

## Case study Germany

# The future of vocational education and training in Europe Volume 4

Delivering lifelong learning: the changing relationship between IVET and CVET

By Günter Hefler, Daniel Unterweger, March 2022  
AO/DSI/JP/Future\_of\_VET/003/19

*Disclaimer: this text is presented in its original in its original form. It has neither been revised nor edited by Cedefop.*

Please cite this publication as:

*Hefler, Günter; Daniel Unterweger, Daniel (2023). Case study Germany: The future of vocational education and training in Europe volume 4. Delivering lifelong learning: the changing relationship between IVET and CVET Facilitating vocational learning: the influence of assessments. Thessaloniki: Cedefop.*

© Cedefop, 2023

## Table of content

Revitalising the ‘institutional core’ – Reforming the institutionalised IVET-CVET Link in Germany.....	3
Part 1: Introduction: IVET and the learning of adults .....	3
Part 2: The competition between ‘upgrading CVET/higher VET’ and universities of applied science.....	8
2.1. Problem statement and objective of the reform/change .....	8
2.2. Change process & (institutional) context .....	11
2.3. Results and impact of the policy .....	13
Part 3: Changed epistemological and pedagogical perspective .....	15
Part 4: Conclusions and reflections .....	22
Annex to case study report .....	24
List of sources .....	24
List of interviewees/ informants.....	26

# Revitalising the ‘institutional core’ – Reforming the institutionalised IVET-CVET Link in Germany

## Part 1: Introduction: IVET and the learning of adults

The German adult education system is shaped by a highly complex provider structure and a high degree of decentralization. The 16 federated states (*Länder*) are responsible for initial education and higher education, including school-based IVET. For the dual system, responsibilities are shared in even more complex patterns, as the social partners – in particular the sectoral business interest organisations and to a lesser degree the German Trade Unions – play a decisive role in governing the IVET and formal CVET system, supported by a national institute (BIBB) with a key coordination role and supporting the sectoral decision-making bodies on national level. The provision of adult learning is within the responsibilities of the *Länder*, with the exception of training within the Active Labour Market Policies, which is governed by the regional branches of the central Public Employment Services. The central state, however, runs important schemes providing co-funding for adult learning and invests in the development of the sector by a consecutive series of multi-year development projects and overarching policies, as for example, related to the ‘decade of adult basic education.’ Business interest organisations are among the dominating providers of programmes leading to formal higher vocational qualifications, with holding the prerogative to administer the examinations required for the award of the related qualification.

Germany’s initial vocational education has remained mainly youth-centred, catering for young (16 and older) people (mainly based on six years in lower secondary education awarded by *Mittlerer Reife*) on the one hand, and young adults entering after completing academic upper secondary education (*Abitur*) (typically achieved by 18/19 – 20)<sup>1</sup>. Graduates of the latter, about half of the age cohort in 2020 (up by about 10 per cent points since 2000), can choose between higher education or entering IVET. In 2019, 54,4% young adults (estimate) take up an apprenticeship (at any age), down from 58,0% in 2011 (BIBB - Bundesinstitut für Berufsbildung, 2021, p. 166)<sup>2</sup>. Given the dominating role the apprenticeship system with its dual education approach within IVET (representing more than two thirds of places in IVET), the employers hold a key position in accepting or rejecting applicants beyond the most typical age for a particular type of apprenticeship. In the 2000s, there has been a shortage of apprenticeship places in Germany (Busemeyer, 2009). Today, there is a historically high number of open apprenticeship places where no candidates can be found, which accounted for 11.7 percent of all advertised apprenticeship positions in 2020 (BIBB, 2021, pp. 21, 22). At the same time, an increasing number of individuals are unsuccessful in their search for

---

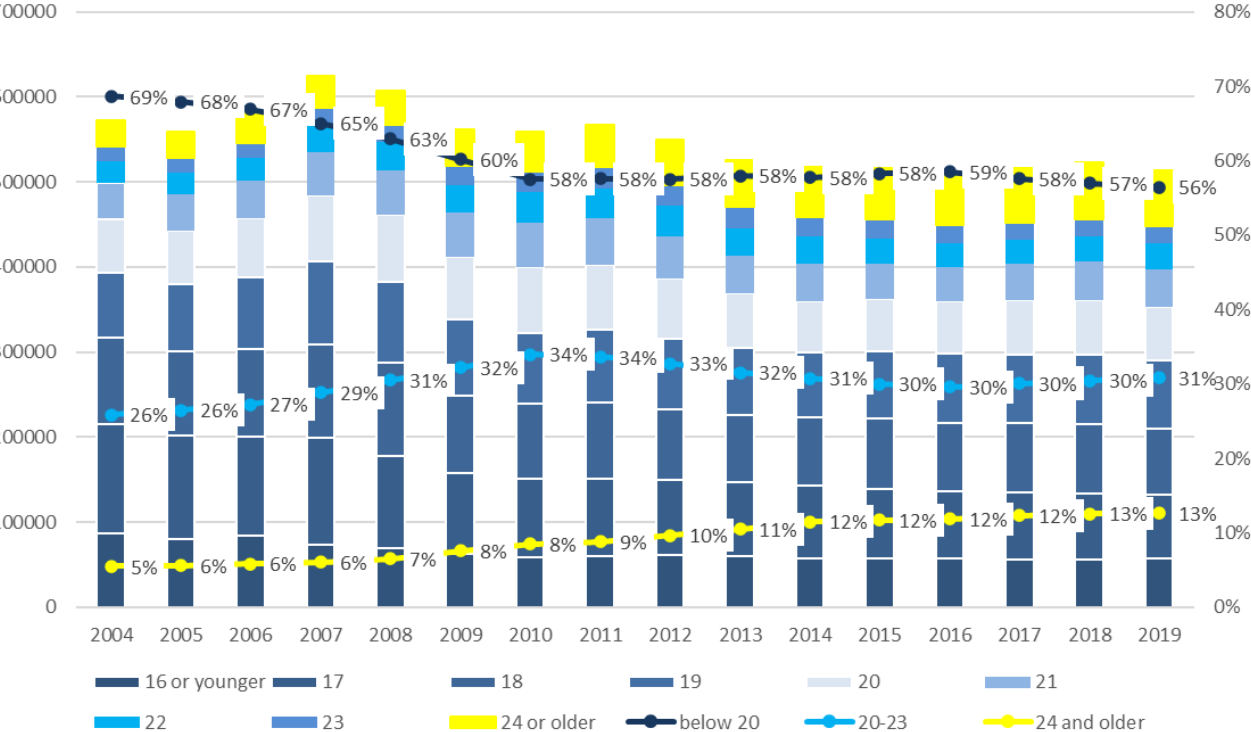
<sup>1</sup> see in the Annex

<sup>2</sup> Given that an apprenticeship is a form of formal employment, entering an apprenticeship ends – technically speaking – initial education and former apprentices are treated as people having completed initial education (by starting to work). This implies that they are returning to education in case, they enter any form formal or non-formal education.

apprenticeship places. This is related to regional imbalances (more apprenticeship seekers in regions where there are no open places, and vice versa), furthermore, there is also a large occupational dimension. Commercial and media occupations have a particularly high number of unsuccessful apprenticeship seekers, while firms in gastronomy, cleaning and craft-based food production are unsuccessful in finding apprentices (BIBB, 2021, pp. 23-25). In sum, there is high competition among individuals for apprenticeship places with high requirements in terms of educational attainment (e.g. HE entrance qualifications, see further below).

Figure 1 provides an overview on the slowly changing age structure of new apprentices, showing that adolescents are still the largest group, although giving way to somewhat older young adults, often with *Abitur*. The overall proportion of adults 24 or above is low but on the rise, with absolute figures up from about 32 000 (5 % of apprentices) in 2004 to about 65 000 in 2019 (13% of new apprentices). Adults 40 years or older, however, are still broadly excluded from regular apprenticeships with only 1 872 cases reported (0,4%) in 2019.

**Figure 1 Age of new entrants in apprenticeship in Germany (2004-2019) – absolute figures and proportion of age groups (-19; 20-23, 24 and older)**



Source: (BIBB - Bundesinstitut für Berufsbildung, 2021), Tabelle A5.8-1 – Own calculations

Beyond incentivising employers to consider adults as apprentices, in Germany, alternative access routes for adults to qualifications awarded by the apprenticeship system are scarce. Within the Active Labour Market policy, the key program (currently termed *Zukunftstarter*<sup>3</sup>) offer a package aiming at bringing more adults (aged 25 to 35) into regular apprenticeships.

<sup>3</sup> <https://www.arbeitsagentur.de/vor-ort/aschaffenburg/content/1533718317553>

Vocational programmes solely offered by training providers on behalf of the Public Employment Service typically struggle with gaining recognition in the labour market and their graduates cannot unconditionally hope for seeing their earned credentials awarded in the job market on equal grounds than regular qualifications. In Germany, apprentices can apply for a specific grant if the apprentice wage is not enough to cover their living costs. The German PES (*'Bundesagentur für Arbeit'*, Federal Employment Agency) supports apprentices during their training with a non-repayable grant of up to €700 per month to cover for instance living expenses, travel costs or costs for childcare (Markowitsch, Dzhengozova, & Hefler, 2022).

But overall, opportunities for second chance education within the IVET sector are limited. With the exception of VET schools accepting adults, second chance routes are open mainly within general education, preparing for an higher education entrance permission as a first step for continuing within an HE programme later (Käpplinger & Reuter, 2020; Schwabe-Ruck, 2010). Germany has experienced a stark increase of refugees in the last decade, in the year 2015 in particular. For the successful integration of recent migrants into the labour market, the role of validation of competences acquired in foreign countries is essential. Formal qualifications have high importance on the German labour market, and validating prior learning can consequently help to increase applicants' opportunities to find a job (Maier et al., 2021). Furthermore, formal qualifications also have legal consequences for residential status of migrants (ib.). While there exists a legal entitlement for the validation of foreign formal qualifications – although implementation practice is often contested (Sommer, 2015)– since 2012, no similar law exists for skills acquired via non-formal learning.

