VET Data Report Germany 2019

Facts and analyses to accompany the Federal Government Report on Vocational Education and Training - Selected findings

Federal Institute for Vocational Education and Training

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Federal Ministry
of Education
and Research

The Federal Ministry of Education and Research (BMBF) has the statutory duty to monitor developments in vocational education and training and to submit a report regarding such developments (Report on Vocational Education and Training) to the Federal Government until 15 of May each year (§ 86 Vocational Training Act, BBiG). The Federal Institute for Vocational Education and Training (BIBB) is required to assist in the preparation of the Report on Vocational Education and Training (§ 90 Paragraph 3, 1b).
Since 2009, BIBB has issued the "[Year] Data Report to accompany the Report on Vocational Education and Training. Information and analyses on the development of vocational education and training". This Data Report represents the central source of information and main data basis for the BMBF Report on Vocational Education and Training. The BMBF provides funding for the preparation and publication of the Data Report.

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Preface

This is the 9th time since 2009 that the Federal Institute for Vocational Education and Training (BIBB) is releasing an abbreviated English language version of the Data Report to accompany the Report on Vocational Education and Training. The present publication has been prepared on the basis of the 2019 Data Report. It contains extensive information and analyses relating to initial and continuing vocational education and training and covers international indicators and benchmarks[1]. The standard indicators and long-time series used have now become well established and are supplemented by more detailed analyses based on our own primary research. Particular mention in this regard should be made of the 2018 Applicant Survey and of the 2018 Forced Migration Study, both jointly conducted by BIBB and the Federal Employment Agency (BA). The 2018 Labour Force Survey was designed by BIBB in conjunction with the Federal Institute for Occupational Safety and Health (BAuA). Whereas the BA/BIBB Applicant Survey and the BA/BIBB Forced Migration Survey shed light on the situation faced by young people at the transition to training, the data collected in the 2018 BIBB/BAuA Labour Force Survey enables reports to be compiled on occupational success by qualification and gender and on the topic area of "over- and underqualified employment" of persons who have completed vocational education and training. As was the case in previous years, secondary statistical data sources were also used. The analysis of young people's transition processes into training is, for example, informed by data from the National Educational Panel Study (NEPS). The special focus of this Data Report is "Vocational education and training 4.0 – skilled worker qualifications and competencies for the digitalised work of the future". The essential strength of the Data Report lies in the interplay between standardised reporting supported by time series and changing surveys that look at current developments and challenges. The overall picture it provides creates a central reference work on vocational education and training for the fields of academic research, policy and practice.

Previous issues of the Data Report in English are available on the Internet portal **https://www.bibb.de/datenreport/en/index.php**. BIBB has increased the number of its publications in English to support international VET cooperation and research. Access is granted via the BIBB Internet website (www.bibb.de). The German language Data Reports are available on the BIBB website (**https://www.bibb.de/datenreport/de/index.php**).

We hope that this Data Report will once again offer you informative and stimulating insights into the German vocational education and training situation.

Best regards

Prof. Dr. Friedrich Hubert Esser
President

1 The Data Report is prepared by a multitude of authors from BIBB and other affiliated institutions who are not mentioned in the abbreviated translation. Moreover, for the sake of simplification we have refrained from mentioning the citations which are featured in the original report.

Contents

Part A: Initial VET indicators

A1 Key points in brief

Dual vocational education and training traditionally enjoys a high degree of importance in Germany. Just over half of each age cohort (52.9% in 2017) commences training in one of the 325 training occupations recognised pursuant to the Vocational Training Act (BBiG) or the Crafts and Trades Regulation Code (HwO). At the end of 2017, there were approximately 1.32 million trainees in Germany. A small increase (+2,700 or +0.2%) was recorded for the first time since 2008. Previous years had seen a sharp decline in the number of trainees. Such a development was in part related to demographics and brought about by falling numbers of school leavers, but a trend towards higher-level school qualifications and an increased preference for higher education study also played a role. This is creating major challenges for companies in terms of securing a supply of young skilled workers. In 2018, more training contracts were concluded than in the previous year for the second successive time. Nevertheless, the training market situation in Germany remains characterised by matching problems. The current situation on the training market is outlined below on the basis of the main benchmark data.

Developments on the training market in 2018

- The number of newly concluded training contracts has risen. As of 30 September 2018, a total of 531,400 newly concluded training contracts were in force (BIBB survey).
- Training supply in 2018 is 589,100 places, a year-on-year increase. Firms and companies in Germany made 17,800 (+3.2%) more training places available than in the previous year. However, there was a further rise in the number of unfilled training places (+8,700 or +17.7% to 57,700). The number of vacant training places as a proportion of total company-based provision was 10.0%. This figure once again represented an increase compared to the level of the previous year (as of 30 September 2018[2]).
- Demand for training places rose further to reach 610,000 (as per the extended definition = newly concluded training contracts plus all persons still seeking a training place as of the cut-off date of 30 September 2018).
- Because demand fell more sharply than supply, the ratio between supply and demand shifted further in favour of young people seeking a training place.
- As of the cut-off date of 30 September 2018, there were 24,600 unplaced applicants and a further 54,100 young people still trying to secure a training place. The number of applicants still seeking a training place, as a proportion of overall demand, was 12.9% (13.3% in 2017), a figure which remains high.
- Matching problems still constitute a major challenge on the training market. As was the case in the previous year, there has been a particular increase in company recruitment problems. However, supply difficulties for the young people are also enduring despite the slight easing of the situation.
- Following significant decreases in entrant figures for the transitional sector between 2005 (417,600) and 2014 (252,700) and a subsequent increase in the years 2015 and 2016, the number of young people commencing transitional arrangements in 2017 was 283,100. This is lower than in 2016. The corresponding figure for 2018 is 270,000.

Further major challenges and developments

- Company participation in training has decreased over the past few years. Whereas the training participation rate was around 24% for a long period, there has been a discernible drop recently. The rate fell to 19.8% in 2016. This was the first time a figure below 20% had been recorded. There was no further decrease in the training participation rate in 2017. It remained at 19.8%, the same level as in the previous year.
- BIBB investigated indicators of occupational success for various qualification levels within the scope of the current BIBB/BAuA Labour Force Survey 2018. Although the results relating to income show a correlation between higher levels of qualification and higher income, the outcomes of the survey exhibit a differentiated picture in respect of other indicators.
- A modern and effective vocational education and training system is particularly dependent upon the quality of its training regulations. A total of 132 training occupations have been updated or modernised since 2009. 25 new or modernised training occupa-

2 The cut-off date of 30 September coincides with the official beginning of training in the survey year.

tions were enacted in 2018. These took account of factors such as changes to skills requirements as a result of increasing digitalisation of the world of work.

A2 Current training market figures for 2018

A2.1 Developments on the training market

The development of the training market in 2018 led to numerous peak values compared to the previous 10-year period. Supply of company-based training places rose to 574,200, the highest figure since 2009. However, the number of training positions remaining unfilled also reached a new peak. There were 57,700 vacancies, triple the level of 2009. In arithmetical terms, young people's chances of obtaining a training place were better than at any time during the past 10 years. 96.6 training places were on offer for every 100 persons seeking to secure one.

The endeavours undertaken by trade and industry to attract young people to dual vocational education and training achieved particular success amongst young men. 384,900 males applied for a training place, another record value not reached since 2009. However, the trend amongst young women went in the entirely opposite direction. Only 225,100 were recorded as applying for dual VET – a historic low.

Growth in new training contracts was constrained in 2018 as a consequence of the sharp fall in demand from young women. Although the number of newly concluded contracts increased year-on-year by +8,100 (+1.6%) to 531,400, the numerous unfilled training places indicate that trade and industry would have liked to recruit significantly more trainees. If company-based training place provision could have been utilised to the same degree as in 2009 (when 96.7% of places were taken up as compared to only 90.0% latterly), then it would have been possible to conclude 38,600 more training contracts in 2018.

Nationwide, the number of young people or adults who sought but failed to secure a training place in 2018 was 78,600 (-1,600 compared to 2017). Given the positive development in training place supply, this figure did not fall by anything like the degree that would have been possible arithmetically (+16,800 places compared to 2017, including +8,700 unfilled places). This indicates that matching problems are once again at play. There is a strong discrepancy between the views of young people and of companies regarding the occupations and/or regions in which training should take place and regarding which characteristics the respective training contract partner should display. For this reason, training place supply and demand is not dovetailing to the same extent as formerly.

One of the major causes of this is the "upwards" shift in the qualifications of school leavers interested in training over the past 10 years. The number of young people who have not achieved any school qualification higher than a lower secondary school leaving certificate has collapsed, whilst there has been a significant rise in interest in training on the part of those in possession of a higher education entrance qualification. Training occupations with recruitment problems are thus more likely to be affected if they traditionally accommodate young people who have only completed a lower secondary school leaving certificate. By the same token, the strong level of demand means that young people are frequently unable to secure a training place in occupations which have tended to be the domain of those with higher qualifications. Examples of the latter include "visual marketing designer", "audio-visual media producer" and "photographer".

Previous observations indicated that most persons failing to secure a training place were young people who had not achieved any school qualification higher than a lower secondary school leaving certificate. But these conclusions no longer apply. In 2018, just under two thirds of persons who unsuccessfully sought a training place held an intermediate secondary school leaving certificate or a higher education entrance qualification.

The number of all persons who may be institutionally recorded encompasses the scope of training place demand officially identified. It also includes persons registered with the Federal Employment Agency (BA) as training place applicants who abandon their wish to be placed in training prior to the statistical cut-off date of 30 September and are thus not counted as part of the official demand. This arithmetic value thus provides information regarding the total scope of the group of institutionally recordable persons who displayed an interest in dual VET at least at some point during the course of the reporting year. In 2018, the number of persons interested in training remained virtually constant as compared to the previous year. A total of 805,700 such persons were recorded nationwide, 100 fewer than in 2017. 66.0% of these progressed to dual VET. 9.8% continued to search until the end of the reporting year, and 24.3% prematurely abandoned their wish to be placed in VET.

A2.2 Training place supply and demand

Training place supply[3]

The total supply of dual training places registered nationwide in 2018 was around 589,100. This represented an increase of +16,800 places or +2.9% compared to the previous year, although there was also a further decline in the number of extra-company training places, i.e. places which are predominantly publicly financed (-1,000 or -6.3% compared to 2017), now 14,900 places. For this reason, the rise in company-based training provision was significantly greater. The number of places on offer increased by +17,800 or +3.2% to reach 574,200, the highest level in the past 10 years.

In 2018, 58.5% of all company-based training supply originated from the area of responsibility of trade and industry. The liberal professions were able to report a relatively strong rise of +3.5% in the number of places on offer. In 2018, the craft trades also recorded the highest number of company-based apprenticeships for the last 10 years, 157,400.

Training place demand[4]

The development of training place demand has been significantly determined by the declining number of school leavers over recent years (which has occurred for demographic reasons). A further influencing factor has been structural shifts in school qualifications towards the upper secondary leaving certificate, which have led to a dwindling interest in training (see Table A.2.2-1). Between 2004 and 2017, the national figure for all general school leavers fell by 154,500 from 986,300 to 831,800. Nevertheless, there was only a decrease in the number of school leavers not in possession of a higher education entrance qualification, the group which accounts for the main clientele of vocational education and training. Whereas there had been 748,200 school leavers in this category in 2004, the corresponding figure for 2017 was only 543,900 (-204,400). A growth of 49,800 in the number of school leavers holding a higher education entrance qualification was recorded during the same period (238,100 in 2004 and 287,900 in 2016). Over recent years, the decline in school leaver numbers in overall terms and the structural shift to according significantly more importance to the upper secondary school leaving certificate were initially accompanied by a clear shrinkage in the scope of training place demand. 652,900 persons were recorded as potential training place applicants in 2009. By 2016, this figure had fallen to only 600,900 nationwide.

Training place demand has been rising again since 2017 (up + 6,500 or +1.1% in 2018). One of the causes of this is increased demand from refugees. The growth in the number of refugee migrants registered with the BA was in itself sufficient to reverse the negative trend in training place demand. Both the absolute scope of training place demand and its structure of characteristics have changed in the past 10 years. Firstly, training place demand has become significantly "more male". Secondly, the average educational level of the demand is markedly higher than a few years ago.

Supply–demand ratio

Supply of training places increased significantly more sharply than demand in 2018, and this again led to an improvement in the extended supply-demand ratio (eSDR)[5] on the training market. This rose to eSDR = 96.6, the highest value for 10 years. From the perspective of the young people, training market development in 2018 was thus associated with a further enhancement of their chances of success. Regional differences in the training market situations were even more pronounced at the federal state level than at the level of the employment agency districts. Figure A.2.2-1 shows the ratios between supply and demand (eSDR) for 2018 in the employment agency districts.

Unfilled training places

The number of reported (company-based) training places which remained unfilled (as of the statistical cut-off date of 30 September) has increased steadily over the past few years. This trend continued in 2018. 57,700 training places remained vacant nationwide. This is the highest figure since 1994 and represents a rise of +8,700 or +17.7% compared to the previous year. This meant that the number of unfilled training places as a proportion of the officially calculated total company-based supply was 10.0% nationwide in 2018 (+1.2 percentage points compared to the previous year 2017). As in the preceding years, the proportions of company-based training places offered without success exhibit considerable regional variance.

3 Official training place supply each year comprises the newly concluded training contracts recorded by BIBB within the scope of its survey conducted as of 30 September (supply of training places successfully filled). Added to this are the company-based VET places registered with the Federal Employment Agency (BA) which have been offered to the labour administration authorities for placement during the reporting year and which have not yet been filled as of 30 September (unsuccessful placements, supply of training places not filled).

4 Training place demand is made up of young people interested in training who have either concluded a new training contract and have thus been recorded via the BIBB survey as of 30 September (successful demand) or else form part of the group of applicants still continuing their search for a training place on 30 September (unsuccessful demand).

5 The extended supply-demand ratio indicates arithmetically how many training places are on offer for each 100 potential training place applicants. "Extended" means that, unlike in previous calculations, all training place applicants recorded by the advisory and placement services as still seeking to secure a place are additionally counted as unsuccessful training place applicants.

Table A.2.2-1: **Training market development from 2009 to 2018 in Germany (cut-off date 30 September)**

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Development in 2018 compared to 2017	
											Absolute terms	in %
Supply and demand												
Training place supply[1]	582,072	579,858	599,868	585,333	564,261	561,651	563,838	563,832	572,274	589,068	+16,794	+2.9
▶ Company based[2]	536,271	538,815	569,406	559,428	542,580	541,257	544,860	546,282	556,395	574,185	+17,790	+3.2
Training place demand[3]	652,947	640,416	641,796	627,378	613,284	604,590	603,198	600,876	603,510	610,032	+6,522	+1.1
▶ Male	370,806	369,504	377,457	369,267	362,877	360,390	362,022	364,107	375,168	384,921	+9,750	+2.6
▶ Female	282,141	270,912	264,342	258,111	250,407	244,200	241,173	236,769	228,339	225,111	-3,228	-1.4
Supply and demand ratio (eSDR)[4]	89.1	90.5	93.5	93.3	92.0	92.9	93.5	93.8	94.8	96.6	+1.7	–
Company supply/demand ratio[5]	82.1	84.1	88.7	89.2	88.5	89.5	90.3	90.9	92.2	94.1	+1.9	–
Unsuccessful participation in the market												
Unfilled training places (according to BA training market statistics)	17,766	19,898	30,487	34,075	34,720	38,449	41,678	43,561	48,984	57,656	+8,672	+17.7
▶ % proportion of company-based provision	3.3	3.7	5.4	6.1	6.4	7.1	7.6	8.0	8.8	10.0	+1.2	–
Still seeking a training place	88,640	80,456	72,417	76,119	83,742	81,388	81,037	80,603	80,221	78,619	-1,602	-2.0
▶ % of persons still searching as a proportion of demand	13.6	12.6	11.3	12.1	13.7	13.5	13.4	13.4	13.3	12.9	-0.4	–
Newly concluded contracts												
Total new training contracts	564,306	559,959	569,379	551,259	529,542	523,200	522,162	520,272	523,290	531,414	+8,124	+1.6
▶ Company-based	518,505	518,916	538,920	525,354	507,861	502,806	503,184	502,722	507,411	516,528	+9,117	+1.8
▶ Primarily publicly financed[6]	45,801	41,043	30,459	25,905	21,681	20,394	18,978	17,550	15,879	14,883	-996	-6.3
Recorded as having interest in dual VET during the course of the year												
Total number of persons interested in training[7]	867,000	847,380	835,719	826,710	816,231	812,388	805,407	803,553	805,794	805,677		
▶ % proportion progressing to training (PR)	65.1	66.1	68.1	66.7	64.9	64.4	64.8	64.7	64.9	66.0	+1.0	–
▶ % proportion of persons still seeking a training place as of 30 September	10.2	9.5	8.7	9.2	10.3	10.0	10.1	10.0	10.0	9.8	-0.2	–
▶ % proportion of those prematurely giving up on their desire to be placed	24.7	24.4	23.2	24.1	24.9	25.6	25.1	25.2	25.1	24.3	-0.8	–

[1] Newly concluded training contracts plus unfilled training places registered with the BA as of 30 September.
[2] Training place provision minus newly concluded training contracts which are largely a result of public funding.
[3] Newly concluded training contracts plus persons still seeking a training place who were registered with the BA as of 30 September (applicants with an alternative as of 30 September and unplaced applicants).
[4] Number of training places per 100 persons seeking a training place.
[5] Number of company-based training places per 100 persons seeking a training place.
[6] (At least) in the first year of training.
[7] Persons with a new training contract plus training place applicants registered in the reporting year who did not progress to a VET place. For data protection reasons, all values which relate to the BIBB survey as of 30 September have been rounded to a multiple of 3.

