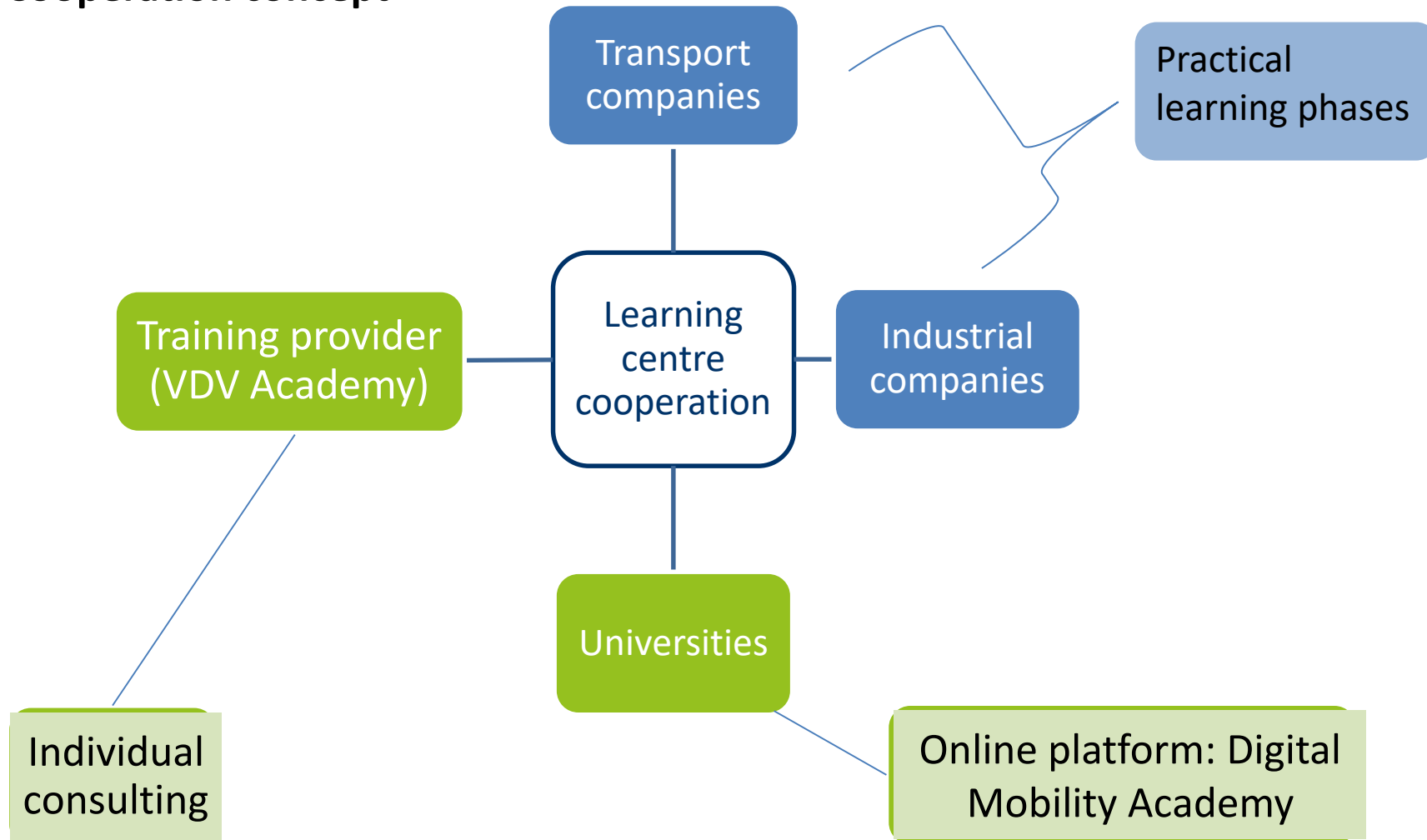
**„Certified Professional Specialist in Electronics/Mechatronics Mobility“
(NQF level 5, 400h)**