Due to the overall weak development of validation of prior learning in the German VET sector (Ball, 2018; Bertelsmann Stiftung, 2015), the pilot-project Valikom (2015-2018) and its successor project Valikom-Transfer (2018-2021) were implemented. They provide validation of around 30 occupations for individuals with non-formal qualifications acquired in foreign countries (Maier et al., 2021). In 2019, a total of 44700 validation procedures were documented. Beyond validation, also IVET is used as a means of labour market integration. In Germany, individuals with foreign nationalities (in particular refugees) in dual apprenticeship have risen starkly. In total, 11,6 percent of all VET graduates in 2019 were persons without German nationality, and the number of refugees in dual VET has risen from 1000 per year in 2009 to 21000 per year in 2019 (Hickmann, Jansen, Pierenkemper, & Werner, 2022). Most of these individuals do apprenticeships in retail, as well as occupations with a shortage of skilled labour (dental assistants, truck drivers, etc.).

In Germany, CVET, *berufliche Weiterbildung*, usually has been understood as acquiring one (out a small number of accessible) formal qualification thoroughly related to one's initial vocational education (Higher VET/Upgrading CVET – *Aufstiegsfortbildung*), with courses (full or part-time) holding a rather high workload preparing for a standardised examination, with the qualification awarded after passing the exam successfully. Only adults with the required initial vocational education and a minimum number of years of professional experiences within an occupational field are eligible for sitting the exams, so the qualifications are not available

without years of work experience. Adults (or to a lesser extent their employers) have to cover the rather high fees of the preparatory courses, however, a subsidy system exist (see below).

Short courses providing general skills, however not awarded by a specific 'higher VET qualification', are addressed 'adaptive CVET' (*Anpassungsfortbildung*). Adaptive CVET are non-formal shorter adjustment measures, the latter of which is the most common type of vocational education for adults (Bilger, Behringer, Kuper, & Schrader, 2019; OECD, 2021). Moreover, in the overall German discourse on CVET (*Weiterbildung*), 'on-the-job training' (*Anlernen, Training*) was typically not considered, so these components of the currently used international definition of 'non-formal job-related adult education' had long been not captured by German statistics.

*Aufstiegsfortbildung* (Upgrading CVET) – promoted since 2020 by law under the new term *Höhere Berufsbildung* (higher VET) – typically lead to master craftsperson or certified business specialist qualifications. Together with the initial apprenticeships training, these VET qualifications used to form a functional unit and prepare graduates of the Dual system (in particular) to climbing into the ranks of the middle management (team leader, heads of units and so forth), with rags-to-rich stories of former apprentices ending up in the top management as an inspiring myth for the German apprenticeship system. In their seminal comparison of French and German manufacturing, Maurice, Sellier & Silvester coined the term 'qualification span' for capturing of how far a holder of a certain qualification can expect to climb up the career ladder – for Germany, at least for prestigious (formally male dominated) professions, passing an apprenticeship came with the prospect for considerable future career advancement, however, subject to the condition of passing upgrading CVET (*Aufstiegsfortbildung*) prior to a promotion with the current employer or for finding an advanced position elsewhere. For accessing middle management positions and (technical) specialist roles, the combination out of apprenticeship and higher VET has formed a functional equivalent to acquiring a higher education credential in other employment systems. In consequence, the high prestige of IVET in Germany is at least partly the effect of these 'inbuilt pathway for a advancement', which were independent from 'academic' upper secondary or higher education. (Hefler & Markowitsch, 2012; Maurice, Sellier, & Silvestre, 1986).

Historically, *Aufstiegsfortbildung*/CVET had been defined as an activity outside of state responsibility, with limited state oversight, regulation and funding, similar to 'liberal' adult education. This is still visible in the provider structure of Germany's adult education system. CVET (on post-secondary and tertiary level) outside the Higher education sector is mainly provided by non-profit organisations that are attached to the social partners (business interest organisations in particular) or organised as independent networks of organisations. The same organisations, organised alongside economic sectors, also provide non-formal courses of various kinds. According to OECD (2021), this includes non-formal adult education for basic competencies, adult liberal education as well as mostly non-formal adjustment measures (*Anpassungsqualifizierung*).

Furthermore, they partially also offer certain services in IVET for youth and adults (initial and second chance). In addition to these private non-profit providers, public schools run by the

Länder (*Fachschulen*) also provide CVET, albeit with large differences across the 16 states. Moreover, private for-profit providers are active in providing both upgrading and adaptive CVET (*Aufstiegsfortbildung*- ,*Anpassungsfortbildung*) which are partly competing for public funding within public procurement, in particular within the field of Active Labour Market policy.

However, in addition to abovementioned segment of classical CVET providers, there are also IVET providers active in providing CVET, both concerning second-chance education for adults and, to a lesser extent, non-formal CVET offers. A rough distinction can be made between those IVET providers mainly catering for young individuals (aged 15-19) with services for adults (20+) as an additional task and those catering only for adults (Bildungsberichterstattung, 2020). *Berufsschulen* are mainly responsible for the school-based part of the German upper secondary-level dual apprenticeship model and are in principle open to adults (IVET and second chance, certain offers in Basic Education), similar to the fully school-based upper-secondary level VET schools (*Berufsfachschulen*), the latter of which often also provide non-formal CVET courses for adults. The same also holds for the fully school-based upper-secondary level *Fachoberschulen*, which additionally enable individuals to access the HE sector. However, these providers in general do not provide access to “upgrading CVET/Higher VET certificates (*Aufstiegsfortbildung/höherqualifizierende Berufsbildung*)

Of these school-forms, there also exist post-secondary level IVET providers targeting adults, and which are not accessible for young individuals (age 16), as they demand the completed higher education entrance qualification (*Abitur*) (*Berufsschulen, Berufsfachschulen*) or a finished VET degree (*Fachoberschule, Berufsoberschule*). They provide post-secondary non-tertiary IVET for adults, second-chance education for adults, and partially HE-entrance qualifications. There also exist programs at these schools that combine post-secondary level IVET with subsequent work experience at an employer and finish with formal “upgrading” CVET/Higher VET qualifications, thereby including the required years of professional experience for upgrading CVET/Higher VET in the respective programs (Neu, 2021). These offers are explored in detail in section 3 of this case study. Another special case are schools for health and social occupations (*Ausbildungsstätten/Schule für Gesundheits und Sozialberufe*), which are providing for adults and youth and offer both IVET and second chance education for adults on ISCED levels 3-4. In addition, they also offer non-formal CVET, as well as *upgrading CVET (Aufstiegsfortbildung)* leading to Master craftsperson qualifications.

Finally, universities of applied science (*Fachhochschulen*) at tertiary level provide formal IVET for adults (after HE entrance examinations/*Abitur*), with individuals graduating as “Bachelors” and “Masters”. Adults are equally eligible for these programmes.

In the past two decades, the importance of universities of applied science, which are considered as being a part of the Higher Education sector, is growing in formal CVET. As a result, these universities of applied science are increasingly competing with traditional forms of Higher VET/Upgrading CVET (*Höherqualifizierende Berufsbildung/Aufstiegsfortbildung*) that

provide master craftsperson or certified business specialist qualifications<sup>4</sup>. This competition between two modes for qualifying for the middle management/specialist roles forms the key topic of this case study. With more and more young people qualified for HE entrance, the opportunities expressed by the 'qualification span' anyone entering working life via the Dual system have become under pressure, with the functional unit out of 'apprenticeship' and upgrading CVET/Higher VET being called into question. For reviving the dual system of apprenticeship, however, it is of equal importance to renew higher VET provision and defend or even strengthen its role within the employment system.

## Part 2: The competition between 'upgrading CVET/higher VET' and universities of applied science.

### 2.1. Problem statement and objective of the reform/change

In the past decades, "IVET has been subject to largely incremental innovation rather than fundamental change, which also holds for CVET. CVET was and still is predominantly an instrument to either adapt the knowledge and skills of employees to changing job requirements, or to allow IVET graduates with relevant work experience to acquire a higher-level vocational qualification such as master craftsperson or certified business specialist. These two variants of CVET, which are referred to as 'adaptive CVET' (*Anpassungsfortbildung*) and 'upgrading CVET'/Higher VET (*Aufstiegsfortbildung*) respectively, continue to stand in a relatively formalised relationship with IVET in the sense that formal CVET courses typically specify, as part of their entry requirements, which IVET qualification is required to get access to the learning opportunity in question." (Wittig 2022 – draft).

However, despite the absence of disruptions or radical reforms, the German VET system shows various forms of incremental (gradual) change that, over time, may fundamentally impact the functioning of the whole system (Graf, 2017).

First of all, a change can be observed with regard to the status of the VET system in relation to other educational sectors, more specifically general and higher education (BIBB - Bundesinstitut für Berufsbildung, 2021). In cross-country comparative perspective, Germany's exceptionalism in VET had been rooted not only in its expanded 'Dual System' in initial VET, but by the exceptional 'qualification span' of graduates of this system, that is the positions accessible to them in within the stratified systems of occupations, with former apprentices climbing into the ranks of the middle or even top management. (Hefler & Markowitsch, 2012; Maurice et al., 1986). Building a career on IVET used to be and is still possible based on an institutionalised system of formal (regulated) CVET offers linked and attuned to both types of IVET and forms of organisational career patterns. IVET thereby represented a viable alternative to HE also for young adults having acquired a HE entrances permission. Formal CVET thereby supported the prestige of IVET, as it guaranteed a realistic chance to enter

---

<sup>4</sup> Furthermore, universities of applied science also offer non-formal CVET programs. The provision of specialized non-formal training programmes by higher education and research institutions are however depicted as underdeveloped by past research (Faulstich & Oswald, 2010).