Source: Federal Institute for Vocational Education and Training (BIBB) survey as of 30 September; Federal Employment Agency (BA), training market statistics as of 30 September (special calculations for preparation of the Report on Vocational Education and Training); calculations by the Federal Institute for Vocational Education and Training

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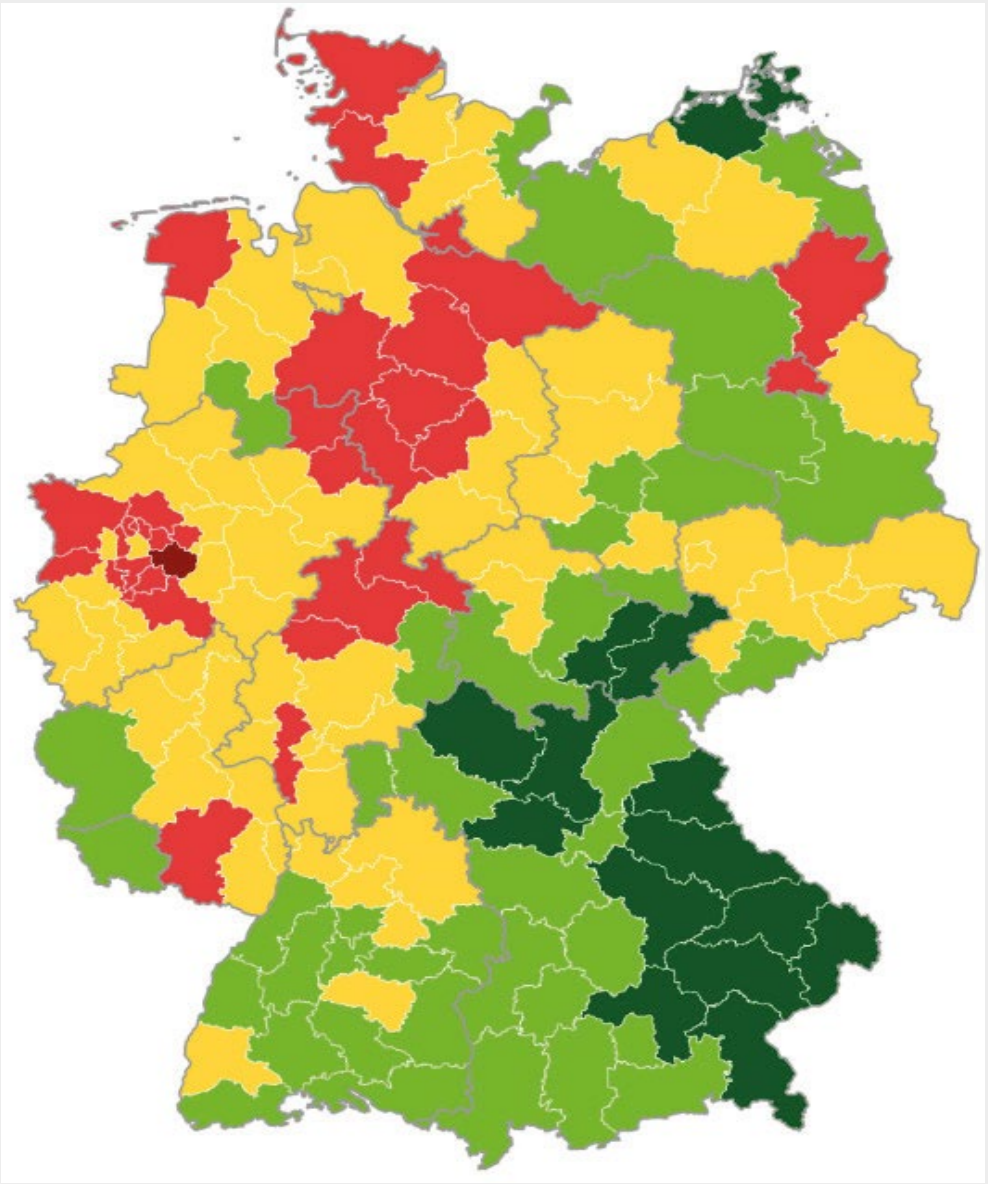
Figure A2.2-1: **Ratios between supply and demand for 2018 in the employment agency districts**



eSDR	Number of regions
Fewer than 80	1
80 to 90	30
90 to 100	66
100 to 110	43
More than 110	14

Source: Federal Institute for Vocational Education and Training survey as of 30 September;
Federal Employment Agency, training market statistics as of 30 September (special calculations for preparation of the Report on Vocational Education and Training); calculations by the Federal Institute for Vocational Education and Training; ©GeoBasis-DE/BKG 2017 (data changed)
Visualisation of the employment agency districts: Federal Institute for Vocational Education and Training, Division 1.1

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Unsuccessful training place demand

The number of applicants registered with the BA as still "seeking a training place" on 30 September 2018 and who were therefore deemed to be unsuccessful training place applicants was 78,600 persons nationally. This is 1,600 fewer or 2.0% less than in the previous year. They made up a proportion of 12.9% of total training place demand identified in 2018. Although this was below the figure for the previous year, the level remains high. As was the case with unfilled training places, the proportion of unsuccessful training demand varied considerably between the regions. Unsuccessful training place applicants now no longer mainly comprise young people without qualifications or with low-level school leaving certificates. Nationally speaking, most persons counted as forming part of the unsuccessful training place demand in 2018 were in possession of an intermediate secondary

school leaving certificate (29,200 or 37.1%). A further 21,600 or 27.5% held a higher education entrance qualification (11,500 or 14.6% had a university of applied sciences entrance qualification and 10,200 or 12.9% had achieved the upper secondary school leaving certificate/ general higher education entrance qualification).

Matching problems

Matching problems have been considered a key challenge on the training market for a number of years. In 2018, matching problems once again increased compared to the previous year as a result of the further rise in the proportion of unfilled training places and a consistently high ratio of unsuccessful potential applicants. The regional and occupational market imbalances depicted are one of the main reasons for the increasing matching problems on the training market. While there are many regions and occupations which have a surplus of training supply, meaning that many training places go unfilled as a result, numerous regions and occupations display excess demand. The consequence here is that many young people seek a training place in vain. At the superordinate level (nationwide, cross-cutting in terms of occupations), both of these phenomena add up to relatively high instances of unsuccessful market participation, both on the part of the companies and the young people.

In addition to this, the training market exhibits a considerable discrepancy between the expected (minimum) school leaving qualification for the unfilled training places and the level of school leaving qualification that is now being achieved by the unsuccessful training place applicants. In order to reduce the matching problems, young people who hold higher-level school leaving qualifications will need to be more prepared than before to potentially embrace training places for which the companies may believe that a lower school leaving qualification is adequate.

A2.3 Newly concluded training contracts (BIBB survey)

For the purpose of the survey of newly concluded training contracts as of 30 September 2018, the competent bodies responsible for vocational education and training pursuant to the Vocational Training Act (BBiG) and the Crafts and Trades Regulation Code (HwO) notified the Federal Institute for Vocational Education and Training (BIBB) of 531,414 newly concluded training contracts nationally for the period from 1 October 2017 to 30 September 2018 (see Table A.2.3-1). This represents a plus of 1.6% (+8,124) compared to the previous year's survey for 2017 (523,290). The increase in eastern Germany was 1.8% (+1,338), whilst western Germany saw a rise of 1.5% (+6,783). The percentage distribution between the East and West regions (with reference to the 2017 survey) remained unchanged. The federal states of former West Germany once again accounted for 85.7% of newly concluded training contracts, whereas the federal states of former East Germany made up 14.3%.

Newly concluded training contracts by areas of responsibility

The areas of responsibility of trade and industry (+1.8%), the craft trades (+1.1%), the public sector (+1.4%) and the liberal professions (+2.5%) all registered increases in the number of newly concluded training contracts in 2018. Decreases were recorded in the areas of responsibility of agriculture (-1.7%), housekeeping (-5.5%) and the maritime sector (-12%).

The area of trade and industry once more occupied the top position by accounting for 58.3% of newly concluded training contracts. Craft trades made up 27.3% of the newly concluded training contracts. The reported proportions for the areas of responsibility of the liberal professions, the public sector and agriculture were 8.7%, 2.7% and 2.5%, respectively. The figures recorded for housekeeping (0.4%) and for the maritime sector were negligible.

Gender-specific differentiation with regard to the newly concluded training contracts

Fewer and fewer women have been concluding training contracts pursuant to the BBiG/HwO over recent years, and this trend continued in 2018. 36.9% of new training contracts were concluded with women (as compared to 37.8% in 2017, 39.2% in 2016, 39.8% in 2015, 40.1% in 2014, 40.5% in 2013, and 40.7% in 2012). The proportion of contracts concluded with men increased accordingly, the figure for 2018 being 63.1% (as compared to 62.2% in 2017, 60.8% in 2016, 60.2% in 2015, 59.9% in 2014, 59.5% in 2013, and 59.3% in 2012).

A decrease in the number of contracts concluded with women can be observed in all the major areas of responsibility. The only areas showing a positive development in 2018 were the public sector (+0.3%), agriculture (+0.4%) and the maritime sector (+4.7%/+5 newly concluded contracts). Women were particularly dominant in the areas of the liberal professions (proportion of women 91.9%), housekeeping (86.3%) and the public sector (62.8%).

Table A2.3-1: **Development of newly concluded training contracts by federal states from 2000 to 2018**

	Results in the census period 01 October of the previous year to 30 September																			2018 zu 2017	
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	absolut	in %
Baden-Württemberg	77,289	77,067	72,582	70,803	73,278	71,853	73,992	81,216	82,185	74,811	74,550	78,813	76,317	74,391	73,197	73,824	73,989	74,655	75,312	657	0.9
Bavaria	98,295	101,223	95,316	91,926	93,396	90,219	93,006	102,204	102,987	93,564	94,326	97,746	95,310	92,130	91,815	92,178	93,384	92,529	95,433	2,904	3.1
Berlin	23,085	21,690	20,193	19,152	20,535	19,638	20,799	21,561	21,021	19,485	19,173	18,396	17,973	16,785	16,800	16,539	16,446	16,122	16,353	231	1.4
Brandenburg	19,896	18,825	18,576	18,492	17.919	16,416	19,572	18,489	17,721	15.066	13,623	12,120	11,370	10,551	10,239	10,404	10,434	10,431	10,704	273	2.6
Bremen	6,147	5,982	5,535	5,304	5,757	5,643	5,901	6,291	6,489	6,132	5,979	6,219	6,144	5,955	5,733	5,796	5,961	5,910	5,859	-48	-0.8
Hamburg	12,579	13,029	12,216	11,913	12,471	12,405	13,209	14,232	14,862	13,497	14,382	14,412	14,148	13,530	13,401	13,512	13,320	13,431	13,389	-39	-0.3
Hesse	42,075	42,147	38,361	37.812	38,727	37,662	39,426	43,377	42,666	39,453	40,233	41,166	40,245	38,388	37,887	37,809	37,266	37,725	38,226	501	1.3
Mecklenburg-Western Pomerian	18,339	17,622	16,722	16,665	16,026	15,783	15,306	16,086	14,340	11,826	9,879	8,910	8,325	7,968	7,815	7,842	7,869	7,971	8,133	162	2.0
Lower Saxony	57,927	56,673	53,364	52,059	53,826	51,531	54,276	58,809	59,880	57,396	58,317	60,846	58,236	56,382	55,812	54,573	54,663	54,702	55,641	939	1.7
North Rine-Westphalia	128,640	126,069	115,512	111,045	115,986	111,189	115,671	132,033	131,901	121,503	122,310	126,552	124,017	120,084	117,396	116,772	114,714	116,697	118,281	1,584	1.4
Rhineland-Palatine	30,810	29,943	27,513	26,937	27,921	26,445	28,038	31,845	30,696	28,851	28,494	28,971	28,407	27,102	26,550	26,238	25,851	26,169	26,226	57	0.2
Saarland	9,252	8,838	8,355	8,178	8,202	8,178	8,358	8,919	8,892	8,790	8,472	8,613	8,379	7,407	7,317	7,128	7,158	6,744	6,843	99	1.5
Saxony	34,749	33,363	31,125	30,666	30,615	28,863	31,464	32,007	27,117	23,817	22,248	20,511	18,309	17,889	18,081	18,543	18,447	19,437	19,701	264	1.4
Saxony-Anhalt	21,459	21,768	19,257	19,134	20,328	17,748	17,904	19,110	17,364	14,937	14,319	12,885	11,823	10,830	11,025	10,644	10,764	10,311	10,590	279	2.7
Schleswig-Holstein	20,067	19,212	18,672	18,768	19,314	19,035	20,340	21,858	22,044	21,315	21,231	21,546	21,156	19,932	19,797	20,196	19.980	20,103	20,235	132	0.7
Thuringia	21,084	20,790	19,026	18,780	18,684	17,571	18,894	17,847	16,176	13,869	12,420	11,676	11,103	10,221	10,332	10,164	10,026	10,353	10,485	129	1.3
Western Germany	**483,081**	**480,183**	**447,426**	**434,748**	**448,875**	**434,163**	**452,214**	**500,787**	**502,605**	**465,309**	**468,297**	**484,884**	**472,353**	**455,298**	**448,908**	**448,026**	**446,283**	**448,665**	**455,448**	**6,783**	**1.5**
Eastern Germany	**138,612**	**134,055**	**124,896**	**122,886**	**124,104**	**116,019**	**123,939**	**125,097**	**113,739**	**98,997**	**91,662**	**84,495**	**78,903**	**74,244**	**74,292**	**74,136**	**73,989**	**74,625**	**75,966**	**1,338**	**1.8**
Germany	**621,693**	**614,238**	**572,322**	**557,634**	**572,979**	**550,179**	**576,153**	**625,884**	**616,341**	**564,306**	**559,959**	**569,379**	**551,259**	**529,542**	**523,200**	**522,162**	**520,272**	**523,290**	**531,414**	**8,124**	**1.6**

Reprint, including of extracts, only permitted if the source is stated: Federal Institute for Vocational Education and Training survey as of 30 September.
For data protection reasons, absolute values are rounded to a multiple of 3, For this reason, the overall value may deviate from the total of the individual values.

Source: Federal Institute for Vocational Education and Training, survey as of 30 September

Newly concluded training contracts of shortened duration

In the case of the BIBB survey as of 30 September, a differentiation is drawn between training contracts, which encompass the "regular" duration of training" (as stipulated in the training regulations), and such contracts in respect of which a shortening of at least six months is agreed to at the outset. The competent bodies reported 77,688 training contracts of shortened duration to the 2018 survey. This figure constitutes 14.6% of the newly concluded training contracts (77,115 or 14.7% in 2017). 27,972 (36%) contracts of shortened duration were concluded with women and 49,716 (64%) with men.

The proportion of shortened contracts has remained comparatively constant over the past few years (14.6% in 2017, 15.0% in 2016, 15.6% in 2015, 16.0% in 2014, 16.0% in 2013, 15.9% in 2012, and 16.0% in 2011). Compared to the 2017 survey (77,115), 2018 shows a plus of 576 contracts amongst training contracts of shortened duration. This increase forms part of the overall statistics (+1.6%/+8,124) but is not the sole factor for the growth in newly concluded training contracts in overall terms. This makes it clear that the increase in the number of training contracts of regular duration represents a real (and not merely statistical) growth.

Newly concluded training contracts in occupations with a training duration of two years

45,570 training contracts with a training duration of up to 24 months were newly concluded across the country as a whole. This represented a proportion of 8.6% of newly concluded training contracts (44,523 contracts or 8.5% in 2017, 43,959 or 8.4% in 2016, 44,697 or 8.6% in 2015, 45,192 or 8.6% in 2014). In eastern Germany, the proportion of contracts concluded in occupations with a training duration of two years was 11.3% (11.0% in 2017, 10.5% in 2016, 10.8% in 2015, 10.8% in 2014). This figure is once again higher than that recorded in the West, where the proportion remained constant at 8.1% (8.1% in 2017 and 2016, 8.2% in 2015, 8.3% in 2014).

Follow-up contracts

Regulations relating to so-called follow-up contracts affect the areas of responsibility of trade and industry and the craft trades. In the BIBB survey as of 30 September, the competent bodies responsible for vocational education and training are requested to report newly concluded follow-up contracts separately from newly concluded training contracts. This split recording is an attempt to gain an idea of how many training contracts have been newly concluded in a continuation occupation (stated in the training regulations) following the successful completion of VET (usually of two years' duration). The purpose of obtaining this information is to arrive at an assessment as to whether the opportunity to continue VET after a programme has been completed is being well received in practice.

Nationwide, only 6,108 follow-up contracts were reported by the competent bodies for the 2018 survey. This decrease represented the continuation of a decline (6,555 follow-up contracts in 2017, 7,008 in 2016, 7,173 in 2015, and 7,290 in 2014). The decrease compared to the previous year's survey was 6.8%. 5,076 (-7.5%) follow-up contracts were reported in western Germany (5,490 in 2017) and 1,035 for eastern Germany (down from 1,065 or -3% compared to 2017). In 2018, the chambers of commerce and industry recorded 84% of those contracts for Germany; 16% within the realm of the chambers of crafts and trades.

Company-based training contracts and (extra-company) training contracts which are primarily publicly funded

In the 2018 survey, 14,883 training contracts were characterised as primarily publicly funded (15,879 in 2017, 17,550 in 2016, and 18,865 in 2015). This represents a decline of 6.3%. 45% (48.3% in 2017) of these contracts were allocated to the category "funding for disadvantaged persons". 41.8% (38.1% in 2017) were categorised as funding for persons with a disability, and 13.1% (13.6% in 2017) were assigned as Federal Government/ federal state funding.

Newly concluded training contracts in occupations for persons with a disability

Persons with a disability should always be able to enter recognised training occupations as a matter of principle. The competent bodies may, however, instigate training regulations pursuant to § 66 BBiG and § 42m HwO for persons who cannot be considered for such training because of the nature and degree of severity of their disability. The BIBB survey as of 30 September records training contracts concluded in accordance with these chamber regulations for the areas of trade and industry, the craft trades, housekeeping, and agriculture. The data from the survey as of 30 September merely enables to identify how many young people have concluded a training contract in accordance with a so-called chamber regulation.

In the 2018 survey, 7,668 training contracts (7,914 in 2017, -3.1%) were recorded as being newly concluded training contracts under training regulations pursuant to § 66 BBiG/§ 42m HwO. This corresponds to a propor-

tion of 1.4% of all newly concluded training contracts. 4,806 contracts were registered for men (-330 contracts, -6.4%). The corresponding figure for women was 2,862 (+87, +3.1%). The areas of the craft trades (-6.5%), agriculture (-10.2%) and housekeeping (-1%) all showed decreases compared to the previous year. The area of trade and industry recorded a slight plus of 0.6% (+20 contracts). No new contracts concluded in accordance with § 66 BBiG were reported in the areas of responsibility of the public sector, the liberal professions, and the maritime sector.

Newly concluded training contracts in updated occupations

Modernised training regulations, in which 69,126 new training contracts were concluded, entered into force for 24 training occupations with effect from 1 August 2018. Training regulations for the new occupation of management assistant in e-commerce also took effect on 1 August 2018. 1,284 training contracts were newly concluded in this occupation. The updated training occupations thus make up 13.2% of all training contracts newly concluded during the survey period.