- apply complex technical systems in the field of public transport, promotes the inter-company understanding of interrelated problems in mobility
- **Course content:**
 - **practical knowledge of electronics/mechatronics in public transport** (e.g., signalling and train control technology)
 - **future topics** (diagnostic technology, e-mobility, autonomous driving, the digital workshop)

**„Master Professional Technological Innovation Strategies Mobility“
(NQF level 7, 1,600h)**

- initiate, plan, implement strategic projects at management level in transportation companies
- **Course content:**
 - **business and leadership knowledge**
 - **system management** (data management, system architecture, network security, monitoring)
 - **mobility technologies**
 - **change management**

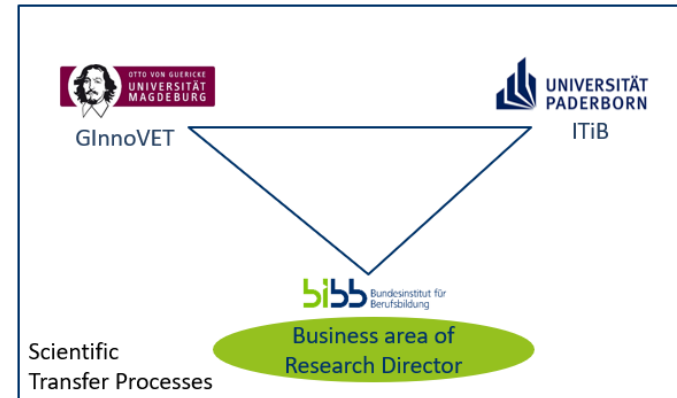
UpTrain – three-parted further training – permeable, digital **Cooperation concept**



4. Project *Accompanying Research InnoVET*: Derivation of questions on the design of a program support concept

- the business unit of the Research Director at the BIBB coordinates and conducts a **cross-program accompanying and impact research**
- focus: **investigation of the transferability** of the innovation approaches developed in the InnoVET projects on a systemic level in Germany, **further development of design-oriented program funding**

Network of expertise



4. Project *Accompanying Research InnoVET*: Derivation of questions on the design of a program support concept

→ Innovative educational approaches of the InnoVET projects are to be applied in other regions, federal states, professions and industries.

1. What are the **prerequisites and processes for the successful transfer** of innovations? Which obstacles need to be removed? [TRANSFER]
2. How do they **affect the systemic level** of VET? [IMPACT]
3. What can be learned from the results of the InnoVET projects for future further **development of VET by means of funding programs**? How can a program support concept look like that promotes the transferability? [RESEARCH-BASED PROGRAM DEVELOPMENT]

5. Outlook and discussion

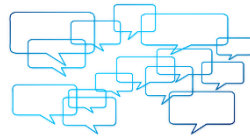
Institutional change in German VET centres is characterized by the ...

- Transformation of occupational profiles and development of new qualification opportunities (new further training certificates, new/modified curricula)
- Need for training concepts for educational staff
- Innovative and increased ways of cooperation (institutional/company; science-practice)
- Efforts to make the VET and academic systems equivalent; projects develop continuing education at NQF levels 5 to 7
- New career concepts and career counseling

Current and future research should focus on...

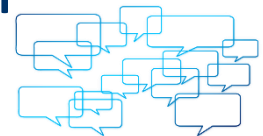
- Mechanisms to increase and start early innovation transfer activities for successfully and permanently transferring innovations into the VET system
- Investigating the effects of VET programs/projects on the system

5. Discussion



1. A closer look on the new **Professional Specialist qualifications** in Germany: establishment of a professional profile on NQF level 5 as a way of **enhancing permeability** in VET?
2. What are the **challenges** of cross-divisional **collaboration** of VET centres? What are the **opportunities**?
3. Which implications do the new qualifications and cooperative approaches have on **long-term transfer** into the VET system (sustainability of innovative products, long-term change)
 - for the daily work in VET centres?
 - for actors dealing with the regulatory structure formation?
 - for scientific discourse?