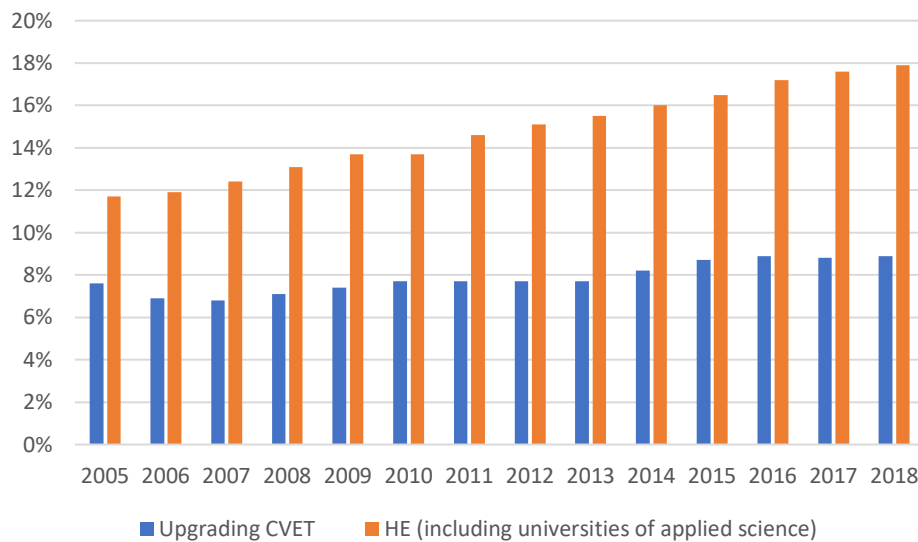
occupational positions reserved to HE graduates in the majority of other Skill Formation Systems. IVET and the related formal CVET are even considered as unique contributions to an individual skill basis; adults may not only choose the IVET/CVET package as a 'safety net' (Shavit & Müller, 2000) before finally entering Higher education, but these vocational qualifications are seen as of unique value even for HE graduates (Djelic & Quack, 2010). According to (Hillmert & Jacob, 2003; Jacob, 2004; Thomas, 2013); Virdia and Schindler (2019), preparing for an upgrading CVET is a frequent move for IVET graduates of dual VET, with 11 percent of 23 to 64 year old dual VET graduates having joined upgrading CVET in 2009.

However, the IVET-CVET link as represented by distinctive forms of formal CVET addressed as '*Aufstiegsfortbildung*'/*higher VET* had come under pressure, resulting in declining numbers of participants in the related upgrading CVET programmes (from over 130 Thousands graduates per year in 1992 to about 90 Thousand in 2019), which at once also reduce the attractiveness of the (initial) 'Dual system' as a reliable ladder for supporting careers. The declining size of entering cohorts (more than 10 per cent between 2020 and 2020) and a strongly increasing uptake of HE – a rise from 25,8 to 54,7 per cent of a cohort between 1995 and 2019 (Destatis, 2019) - put pressure on previous institutional arrangements governing occupational stratification and threatening to undermine the core of German IVET exceptionalism (Baethge & Wolter, 2015). While also subject to declining birth cohorts, these developments have been related to a shift from industrial production towards the services sector, rising individual educational expectations, changing preferences of firms, and a global academization of labour markets (Graf, 2017).

Accompanying the decreasing importance of traditional upgrading CVET, we can see an increasing importance of Higher Education institutions, and in particular universities of applied sciences (Durazzi & Benassi, 2020). As can be seen in the figure above, the share of the population with HE degrees (including universities of applied science) continuously rises, in contrast to upgrading CVET.

**Figure 2 Share of population with upgrading CVET and HE degrees, 2005-2018**

Source: Depiction based upon (BIBB, 2021, p. 398)



As highlighted by Weiß (2014), there are substantial overlaps of tasks that can be either fulfilled by upgrading CVET graduates but also graduates from universities of applied sciences, leading to increased competition. While the first universities of applied science were established already in the 1960 and 1970s, their enrolments increased rapidly especially in the last decades from 400 000 in 1990 to 1 million in 2015 (Emmenegger, Bajka, & Ivardi Ganapini, 2022). Furthermore, universities of applied science increasingly began to offer so-called dual study programs that combine elements of firm-based practical training with theoretical grounding at universities and expanded rapidly in recent years, student numbers of which have grown from 40 000 in 2005 to nearly 100 000 in 2015 (Durazzi & Benassi, 2020; Graf, 2017), however with a stabilization in recent years (Interview #3) This importance of universities of applied science (and dual study programs) also posits a threat for IVET programs, which are partially crowded out by secondary-level, general education that leads to a university entrance qualification (Emmenegger et al., 2022). It has been argued that these developments are particularly detrimental to socio-economically disadvantaged candidates, which might have problems accessing these highly competitive programs that necessitate HE entrance qualifications and are consequently left with the “standard” dual system that in turn decreases in reputation (Graf, 2017).

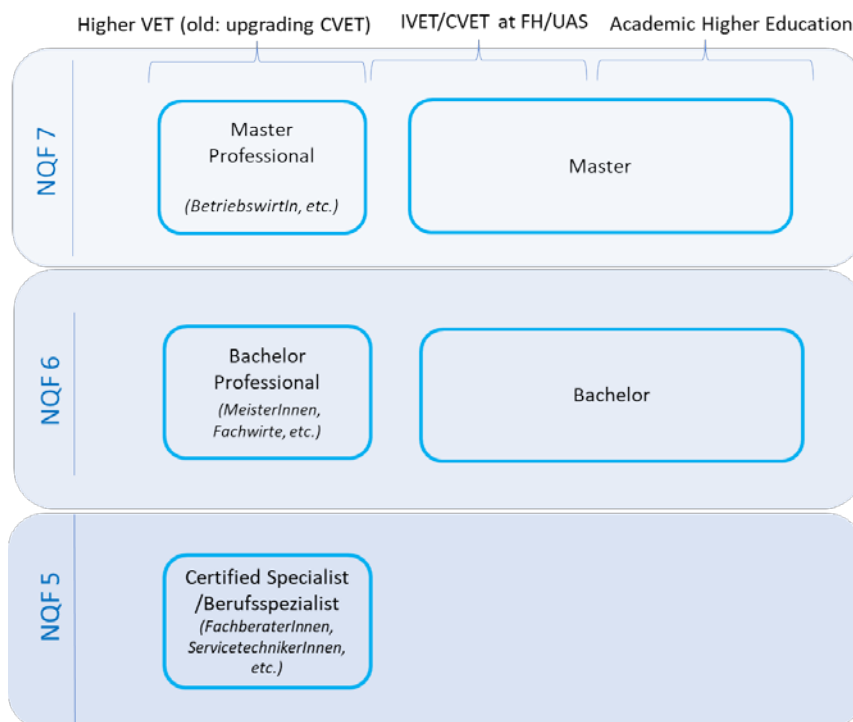
Recent reforms however aim at re-strengthening the original IVET-CVET link by providing more public co-funding to individual “upgrading” CVET costs and by reforming the regulatory framework (2020), including a change in names to make CVET better comparable to HE and internationally (renaming “*Aufstiegsfortbildung*” (upgrading CVET) to “*höherqualifizierende Berufsbildung*” (Higher VET)), consequently also making standard dual IVET more attractive for both youth and adults (including migrants and refugees). Thereby, these reforms also more broadly aim at tackling an alleged/projected shortage of skilled labour (*Fachkräftemangel*) and consequently shortage of VET graduates that has been at the core of German discourse on labour market and economic policy of the last decades (Rahner, 2017). By increasing the

systems overall attractiveness, the reforms also aim at securing access of particularly disadvantaged groups of participants (e.g. adults with no VET and HE qualifications) to credentials with relatively high social esteem. While these system-level reforms aim to increase the systems overall attractiveness, they do not directly modify the content, provider structure, and mode of CVET delivery. However, in parallel to system-level reforms, various incremental changes can be observed on a sectoral level that also affect change in terms of content, provider structure and training delivery. The next two subsections focus on system-level reforms, while sectoral changes are discussed afterwards.

## **2.2.Change process & (institutional) context**

The immediate goal of several policy initiatives of the last years was consequently to maintain or increase the number of graduates from the formal CVET programmes. This should be achieved, first, by a better representation of programmes within the National Qualification Framework. The figure below shows the allocation of different CVET qualifications on Germany's NQF after the a recent reform of the German vocational training act (2020). More specifically, new names for each of the three German levels of upgrading CVET have been allocated, thereby aiming at increasing the social esteem and visibility of the respective degrees in the national context and making them more comparable internationally (BIBB, 2021). Consequently, each level in the traditional "upgrading" CVET sector has been allocated names ("Bachelor Professional" and "Master Professional") corresponding to the respective degrees at universities (Academic Higher Education) and IVET/CVET at universities of applied sciences (UAS) (both of which reward Bachelor and Master degrees). Similarly, the overall label of upgrading CVET (Aufstiegsfortbildung) has been changed to Higher VET (höherqualifizierende Berufsbildung). The adjusted names and NQF reform clearly show an attempt to position the upgrading CVET qualifications as equivalents to the Bachelor and Master degrees from universities. Furthermore, during an incremental process of the last decades, upgrading CVET programmes have been adjusted to new skill demands and technological progress, and new upgrading CVET programmes have been created, which might lead to increased attractiveness for individuals (Weiß, 2014).