A2.4 Training placements (statistics of the Federal Employment Agency, BA)

The Federal Employment Agency (BA) operates a nationwide network of local offices. In the field of vocational education and training, its tasks include the provision of career guidance to young people and young adults, VET placement and financial support for VET. The training placement services of the BA are primarily aligned to dual vocational education and training pursuant to the Vocational Training Act (BBiG) or the Crafts and Trades Regulation Code (HwO). Utilisation of the BA's placement services is voluntary both for companies and for young people. Between March and September of each year, the BA records monthly statistics for registered training places and training place applicants. Alongside the information collected within the scope of the BIBB survey of newly concluded training contracts as of 30 September, the data of the training market statistics of the Federal Employment Agency is used to calculate the training market figures, i.e. the ratio between overall supply of and overall demand for training places in a given training year.

Since 2005, the providers of basic social security benefits (the BA and local government providers) have been responsible for the training placements of young people who require assistance within the meaning of German Social Security Code II. These young people are now looked after by so-called Job Centres rather than by the employment agencies.

In the 2018 reporting year, a total of 565,342 training places were registered for placement with the employment agencies and Job Centres. Table A.2.4-1 presents the characteristics of the training places registered.

Unfilled vocational education and training places and applicants not placed in VET at the end of the reporting year

At the end of the reporting year (cut-off date 30 September), the overall training place market figures are informed on the supply side by the training places reported as still being vacant by the employment agencies and Job Centres and on the demand side by the applicants still registered as not placed in VET at this time. The number of newly concluded training contracts surveyed by BIBB as of 30 September is respectively added to these figures in order to determine total supply of and total demand for training places.

A total of 565,342 training places were registered for placement during the reporting year. On 30 September 2018, 57,656 of these places remained unfilled. The relative number of vacant places as a proportion of all registered training places increased by 10.2%, a rise of 1.2 percentage points compared to the previous year (9.0%). Of the total of 535,623 training place applicants registered in the 2018 reporting year, 78,619 were not placed in VET as of 30 September, i.e. endeavours to place these applicants were continuing. The number of unplaced applicants as a proportion of all applicants was 14.7%, about the same figure recorded in the previous year (14.6%). Relating the unfilled training places to applicants still unplaced shows a clear deficit in training place supply for the 2018 reporting year in purely arithmetical terms. The number ratio was only 0.73. This signifies that there were approximately ten unfilled training places for about every 14 unplaced applicants. This ratio improved slightly compared to 2017 (0.61). As far as the longer-term development is concerned, the relative number of unfilled training places as a proportion of all registered places is thus revealed to have almost tripled in overall terms, from 3.7% to 10.2%, during the period between 2009 and 2018. Consideration needs to be given to the fact that the BA training market statistics shed no light at all on overall events on the training market. In particular, many of the company-based training places registered with the employment agencies and Job Centres are filled by young people who were not registered as training place applicants. By the same token, registered training place applicants also apply for places which companies did not offer to the BA for placement.

Table A2.4-1: **Vocational education and training places registered with the employment agencies and Job Centres in the reporting years 2018 and 2017[1]**

	2018 reporting year[2]						2017 reporting year[2]					
	Germany		Federal states of west Germany		Federal states of east Germany		Germany		Federal states of west Germany		Federal states of east Germany	
	Absolute terms	in %	Absolute terms	in %	Absolute terms	in %	Absolute terms	in %	Absolute terms	in %	Absolute terms	in %
Type of training places												
Company-based training places	546,576	96.7	460,173	97.0	86,239	95.1	527,470	96.8	443,515	97.1	83,811	95.0
Extra-company training places	18,766	3.3	14,346	3.0	4,420	4.9	17,437	3.2	13,018	2.9	4,419	5.0
Areas of training												
Trade and industry	337,640	59.7	280,688	59.2	56,864	62.7	322,649	59.2	268,007	58.7	54,557	61.8
Craft trades	125,965	22.3	107,897	22.7	18,056	19.9	124,041	22.8	106,142	23.2	17,893	20,3
Public sector	14,495	2.6	11,797	2.5	2,698	3.0	13,690	2.5	11,151	2.4	2,538	2.9
Agriculture	6,399	1.1	4,525	1.0	1,874	2.1	5,919	1.1	4,051	0.9	1,868	2.1
Liberal professions	38,685	6.8	34,625	7.3	4,057	4.5	37,481	6.9	33,301	7.3	4,178	4.7
Not specified	42,158	7.5	34,987	7.4	7,110	7.8	41,127	7.5	33,881	7.4	7,196	8.2
Total[3]	**565,342**	**100.0**	**474,519**	**100.0**	**90,659**	**100.0**	**544,907**	**100.0**	**456,533**	**100.0**	**88,230**	**100.0**

[1] Period in each case is 1 October of the previous year to 30 September.

[2] Not including places registered with Job Centres operated by authorised local government providers (JC zkT). According to estimations of the BA, there is only a small number of unfunded training places that are registered with the JC zkTs without having been at the same time reported to the local employment agencies (Federal Employment Agency 2018b). The statistics stated for 2017 are 2018 results from the VET offices which have been retrospectively revised (Federal Employment Agency 2018b).

[3] Because of cases that cannot be allocated, the total training place figures shown for west Germany and east Germany are slightly lower than the total stated for the whole of Germany.

Source: Federal Employment Agency, calculations by the Federal Institute for Vocational Education and Training

A2.5 Summary of the education (and training system)

A2.5.1 Young people aged between 15 to 24 (population data)

In respect of the question as to in which educational sectors young people of a certain age are located, a useful approach is to relate young people within a particular age group (population data) to the resident population of the relevant age (e.g. young people in VET pursuant to BBiG/HwO aged between 15 and 24 as opposed to the resident population aged between 15 and 24). Proportions vary significantly depending on the age group considered. In this case, the 15 to 24 age group has been selected.

If the individual age groups are studied, distribution across education areas differs considerably from cohort to cohort in line with the curriculum vitae. A clear qualification-specific characterisation of the various age groups is displayed.

- 80% of young people aged 15 were still in "lower secondary education".
- 50% of young people aged 17 aspired to a higher education entrance qualification. This age also accounted for 12% of young people in the "transitional sector", the highest proportion.
- 19-year-olds were most commonly in "vocational education and training" (26%).
- The age group of 22-year-olds was dominated by students, who made up 30%.
- 31% of 23-year-olds were already young members of the work force who had obtained a formal qualification.
- 2% of young people aged 24 had still not acquired a formal qualification and were not yet in employment.

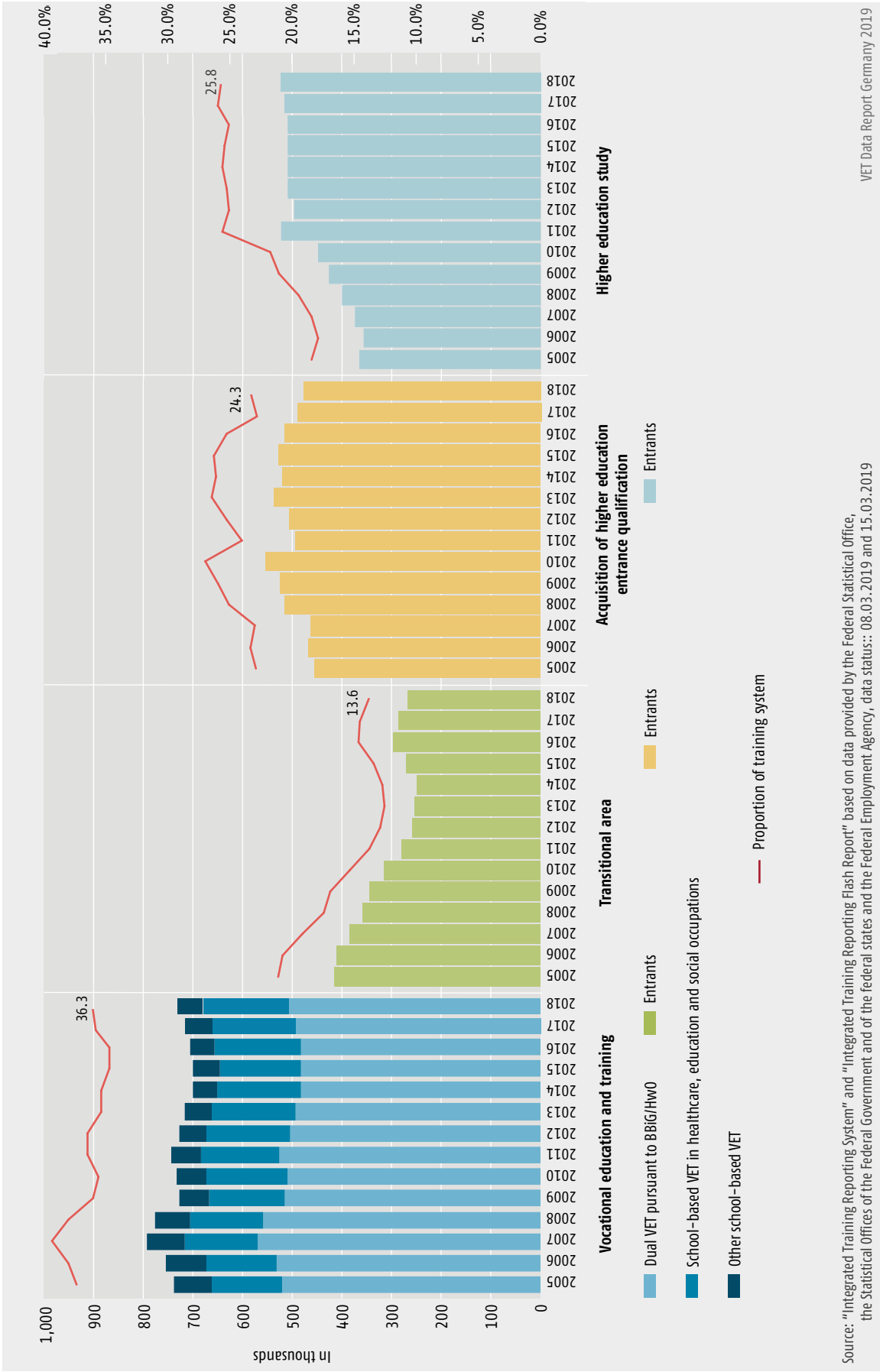
Entrants in the educational sectors

Below we look at all entrants to the education (and training) system regardless of age rather than considering specific age groups. This approach is particularly useful when the focus is on comparing the extent to which the different education areas have been in demand, in order, for example, to plan training capacities or identify educational trends. In this case, entrants to a sector were related to all entrants to the education (and training) system. In 2018, 36.6% (722,684) of entrants to the education and training system commenced fully qualifying vocational education and training. Of these, 68.4% began dual training pursuant to the BBiG/HwO, whilst 31.6% entered school-based VET. VET programmes in healthcare, teaching and social professions accounted for 24.6% of the latter. 269,991 young people (13.6%) progressed to the "transitional sector". 24.3% (484,102) wished to acquire a higher education entrance qualification. At the same time, 25.8% (513,988) commenced a "course of higher education study". See Figure A2.5.1-1.

Differences in the educational sectors with regard to gender, nationality and prior school learning

The education (and training) system differs very little from the average population with regard to division of the genders. A comparison of the gender proportions of the sectors and of the accounts of the education (and training) system with the average of the population for 2018 shows a balanced ratio of genders between "higher education study" (51.3%) and "vocational education and training" (47.3%) (see Table A.2.5.1-1). In VET, however, their ratio conceals major differences. Whereas dual VET tended to be dominated by men (37.2% female), women were shown to be strongly in the ascendency (76.2%) in school-based VET programmes in healthcare, education and social occupations.

Figure A2.5.1-1: Development of sectors in the education and training system from 2005 to 2018 – absolute and relative terms (100% = all persons entering the training system)



Source: "Integrated Training Reporting System" and "Integrated Training Reporting Flash Report" based on data provided by the Federal Statistical Office, the Statistical Offices of the Federal Government and of the federal states and the Federal Employment Agency, data status:: 08.03.2019 and 15.03.2019

Table A2.5.1-1: **Entrants to the educational sectors by selected characteristics 2017 and 2018**

Entrants	2018[1]		2017					
	Absolute terms	Proportion female	Proportion non-German	Not achieved lower secondary school leaving certificate	With lower secondary school leaving certificate	With intermediate secondary school leaving certificates[2]	University of applied sciences or general higher education	Proportion no information available/other
		(in %)	(in %)	(in %)	(in %)	(in %)	(in %)	(in %)
Training system (total)	1,990,765	48.2	16.8	5.5	13.4	45.9	32.9	2.3
Vocational education and training	722,684	47.3	12.0	3.2	21.0	54.3	19.3	2.2
Dual VET pursuant to BBiG/HwO	494,539	37.2	12.3	4.4	23.2	48.7	20.9	2.8
School-based VET in healthcare, education and social occupations	178,718	76.2	12.4	0.4	19.0	53.9	25.9	0.8
Other school-based VET	49,427	45.0	8.2	0.8	7.8	83.9	7.0	0.6
Integration into vocational training (transitional sector)	269,991	36.3	34.2	30.5	38.4	20.6	1.5	9.1
Acquisition of HEEQ (upper secondary)	484,102	53.0	6.5	0.2	1.5	97.7	0.2	0.4
Higher education study	513,988	51.3	24.2	0.0	0.0	0.0	99.3	0.7

[1] Data for 2018 is preliminary on the basis of the "Integrated Training Reporting Flash Report".
[2] Including school-based part of university of applied sciences entrance qualification

Source: "Integrated Training Reporting System" and "Integrated Training Reporting Flash Report" based on data provided by the Federal Statistical Office, he Statistical Offices of the federal states and the Federal Employment Agency. Data status: 08/03/2019 and 15/03/2019

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A2.5.2 The education (and training) system in the federal states

Overall values of the educational sectors comprise very different individual federal state profiles in some cases. The significance of the educational sectors in the respective federal state is especially dependent on the way in which unsuccessful training place applicants are treated, on demographic development and on the prevailing situation on the training and labour markets.

Figure A.2.5.2-1 shows a histogram for each federal state. This presents entrants to the respective educational sectors measured against all entrants to the education (and training) system. These sectoral proportions are visualised in different colours for the years 2005 and 2018.

If we begin by observing the change in the sectoral proportions (federal state profiles), then a trend towards higher qualification is shown across all federal states. Whereas the proportions of entrants to the "vocational education and training" and "transitional" sectors have declined, there has been a rise in the sectors "acquisition of a higher education entrance qualification" and "higher education study". This trend was marked to an above-average degree in the federal states of eastern Germany.

A3 Recognised training occupations

A3.1 Number and structure of recognised training occupations pursuant to BBiG/HwO

The following descriptions and definitions relate to occupations that are state-recognised pursuant to the Vocational Training Act (BBiG) and the Crafts and Trades Regulation Code (HwO).[6] In 2018, the number of BBiG and HwO recognised training occupations decreased from 326 to 325 compared to the previous year.

This came about because the two training occupations of precious stone engraver and diamond cutter were abrogated to create the updated occupation of precious stone cutter. At the same time, a new training occupation was added in the form of management assistant in e-commerce. The number of recognised training occupations has fallen from 349 to 325 since 2009.

- Mono-occupations have decreased from 267 to 239 over the same period.
- There has been a slight increase in the number of training occupations which contain differentiation (specialisms or main focuses) from 2009 (82 training occupations) to 2018 (86 training occupations). The proportion of all training occupations represented by these training occupations rose to 26%.
- Training occupations with elective qualifications have been enacted since 2000. There were five recognised training occupations with elective qualifications at this time. The total figure had increased to 26 by 2018.
- It has been possible to create training occupations with elective qualifications since 2005. The number of such occupations went up slowly but steadily between 2005 and 2017 to reach a total of 8. 12 further training occupations with additional qualifications were introduced all at once in 2018 in the wake of the digitalisation of the world of work.
- The number of training occupations for which credit transfer for further VET courses can be given fell between 2009 (23 training occupations) and 2018 (21 training occupations). During the same period, there was also an increase in the number of training occupations which can be credited towards other training occupations from 56 (2009) to 70 (2018).
- From 2009 to 2018, the number of 42-month training occupations[7] declined from 54 to 52. The number of training occupations with a training duration of 36 months declined compared to the previous year from 248 to 247. The number of training occupations with a training duration of 24 months decreased from 38 in 2009 to 26 in 2018.

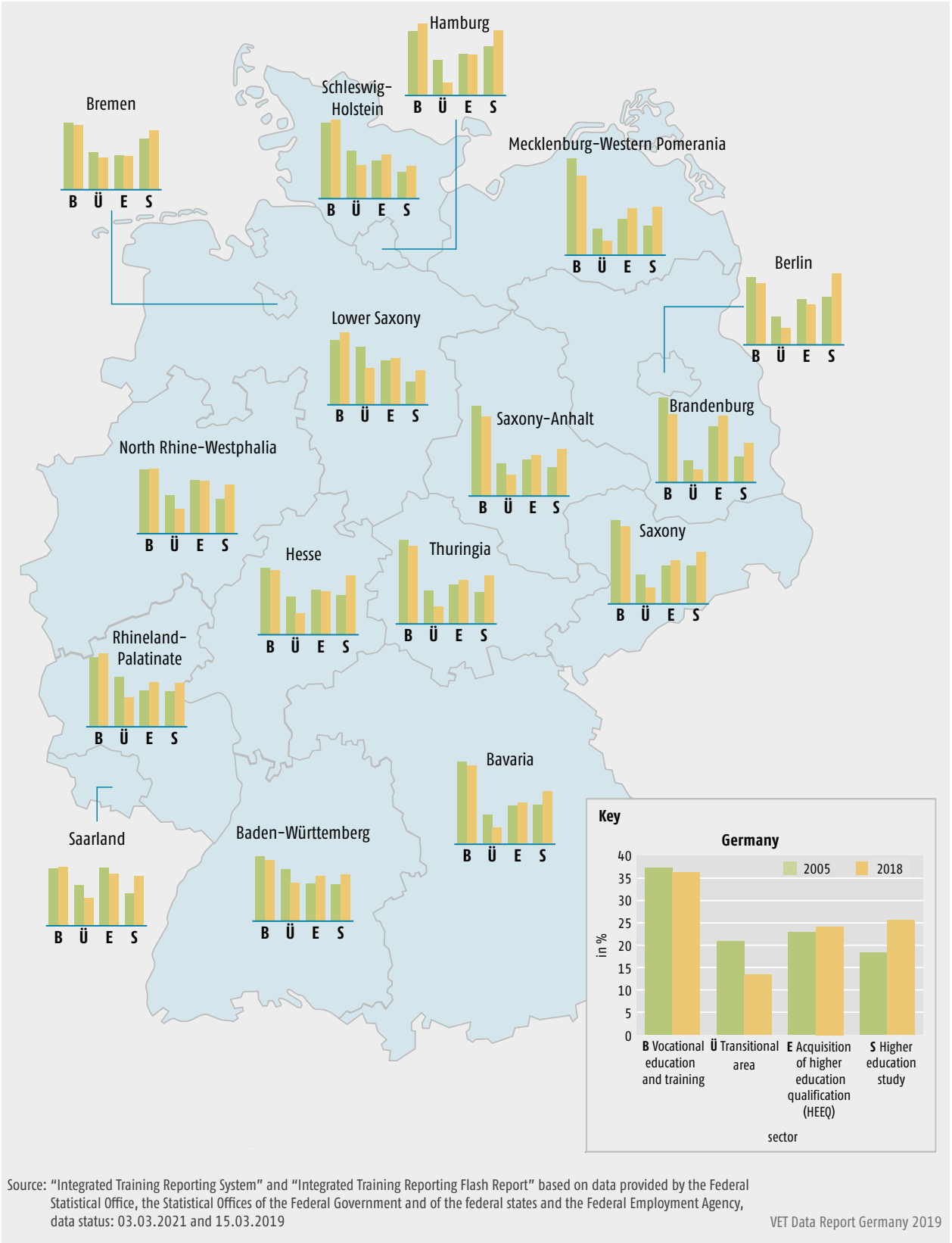
A3.2 New and modernised training occupations

A total of 132 training occupations were re-regulated between 2009 and 2018. These included 124 modernised occupations and 6 new training occupations. The training regulations for 24 modernised training occupations and one new training occupation entered into force on 1 August 2018.