→ How can **VET centres focus** more strongly on **innovation transfer** – from a research and practical perspective?



Thank you for your attention!

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Literatur

- acatech (2016). *Kompetenzentwicklungsstudie Industrie 4.0 – erste Ergebnisse und Schlussfolgerungen* München.
- BMBF (2021). Exzellenz fördern. Berufsbildung stärken. Wie die InnoVET-Projekte die berufliche Bildung in Deutschland voranbringen. Bonn. Online available: https://www.inno-vet.de/SharedDocs/Publikationen/de/innovet/Exzellenz_foerdern_Berufsbildung_staerken.html [03.08.2022]
- Bingöl, B. (2022). The international implementation of vocational education and training at EQF level 5 in selected EU member states in the context of Industry 4.0. In Wilbers, K. *Durchlässigkeit und industrielle Transformation auf dem DQR-Niveau 5 gestalten. Konzeption einer beruflichen Fortbildung zum/zur Geprüften Berufsspezialisten/in im InnoVET-Projekt BIRD*. Berlin. PP. 167-182.
- Gräsel, C. (2010). Stichwort: Transfer und Transferforschung im Bildungsbereich. *Zeitschrift für Erziehungswissenschaft*, 13(1), 7-20.
- *InnoVET-Themencluster* (2020). Online verfügbar unter: https://www.inno-vet.de/innovet/de/die-projekte/die-projekte_node.html;jsessionid=54EBF366949E29E9B8A7D6658E689D50.live721 [03.05.2022]
- Müller, F.; Renner, M.; Schächtner, S.; Seitle, J.; Wilbers, K. (2022), Das InnoVET-Projekt BIRD: Eine Einführung in Ziele und Arbeitsbereiche. In: Wilbers, K. *Durchlässigkeit und industrielle Transformation auf dem DQR-Niveau 5 gestalten. Konzeption einer beruflichen Fortbildung zum/zur geprüften Berufsspezialisten/in im InnoVET-Projekt BIRD*. Texte zur Wirtschaftspädagogik und Personalentwicklung. Band 28. Berlin: ePubli, S. 21-52.
- Wilbers, K. (2022). *Durchlässigkeit und industrielle Transformation auf dem DQR-Niveau 5 gestalten. Konzeption einer beruflichen Fortbildung zum/zur Geprüften Berufsspezialisten/in im InnoVET-Projekt BIRD*. Texte zur Wirtschaftspädagogik und Personalentwicklung. Berlin.











- Websites [30.08.2022]:
- UpTrain:
 - <https://www.inno-vet.de/innovet/de/die-projekte/alle-projekte-von-a-bis-z/uptrain-triale-weiterbildung.html>
 - <https://www.vdv-akademie.de/projekte/uptrain-triale-weiterbildung/>
 - <https://up-train.de/>
 - https://up-train.de/wp-content/uploads/InnoVET_UpTrain_Zeit-und-Meilensteinplan_Detailliert_2022.pdf (Planing of milestones)

- BIRD:
 - <https://www.bird-weiterbildung.de/>

Potential additional material

NQF LEVEL	QUALIFICATION TYPES	EQF LEVEL
8	 Doctorate and equivalent arts degrees (<i>Doktorat und äquivalente künstlerische Abschlüsse</i>)	8
7	 Master degrees and equivalent higher education qualifications (traditional German courses of higher education study such as the first degrees of Diplom or Magister, State examinations) (<i>Master und gleichgestellte Abschlüsse (Diplom, Magister, Staatsexamen)</i>)  Strategic professional (IT) (certified) (<i>Strategische/r IT Professional (Geprüfte/r)</i>)  Other advanced vocational training pursuant to the Vocational Training Act or Crafts and Trades Regulation Code (level 7) (<i>Sonstige berufliche Fortbildungsqualifikationen nach BBiG/HwO (Niveau 7)</i>)	7
6	 Bachelor degrees and equivalent higher education qualifications (<i>Bachelor und gleichgestellte Hochschulabschlüsse</i>)	6