**Figure 1: New labels of formal CVET qualifications (Higher VET) on NQF 5-7 in Germany**



Source: Own adapted depiction based on BIBB (2021).

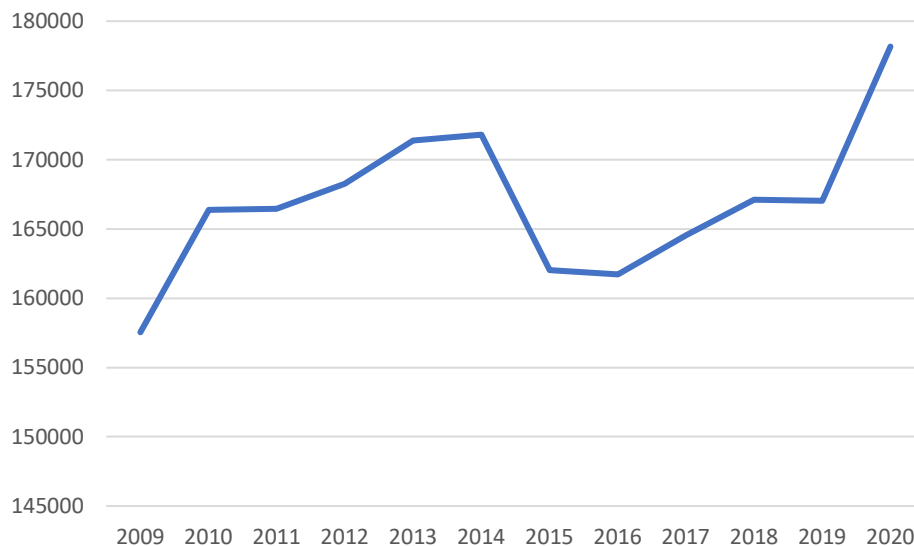
Finally, a chain of recent reforms has also increased public contributions towards the costs of upgrading CVET. Upgrading CVET is usually subject to substantial fees up to 10 000 EUR and more (however varying substantially according to the specific programme), in contrast to low or no fees in the HE education sector (and consequently universities of applied science) (Weiß, 2014).

Financial assistance in the form of the so-called Upgrading Training Assistance (Aufstiegs-BAföG/Aufstiegsfortbildungsgesetz ABFG ) already exists since 1996 and was modelled according to the support available for students in higher education since 1971. Funding is made available partly in the form of a grant and partly in the form of a low-interest loan. Participants receive a contribution towards the cost of training irrespective of their income and assets. Participants in full-time measures also receive an additional means-tested payment to cover living expenses. Average monthly contributions in 2020 accounted for around 1350 EUR. Since its introduction, the Upgrading Training Assistance was reformed and made more generous several times. With the 2020 reform, various aspects of the grant increased once more in generosity, including an increase in the contributions towards direct training costs from 40 to 50 percent, a shift of the means-tested payment for living expenses from a loan to a grant basis, and the loans-based part for direct costs will be completely paid by the state for those that become self-employed after the training (BIBB, 2021). In sum, the reform consequently aimed at removing still existing financial barriers of individuals for upgrading CVET, thereby attracting additional learners to the system, in particular in relation to the (usually cheaper) HE sector.

### 2.3. Results and impact of the policy

Most recent data on CVET participation in Germany reaches up until 2020, and consequently cannot yet assess the full impact of the newest reforms for individuals and providers (BIBB, 2021). According to newest data (see figure below), the access to the Upgrading Training Assistance has increased in 2020.

**Figure 3 Access to Upgrading Training Assistance, 2009-2020**

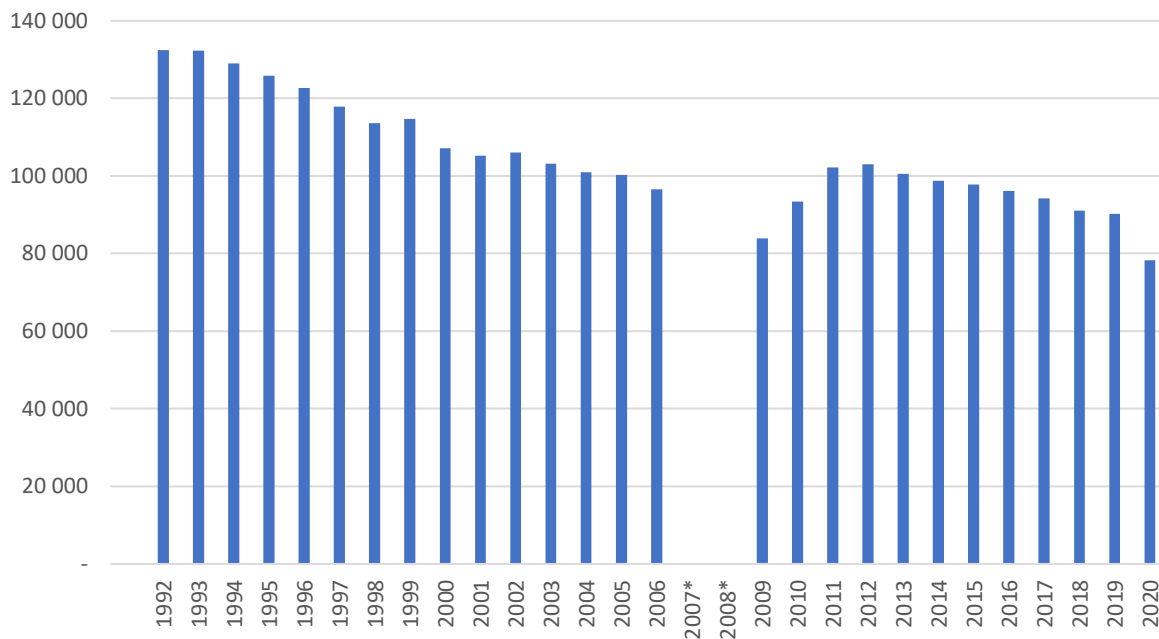


Source: Own depiction based on (Destatis, 2020b)

If the Upgrading Training Assistance has managed to increase the attractiveness of the overall system cannot be assessed by only looking at access to the funding measure itself (due to deadweight effects). Also an increase in the total number of graduates that finish the programmes should be visible (e.g. attracting additional individuals that would have otherwise not joined upgrading CVET). However, as can be seen in the figure below, despite the introduction of the Upgrading Training Assistance in the 1990s and its various reforms, these instruments could in the long term at best slow down the decrease of the numbers of upgrading CVET graduates, which have declined continuously (with a short exception from 2010 to 2012). Nonetheless, interview partners (Interview #1, Interview #2, Interview #3) suggested that the reforms of the Upgrading Training Assistance have managed to keep upgrading CVET/higher VET attractive, as it mitigates the potentially negative effects of upgrading CVETs comparatively high costs vis-à-vis university education. Similarly, interview partner from the chambers also saw the reform of the national qualification framework and the introduction of the Bachelor Professional and Master Professional as a step in the right direction (Interview #1, Interview #2). However, its short-term impact seems to be rather low, especially considering that implementation by the Ministry of Education has taken longer than expected, with so far only 12 of 65 CVET degree titles having been changed to the new Bachelor Professional/Master Professional scheme in the respective legal documents (Interview #1, Interview #3). Furthermore, one interview partner also voiced the concern that the introduction

of these degrees will, if at all, even amplify the competition between higher VET/upgrading CVET and university education (Interview #3).

**Figure 4 Number of upgrading CVET graduates, 1992-2020**



\*Data for 2007 and 2008 not available

Source: Own depiction based on (Destatis, 2007, 2011, 2020a).

While the costs of the specific reform projects are hard to assess, the Upgrading Training Assistance in total offered contributions to individuals accounting for 693.877 million EUR in 2019 (294.458 million in grants and 399.419 million in loans), an increase of 4.2 percent since 2018 (BIBB, 2021). Costs are covered to 78 percent by the central government and to 22 percent by the federal states. Data for the period after the recent reform of the Upgrading Training Assistance is not yet available, but the government expected additional costs to account for roughly 350 million EUR (Gillmann, 2020). Unsurprisingly, in particular formal CVET providers (see first section in this case study) that are mostly organisations attached to the social partners or organised as independent networks of organisations have keen interest to keep the system vital. Consequently, besides representatives of all major political parties, representatives of the social partners for example welcomed the reform of the Upgrading Training Assistance and partially even demanded total coverage of upgrading CVET fees by the state (Gillmann, 2020). For example, interviewed representatives of the Chamber of Industry and Commerce have highlighted that in particular the chambers were strong supporters of abovementioned reforms, for example demanding the introduction of Bachelor and Master Professional already since 2002 (Interview #1, Interview #2). Broad support among political parties is also not surprising given their strong preferences to keep the dual apprenticeship system intact, the attractiveness of which depends to a large extent on the IVET-CVET link. As universities and universities of applied science become more and more attractive among individuals vis-à-vis costly upgrading CVET/Higher VET, the viability of this

system is challenged. The reforms are also relevant for IVET providers if they manage to revitalize the whole system and consequently also make IVET more attractive.

Beyond cross-sectoral attempts to strength the IVET-CVET link, various incremental changes can be observed on a sectoral level. In the following, examples of such developments within manufacturing (industry) and the retail sector that bring up change are discussed.