6 Pursuant to § 104 Paragraph 1 BBiG, recognised apprenticeships, semi-skilled occupations or comparably regulated training occupations, whose occupational profiles, vocational education and training plans, examination requirements and examination regulations are applicable until the enactment of training regulations in accordance with § 4 BBiG, constitute state-recognised occupations within the meaning of § 4 BBiG, including such occupations recognised prior to 1 September 1969.

7 Duration of training should be no longer than three years and no shorter than two years in every case (§ 5 Paragraph 1 Clause 2 BBiG). Deviations from this provision are possible. Ordinances are, for example, issued in respect of training occupations with a duration of three and a half years.

Figure A2.5.2-1: **Sectoral proportions 2005 and 2018 in comparative terms (100% = entrants to all sectors)**



Source: "Integrated Training Reporting System" and "Integrated Training Reporting Flash Report" based on data provided by the Federal Statistical Office, the Statistical Offices of the Federal Government and of the federal states and the Federal Employment Agency, data status: 03.03.2021 and 15.03.2019

VET Data Report Germany 2019

Re-regulation in 2018 was even more marked than in the previous year by the pressure to adapt that was brought about by digitalisation. The number of updated training occupations during the year – 25 – was thus unusually high. No fewer than 16 occupations were modernised via amended training regulations. This was mainly due to inhomogeneous sectoral developments with regard to digitalisation. Digitalisation has hitherto arrived at companies to varying degrees. In order to take account of this circumstance, amended training regulations issued for the industrial metalworking and electrical occupations and for mechatronics technicians contain a new occupational profile item of "Digitalisation of work, data protection and information security". Additional qualifications may also be optionally included to permit the mapping of any altered skills requirements that may occur as a result of digitalisation. Two modernised sets of training regulations for the occupations of packaging materials technologist and organ maker have already been announced for 2019. Updated training occupations are also expected to enter into force (as of February 2019) in the occupations of building and object coater, industrial cleaner, and paper technician.

The momentum of updating activities driven by digitalisation has significantly increased over the past year. Nevertheless, it should be pointed out that BIBB is not of the view that this process necessarily needs to be accelerated. The procedure has proved its worth in practice, and digitalisation does not represent a new phenomenon within this context. The approach instead has been to allow aspects of digitalisation to continuously inform the modernisation of occupational profiles to the degree perceived as useful from the perspective of company-based stakeholders.

- Training regulations are aligned to the minimum standards determining the requisite employability skills in an occupation.
- Training regulations are legal ordinances which are drawn up and harmonised sequentially.
- Updating procedures in vocational education and training are characterised by participation and by the desire to arrive at a consensus.

Looking back over the past few years, it is certainly justifiable to say that regulatory work has succeeded in overcoming the challenges thrown up in respect of the modernisation of occupations. 67 of the STEM occupations in the dual system, for example, have been updated in the last ten years. The requirements of digitalisation were addressed in a timely manner during this period. For the vast majority of the 25 occupations that entered into force in 2018, the period between the official application discussions and announcement in the Federal Law Gazette was significantly under two years. Five expert meetings were generally needed in order to agree on the training regulations and general training plan in detail and to arrive at a consensus. In some cases (such as the procedures for the metalworking and electrical occupations), only three meetings were required. In these instances, however, detailed agreement processes were entered between the social partners prior to commencement of the procedure. The time taken to create draft regulations was a few months. Such intervals are expedient and sufficient when drawing up training regulations for an occupation, which enters into force at the beginning of the training year on 1 August in each case.

A3.3 Developments in occupational structure in dual vocational education and training

The following section provides an analysis of selected developments in occupational structure within the dual vocational education and training system pursuant to the Vocational Training Act (BBiG) and the Crafts and Trades Regulation Code (HwO). It will be shown how these are executed within the scope of permanent observations undertaken by BIBB based on the Vocational Education and Training Statistics (survey as of 31 December). The focus of consideration was centred on manufacturing and service occupations, STEM occupations, IT occupations, new training occupations, two-year training occupations, and occupations in which training takes place in accordance with regulations for persons with a disability.

Tertiarisation of dual vocational education and training

Since the 1980s, the service sector has increasingly taken on a dominant role within the employment system in the Federal Republic of Germany. This is also revealed in the development of service occupations in dual vocational education and training (see Table A.3.3-1). With only a few exceptions, the proportion of new training contracts concluded in the service sector rose virtually constantly between the mid-1990s and 2010 (65.1%). Their share has been declining ever since and fell to only 62.8% in the 2017 reporting year. This decrease was solely attributable to primary service sector occupations[8] in the dual

8 *Primary service occupations* represent all activities which extend the production route upstream and downstream. They maintain the macroeconomic "production flow" and inform consumption directly. Primary service occupations include occupations in which the main task foci are on commercial and office activities or on general services such as catering, storage, transportation, cleaning and security. *Secondary service activities* encompass tasks which are not usually physically tangible and thus represent immaterial goods which are predominantly produced intellectually. They are also referred to as "knowledge work" and are characterised by the fact that they

system (50.3% in 2010 as opposed to 46.6% in 2017). Secondary service occupations recorded slight growths during this period, albeit from a significantly lower base (14.8% in 2010 versus 16.2% in 2017).

Differentiated analyses by gender of trainees show that there has been a decrease in the absolute number of new service occupation training contracts concluded with women over the course of time, and that the proportion of women in the service sector has significantly decreased at the same time. Although female trainees continued to outweigh men in service occupations in 2017 (proportion of women 55.4%), the development over the past 10 years has shown that tertiarisation has not taken place to the detriment of men. Between 2005 and 2017 alone, the proportion of men in service sector occupations rose from 38.2% to 44.6%. This development is shown for both primary and secondary service occupations in the period described. This means that the proportional ratios of newly concluded training contracts in service sector occupations have significantly shifted in favour of men over recent years. No comparable shift in share is discernible with regard to the manufacturing occupations, in which the proportion of men has remained at a virtually unchanged high level over the past few years (share of men in 2005 93.5% as opposed to 92.2% in 2017).

Dual vocational education and training in STEM occupations[9]

Within the dual system, STEM occupations have constantly gained in significance in proportional terms since 2010. A total of 172,968 new training contracts were concluded in STEM occupations in the 2017 reporting year. In absolute terms, the number of newly concluded training contracts in STEM occupations remained significantly below the figure recorded at the beginning of the 2000s. Nevertheless, even greater declines in the number of all newly concluded training contracts during the same period meant that the proportion of newly concluded contracts in STEM occupations went up proportionately to reach a share of 33.5%, the highest level achieved for more than 20 years. With only a few exceptions, the proportion of women in STEM occupations rose steadily from the mid-2000s to 2016 (11.5% in 2016). This positive trend did not continue into the 2017 reporting year, which saw a significant fall of 11.1% as figures settled at a low level. In 2017, 9 out of 10 new training contracts in the group of STEM occupations were concluded in technical training occupations. Production engineering occupations, in which around three quarters of all new STEM contracts occurred, represented the most popular area in this regard. The proportion of women in technical STEM occupations was 10.5%, a rise compared to the previous year 9.1% in 2016). The relatively small area of healthcare technology, where 60.5% of training entrants were female, was the only STEM sector with a majority of women. This demonstrates that females tend to occupy gender-typical niches in the group of STEM occupations, too. In 2017, the proportion of women in mathematically and scientifically aligned training occupations (35.3%) was also above average. Such occupations mainly comprise laboratory-based tasks and include biological laboratory technician, chemical laboratory technician, chemical technician, and pharmaceutical technician. By way of contrast, females were less likely to be represented in the field of information technology (8.2%) than in the STEM occupations as a whole.

IT occupations in Industry 4.0

The digitalisation of the economy and of trade and industry will progress and gain in significance in the near future. As in recent years, this process will be associated with a growing demand for IT occupations. Existing analyses show that a significant proportion of this additional demand will arise in manufacturing industry and not merely within the information and communication technology (ICT) sector exclusively. Even though the rising requirements will mainly relate to highly qualified skilled workers, an effect will also be felt at the intermediate qualification level.

The number of newly concluded training contracts in IT occupations has increased significantly since 1997, mainly because of the new occupations introduced in that year (see Figure A.3.3-1). 15,702 such new contracts were concluded in 2017, the second highest level recorded. The picture for women in the dual IT occupations is similar to that shown in the dual STEM occupations in overall terms. They are significantly underrepresented, although marked changes have taken place over the course of time. In the 1990s, the proportion of women remained at or just below 20%. It fell during the intervening period until 2017 to a level of only 8.6%.

New occupations in dual vocational education and training

The modernisation of dual VET via the updating of training occupations has picked up pace since 1996. This development has been prompted by the following factors:

improve industrial production in qualitative terms via increased furtherance and use of the human mind or "human capital". They include occupations with main task foci such as measuring, testing, researching, designing, applying laws, advising, nursing and treating.

9 Occupational field 38 "Core IT occupations" is made up of the training occupations of information technology specialist, information technology officer, information and telecommunications system support specialist, and mathematical-technical software developer.

Table A.3.3-1: **Newly concluded training contracts in manufacturing and service occupations[1], Germany 2005 to 2017**

Occupational group \ Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
	Total, absolute terms												
Manufacturing	205,155	214,170	229,971	222,303	198,891	194,925	201,693	196,749	188,340	187,185	187,062	186,003	191,970
Service occupations	353,904	367,011	394,206	385,263	362,277	364,107	364,131	352,257	337,557	331,209	329,577	323,994	323,709
of which:													
Primary service sector	277,119	288,792	310,509	299,658	280,452	281,367	279,087	267,537	255,021	249,228	246,318	241,296	240,246
Secondary service sector occupations	76,788	78,219	83,700	85,605	81,825	82,740	85,044	84,720	82,536	81,981	83,259	82,698	83,463
Total	**559,062**	**581,181**	**624,177**	**607,566**	**561,171**	**559,032**	**565,824**	**549,003**	**525,897**	**518,394**	**516,639**	**509,997**	**515,679**
	Men, absolute terms												
Manufacturing	191,838	199,938	214,083	205,932	183,951	180,777	187,458	182,052	174,132	172,386	172,113	170,622	177,039
Service occupations	135,090	142,473	152,259	147,171	138,282	144,705	148,878	144,201	139,668	138,048	139,344	139,347	144,435
of which:													
Primary service sector	108,891	115,398	123,213	117,141	109,893	115,773	117,918	113,502	109,578	107,991	108,987	109,275	113,058
Secondary service sector occupations	26,202	27,075	29,049	30,033	28,389	28,935	30,957	30,699	30,090	30,057	30,357	30,069	31,377
Total	**326,928**	**342,411**	**366,342**	**353,103**	**322,236**	**325,482**	**336,333**	**326,253**	**313,803**	**310,434**	**311,457**	**309,966**	**321,474**
	Women, absolute terms												
Manufacturing	13,320	14,232	15,888	16,374	14,940	14,148	14,235	14,697	14,208	14,802	14,949	15,381	14,931
Service occupations	218,814	224,538	241,947	238,092	223,995	219,402	215,253	208,056	197,889	193,161	190,230	184,650	179,274
of which:													
Primary service sector	168,228	173,394	187,296	182,517	170,559	165,594	161,169	154,032	145,443	141,237	137,331	132,021	127,188
Secondary service sector occupations	50,586	51,144	54,651	55,572	53,436	53,805	54,084	54,021	52,443	51,921	52,902	52,629	52,086
Total	**232,134**	**238,770**	**257,835**	**254,463**	**238,935**	**233,550**	**229,488**	**222,753**	**212,094**	**207,960**	**205,182**	**200,031**	**194,205**
	Total, in % of all newly concluded contracts												
Manufacturing	36.7	36.9	36.8	36.6	35.4	34.9	35.6	35.8	35.8	36.1	36.2	36.5	37.2
Service occupations	63.3	63.1	63.2	63.4	64.6	65.1	64.4	64.2	64.2	63.9	63.8	63.5	62.8
Of which:													
Primary service sector	49.6	49.7	49.7	49.3	50.0	50.3	49.3	48.7	48.5	48.1	47.7	47.3	46.6
Secondary service sector occupations	13.7	13.5	13.4	14.1	14.6	14.8	15.0	15.4	15.7	15.8	16.1	16.2	16.2
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

[1] Detailed information on the approach adopted towards classification of the occupational groups and a full list of manufacturing and service sector occupations is available at:
https://www2.bibb.de/bibbtools/dokumente/xls/dazubi_berufsliste-p-dl_2017.xls

Source: "Trainee Database" of the Federal Institute for Vocational Education and Training based on data from the Vocational Education and Training Statistics of the Federal Statistical Office and the statistical offices of the federal states (survey as of 31 December), reporting years 2005 to 2017 (previous year's figures needed to be used for Bremen for the 2015 reporting year because no data reporting took place). Absolute values are rounded to a multiple of three for data protection reasons. The overall value may therefore deviate from the total of the individual values. Calculations by the Federal Institute for Vocational Education and Training

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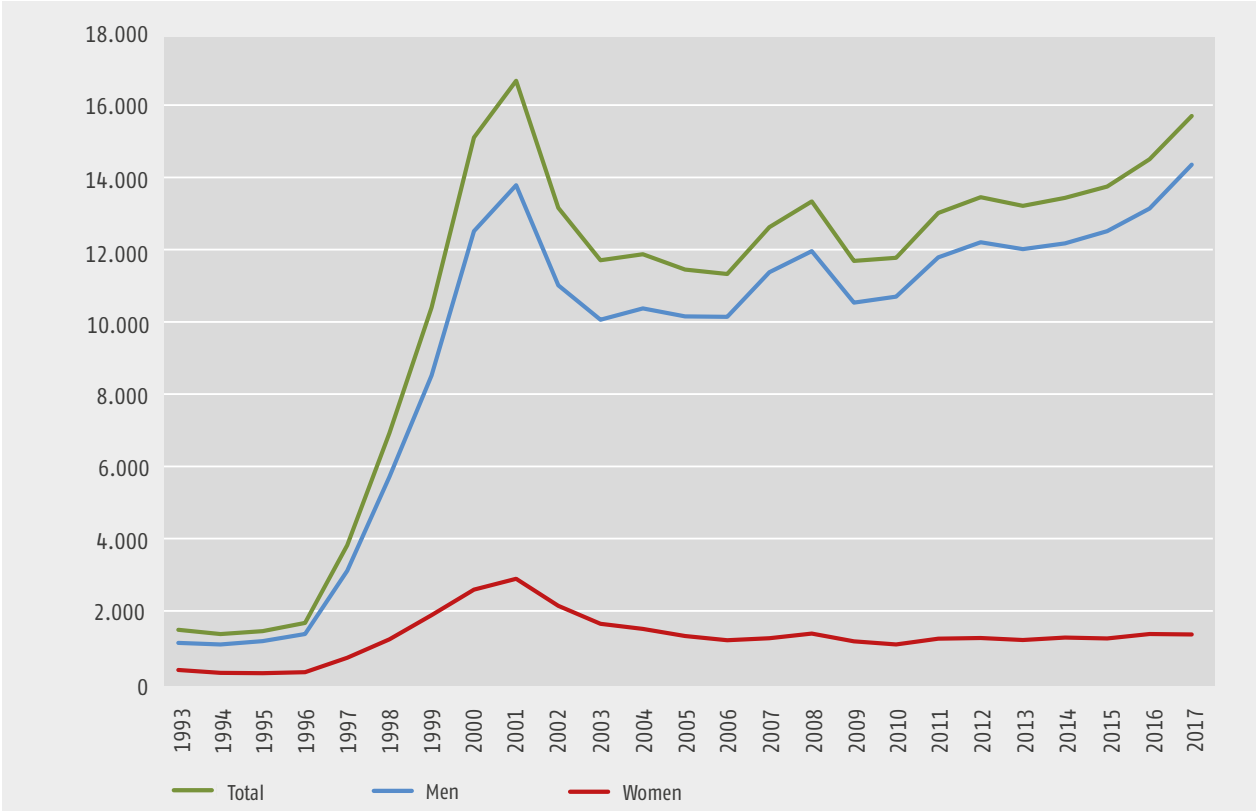
Figure A3.3-1: **Development of newly concluded training contracts in the dual IT occupations[1] by gender, Germany 1993 to 2017**



[1] Occupations include predecessor occupations in occupational field 38 "Core IT occupations" as defined by BIBB (cf. Tiemann et al. 2008).

Source: "Trainee Database" of the Federal Institute for Vocational Education and Training based on data from the Vocational Education and Training Statistics of the Federal Statistical Office and the statistical offices of the federal states (survey as of 31 December), reporting years 1993 to 2017. (Previous year's figures needed to be used for Bremen for the 2015 reporting year because no data reporting took place). For data protection reasons, absolute values are rounded to a multiple of 3. For this reason, the overall value may deviate from the total of the individual values.

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- The jump from an industrial society to a society driven by information and knowledge.
- The globalisation of the economy and of the associated restructuring of labour organisation.