-  **Bachelor degrees and equivalent higher education qualifications** (*Bachelor und gleichgestellte Hochschulabschlüsse*)
-  **Specialist commercial clerk (certified)** (*Fachkaufmann/-frau (Geprüfte/r)*)
-  **Business management specialist (certified)** (*Fachwirt (Geprüfter)*)
-  **Master craftsman (certified)** (*Meister (Geprüfter)*)
-  **Operative professional (IT) (certified)** (*Operative/r Professional (IT) (Geprüfte/r)*)
-  **Trade and technical school (advanced vocational training governed by federal State law)** (*Fachschule (Landesrechtlich geregelte berufliche Weiterbildungen)*)
-  **Advanced vocational training pursuant to § 54 of the Vocational Training Act (level 6)** (*Berufliche Fortbildungsqualifikationen nach 54 BBiG (Niveau 6)*)
-  **Other advanced vocational training pursuant to the Vocational Training Act or Crafts and Trades Regulation Code (level 6)** (*Sonstige berufliche Fortbildungsqualifikationen nach BBiG/HwO (Niveau 6)*)

5	<ul style="list-style-type: none">  IT specialist (certified) (IT-Spezialist (Zertifizierter))  Service technician (certified) (Servicetechniker/in (Geprüfte/r))  Advanced vocational training pursuant to § 54 of the Vocational Training Act (Berufliche Fortbildungsqualifikationen nach § 54 BBiG (Niveau 5))  Other advanced vocational training pursuant to the Vocational Training Act or Crafts and Trades Regulation Code (level 5) (Sonstige berufliche Fortbildungsqualifikationen nach BBiG/HwO (Niveau 5)) 	5
4	<ul style="list-style-type: none">  Upper secondary general education school leaving certificate - General higher education entrance qualification (Allgemeine Hochschulreife (AHR)) Subject-linked higher education entrance qualification (Fachgebundene Hochschulreife (FgbHR))  Higher education entrance qualification for university of applied sciences (Fachhochschulreife (FHR))  Dual VET (three-year and three-and-a-half-year training courses) (Duale Berufsausbildung (3- und 3 ½-jährige Ausbildungen))  Full-time vocational school (vocational education and training governed by federal State law) (Berufsfachschule (Landesrechtlich geregelte Berufsausbildungen))  Full-time vocational school (vocational education and training governed by federal law in healthcare and elderly care) (Berufsfachschule (Bundesrechtliche Ausbildungsregelungen für Berufe im Gesundheitswesen und in der Altenpflege))  Full-time vocational school (fully qualifying vocational education and training pursuant to the Vocational Training Act or Crafts and trades regulation Code) (Berufsfachschule (vollqualifizierende Berufsausbildung nach BBiG/HwO))  Retraining qualification pursuant to the Vocational Training Act (level 4) (Berufliche Umschulung nach BBiG (Niveau 4)) 	4

3	<p> Intermediate secondary school leaving certificate – General education, 10 years (<i>Mittlerer Schulabschluss (MSA)</i>)</p> <p> Intermediate secondary school leaving certificate – Full-time vocational school (<i>Berufsfachschule (Mittlerer Schulabschluss)</i>)</p> <p> Dual VET (two-year training courses) (<i>Duale Berufsausbildung (2-jährige Ausbildung)</i>)</p>	3
2	<p> Lower secondary school leaving certificate – General education, 9 years (<i>Erster Schulabschluss (ESA)</i>)</p> <p> Vocational training preparation (vocational preparation scheme, prevocational training year, introductory training) (<i>Berufsausbildungsvorbereitung (Niveau 2; BvB, BvB-Reha, BVJ, EQ)</i>)</p> <p> Basic vocational training – Full-time vocational school (<i>Berufliche Grundbildung</i>)</p>	2
1	<p> Vocational training preparation (vocational preparation scheme, prevocational training year) (<i>Berufsausbildungsvorbereitung (Niveau 1; BvB, BvB-Reha, BVJ)</i>)</p>	1