### Part 3: Changed epistemological and pedagogical perspective

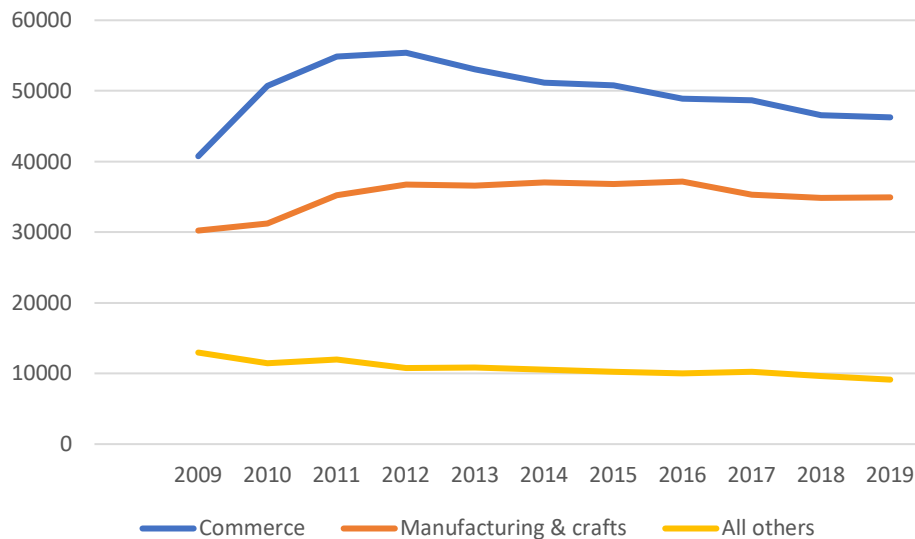
Relatively speaking, upgrading CVET/Higher VET for commercial sector occupations<sup>5</sup> is the most frequent, which accounts for more than 50 percent of all CVET graduates (up from 40 percent in 1992) (BIBB, 2021). In the 1990s, upgrading CVET was even stronger in commercial occupations, and in total numbers even decreased from 52048 graduates in 1992 to 46248 in 2018 (except for a short period of increase in 2009) (Destatis, 2020a). Consequently, growth in upgrading CVET has not kept up with overall growth in the service sector, reflecting to overall decreasing importance of upgrading CVET/Higher VET vis-à-vis universities and universities of applied science (providing IVET&CVET). For manufacturing & crafts, upgrading CVET numbers dropped heavily in the 1990s (especially in the crafts), but remained relatively stable in the last two decades and have slightly expanded (in particular in manufacturing) since 2009. This assessment has also been confirmed by an interviewee, who argued that upgrading CVET in the industrial sector has remained relatively strong, while commercial occupations are struggling (Interview #1). In particular in the commercial sector, interviewees have suggested that university graduates and upgrading CVET graduates are used for the same jobs and tasks (Interview #2, Interview #3), but with partially lower wage levels negotiated by collective bargaining agreements, which makes the upgrading CVET route less attractive in the commercial sector (Interview #2).

The subsequent two sections will consequently on the one hand explore upgrading CVET qualifications in manufacturing, and at the other hand, new developments of upgrading CVET in the commercial sector, both of aim at positioning upgrading CVET as an alternative to the increasingly growing HE sector. At the hand of these examples, we will also explore potential changes in the content of learning and the way adults are trained. While upgrading CVET in industrial occupations can be taken as an example of how upgrading CVET traditionally looked and looks like in Germany, the section on upgrading CVET in the commercial sector will explore innovative developments at the intersection of IVET and CVET. These changes accompanied the system-level changes mentioned further above, working towards the same goal, but were mostly not directly interlinked with them (for example as part of one overarching reform).

#### **Figure 5 Number of upgrading CVET graduates in commerce, crafts and manufacturing, 2009-2020**

---

<sup>5</sup> E.g. occupations mainly responsible for non-manufacturing/crafts related tasks including management, accounting, retail, wholesale trade, banking, gastronomy/tourism, etc. For full list, see (DIHK, 2020).



Source: Own depiction based on Destatis (2020a).

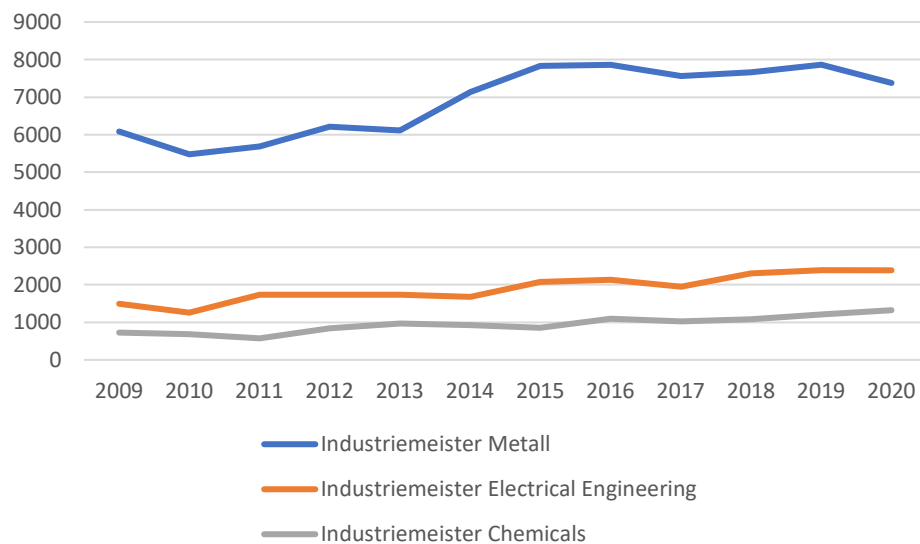
### Continuous importance of upgrading CVET within manufacturing: *Industriemeister*

Upgrading CVET in manufacturing (*Industriemeister*) has remained surprisingly strong throughout the last decade, and as this chapter will show, experienced only limited competition from the universities of applied science. After a decrease in the 1990s, upgrading CVET in manufacturing began to increase between 2009 and 2019, in total from 7944 graduates to 10332 graduates (BIBB, 2021).

Industriemeister qualifications can be acquired in various different branches of manufacturing, with specific programmes ranging (in descending order) from the metal industry, electrical engineering, chemical industries, mechatronics, the plastic industry, food industry, pharmaceuticals, print, textiles, aviation, and manifold other smaller branches. The figure below shows the three largest branches of Industriemeister programmes according to the number of exam attendants. Upgrading CVET in the metal industry is by far the largest branch, with 7377 exam attendees out of a total of 13528 in 2020, which will be given special consideration in this section.



**Figure 6 Number of attendees in the three largest upgrading CVET programmes in manufacturing (Industriemeister), 2009-2020**



Source: Own depiction based on (DIHK, 2020)

In principle, the Industriemeister can be seen as an illustrative example of how German upgrading CVET looks like more broadly. Its duration varies between 1 and 3 years, depending on the provider and if the preparatory courses are taken part-time or fulltime. Costs vary according to provider, but are often around 5000-6000 EUR in total (IHK Akademie, 2022). The system relies on a centralised approach of examination (e.g. the relevant Chambers are entitled to organise the exams, Industrie- und Handelskammern), however, a highly decentralised approach in providing a high variety of preparation courses, by mainly for-profit and a less frequently non-profit organisations; so like the market for non-formal education, the system of provision is only partly regulated by the public. However, providers relevant for one sector form relatively stable organisational fields, with organisations being in dominant positions and enjoying much more prestige than newly arriving challengers, which has its own institutionalised expectations concerning course structure (Hefler & Markowitsch, 2013; Scott & Meyer, 1994). The ultimate goal is preparing candidates so well that they succeed in the standardised formal exams (with four out of five passing the examination). This goal structures much of the instructional process, nevertheless, at least the significant providers typically have deep roots within their sectors and so the educational provision is deeply imprinted by the shared beliefs and norms of the relevant 'communities of practice' (Lave & Wenger, 1999). Teaching is mainly class-room based, however, against the backdrop of a current/previous work activity. Eligible for the exam are only individuals with sufficient work experience, consequently the programs are targeted at adults. These main characteristics did not change in the last decades. However, there are still several incremental changes visible that explain the viability of Industriemeister qualifications in the face of structural economic changes.

Historically, individuals with Industriemeister qualifications mostly directly instructed and controlled work of subordinates on the shop floor. This already began to change towards more team-leader and coordinator functions and consequently middle-management within

production already in the late 1990s (Baethge & Baethge-Kinsky, 1998), a trend that has continued until today, which has also been confirmed by an interviewee (Interview #1) This can be connected to changing models of production in manufacturing that are based upon group-work, standardization, digitization and automization (Clement & Lacher, 2007; Jürgens & Krzywdzinski, 2016; Lacher, 2007). In the last decades, upgrading CVET in the metal sector has incrementally accounted for this change, with more space in the exams given to newer technologies and models of production, management and staff development (Jones, 2012). The last major reform of upgrading CVET examinations in manufacturing was conducted in the late 1990s, which has foreseen many of the changes of the next years concerning changing management and production models but did not fully account for the rapid digitization and automization that followed in the next two decades. Strikingly, Jones (2012) emphasizes that upgrading CVET in manufacturing was nonetheless able to respond to these structural changes through adjustment in the preparatory courses, which are not state-regulated and can be changed by educational providers themselves. Furthermore, our interview partner highlighted that while the overall regulation of Industriemeister examinations has not been changed afterwards, regulations for specific lower-level specializations in the different branches (like metal industry, electrical engineering, chemical industries, mechatronics, etc.) have been adjusted, most recently in the case of mechatronics (Interview #1).