In 2017, the total number of training contracts concluded in the occupations newly created since 1996 was 66,219. This represents 12.8% of all newly concluded contracts. As in previous years, the most popular occupation was information technology specialist, introduced in 1997, in which 13,095 new training contracts were concluded. This was followed by the occupation of mechatronics fitter, which dates from 1998 and attracted 7,899 new training contracts. In third position by some distance was the training occupation of automobile business administrator, which was introduced in the same year (5,211 newly concluded contracts in 2017). Training occupations contained within the group of occupations newly created since 1996 which were also of quantitative significance in the 2017 reporting year also included machine and plant operator from 2004 (4,287 new contracts), designer of digital and print media from 1998 (3,063), technical product designer from 2005 (2,532) and vehicle varnisher from 2003 (2,229).

The development of two-year training occupations

The number of two-year training occupations has significantly decreased since the 1950s as a result of abolition, integration or conversion into three-year training occupations. Greater attempts were once again made at the start of the 21st century to use two-year ("reduced theory") training occupations as a vehicle to create additional training place provision and thus to improve training opportunities for disadvantaged young people in particular.

In the 2017 reporting year, a total of 43,560 new training contracts were concluded in state-recognised occupations (or in occupations being piloted) with a training duration of 24 months. This meant that there was a slight rise compared to the previous year in the number of new contracts in two-year training occupations as a proportion of all newly concluded training contracts (8.6% as opposed to 8.5% in 2016). Regional differentiation of the proportions for two-year dual training shows that the share for western Germany continued to be lower than that recorded for eastern Germany in 2017, the figures being 8.2% and 11.2%, respectively. The proportion in western Germany was thus at the same level as the previous year, whereas eastern Germany saw a slight year-on-year increase once again following constant decreases since 2009 (10.7% in 2016).

In 2017, the most popular training occupation was once again sales assistant for retail services, in which there were 22,104 newly concluded contracts. Over half (50.7%) of all new contracts in two-year occupations were concluded in this training occupation. Following some distance behind, the next most popular two-year occupations are warehouse operator (5,985 newly concluded contracts), machine and plant operator (2004, 4,287 contracts), specialist in the hospitality services industry (2,208 contracts), and skilled metal worker (1,713 contracts).

Development of training occupations for persons with a disability

A total of 8,259 new training contracts for persons with a disability (§ 66 BBiG und § 42m HwO) were concluded in the 2017 reporting year. This once again represented a significant decline – in this instance 5.9% – compared to the previous year (8,781 in 2016). This accounted for a national proportion of 1.6% of all newly concluded training contracts, slightly below the level of the previous year (1.7% in 2016). Clear regional differences are revealed in this regard, too. Over the whole of the period of observation since 1993, the proportion of newly concluded training contracts for persons with a disability in eastern Germany has always been at least twice that in western Germany. In some reporting years, it has even been three times as high (e.g. in 2002, when the respective figures for western Germany and eastern Germany were 1.7% and 5.3%). Around 2,184 training contracts in state-recognised occupations received extra-company funding in the 2017 reporting year "pursuant to §§ 100 Clause 3, 235a and 236 German Social Security Code III, SGB III, (Extra-company training for persons with a disability)".

A4 Trainees

A4.1 Training participation in Germany

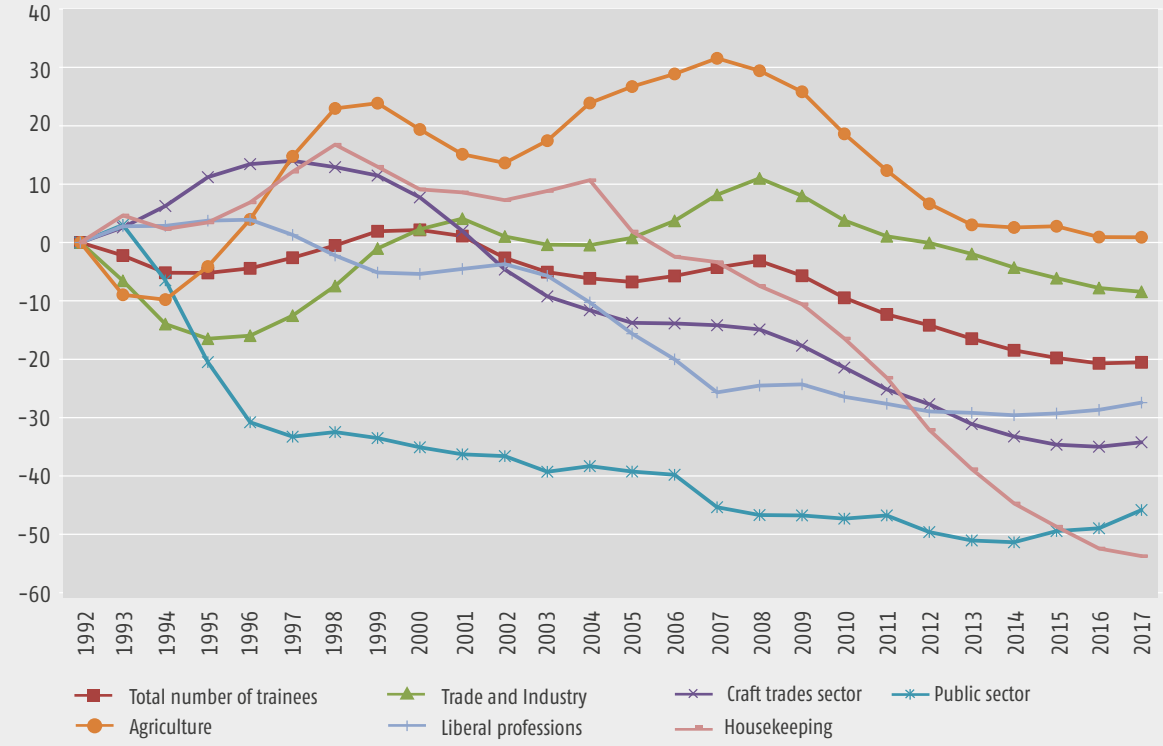
On 31 December 2017, 1,323,894 persons were registered as trainees[10] in dual vocational education and training pursuant to the Vocational Training Act (BBiG) or the Crafts and Trades Regulation Code (HwO) in Germany as a whole. The total number of trainees thus has risen slightly (0.2%), the first increase recorded since 2008. In terms of regional comparison, the total number of trainees in eastern Germany (+0.6%) rose more sharply than in western Germany (+0.1%). Nevertheless, the long-term series shows that the population of trainees has more than halved in the eastern federal states (-56.1%) since 1997, the year in which the highest value was recorded for eastern Germany. This development was delayed in western Germany and has only been revealed since 2008 (2008 versus 2017 = -12.2%). As in the previous year, this means that only just under one in seven young people (13.9%) was being trained in eastern Germany in the 2017 reporting year. The corresponding figure for 1997 was around one in four (25.9%).

Differentiating the total number by individual areas of responsibility shows that the slightly positive development in trainee numbers in 2017 is not equally reflected in all such areas. Whereas the craft trades, the public sector and the liberal professions recorded increases, there was a fall in the total number of trainees in the areas of trade and industry and housekeeping. No appreciable changes occurred in agriculture (see Figure A4.1-1).

The largest area of responsibility is trade and industry, which as of 31 December 2017 reported 770,514 trainees (around 58% of the total number). An increase (+1.2%) was recorded for the 2017 reporting year in the craft trades, the second largest area of responsibility. This followed consistent declines in the total number of trainees in the preceding years. There was a very significant year-on-year increase in the number of dual training contracts (+2,223 or + 6.1%) in the area of responsibility of the public sector. In the liberal professions, the total number of trainees rose from 110,256 to 112,140 (+1.7%) from 2016 to 2017.

10 Total number of trainees involves counting trainees across all years of training. The total number of trainees includes all persons who have a training contract pursuant to the Vocational Training Act (BBiG) or the Crafts and Trades Regulation Code (HwO) in force as of 31 December of each year. For this reason, the total number of trainees provides information on the whole scope of training performance provided by companies and vocational schools.

Figure A4.1-1: **Development in the number of trainees on 31 December from 1992 to 2017 by areas of responsibility (base = 1992)**



Source: "Trainee Database" of the Federal Institute for Vocational Education and Training based on data from the Vocational Education and Training Statistics of the Federal Statistical Office and the statistical offices of the federal states (survey as of 31 December), reporting

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Training entrant rate in the dual system pursuant to BBiG / HwO

The training entrant rate is an indicator of the proportion of young people who commence dual vocational education and training. However, it does not take account of the age at which this takes place or of the length of the transition from general school to VET. For the 2017 reporting year, the result is an arithmetical proportion of 52.9% of young people (resident population) who at some point during the course of their biography commence dual VET.

The training entrant rate in the dual system declined annually from 2011 to 2016. A total fall of 6.3 percentage points occurred between these two points. Nevertheless, more than half of young people still commenced a programme of dual VET. In 2017, the training entrant rate once again rose slightly (+1.2 percentage points) compared to the previous year.

There was very little change in the training entrant rate compared to the previous year for young people with German nationality, in respect of whom a slight drop of 0.1 percentage points was recorded. There was, however, a clear difference in the developments for men and women. The training entrant rate rose by 0.9 percentage points in the case of male German nationals, whereas the rate for female German nationals decreased by 1.3 percentage points. The decline in training participation by female German nationals is accompanied by a significant reduction in training participation in so-called primary service occupations and greater progression by young women to VET areas outside the dual system, in particular to school-based healthcare, social and educational occupations. Further differentiations can be identified in Table A4.1-1.

Training completion rate in the dual system pursuant to BBiG/HwO

If we consider the population's participation in the dual system, the question of how many percent commence training is not the only issue to arise. Another object of interest is how many percent successfully complete vocational education and training and achieve a relevant

Table A4.1-1: **Training entrant rate by personal characteristic and region[1], 2011 to 2017 (in %)[2]**

Year	Training entrant rate								
	Total	German of which			Foreign nationals[3] of which			Western Germany[4]	Eastern Germany[4]
		Total	Men	Women	Total	Men	Women		
2011	58.0	60.3	70.5	49.6	35.4	38.8	31.8	58.4	56.1
2012	56.5	59.0	68.9	48.6	33.7	36.3	30.9	56.9	54,5
2013	54.3	56.9	66.5	46.8	31.7	35.1	28.1	54.8	51.3
2014	53.4	56.3	66.0	46.0	31.1	33.2	28.8	53.8	51.1
2015[3]	52.4	56.7	66.8	46.1	26.0	25.8	26.2	52.7	50.1
2016[3]	51.7	55.8	66.2	44.9	27.6	28.7	26.3	52.3	48.6
2017	52.9	55.7	67.1	43.6	34.2	39.3	26.9	53.7	48.4

[1] Commuter movements cannot be taken into account because the Vocational Education and Training Statistics do not record the place of residence of trainees. These movements may distort the rates calculated for individual regions due to the fact that commuters are allocated to the location of training for the purpose of training entrant rates and recorded at their main place of residence in terms of the resident population.

[2] The completion rates for the years 2011 and 2013 were also recalculated on the basis of the Population Forecast data for 2011 and 2013 taken from the 2011 census. They therefore deviate from the values published in the 2015 Data Report and in 2014.

[3] This rate is calculated by establishing the ratio between all first entrants and the resident population. Account should be taken of the fact that persons who do not hold German nationality may be counted as part of the resident population in the Population Forecast. This happens regardless of their residency status by dint of the fact that they are formally registered under registration law. To this extent, persons who cannot be expected to progress (directly) to dual VET are also recorded. A significant decline in the training entrant rate will occur for the group of persons affected in circumstances where the resident population increases significantly due to special developments (e.g. a sharp rise in the number of refugees).

[4] The 2015 entrant rates for eastern and western Germany needed to be corrected because of a database error. For this reason, they deviate from the rates stated in the 2017 Data Report.

Source: "Trainee Database" of the Federal Institute for Vocational Education and Training based on data from the Vocational Education and Training Statistics of the Federal Statistical Office and the statistical offices of the federal states (survey as of 31 December), reporting years 2011 to 2017 (figures from the 2014 reporting year needed to be used for Bremen for the 2015 reporting year because no data reporting took place) and Population Forecast of the Federal Statistical Office (population on 31 December), reporting years 2011 to 2017 on the basis of the 2011 census; development of the population size in the 2016 reporting year can only be compared to the values from previous years to a limited extent because of methodological changes.
Calculations by the Federal Institute for Vocational Education and Training.

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vocational qualification. In the 2017 reporting year, 392,685 trainees passed their final examination in the dual system. For 367,491 of these persons, this constituted their first achievement of a vocational qualification in the system.

For the 2017 reporting year, this represented a training completion rate (TCR) of 39.4%. The arithmetical proportion of female German nationals in the resident population who have succeeded in obtaining a vocational qualification in the dual system is 37.5%. The corresponding figure for male German nationals was 53.9%. Only 12.5% of the female foreign nationals in the resident population achieved a dual vocational qualification in the 2017 reporting year. The corresponding proportion of male foreign nationals was 11.3%.

The training completion rate was 8.1 percentage points lower in eastern Germany than in western Germany in 2017. This difference was significantly more substantial than in 2011 (-5.3 percentage points in 2011), but still represented somewhat of a fall compared to the years 2014 to 2016. The deviation between the eastern German and western German training completion rates is stronger than that which can be observed for the training entrant rates. This indicates a greater extent of genuine training dropouts (i.e. complete exits from trainees' dual vocational education and training) in eastern Germany.

A4.2 Characteristics of trainees

Proportion of women in dual training occupations

In the 2017 reporting year, the proportion of all trainees in the dual system represented by women was 37%. This figure was once again lower than that recorded in the previous year (37.8% in 2016). The declining trend of recent years persisted. This meant that the total number of female trainees in proportional terms was 4.0 percentage points lower than it had been at the start of the 2000s. According to the Applicant Survey carried out by

the Federal Employment Agency (BA) and the Federal Institute for Vocational Education and Training (BIBB), the reasons for this gender imbalance also have much to do with different occupational wishes. Women are primarily interested in commercial and service occupations and are disproportionately more likely to wish to enter school-based vocational education and training. The proportion of females in the liberal professions in 2017 is 92.5%. This represents a decline compared to the past two years, but the figure remains relatively constant. The same applies to the area of housekeeping, in which 9 out of 10 trainees (89.4%) are female. In the area of responsibility of the public sector, women have also had above-average representation since 1999, reaching levels of between 63% and 65%. There has been a significant increase in this regard over the course of time compared to the figure for 1992 (50.7%). A different picture emerges in the major areas of responsibility of trade and industry and the craft trades, in which the proportions of women have traditionally been significantly lower. A falling trend has been discernible in the area of trade and industry since the 1990s (43.5% in 1996, 35.7% in 2017). Strong declines of this nature are not revealed for the proportion of women in the craft trades if a long-term comparison is undertaken. Although the 2017 figure was relatively low at 20.3%, this contrasts, for example, with a rate of 19.3% recorded in 1996. In 2017, over half of all female trainees in the dual system (50.8%) were distributed across only 9 occupations. The spectrum for male trainees encompassed 16 occupations and was thus appreciably wider.

Proportion of foreigners in dual training occupations

The number of foreign nationals as a proportion of trainees has declined sharply since the beginning of the 1990s. Whereas foreigners made up 8% of all trainees in 1994, this proportion had virtually halved by 2006 (4.2%). This declining trend has reversed over recent years, and a constant increase has been recorded since 2007. The proportion of foreign nationals reached 8.6% in 2017 (113,238 trainees), the highest figure recorded since 1992. This development is likely to have been mainly driven by an increase in the number of refugees. Over the past few years, there has been in particular a significant increase in the total number of trainees holding the nationality of a (non-European) country of asylum-seeker origin. The proportion of foreign nationals has risen in all areas of responsibility compared to the previous year. The clearest rises between 2016 and 2017 once again occurred in the craft trades (8.8% in 2016, 10.9% in 2017, +2.1 percentage points), in housekeeping (6.7% in 2016, 8.2% in 2017, +1.5 percentage points) and in the area of trade and industry (6.3% in 2016, 7.3% in 2017, +1 percentage point). The highest proportion of foreign nationals, 13.4%, is still to be found in the area of the liberal professions.

Age of trainees

The average age of trainees concluding a new training contract has risen virtually continuously over the last two decades. Although differences in the surveying and calculation method mean that values prior to and after 2006 are not directly comparable, an increase in average age is revealed both for the period from 1993 (18.0) and 2006 (18.8) as well as for the time between 2007 (19.1) and 2017(19.9). In 1993, more than half of trainees concluding a new training contract were aged below 18. By the 2017 reporting year, this figure had fallen to 26.2%. The rise in the average age of trainees concluding a new training contract has been caused by longer periods of schooling at lower secondary level as trainees increasingly achieve higher school leaving qualifications and by longer durations of transition to VET. In the case of newly concluded training contracts, the average age of women in the 2017 reporting year was, as in most previous years, only slightly higher than that of men (20.0 years as opposed to 19.8 years). The average age of trainees (newly concluded contracts) not in possession of a German passport was 22.0 years. This was more than two years higher than trainees who were German nationals (19.6 years).

A4.3 Prior learning of trainees with a newly concluded contract

These statistics define newly concluded training contracts as being contracts which commenced and were entered into in the 2017 reporting year and which had not been dissolved by 31 December. Three types of prior learning are mapped for all trainees. These are information regarding the highest general school leaving qualification achieved, information regarding prior participation in a vocational preparation scheme or in basic vocational training, and information regarding previous vocational education and training.

Highest general school leaving qualification achieved by trainees with a newly concluded training contract

The trend of recent years towards higher qualifications continued in the 2017 reporting year in respect of the general school leaving qualifications obtained by trainees in the dual system. Trainees with an intermediate secondary school leaving certificate still account for the largest school qualifications group within dual VET (214,236 newly concluded contracts in 2017). However, significant shifts have taken place at the upper and lower

Figure A4.3-1: **Prior school learning of trainees with a newly concluded training contract 2009 to 2017 (in %)[1]**

[1] Qualifications acquired abroad which cannot be aligned and missing information regarding school leaving qualification were not included in the percentage calculations.

Source: "Trainee Database" of the Federal Institute for Vocational Education and Training based on data from the Vocational Education and Training Statistics of the Federal Statistical Office and the statistical offices of the federal states (survey as of 31 December), reporting years 2009 to 2017. (Previous year's figures needed to be used for Bremen for the 2015 reporting year because no data reporting took place). Calculations by the Federal Institute for Vocational Education and Training.

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edge in recent years. 148,029 new training contracts were concluded with the group of trainees in possession of a higher education entrance qualification. This represented an increase. Conversely, the number of new contracts concluded with trainees with a lower secondary school leaving certificate continued to decline (see Figure A4.3-1).