According to the most recent evaluation, which was conducted by Jones (2012), Industriemeister qualifications remain attractive, which is confirmed also by their expansion by 30 percent between 2009 and 2019 (BIBB, 2021). Most of participants of the evaluation have ascended into higher ranks at their employer after graduating (64 percent), and employers are actively promoting upgrading CVET among selected employees. Both the evaluation by Jones (2012) as well as our interview partner (Interview #1) confirmed that HE graduates are not seen as a competition to upgrading CVET graduates in manufacturing. Of course, also within companies of the metal industry, the share of employees with HE qualifications have increased. However, our interview partner highlighted that the Industriemeister offers a unique combination of team-leader and coordinator skills with technical know-how, while university education usually focuses on one or the other (Interview #1). This explains why participants surveyed in Jones (2012) argued that individuals with upgrading CVET qualifications in manufacturing have remained of high importance, and are even preferred to HE graduates in company departments directly related to production, while HE graduates are for example used in departments related to software-development and sales and therefore compete with other upgrading CVET qualifications besides the Industriemeister. Our interview partner (Interview #1) as well as Jones (2012) consequently suggests firms in the metal and chemical industries are still in demand of individuals with upgrading CVET in manufacturing. Furthermore, the reform of the Upgrading Training Assistance has been emphasized as an important factor keeping the Industriemeister attractive (Interview #1). The recent 2020 reform of the German vocational training act also affects the *Industriemeister*, which in the metal industry is now called Bachelor Professional of Metal Production and Management, therefore reflecting changed content over the last decades<sup>6</sup> as well as the new equivalence with university

---

<sup>6</sup> However, the reform itself did not lead to a change in content

education. This equivalence also enables graduates to enter HE (BIBB, 2021). However, the reform has not yet been fully implemented (Interview #1, Interview #2, see also further above).

In sum, it can consequently be seen that *Industriemeister* qualifications still represent a very attractive instance of traditional upgrading CVET in Germany. However, as the share of industrial production in Germany might further decrease in the future, upgrading CVET will also have to keep a viable alternative to university education in the growing service sector, which is the topic of the next section.

### **Revitalizing upgrading CVET in in the service sector: Combined IVET-CVET programmes for high-performers in retail**

In the retail sector, so-called “Abiturentenprogramme” (VET programmes necessitating HE entrance qualifications) are seen by current research as a potential vehicle to make the traditional VET sector (characterized by the IVET-CVET link) more attractive vis-à-vis the growing HE sector (including universities of applied science but also academic HE education) (Elsholz, Neu, & Jaich, 2017). The following section follows Neu (2021) in the description of these programs. *Abiturentenprogramme* target adults, as they necessitate a higher education entrance qualification (*Abitur* – hence the name *Abiturentenprogramme*). They were not the result of a single reform, but emerged incrementally over the course of time already in the second half of the 20<sup>th</sup> century and exist in this form mostly in the retail sector (BMBF, 2016). According to Neu (2021), the defining feature of the programs is their combination of post-secondary level IVET with subsequent work experience at an employer and preparatory training for upgrading CVET examinations (tertiary level). In other words, they include upper-secondary and tertiary-level VET in one single programme. Individuals graduate not only with IVET qualifications, but also with formal “upgrading” CVET/Higher VET qualifications, which are in most cases *Handelsfachwirt* qualifications (certified professional for retail/wholesale trade).

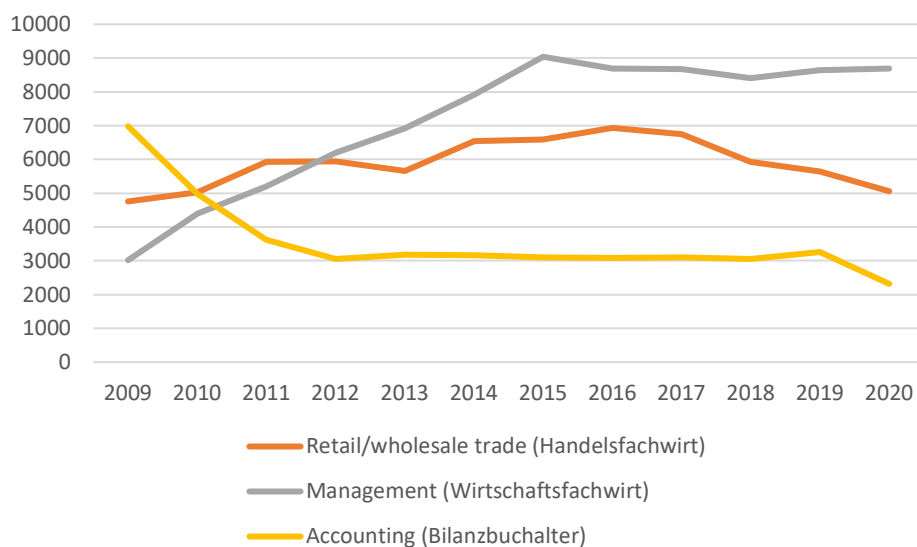
*Handelsfachwirt* qualifications are one of several specialized qualifications of upgrading CVET in commercial occupations (NQF 6)<sup>7</sup>. The *Handelsfachwirt* qualification is specialized in retail and wholesale trade, and has become the second largest upgrading CVET program within commerce in terms of attendees to exams, as visible in the figure below. *Handelsfachwirt* qualifications can be gained not only via *Abiturentenprogramme*, but also in standard upgrading CVET (e.g. visiting preparatory courses for the exams after standard IVET and regular work experience). Labour market data suggests that places in such *Abiturentenprogrammen* increasingly expanded since 2007, from 2600 reported places in such programs to 11000 in 2017 (Neu, 2021)<sup>8</sup>. However, as also emphasized by our interview partner, this only holds for retail, *Abiturentenprogramme* have not been able to gain a foothold in the other branches of the commercial sector (Interview #2).

---

<sup>7</sup> At NQF 6, other important upgrading CVET programmes in commercial occupations exist (from largest to smallest) that are specialized at firms working in health, engineering, manufacturing, real estate, insurance and banking.

<sup>8</sup> Places do not have to be reported by employers, consequently the data could underestimate the total size of the *Abiturentenprogramme*.

**Figure 7 Number of attendees in the three largest upgrading CVET programmes in the commercial sector, 2009-2020**



Source: Own depiction based on (DIHK, 2020)

Abiturentenprogramme are always organised jointly by educational institutions and employers. From the employers side, the apprenticeship place in IVET as well as the required years of professional experience for upgrading CVET are guaranteed (on a contractual basis) (Neu, 2021). The educational providers offer the school-based part of IVET and the preparatory courses for CVET exams. Providers can be both public (state-governed) as well as private/social-partner based. They can be offered by post-secondary level IVET providers (e.g. *Berufsschulen*), and CVET providers as non-profit organisations attached to the social partners (business interest organisations in particular) or organised as independent networks, or jointly by IVET and CVET providers. There also exist Abiturentenprogramme that offer additional non-formal CVET beyond what is required in formal upgrading CVET. This expansion of content relative to standard upgrading CVET (e.g. visiting preparatory courses for the exams after standard IVET and regular work experience) already shows that Abiturentenprogramme are targeted at high-performing individuals, which usually aim at positions starting at branch management level, therefore competing with higher education.

The analysis of Neu (2021) shows that the specific characteristics of these programs compared to standard IVET and CVET influence the way adults are trained. Reflecting the orientation at high-performing adults, general and basic key competences are not taught in the Abiturentenprogramme (in contrast to secondary-level IVET), as participants already have had such subjects in their previous education. Participants also do not visit same classes as secondary-level IVET students. This enables shorter programs (OECD 2018), which is particularly attractive for high-performing individuals. The respective programs in retail usually have a duration of around 3 years (entailing both IVET and upgrading CVET qualifications) and are therefore faster than standard IVET and subsequent preparatory courses for

upgrading CVET, the latter of which take between one and four years alone in this sector. According to Neu (2021) the IVET part in these programs is based on the standard dual principle (practical training at the employer, theory-based training at school), learning content of firm-based and school-based training are state-regulated (but with substantial employer influence). However, in contrast to standard dual IVET, students can hardly be used as cheap labour in these programmes due to the high learning effort required (Interview #2, Interview #3). Furthermore, there are certain differences compared to standard upgrading CVET (e.g. visiting preparatory courses for the exams after standard IVET and regular work experience).. In standard CVET, students only visit preparatory courses (not subject to regulation) for state-regulated exams (with content also being determined by social partners). While this is formally also true in the Abiturentenprogramme, in practice, these programs always have a dual component, as individuals visit the preparatory courses simultaneously with gaining the necessary work experience for CVET qualifications. This work experience is foreseen by the employers to introduce students to managerial tasks and corresponding skills; however, employers are completely free considering how they structure these periods.

In contrast to university education, employers are the gatekeepers of these programs, and select (usually highly performing) participants, which also contributes to the programmes' prestige (Neu, 2021). However, the legitimacy of the qualifications to a large extent still derives from the formal CVET system (with individuals graduating with the same formal qualifications as in the traditional CVET system, e.g. Bachelor Professionals), which are in turn still valued by employers. The equivalence of these Bachelor Professional qualifications (after the recent reform, see last section) with a Bachelor at university additionally increase the attractiveness of the programs (Neu, 2021), in addition to the characteristics mentioned further above concerning length and content. Increasing the share of high-performing individuals in VET programmes through Abiturentenprogramme could thus also raise the overall reputation of VET, and therefore also secure access and advancement of particularly disadvantaged groups of participants (e.g. adults with no VET and HE qualifications) to well-esteemed credentials in standard IVET and CVET. In other words, it also holds the standard route of completing an apprenticeship (IVET), with some years of subsequent work experience and undergoing potential upgrading CVET/Higher VET later on, attractive. Upholding the value of these credentials is particularly relevant for relatively low-wage sector like retail, where in Germany, most employees have completed vocational training (Carré & Tilly, 2017). As interviewees highlighted, in particular the retail sector struggles to attract highly qualified personnel for branch management positions, which is mitigated by the Abiturentenprogramme (Interview #2, Interview #3). While some see Abiturentenprogramme as a potential model for making upgrading CVET more attractive also in other branches besides retail (Interview #3), others argue that this is unlikely as previous attempts to transfer these programmes into other branches have failed (Interview #2). Problems for transferring this model to other branches include the high requirement of coordination among all involved stakeholders (multiple educational providers, firms), low interest from companies, as well as the fact that students can hardly be used as cheap labour during the dual IVET part of the program (in contrast to standard dual IVET) (Interview #2, Interview #3).

## Part 4: Conclusions and reflections

In the past two decades, the German system with an institutionalized IVET-CVET link has come under considerable pressure. Reflecting the wide 'qualification span' of IVET, former apprentices could for a long time climb the career ladder into the ranks of middle management based on "upgrading CVET" qualifications, with work experience and IVET qualifications as their underpinning. However, tertiary-level universities of applied science and forms of Dual higher education (BIBB, 2021, p. 187) that provide formal IVET for adults with HE entrance qualifications increasingly also compete with traditional upgrading CVET qualifications. Given the relatively high individual contributions to the costs of upgrading CVET often required, the latter becomes less competitive compared to higher education, which is usually free or foresees only moderate fees in Germany. As the IVET-CVET link needs to be understood as one key component for securing the reputation and attractiveness of IVET, a decline of upgrading CVET leaves also its mark on the former. Thereby, it also enables academically weaker individuals without prospects of gaining HE entrance qualifications access upgrading CVET. With more and more young people opting for secondary-level general education to qualify for HE entrance, the promises made as expressed by the concept of the 'qualification span' *anyone* entering working life via the Dual VET system has become under pressure, with the functional unit out of 'apprenticeship' and 'higher vet/Aufstiegsfortbildung' being somewhat called into question. These developments are particularly detrimental to socio-economically disadvantaged candidates (both youth and adults), which might have problems accessing highly competitive programs at university of applied science and university that necessitate HE entrance qualifications, and are consequently left with the dual system (apprenticeship potentially followed by upgrading CVET/Higher VET) that in turn decreases in reputation (Graf, 2017). Securing access of both weaker as well as high-performing individuals to this system is consequently deemed as essential.

Recent developments however aim at re-strengthening the original IVET-CVET link. This can be seen, first, at the hand of cross-sectoral reforms that provide more public co-funding to "upgrading" CVET or aim at creating equivalence between upgrading CVET and university education. Second, also within sectors, upgrading CVET is adjusted towards new needs. These might be more marginal changes as in the manufacturing sector, but also include new forms of programmes at the intersection of IVET and CVET, as visible in retail. By increasing the systems' overall attractiveness, also for high-performers, these changes might consequently also secure access of particularly disadvantaged groups of participants (e.g. adults with no VET and HE qualifications, including migrants and refugees) to credentials with relatively high social esteem (both IVET and CVET).

The effect of cross-sectoral reforms is yet unclear. Despite the introduction of financial assistance (Upgrading Training Assistance in the 1990s) and its various reforms, these instruments could in the long term at best slow down the decrease in the numbers of upgrading CVET graduates, which have declined continuously. It consequently remains to be seen if tertiary-level universities of applied science and forms of Dual higher education (BIBB, 2021, p. 187) that provide formal IVET for adults with HE entrance qualifications will continue to grow

and compete with traditional upgrading CVET. However, sectoral ambitions partially seem to be successful, with growing numbers in both Industriemeister qualifications in manufacturing and Abiturentenprogramme in retail. The latter constitute a particularly exciting new form of training encompassing IVET, work experience, and CVET in a single programme, offered by IVET and CVET providers.

## Annex to case study report

### List of sources

- Baethge, Martin, & Baethge-Kinsky, Volker. (1998). Jenseits von Beruf und Beruflichkeit? - Neue Formen von Arbeitsorganisation und Beschäftigung und ihre Bedeutung für eine zentrale Kategorie gesellschaftlicher Integration. . *Mitteilungen aus der Arbeitsmarkt- und Berufsforschung*, 31, 461-472.
- Baethge, Martin, & Wolter, Andrä. (2015). The German skill formation model in transition: from dual system of VET to higher education? *Journal for Labour Market Research*, 48(2), 97-112. doi:10.1007/s12651-015-0181-x
- Ball, Claudia. (2018). *European inventory on validation of non-formal and informal learning 2018 update*. Thessaloniki: Cedefop.
- Bertelsmann Stiftung. (2015). *Kompetenzen anerkennen: Was Deutschland von anderen Staaten lernen kann*. Bielefeld: Verlag Bertelsmann Stiftung.
- BIBB - Bundesinstitut für Berufsbildung. (2021). *Datenreport zum Berufsbildungsbericht 2021 - Informationen und Analysen zur Entwicklung der beruflichen Bildung*. Retrieved from <https://www.bibb.de/dokumente/pdf/bibb-datenreport-2021.pdf>
- BIBB. (2021). *Datenreport zum Berufsbildungsbericht 2021. Informationen und Analysen zur Entwicklung der beruflichen Bildung*. Bonn: BIBB.
- Bildungsberichterstattung, Autorengruppe. (2020). *Bildung in Deutschland 2020. Ein indikatorengestützter Bericht mit einer Analyse zu Bildung in einer digitalisierten Welt*. Bielefeld: Autorengruppe Bildungsberichterstattung.
- Bilger, Frauke , Behringer, Friederike , Kuper, Harm, & Schrader, Josef (Eds.). (2019). *Weiterbildungsverhalten in Deutschland 2018 - Ergebnisse des Adult Education Survey – AES-Trendbericht*. Berlin.
- BMBF. (2016). *Evaluation des Berufsbildungsgesetzes (BBiG). Evaluierungsbericht*. : BMBF.
- Busemeyer, Marius R. (2009). *Wandel trotz Reformstau: die Politik der beruflichen Bildung seit 1970*. Frankfurt am Main [u.a.]: Campus-Verl.
- Carré, Françoise , & Tilly, Chris. (2017). *Where bad jobs are better. Retail jobs across countries and companies*. New York: Russell Sage Foundation.
- Clement, U., & Lacher, M. (2007). Kompetenzentwicklung in ganzheitlichen Produktionssystemen: globale Herausforderungen - europäische Lösungen? *BWP*, 4, 32-36 %! Kompetenzentwicklung in ganzheitlichen Produktionssystemen: globale Herausforderungen - europäische Lösungen? %> internal-pdf://2550207934/Exzerpt.docx.
- Destatis. (2007). *Fachserie 11/3 revised version*. Wiesbaden: Destatis %! Fachserie 11/3 revised version.
- Destatis. (2011). *Fachserie 11/3*. Wiesbaden: Destatis %! Fachserie 11/3.
- Destatis. (2019). *Nichtmonetäre hochschulstatistische Kennzahlen. 1980-2020*. Wiesbaden: Destatis %! Nichtmonetäre hochschulstatistische Kennzahlen. 1980-2020.
- Destatis. (2020a). *Fachserie 11/3*. Wiesbaden: Destatis %! Fachserie 11/3.
- Destatis. (2020b). *Fachserie 11/8*. Wiesbaden: Destatis %! Fachserie 11/8.
- DIHK. (2020). *IHK- und DIHK-Fortbildungsstatistik 2020*.
- Djelic, Marie-Laure, & Quack, Sigrid (Eds.). (2010). *Transnational communities : shaping global economic governance*. Cambridge: Cambridge University Press.
- Durazzi, Niccolo, & Benassi, Chiara. (2020). Going Up-Skill: Exploring the Transformation of the German Skill Formation System. *German Politics*, 29(3), 319-338 %! Going Up-Skill: Exploring the Transformation of the German Skill Formation System.
- Elsholz, Uwe, Neu, Ariane, & Jaich, Roman. (2017). Stellenwert und Zukunft beruflicher Aus- und Fortbildungsberufe. Veränderungen infolge der Akademisierung aus Unternehmenssicht. . *BWP*, 46(5), 28-31.
- Emmenegger, Patrick, Bajka, Scherwin M. , & Ivardi Ganapini, Cecilia. (2022). *How Coordinated Capitalism Adapts to the Knowledge Economy: Employers' Preferences and Different Upskillign Strategies*. Paper presented at the Annual Conference of the Swiss Political Science Association, Lausanne, February 2022. .
- Faulstich, Peter, & Oswald, Lena. (2010). *Wissenschaftliche Weiterbildung. Arbeitspaper 200*. Düsseldorf: Hans-Böckler-Stiftung.