Differentiations emerge if consideration is given to the distribution of school qualifications of trainees with newly concluded training contracts in 2017.

- By federal states: The proportion of new training contracts concluded by young people with an intermediate secondary school leaving certificate was significantly higher in eastern Germany than in western Germany (48.6% as opposed to 41.3%). In western Germany, on the other hand, there was a higher proportion of trainees in possession of the lower secondary school leaving certificate (25.1% as opposed to 22.2%), and the share of trainees with a higher education entrance qualification was also more pronounced (30.0% versus 25.0% in eastern Germany).
- By gender of the trainees: In 2017, 35.5% of female trainees concluding a new training contract were in possession of a higher education entrance qualification. The corresponding figure for male trainees was only 25.4%. On the other hand, 28.0% of men had a lower secondary school leaving certificate, whilst this was true for only 19.3% of women. Proportions of trainees with an intermediate secondary school leaving certificate were virtually identical (men 42.1%, women 42.7%).

Trainees without a lower secondary school leaving certificate

In the 2017 reporting year, 18,729 training contracts were reported as being concluded with trainees who

had failed to achieve a lower secondary school leaving certificate. This proportion has risen to a significantly greater degree amongst trainees who are foreign nationals (10.5% in 2017 versus 6.5% in 2016) than amongst trainees who are German nationals. In the latter case, the proportion remains almost unchanged (3.0% in 2017 as opposed to 2.9% in 2016). Trainees without a lower secondary school leaving certificate exhibited a comparatively high average age of 20.6 years. Trainees without a lower secondary school leaving certificate are heavily underrepresented in most areas of responsibility. In 2017, almost a third (31.1%) of new contracts in the area of responsibility of housekeeping were concluded with trainees who had not achieved the lower secondary school leaving certificate. As in the previous years, the most popular occupation amongst trainees without a lower secondary school leaving certificate was sales assistant for retail services, in which 5.9% of new contracts were concluded for this group.

Trainees with a lower secondary school leaving certificate

The number of new training contracts concluded by young people in possession of a lower secondary school leaving certificate has been in significant decline for years, and a new low point of 125,136 was reached in the 2017 reporting year. Differentiation by the individual areas of responsibility shows that trainees with a lower secondary school leaving certificate are still more likely to enter the craft trades (39.8% in 2017, although this represents a significant fall compared to the figure of 53.7% recorded in 2009), housekeeping (50.7%) and agriculture (29.8%). In 2017, the two-year training occupation of sales assistant for retail services, in which 10,665 new contracts were concluded (8.5%), was once again the most popular option for trainees with a lower secondary school leaving certificate.

Trainees with an intermediate secondary school leaving certificate

Over the past few years, young people in possession of an intermediate secondary school leaving certificate have constantly formed the largest group of types of school qualification. In 2017, the total number of new training contracts concluded with young people with an intermediate secondary school leaving certificate was 214,236. Because of their numerical dominance, intermediate secondary school leavers are also more likely to be strongly represented in the individual areas of responsibility. One exception in this regard is housekeeping, where they make up only 14.9% of training entrants. By way of contrast, the proportion of intermediate secondary school leavers in the liberal professions is 54.7%, an unusually high figure. In 2017, the shares of intermediate secondary school leavers in the two major areas of responsibility of trade and industry and the craft trades were 41.4% in each case.

Trainees with a higher education entrance qualification

Unlike the proportion of training entrants with a lower secondary school leaving certificate, the share of trainees in possession of a higher education entrance qualification has been rising for a number of years. In 2017, the number of newly concluded training contracts increased once more to reach a new record high of 148,029. Within the individual areas of responsibility, the proportion of trainees in possession of a higher education entrance qualification fluctuates significantly in some cases. In the public sector, for example, more than half of all new training contracts (55.5%) in 2017 were concluded with trainees who had achieved a higher education entrance qualification. There was also strong representation in the area of trade and industry (35.5%). On the other hand, trainees with a higher education entrance qualification were much less likely to be represented in the area of housekeeping in particular (3.4%).

A4.4 Trainees with prior participation in vocational preparation and basic vocational training

The transitional sector enables young people who do not fulfil the prerequisites for the commencement of vocational education and training or cannot find a training place for other reasons to improve their individual competencies with a view to entering training or employment. Nevertheless, these education and training courses do not lead to a full vocational qualification.

The number of entrants to the transitional sector declined steadily (by around 40%) between 2005 and 2014. A more favourable training market situation and demographic developments were particular reasons for this. An increase began to occur once more from 2015 onwards. This rise was mainly caused by a greater influx of refugees, who progressed to programmes in the transitional sector in order to improve their knowledge of the German language in particular. In the case of newly concluded training contracts in the dual system, which are preceded by vocational preparation or basic vocational training, there is a time delay before this increase in the transitional sector is revealed. Tendencies in this direction are discernible in the 2017 reporting year.

Table A4.4-1: **Previous participation in vocational preparation training or basic vocational training by areas of responsibility' Germany 2017**[1]

Area of responsibility	Total new training contracts	Previous participation in vocational preparation training or basic vocational training (multiple responses possible)											
		Total[2]		of which:									
				Company-based training measure		Prevocational training measure		School-based vocational preparation year		School-based basic vocational training year		Full-time vocational school not leading to a full vocational qualification	
	Absolute terms	Absolute terms	%	Absolute terms	%	Absolute terms	%	Absolute terms	%	Absolute terms	%	Absolute terms	%
Trade and industry	302,940	16,842	5.6	1,782	0.6	3,036	1.0	2,157	0.7	822	0.3	9,636	3.2
Craft trades	140,295	23,238	16.6	4,047	2.9	4,632	3.3	2,712	1.9	6,216	4.4	6,324	4.5
Public sector	13,869	354	2.6	84	0.6	60	0.4	24	0.2	21	0.2	171	1.2
Agriculture	13,464	2,571	19.1	273	2.0	588	4.4	357	2.7	1,179	8.8	231	1.7
Liberal professions	43,038	2,211	75.1	600	1.4	612	1.4	414	1.0	177	0.4	711	1.7
Housekeeping	2,073	1,053	50.8	18	0.9	648	31.3	246	11.9	36	1.7	147	7.1
Total	**515,679**	**46,269**	**9.0**	**6,810**	**1.3**	**9,573**	**1.9**	**5,910**	**1.1**	**8,451**	**1.6**	**17,220**	**3.3**

[1] Alignment of trainees to the areas of responsibility is generally determined by the competent body in charge of the training occupation rather than by the company providing training. Apprentices who are being trained in public sector companies or in liberal professions in the private sector economy are aligned to the areas of responsibility of trade and industry or craft trades.

[2] Total values are lower than the line totals for the individual measures because of the possibility of multiple responses.

Source: BIBB "Trainee Database" provided by the Federal Statistical Office based on data from the Vocational Education and Training Statistics of the Federal Statistical Office and the statistical offices of the federal states (survey as of 31 December), 2017 reporting year.
For data protection reasons, absolute values are rounded to a multiple of 3. For this reason, the overall value may deviate from the total of the individual values. Calculations by the Federal Institute for Vocational Education and Training

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Of the total of 515,679 new training contracts concluded in the 2017 reporting year, 46,269 were registered as involving participation in a measure in the transitional sector. This means that the proportion of young people who completed a vocational preparation measure and/or basic vocational training prior to training rose slightly compared to the previous year to 9.0% (as opposed to 8.9% in 2016). See Table A4.4-1 in this regard.

Especially in the light of the frequently bemoaned lack of apprenticeship entrance maturity displayed by young people and the necessary second chance qualification this entails, it seems useful to undertake a differentiated consideration of general school leaving qualification in connection with participation in vocational preparation training and basic vocational training. Although school leaving qualifications do not constitute a formal prerequisite for entry to VET pursuant to the BBiG/HwO, it has been shown that school leavers in possession of the lower secondary school certificate or without any qualification are significantly less likely to progress to training immediately upon completion of general schooling. The significant differences, which emerge from a consideration of proportions of vocational preparation training and basic vocational training differentiated according to general school leaving qualification, thus come as little surprise. In 2017, around a fifth (20.4%) of trainees without a lower secondary school leaving certificate who concluded a new training contract had previously completed a measure in the transitional area. The proportions of those in possession of a lower (14.4%) or intermediate (7.7%) secondary school leaving certificate remained at the levels of the previous year. As expected, proportional values fall in line with the rising level of the general school leaving qualification achieved by the trainees. The lowest proportion, 4.5%, was recorded for those with a higher education entrance qualification.

Differences are also found if a comparison is made between proportions of prior vocational preparation and basic vocational training amongst newly concluded contracts for women and men. As in the previous year, one in ten (10.2%) male trainees had previously completed such a measure. The corresponding figure for women was 7.0%. Differences relating to nationality (Germans/foreign nationals) in connection with prior participation in measures in the transitional sector are amplified compared to the previous year. 11.8% of trainees without German nationality had previously completed vocational preparation or basic vocational training measures (10.5% in 2016). The corresponding figure for German nationals was 8.6% (as opposed to 8.8% in 2016).

A4.5 Training place applicants of the Federal Employment Agency – situation of groups which are significant in educational policy terms

Training place applicants have a higher risk of not finding a training place and of remaining outside training provision for the long term, if they wish to commence a programme of training at an earlier point in time than the current training year (unplaced applicants from previous years), if they have a migration background or if they are applicants who have broken off contact with the Federal Employment Agency (BA) and whose destination is unknown. For this reason, they are considered important educational policy target groups, and the focus is on supporting them in making the transition to training. Analyses of the BA training market statistics show that information regarding destination is more likely to be absent for applicants who have a background of forced migration. Such applicants are also less likely to commence training.

Every two years, the Federal Institute for Vocational Education and Training (BIBB) joins forces with the BA to conduct a representative survey of young people and young adults who were registered with the BA as training place applicants in the placement year. The aim is to improve the data situation relating to registered training place applicants and to obtain information on applicant groups, which are relevant to educational policy. The BA/BIBB Applicant Surveys[11] are carried out at the instruction of the Federal Ministry of Education and Research (BMBF) and take place after completion of the respective current placement or reporting year of the BA (30.09.). The high educational policy significance attached to the topic of integration of refugees into vocational education and training means that training place applicants with a migrant background and the sub-group of applicants from a refugee background both constitute a central target group. For this reason, the BA's training reporting has additionally been surveying since 2016 whether a migrant background is in place in respect of applicants who are third-country nationals (persons within the context of refugee migration). Refugee background is recorded via the residence permit of the training place applicants.

11 As was the case with previous Applicant Surveys, the 2018 BA/BIBB Applicant Survey is a written postal representative survey of young people and young adults who were registered with the Federal Employment Agency (BA) as training place applicants. However, the 2018 BA/BIBB Applicant Survey was different in that it only included applicants who, according to the BA's training statistics, were not from a refugee background. Applicants from a refugee background were surveyed separately within the scope of the 2018 BA/BIBB Forced Migration Survey.

The group of applicants with a migrant and refugee background

According to the training market statistics of the BA, 17% of registered training place applicants in the 2018 reporting year held a foreign nationality. 7% of these were third-country nationals who were categorised as applicants from a refugee background on the basis of their residence permit. Most of the refugee applicants hold foreign qualifications which have either not been recognised in Germany or are still undergoing the recognition procedure. It may also be the case that no application for recognition has yet been made.

Evaluations of the 2018 BA/BIBB Applicant Survey and of the 2018 BA/BIBB Forced Migration Survey showed that 30% of applicants in the 2018 reporting year were from a migrant background but not from a refugee background. A further 6% were from a refugee background. The total number of migrants as a proportion of registered applicants in 2018 was thus 36%, more than twice as high as the proportion of applicants holding foreign citizenship. The proportion of applicants from a migrant background has risen considerably over the past years. It grew from only 20% in 2004 to 29% in 2016. A further significant increase occurred from 2016 to 2018. The rising proportions of refugees amongst registered applicants are a further reason for this latest development.

A4.6 Regional mobility

Mobility of trainees – results of the Employment Statistics

The mobility of young people may help to alleviate regional imbalances between supply and demand on the training market. Another possible consequence, however, is that significantly more training place applicants may be active in regions which young people perceive as being attractive in terms of the provision on offer and may indeed outnumber the applicants from the region itself. Mobility may thus also cause ratios on the training market to worsen insofar as local training applicants do not display the same degree of mobility willingness as potential applicants from outside the area. Information on the mobility of young people can be obtained from the Employee Statistics of the Federal Employment Agency (BA). However, the mobility rendered visible in the BA Employee Statistics merely reflects *successfully realised mobility* in cases where young people do not change their main place of residence following commencement of a training programme outside their immediate region.

During the reporting period, around 109,700 of the 1,602,700 trainees, or 6.8%, did not live in the same federal state as their company providing training was located. *Mobility willingness effectively activated* – which is measured against the unknown number of young people contained in the official statistics who are potentially interested in training and who make both *successful* and *unsuccessful* applications outside their region – must be estimated as being even higher than successfully realised mobility. This figure is then in turn exceeded by the number of persons with *latent mobility willingness*, a category which encompasses everyone prepared to consider training place provision outside their own home region in the event of experiencing difficulties in the search for an apprenticeship.

Mobility actually realised between federal states

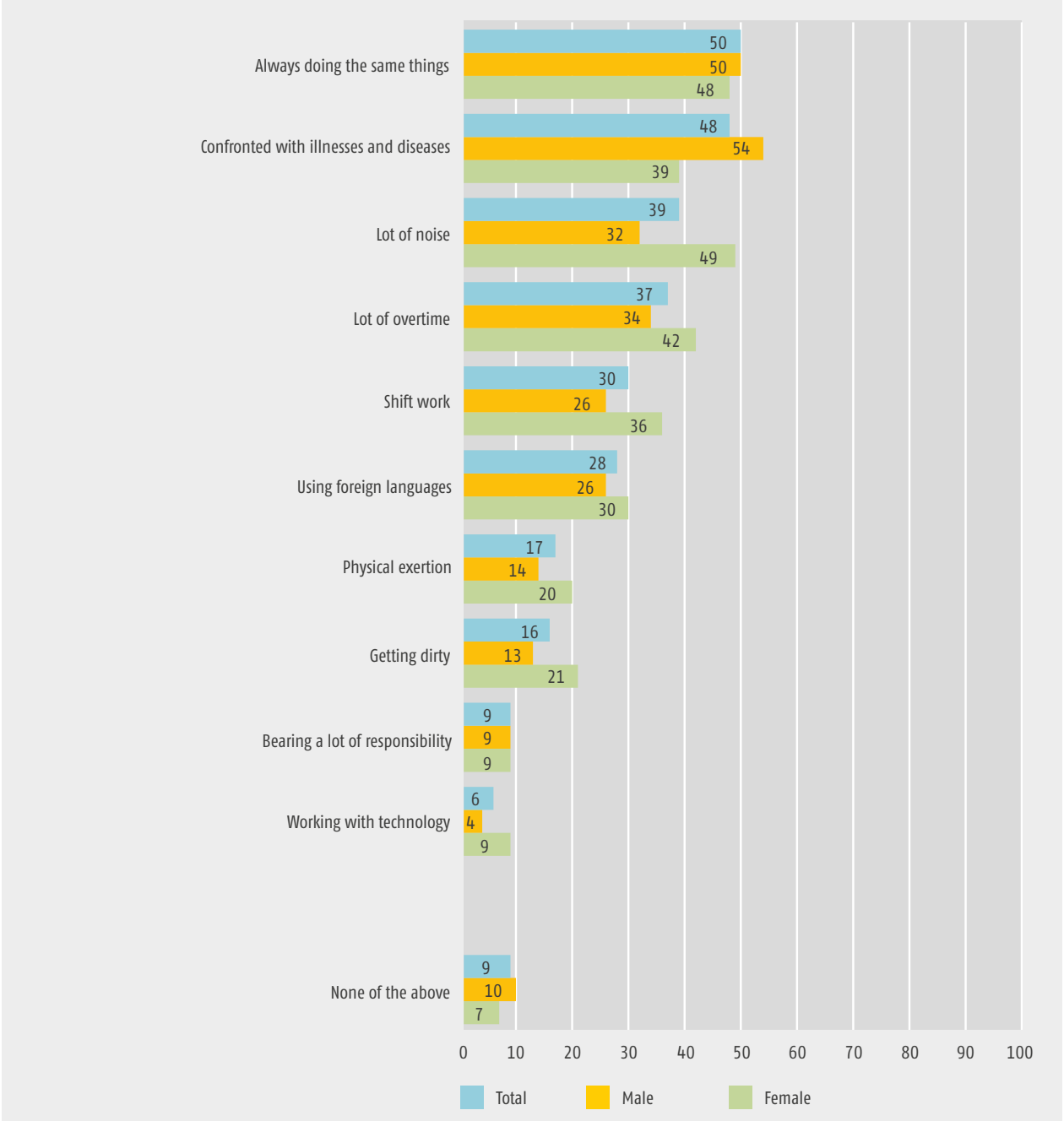
As a result of mobility across the federal states, larger proportions of available training places in the city states in particular are filled by residents from outside the state. The proportions of trainees who commute in are 38.4% in Bremen, 32.4% in Hamburg and 20.4% in Berlin. Although the city states also have trainees who commute out (Bremen 16.1%, Hamburg 13.1%, Berlin 9.1%), the rate of incoming commuters is significantly higher. From the perspective of the young people, the states in which mobility particularly reduces pressure on training markets are Brandenburg (19.6% of trainees living in Brandenburg are completing their training in Berlin), Schleswig-Holstein (11.3% in Hamburg), Saxony-Anhalt (3.2% in Lower Saxony and 3.0% in Saxony), Lower Saxony (2.5% in Hamburg and 3.4% in Bremen) and Thuringia (3.1% in Bavaria, 2.0% in Hessen, and 2.5% in Saxony). In these cases, the rates of trainees commuting out into other federal states are significantly higher than the rates of those commuting in from other states. The states in which most resident trainees actually also receive their training are Bavaria and North Rhine-Westphalia (each 97.1%), followed by Baden-Württemberg (95.9%).

A4.7 Regarding the question as to why occupations are not chosen

Young people's career choice has long been an object of research in various disciplines.

The focus in this regard is mostly on creating harmony between the interests and abilities of the young people and the requirements of the respective occupations. Less attention thus far has been devoted to aspects such as the characteristics of occupations which might deter applicants from entering them. However, so-called aversion

Figure A4.7-1: **Aversive characteristics which applicants avoid when choosing an occupation, by gender[1] (in %)**



[1] Respondents who failed to indicate individual characteristics or the "none of the above" option were excluded from the analysis. Multiple responses were possible.

Source: 2018 BA/BIBB Applicant Survey; calculations by the Federal Institute for Vocational Education and Training (weighted) VET Data Report Germany 2019

factors are highly significant in terms of deliberating whether a certain occupation is a possible option for young people. Some of the current matching problems on the training places market are of an occupationally specific nature. One of the ways in which this is manifested is that some training occupations are facing a lack of demand, meaning that some available training places in these occupations cannot be filled. There may be false ideas regarding the task contents of individual occupations, or else aversive factors may be ascribed to them. Another aspect exerting an effect is the perception of an absence of characteristics that would enhance the attractiveness of the occupations in question.

Aversive characteristics

A survey covering 10 potentially aversive characteristics revealed that monotony of task contents was the drawback most frequently stated. This represents an occupational exclusion criterion for half of the respondents. Almost as many of the survey participants (48%) felt that confronting the illnesses of other people was an aversive characteristic. Nearly 4 in 10 rejected the notion of working in an occupation in which they would be subjected to a high degree of noise nuisance. The next factors in descending order were characteristics relating to working time in the form of necessity for large amounts of overtime (37%) and shift work (30%). As Figure A.4.7-1 illustrates, there are also clear differences between men and women with regard to the evaluation of aversive factors.

Indispensable characteristics

Alongside characteristics which young people take into account when deciding against an occupation, career choice is also informed by factors which they view as being indispensable criteria for an occupational activity. The characteristic most frequently stated to be indispensable is that an occupation must offer good labour market opportunities (70%). The career opportunities provided by an occupation followed some distance behind (56%). Almost the same amount of respondents (55%) thought that it was vital to be able to work with people, and just over half (52%) wished to be able to bring their own ideas and suggestions into the workplace.

A5 Training contracts

A5.1 Newly concluded training contracts in the Vocational Education and Training Statistics

Training contracts commenced in the calendar year and undissolved as of 31 December are recorded as "newly concluded training contracts" by the Vocational Education and Training Statistics of the Federal Statistical Office and the statistical offices of the federal states. The term "newly concluded training contracts" as applied within the scope of the VET Statistics differs in many regards from the definition of newly concluded training contracts as recorded by the BIBB survey as of 30 September. In the two surveys, these terms differ both in respect of the time reference and with regard to the fact that the VET Statistics count newly concluded contracts at the point when training is commenced rather than upon their conclusion.

A total of 515,679 new training contracts which had not been dissolved as of 31 December 2017 were entered into the 2017 reporting year. This represents a slight rise of 1.1% (509,997) in the number of new training contracts compared to the previous year. Development vis-à-vis the previous year varied between the federal states from -3.3% (Saarland) to +4.7% (Saxony).

Part-time training contracts

Pursuant to § 8 Paragraph 1 Clause 2 BBiG, part-time vocational education and training contracts are VET contracts in which daily or weekly training time is shortened. In the 2017 reporting year, they still only accounted for a very small proportion of 0.4% of all newly concluded training contracts. Only 2,223 new training contracts were reported as being part-time VET contracts. Their proportion did not exceed 1.1% in any federal state.

Within the VET Statistics for the 2017 reporting year, 19.2% of all newly concluded contracts were reported as being shortened by at least six months (not including follow-up contracts). Above-average rates of shortening of training contracts were reported from Baden-Württemberg, where the figure was 26.7%, and from Hamburg and Bavaria, each approximately 22.6%. In overall terms, these shortenings were disproportionately likely to be recorded in the area of responsibility of agriculture (31.8%), but in individual federal states they were also observed in other areas of responsibility.

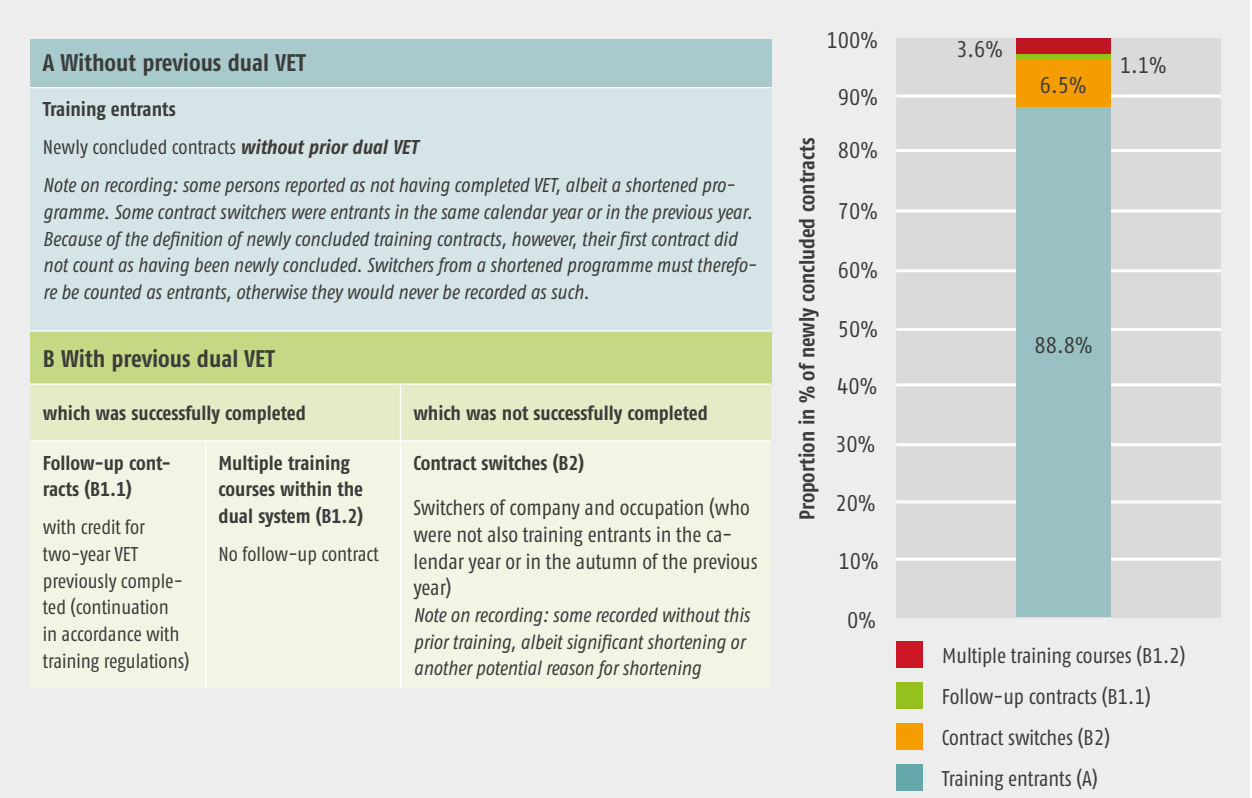
Newly concluded contracts with previous VET

Alongside other reasons such as prior participation in basic vocational training or vocational preparation, previous vocational education and training may constitute a further cause for shorter training contracts. Clear differences with regard to previous VET emerged between the federal states and between the areas of responsibility. Above average proportions were revealed in eastern Germany in particular (between 12.6% and 17.1%). In overall terms, relatively high proportions of new training contracts following prior VET were recorded in the craft trades (national average 17.8%).

Training entrants and other types of newly concluded contracts

If training entrants are also delineated by agreed duration of contract rather than merely by information regarding previous vocational education and training, approximately 89% of new contracts can be identified as having been concluded by entrants. The remaining 11% are distributed across those who have already successfully completed a course of VET (around 4.7%) and those who switch contracts (6.5%). Figure A5.1-1 provides a

Figure A5.1-1: **Training entrants and other types of newly concluded training contracts, Germany 2017**



Source: BIBB "Trainee Database" provided by the Federal Statistical Office based on data from the Vocational Education and Training Statistics of the Federal Statistical Office and the statistical offices of the federal states (survey as of 31 December), 2017 reporting year. Calculations are delineations made by the Federal Institute for Vocational Education and Training (characteristic follow-up contract registered).

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summary of how newly concluded training contracts are distributed across training entrants and other types of contracts (non-entrants).

A5.2 Premature dissolution of training contracts[12]

The topic of premature contract dissolutions has been an object of debate in dual vocational education and training since the 1980s, when there was a steep rise in such dissolutions. The reduction of contract dissolutions or the avoidance of training dropouts in dual VET continues to form part of the educational policy agenda and is gaining considerable attention, especially also against the background of a feared shortage of skilled workers. Premature contract dissolutions in dual VET usually take place in the form of a termination agreement or via the giving of notice. Not every contract dissolution means complete discontinuation of dual VET. Around half of all persons who prematurely dissolve their contract subsequently conclude a new training contract in the dual system.

In the 2017 reporting year, 145,998 training contracts were dissolved nationally prior to the expiry of the training time stated in the contract, accounting for 25.7% of the number of training contracts commenced. A consideration of the time which elapses between the beginning of training contracts and premature dissolution shows that, as in previous years, the dissolution of about two thirds of dissolved training contracts happens within the first year following commencement of training. 33.6% of all contract dissolutions occurred during the probationary period and 32.8% after the probationary period but within the first 12 months following commencement of training. A large proportion of dissolutions, 23.6%, also took place in the second year of the contract. More than 24 months had elapsed since the start of the contract in the case of 10% of dissolutions.

Contract dissolutions are predominantly viewed as a phenomenon of the failure of trainees. However, more

12 Prematurely dissolved training contracts are defined as contracts which are terminated before expiry of the period of training stated.

recent analyses show that company and occupational characteristics exert a significant effect on the risk of dissolution alongside the school leaving qualification. The descriptive results presented here should not be interpreted as causal. If, for example, average dissolution rates happen to be very high in the case of young people with a lower secondary school leaving certificate or in occupations in the craft trades sector, this does not mean that the lower secondary school leaving certificate or the craft trades sector are the inherent reason for the higher risk of dissolution. The causes of contract dissolutions are multifarious and complex. Young people in possession of the lower secondary school leaving certificate are, for example, more likely to be found in more unstable training arrangements. They are also less likely to be working in their preferred occupation, and this leads to a higher risk of dissolution. The craft trades contain significantly higher proportions of trainees with lower school leaving qualifications than the area of trade and industry. The craft trades sector also tends to be characterised by small-company structures. Both of these aspects increase the risk of dissolution.

If trainees or companies providing training are directly asked about the reasons for premature contract dissolutions, the various studies largely arrive at consistent findings. Depending on whether (former) trainees or companies providing training are surveyed, the reasons given for contract dissolutions or for considering the idea of a contract dissolution are company training conditions or training performance of the young people. If companies or trainers are asked, the main reasons stated lie within the scope of responsibility of the young people. Examples include flawed vocational orientation or career choice, poor motivation (periods of absence, insufficient identification with the company), and lack of perseverance and effectiveness on the part of the trainees (inadequate performance at the company, inability to cope). If young people or (former) trainees are surveyed, they predominantly make mention of company reasons such as conflicts with trainers and line managers and insufficient quality of training (employment instead of training, poor imparting of training contents). They also cite working conditions including unpaid overtime, inconvenient working times and provisions for paid leave. Occupation-related reasons are predominantly given by those who state that they have been unable to realise their preferred occupation or who imagined that the occupation would be different. Nevertheless, consideration needs to be accorded to the fact that asking about reasons directly does not constitute a cause analysis. As the findings show, there is a risk of retrospective justifications and instances of the mutual attribution of blame.

A5.3 Final examinations in vocational education and training and pass rates

At the end of the training time, final examinations are held in all recognised training occupations in the dual system pursuant to the Vocational Training Act (BBiG) or the Crafts and Trades Regulation Code (HwO). Their purpose is to provide evidence that the requisite employability skills have been achieved by determining whether candidates have acquired the skills, knowledge and competencies necessary for the awarding of certification and for the qualified exercising of the occupation in which training has taken place (pursuant to § 38 BBiG/ § 32 HwO). If the final examination is not passed, it may be resat on a maximum of two occasions (§ 37 Paragraph 1 BBiG/§ 31 Paragraph 1 HwO).

Final examinations of trainees and pass rates in time comparison terms

Table A5.3-1 shows the development of participations and candidates in final examinations by trainees in dual VET and pass rate indicators since 1993. Considerable amendments to data collection mean that values before and after 2007 are not fully comparable. Further particular characteristics in individual years also make it more difficult to conduct a time comparison. A decrease in the number of examination participations could be observed for most of the years considered. The table contains two pass rates. The first of these (PR I) relates to all examination participations. If resits take place, this rate will be lower than the second pass rate (PR II), which relates to all examination candidates.

Infobox

2 pass rates for the final examinations can be calculated on the basis of the Vocational Education and Training Statistics. Each of these relates to the reporting year.

PR I The amount of examinations passed as a proportion of all examination participations in a reporting year.

PR I = (number of final examinations passed: number of all examination participations) * 100

PR II $_{new}$: The number of trainees who have passed examinations as a proportion of all examination candidates in a reporting year.

PR II $_{new}$: = (number of final examinations passed: number of all examination candidates) * 100

Table A5.3-1: **Final examinations in dual vocational education and training – participations, candidates and pass rates 1993 to 2017, Germany**

Year	Final examination (in absolute terms)[1]		*Including:* Resit[2]		Examinations passed		
	Examination participations	Examination candidates	Absolute terms	In % of all examination participations	Absolute terms	In % of examination participations (PR I)	In % of examination candidates (PR II)[3]
1993	612,330	-	53,148	8.7	527,370	86.1	94.3
1994	637,107	-	58,773	9.2	544,560	85.5	94.2
1995	592,503	-	59,403	10.0	502,674	84.8	94.3
1996	576,699	-	57,153	9.9	488,244	84.7	94.0
1997	573,288	-	59,238	10.3	482,247	84.1	93.8
1998	577,584	-	62,685	10.9	487,179	84.3	94.6
1999	576,855	-	58,719	10.2	491,238	85.2	94.8
2000	588,603	-	57,468	9.8	502,578	85.4	94.6
2001	597,288	-	58,749	9.8	514,005	86.1	95.4
2002	602,331	-	60,267	10.0	513,444	85.2	94.7
2003	590,775	-	60,702	10.3	504,273	85.4	95.1
2004	574,962	-	61,422	10.7	492,837	85.7	96.0
2005	560,016	-	60,501	10.8	477,789	85.3	95.7
2006	559,299	-	54,825	9.8	479,574	85.7	95.1
2007[4]	-	-	-	-	-	-	-
2008[1]	504,438	494,685	29,193	5.8	454,851	90.2	91.9
2009[1]	519,609	509,667	30,804	5.9	468,852	90.2	92.0
2010	535,791	523,461	32,850	6.1	479,031	89.4	91.5
2011	531,501	517,119	38,523	7.2	476,580	89.7	92.2
2012	495,213	482,064	34,731	7.0	445,443	89.9	92.4
2013	478,374	465,714	32,700	6.8	430,275	89.9	92.4
2014	470,868	458,778	32,769	7.0	424,029	90.1	92.4
2015	460,602	448,152	32,028	7.0	414,543	90.0	92.5
2016	444,207	431,667	31,008	7.0	399,798	90.0	92.6
2017	435,042	423,339	29,409	6.8	392,685	90.3	92.8

[1] All examination participations (only final examinations, not part examinations) were recorded until the 2006 reporting year. Until 2006, therefore, external examinations (between about 21,000 and 30,000 a year) and retraining examinations in the craft trades were also included alongside final examinations taken by trainees. 2008 is the first reporting year for which the number of examination participations can be identified on the basis of the recording of individual data.

[2] In 2008 and 2009, only one resit – the final resit – was recorded in each case. For this reason, both the number of examination participants and the number of resits are likely to have been under reported. All resits are recorded from the 2010 reporting year onwards.

[3] Until 2006, PR II could only be recorded via aggregate data on the basis of a broad approximate value for the number of examination candidates (number of examination candidates = number of final examinations minus number of resits). Presumably, this led to an underestimation of the number of examination candidates and to an overestimation of PR II.

[4] No examination data was published for 2007 due to considerable problems in reporting. Wide-ranging adjustments to the vocational education and training statistics mean that no direct comparison can be made between values before and after 2007.

Source: "Trainee Database" of the Federal Institute for Vocational Education and Training based on data from the Vocational Education and Training Statistics of the Federal Statistical Office and the statistical offices of the federal states (survey as of 31 December), reporting years 1993 to 2017 (maritime sector is only included until 2006; previous year's figures needed to be used for Bremen for the 2015 reporting year because no data reporting took place). Absolute values are rounded to a multiple of three for data protection reasons. Calculations by the Federal Institute for Vocational Education and Training.

Examination participation and pass rates 2017 – first and resit examinations

Trainees are admitted to the final examination if they have completed the regular or contractually stipulated period of training ("scheduled admission" pursuant to § 43 Paragraph 1 BBiG/§ 36 Paragraph 1 HwO). If the training period is extended in order to achieve the training objective (§ 8 Paragraph 2 BBiG/§ 27b Paragraph 2 HwO), then admission to the final examination accordingly takes place at a later date. Admission may, however, also take place prior to expiry of the regular period of training if a trainee produces particularly good levels of performance ("early admission" pursuant to § 45 Paragraph 1 BBiG/§ 37 Paragraph 1 HwO).

In the 2017 reporting year, scheduled admission was reported for just over 90% of all candidates for a final examination. The pass rate is clearly shown to decline constantly following each attempt at the examination (first examination and second resit). In 2017, the average pass rate for the first attempt at the examination was 92.1%. The pass rate for all candidates who failed at the first attempt and took a first resit in 2017 was only 67.9%. The pass rate fell to as low as 52.6% for those attempting the examination for a third time in 2017. A total of 30,654 candidates failed the examination in 2017.

Pass rate by gender and nationality

The pass rates for men (92.3% of candidates) and for women (93.4% of candidates) were similarly high in 2017, although a slightly higher proportion of men needed resits to achieve this. There is a clearer difference between pass rates in the case of candidates who are German nationals and those who are not. 93.3% of all German candidates passed the final examination in 2017. The corresponding pass rate for foreigners was only 84.8%. The differences in pass rates between Germans and foreign nationals were particularly high in training occupations in agriculture (11 percentage points). Differences in housekeeping were small (1.8 percentage points), although the total number of foreign candidates in these two areas of responsibility was very low.

Pass rates by general school leaving qualification

Pass rates differ significantly by the highest general school leaving qualification of the examination candidates. In 2017, the pass rate amongst candidates who had not achieved any school qualification higher than a lower secondary school leaving certificate was 84.8%. The rate was just under 10 percentage points higher (94.4%) for those with the intermediate secondary school leaving certificate. The pass rate for candidates in possession of a higher education entrance qualification was 97.8%. These higher pass rates were achieved even if the proportion of resits was significantly lower. The differences by general school leaving qualification are similarly revealed in all areas of responsibility.