- Gillmann. (2020). Mehr „Meister-Bafög“: Reform sieht Verbesserungen auf breiter Front. *Handelsblatt*. Retrieved from <https://www.handelsblatt.com/politik/deutschland/aufstiegsfortbildung-mehr-meister-bafoeg-reform-sieht-verbesserungen-auf-breiter-front-vor/25395420.html?ticket=ST-836512-3KW9HKe3VjfuaZdGq0ID-ap4>
- Graf, Lukas. (2017). Combined modes of gradual change: the case of academic upgrading and declining collectivism in German skill formation. *Socio-economic review*, 16(1), 185-205.
- Hefler, Günter, & Markowitsch, Jörg. (2012). Bridging Institutional Divides: Linking education, careers and work in 'organizational space' and 'skill space' dominated employment systems. In Rachel Brooks, Alison Fuller, & Johanna Waters (Eds.), *Changing Spaces of Education - New Perspectives on the Nature of Learning* (pp. 160-181). London: Routledge.
- Hefler, Günter, & Markowitsch, Jörg (2013). Seven types of formal adult education and their organisational fields: Towards a comparative framework. In Ellu Saar, Odd Bjorn Ure, & Triin Roosalu (Eds.), *Lifelong Learning in Europe: National Patterns and Challenges* (pp. 82-113). Cheltenham: Edward Elgar.
- Hickmann, Helen, Jansen, Anika, Pierenkemper, Sarah, & Werner, Dirk. (2022). *Ohne sie geht nichts mehr. Welchen Beitrag leisten Migrant\_innen und Geflüchtete zur Sicherung der Arbeitskräftebedarfe in Fachkraftberufen in Deutschland?* Bonn: Friedrich-Ebert-Stiftung.
- Hillmert, Steffen , & Jacob, Marita (2003). Bildungsprozesse zwischen Diskontinuität und Karriere: Das Phänomen der Mehrfachausbildungen. *Zeitschrift für Soziologie*, 32(3), 325-345.
- IHK Akademie. (2022). Gepr. Industriemeister/-in Metall, Vollzeit. Retrieved from <https://akademie.muenchen.ihk.de/metall-elektro-chemie-kunststoff/industriemeister-metall-ihk/vollzeit/>
- Jacob, Marita. (2004). *Mehrfachausbildung in Deutschland: Karriere, Collage, Kompensation?* Wiesbaden: VS Verlag für Sozialwissenschaften.
- Jones, Petra. (2012). *Der "neue Industriemeister" in der betrieblichen Praxis. Evaluation der handlungsorientierten Fortbildung im industriellen Metallbereich. Wissenschaftliche Diskussionspapiere, Heft 136.* . Bonn: BIBB.
- Jürgens, Ulrich, & Krzywdzinski, Martin. (2016). *New worlds of work. Varieties of work in car factories in the BRIC Countries*. Oxford: Oxford University Press.
- Käpplinger, Bernd , & Reuter, Martin (2020). *Der Zweite Bildungsweg in den Bundesländern – Strukturen und Perspektiven*. Retrieved from Frankfurt am Main:
- Lacher, M. (2007). Einfache Arbeit in der Automobilindustrie. Ambivalente Kompetenzanforderungen und ihre Herausforderung für die berufliche Bildung. In Hans Dietrich & Eckart Severing (Eds.), *Zukunft der dualen Berufsausbildung - Wettbewerb der Bildungsgänge. Schriften zur Berufsbildungsforschung der Arbeitsgemeinschaft Berufsbildungsforschungsgesetz (AG BFN)*. Bielefeld: Bertelsmann Verlag %! Einfache Arbeit in der Automobilindustrie. Ambivalente Kompetenzanforderungen und ihre Herausforderung für die berufliche Bildung %> internal-pdf://2027907669/AGBFN\_Band5\_Zukunft\_duale\_Berufsausbildung.pdf.
- Lave, Jean, & Wenger, Etienne. (1999). *Situated learning - legitimate peripheral participation*. Cambridge [u.a.]: Cambridge Univ. Press.
- Maier, Tobias, Kalinowski, Michael, Böse, Carolin, Schmitz, Nadja, Mönnig, Anke, & Zika, Gerd. (2021). *Should I stay or should I go? Langfristige Auswirkungen von qualifikationsspezifischen Wanderungsströmen auf Arbeitsangebot und wirtschaftliche Entwicklung*. Bonn: Bibb.
- Markowitsch, Jörg, Dzhengozova, Mariya, & Hefler, Günter. (2022). *The role of apprenticeships in Lifelong Learning. Unpublished Draft*.
- Maurice, Marc, Sellier, Francois, & Silvestre, Jean-Jacques. (1986). *The Social Foundations of Industrial Power - A comparison of France and Germany*. Cambridge, Mass.: MIT Press.
- Neu, Ariane. (2021). *Höhere beruflich-betriebliche Bildung: Entwicklung, Durchführung und Attraktivität am Beispiel der Abiturientenprogramme*. wbv Media.
- OECD. (2021). *Continuing Education and Training in Germany*.

- Rahner, Sven. (2017). *Fachkräftemangel und falscher Fatalismus. Entwicklung und Perspektiven eines neuen Politikfelds*. Frankfurt/New York: Campus %!
- Fachkräftemangel und falscher Fatalismus. Entwicklung und Perspektiven eines neuen Politikfelds.
- Schwabe-Ruck, E. (2010). *"Zweite Chance" des Hochschulzugangs?: eine bildungshistorische Untersuchung zur Entwicklung und Konzeption des Zweiten Bildungsgangs*: Hans-Böckler-Stiftung.
- Scott, Richard W., & Meyer, W. John. (1994). The rise of training programs in firms and agencies: an institutional perspective. In Richard W. Scott & W. John Meyer (Eds.), *Institutional environments and organizations - Structural complexity and individualism* (pp. 228-254). Thousand Oaks (California): Sage.
- Shavit, Yossi, & Müller, Walter. (2000). Vocational secondary education - Where diversion and where safety net? *European Societies*, 2(1), 29-50.
- Sommer, Ilka. (2015). *Die Gewalt des kollektiven Besserwissens: Kämpfe um die Anerkennung ausländischer Berufsqualifikationen in Deutschland*: transcript Verlag.
- Thomas, Mareike. (2013). *Mehrfachausbildungen: Wer sie macht und was sie bringen: Befunde der LifE-Studie*. Wiesbaden: Springer.
- Viridia, Simone, & Schindler, Steffen. (2019). Educational upgrading, career advancement, and social inequality development from a life-course perspective in Germany. *Research in Social Stratification and Mobility*, 60, 29-38 %!
- Educational upgrading, career advancement, and social inequality development from a life-course perspective in Germany.
- Weiß, Reinhold. (2014). Anerkannte Fortbildungsabschlüsse - Aufstiegsfortbildung unter Reformdruck. *BWP*, 43(4), 6-9 %!
- Anerkannte Fortbildungsabschlüsse - Aufstiegsfortbildung unter Reformdruck.

## List of interviewees/ informants

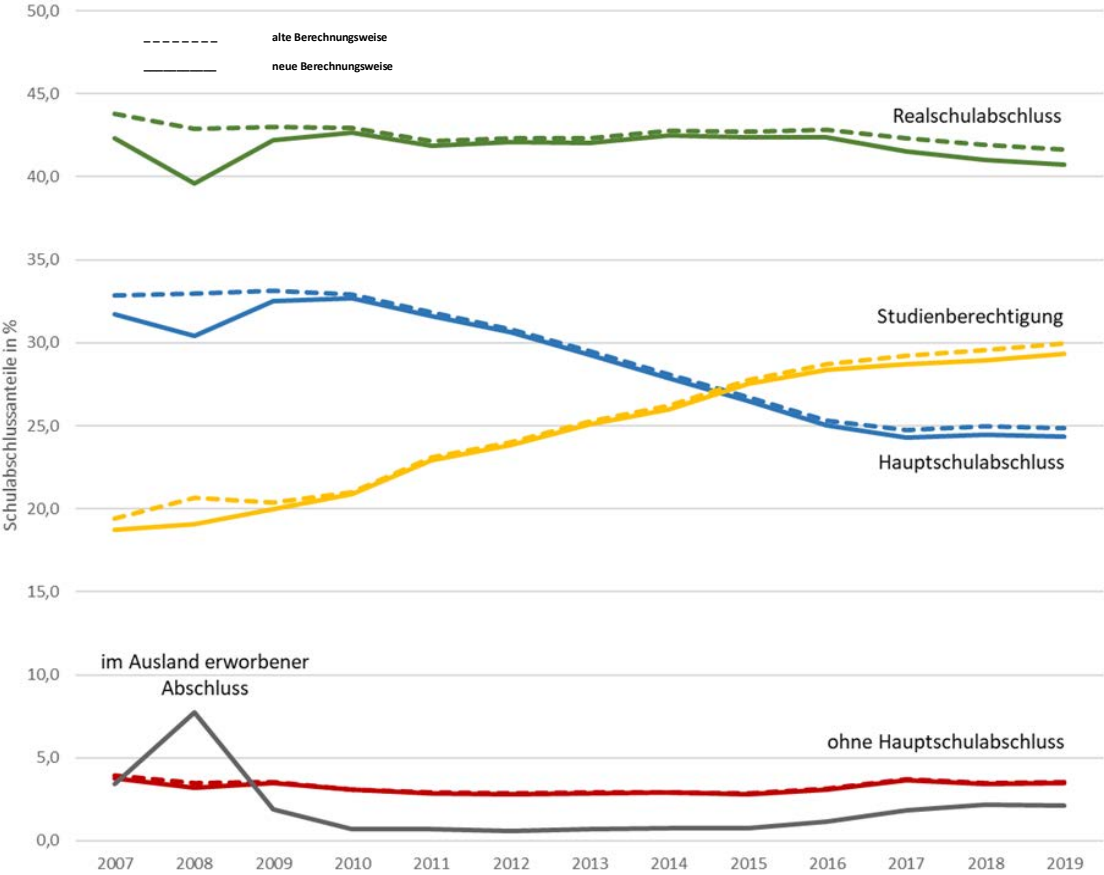
Please provide the following information:

- Name (Mr/Ms, forename, surname)
- Organisation and function
- Please ask whether the interviewees/informants agree that his/her name will be included in the final publication (in case Cedefop decides to list interviewees)!

Country	Name	Organisation and function	Contact information (Email, phone)	Date of interview	Agreement* – yes/no
Germany	Jochen Reinecke	DIHK (Chamber of Industry and Commerce) – Head of the department for technical CVET	reinecke.jochen@dihk.de	7.4.2022	yes
Germany	Gordon Schenk	DIHK (Chamber of Industry and Commerce) – Head of the department for commercial CVET	schenk.gordon@dihk.de	7.4.2022	yes
Germany	Barbara Hemkes	BIBB (Federal Institute for Vocational	hemkes@bibb.de	8.4.2022	no

		Education and Training) – Head of “Innovative CVET, permeability, pilot projects”			
--	--	---	--	--	--

**Figure 8: Prior educational attainment of new apprentices 2007 to 2019**



Quelle: BIBB 2021 – Excel Annex