Participations in external examinations

As in the previous years, the 2017 reporting year saw a decline in the number of participations in external examinations[13] (including resits). 26,490 external examinations were conducted, just under 1,161 fewer or 4.2% less than the level recorded in the previous year. The decline in 2017 was caused by fewer participations by those who had completed full-time school-based programmes and by fewer participations by persons with occupational experience. 21,300 externally admitted candidates passed the examination in 2017 and were thus able to acquire a qualified vocational qualification via this route.

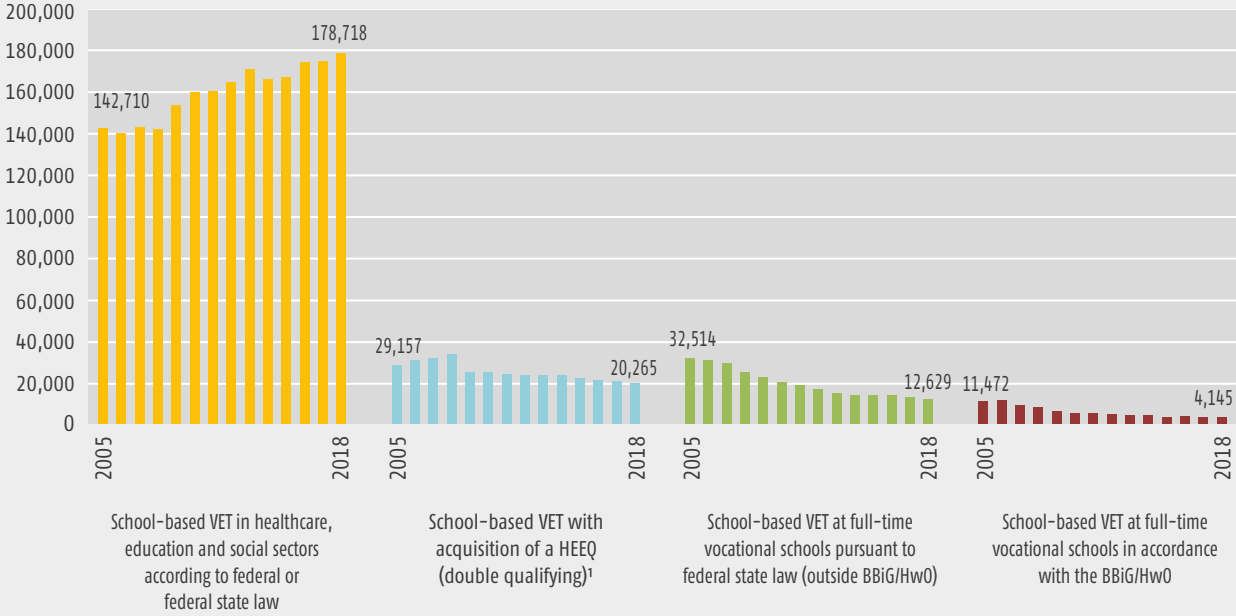
A6 Training in the vocational school system, in the public sector and at institutes of higher education

A6.1 School-based vocational education and training

Vocational education and training at vocational schools, referred to in abbreviated form as "school-based VET", describes a highly heterogeneous field. This construct covers various forms of training, the common factor being that such training does not take place within the dual system pursuant to the BBiG/HwO. Most school-based VET lies within the area of cultural sovereignty of the federal states and is thus governed by federal state law. National framework agreements of the Conference of the Ministers of Education and Cultural Affairs (KMK) are in place for many training courses regulated by federal state law. Alongside training courses governed by federal state law there are, however, examples of training which come under the jurisdiction of federal law (outside the BBiG/HwO). There are, for instance, 17 occupations in the

13 Alongside the final examination following dual VET and after having concluded a training contract in the dual system, the BBiG (and the HwO) offer further possibilities for admission to the final examination conducted by the competent body. Candidates may be admitted on the basis of occupational experience (or upon submission of other evidence that employability skills have been acquired). Competencies obtained via informal means may also be recognised within this process. Secondly, candidates may be admitted to the chamber examination if they have completed a school-based VET programme which is the equivalent of a recognised dual training examination.

Figure A6.1-1: **Entrants in school-based VET accounts 2005 to 2018**



¹ At full-time vocational schools pursuant to federal state law (outside BBiG/HwO) and specialised upper secondary schools

Source: "Integrated Training Reporting System" and "Integrated Training Reporting Flash Report" based on data provided by the Federal Statistical Office, the Statistical Offices of the Federal Government and of the federal states and the Federal Employment Agency, data status: 03.03.2021 and 15.03.2019, HEEQ = higher education entrance qualification

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healthcare and geriatric nursing sector, which have their basis in federal laws. Many of the healthcare, teaching and social professions governed by both federal and federal state law are taught at the company (e.g. a hospital) and at the learning venue of the school (such as a healthcare and nursing school). Applying the term "school-based" VET to these training programmes, which are actually structured more along "dual" lines, is therefore misleading but is also established practice. There is also a small number of recognised training occupations pursuant to the BBiG/HwO in which training may take place at full-time vocational schools via regulatory exemptions. School-based training programmes are delivered at various types of school – full-time vocational schools, technical academies, specialised upper secondary schools, trade and technical schools, healthcare sector schools and part-time vocational schools. This differentiation according to specific types of school has arisen over the course of time and is codified under federal state law.

Around 216,000 young people commenced a programme of school-based VET in 2018. Whilst the number of entrants has remained stable since 2005, the individual training accounts have undergone highly different developments (see Figure A6.1-1). The increase in the number of entrants is largely due to the rise in the area of the nursing professions. Demographic shifts have produced a rising requirement for skilled workers in the sector, and this needs to be filled. There was also a clear influx of nursery teachers. This can be viewed in connection with a legal right to a childcare place from the age of one, which was introduced in 2013. The reasons for the decrease in so-called assistant training programmes must remain a matter of speculation. One possible assumption is that the fall has been caused by their compensatory nature. There was a significant decrease in the number of young people, particularly as a result of demographic change. Firstly, this led to an improvement in young people's chances of finding a training place in the dual system pursuant to the BBiG/HwO, meaning in turn that there was less need for compensatory provision, whether this be assistant training programmes or measures in the transitional sector. A further reason that could have caused a decline in "assistant training programmes" is presumably the trend towards higher general education qualifications.

Training in healthcare, education and social occupations

Training in the healthcare, education and social occupations generally takes place at healthcare sector schools or at full-time vocational schools and trade and technical schools. In approximately 50 occupations, around

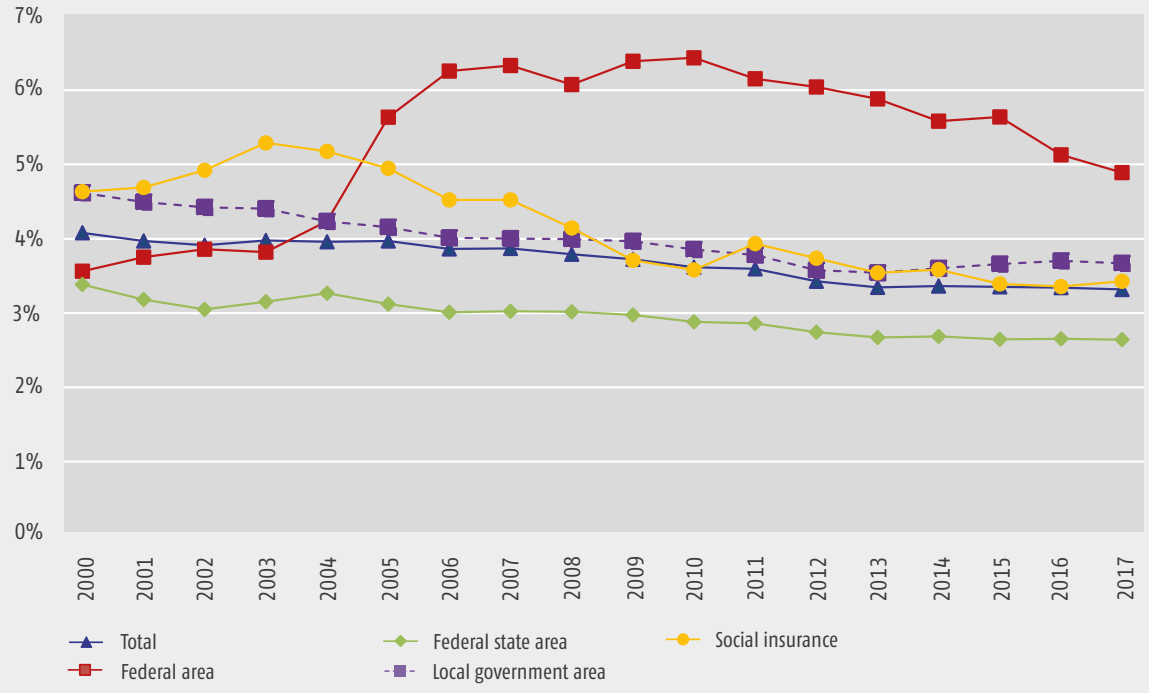
half of the pupils are trained in accordance with federal state law regulations. The education laws of the federal states form the statutory basis for this. National framework agreements of the Conference of the Ministers of Education and Cultural Affairs (KMK) are in place for some of these occupations. The aim is for the jointly agreed criteria and educational standards these contain to secure the quality of the qualifications and thus create the prerequisite for mutual recognition in the federal states. In addition to this, there are 17 occupations based on federal law regulation for which the federal ministries are responsible. All occupations except for geriatric nurse are regulated by the Federal Ministry of Health. The Federal Ministry of the Family, Senior Citizens, Women and Young People is responsible for the profession of geriatric nurse. Training programmes leading to a qualification under federal state law do not form part of the healthcare, education and social occupations described above. These federal state-regulated training courses mostly culminate in a "state certified assistant" qualification (sometimes referred to as "state recognised") and are thus frequently designated as so-called "assistant training". Such programmes are usually aimed at pupils who have achieved an intermediate secondary school leaving certificate. This field is characterised by a wide range of different training programmes. Classic areas of provision include laboratory technology, communication and design technology, secretarial work, and foreign languages.

A6.2 Training in the public sector

In the public sector, training takes place in special public sector occupations as well as, for example, in occupations which are registered with the chambers of commerce and industry and chambers of crafts and trades and in healthcare occupations. The human resources statistics of the Federal Statistical Office also count civil servants in preparatory training, candidates and aspirants as staff in training.

According to this extended delineation, around 218,700 persons were in training in the public sector as of the cut-off date of 30 June 2017. As a ratio of the full-time equivalent of employees in the public sector subject to mandatory social insurance contributions, the 81,400 trainees represent a training rate of 3.3% as of the cut-off date of 30 June 2017. The training rate in the public sector has fallen in overall terms since the year 2000 (see Figure A6.2-1).

Figure A6.2-1: **Development of training rates in the public sector 2000 to 2017 (in %)**



[1] Trainees not in civil service training and undergoing training within the scope of or subsequent to a course of higher education study as a ratio of the full-time equivalent of employed staff subject to mandatory social insurance contributions.

Source: Federal Statistical Office, special evaluation of the human resources statistics

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A7 Company participation in training

A7.1 Training participation and training rate

Participation by trade and industry in the company-based training of young people and young adults stabilised in the 2017 reporting year. The negative trend of the last 10 reporting years thus appears to have ended, at least in average terms. This is demonstrated by indicators such as the training participation rate and the training rate. This result has evidently been achieved by dint of the fact that company-based training has once again become aligned with the general development of numbers of companies and employees, although this does not apply to all company size categories, economic sectors and federal states. According to the Employee Statistics of the Federal Employment Agency (BA), around 427,000 companies out of just over 2.2 million companies with at least one employee subject to mandatory social insurance contributions were participating in the vocational training of young people as of 31 December 2017. Compared to the previous year, this represented an increase of just under 1,000 or 0.2% in the number of companies providing training. By way of contrast, the total number of companies increased by 10,000 (0.5%) compared to the previous year. This was a slightly weaker rise than in the preceding year. The training participation rate stabilised at a level of 19.8%. The training rate was 4.9% and thus remained constant compared to the previous year. Further data is presented in Table A7.1-1.

Measured by the current requirement for skilled workers and by new supply of training places, company-based training obviously continues to be an important recruitment measure in Germany for companies seeking to acquire the long-term services of skilled workers they have trained themselves. However, companies and firms still find it difficult to participate in the training of young people. The following results are based on the BIBB Establishment Panel on Training and Competence Development. This is a regular annual survey which is used to collect representative longitudinal data on the training activities of companies in Germany. Selection of the companies takes place using a disproportionately stratified random sample of the statistical population of all companies with at least one employee subject to mandatory social insurance contributions.

The 2018 wave of the BIBB Training Panel shows, for example, that only 427,000 out of a total of 2.16 million

Table A7.1-1: **Employees, trainees and training rates by company size categories between 2007, 2016 and 2017 in Germany**

Company size categories	Employees				Trainees				Training rate			
	2007	2016	2017	2016–2017	2007	2016	2017	2016–2017	2007	2016	2017	2016–2017
	abs.	abs.	abs.	in %	abs.	abs.	abs.	in %	in %	in %	in %	In percentage points
1–4 Employees	2,459,157	2,472,100	2,466,248	-0.2	180,883	108,493	104,871	-3.3	7.4	4.4	4.3	-0.1
5–9 Employees	2,256,110	2,485,206	2,514,435	1.2	199,591	154,003	152,905	-0.7	8.8	6.2	6.1	-0.1
Smallest category of company	**4,715,267**	**4,957,306**	**4,980,683**	**0.5**	**380,474**	**262,496**	**257,776**	**-1.8**	**8.1**	**5.3**	**5.2**	**-0.1**
10–19 Employees	2,534,591	2,988,424	3,046,150	1.9	196,531	177,736	180,261	1.4	7.8	5.9	5.9	0.0
20–49 Employees	3,748,393	4,511,601	4,640,949	2.9	248,470	243,671	247,909	1.7	6.6	5.4	5.3	-0.1
Small companies	**6,282,984**	**7,500,025**	**7,687,099**	**2.5**	**445,001**	**421,407**	**428,170**	**1.6**	**7.1**	**5.6**	**5.6**	**0.0**
50–99 Employees	3,241,608	3,827,035	3,925,863	2,6	194,831	196,979	200,850	2.0	6.0	5.1	5.1	0.0
100–249 Employees	4,327,987	5,066,866	5,207,109	2.8	255,781	241,203	243,050	0.8	5.9	4.8	4.7	-0.1
Medium-sized companies	**7,569,595**	**8,893,901**	**9,132,972**	**2.7**	**450,612**	**438,182**	**443,900**	**1.3**	**6.0**	**4.9**	**4.9**	**-0.1**
Small/medium-sized companies overall	**18,567,846**	**21,351,232**	**21,800,754**	**2,1**	**1,276,087**	**1,122,085**	**1,129,846**	**0.7**	**6.9**	**5.3**	**5.2**	**-0.1**
250–499 Employees	2,975,000	3,483,785	3,565,620	2.3	183,254	155,830	154,863	-0.6	6.2	4.5	4.3	-0.1
500 and more employees	5,922,466	7,012,701	7,242,494	3.3	314,993	297,558	302,236	1.6	5.3	4.2	4.2	-0.1
Large companies	**8,897,466**	**10,496,486**	**10,808,114**	**3.0**	**498,247**	**453,388**	**457,099**	**0.8**	**5.6**	**4.3**	**4.2**	**-0.1**
Total	**27,465,312**	**31,847,718**	**32,608,868**	**2.4**	**1,774,334**	**1,575,473**	**1,586,945**	**0.7**	**6.5**	**4.9**	**4.9**	**-0.1**

Deviations are possible due to rounding differences.

Source: Revised Employment Statistics of the Federal Employment Agency, cut-off point in each case 31 December; calculations by the Federal Institute for Vocational Education and Training

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Table A7.1-2: **Indicators of company-based training participation by structural characteristics in 2018 (in %)**

	Number of companies with ...		
	training place provision pursuant to BBiG/HwO[1]	newly concluded training contracts pursuant to BBiG/HwO[2]	unfilled training places pursuant to BBiG/HwO
1 to 19 employees	16.2	42.5	53.0
20 to 99 employees	44.8	78.0	33.0
100 to 199 employees	65.3	91.2	37.1
200 or more employees	76.9	94.7	24.3
Agriculture, forestry, mining	19.6	53.5	58.6
Manufacturing	29.0	75.6	38.7
Construction industry	27.2	59.3	55.4
Trade & repair	25.6	44.7	46.2
Company-related services	12.8	57.1	47.2
Personally related services	19.0	34.7	61.3
Medical and nursing services	20.6	66.9	26.4
Public sector, education, teaching	10.8	86.6	17.2
West	21.2	57.2	43.5
East	17.0	41.1	63.1
Chamber of Commerce and industry[3]	16.2	55.9	49.9
Chamber of Crafts and Trades	30.1	47.0	57.9
Chamber of Commerce and Industry and Chamber of Crafts and Trades	27.2	55.8	44.2
Other chambers in total, of which:	21.6	59.0	34.7
Chamber of Agriculture	24.2	74.6	40.0
Liberal professions	20.3	57.3	28.0
Chamber of Housekeeping	38.8	16.8	88.1
Public sector	20.2	71.9	28.6
Total	**20.3**	**50.6**	**46.8**

[1] as a proportion of all companies with employees subject to mandatory social insurance contributions
[2] as a proportion of all companies offering training places
[3] A significant proportion of companies surveyed provided no information as to chamber membership. These companies were allocated to the information collected in percentage terms.

Source: BIBB Training Panel, 2018 survey wave, cross-sectionally weighted results and extrapolated results

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companies with employees subject to mandatory social insurance contributions were registered as companies providing training at the end of 2017. This meant that the number of companies providing training as a proportion of the total population of companies had fallen to under 20%. A high overall level of demand for young skilled workers existed in the reporting year, but firms and companies were only able to cover this to a limited extent. In detail, this means that the average proportion of companies with new training place provision pursuant to the BBiG/HwO was 20.3% (see Table A7.1-2). One in five of 2.1 million companies were therefore offering training places for young people for the 2017/2018 training year. Large SMEs and major companies displayed a particularly high degree of interest in training their own young skilled workers. As far as economic sectors were concerned, an above average level of requirement was displayed by manufacturing industry, the construction sector and the trade and repairs sector. Around one craft trade company in three or just over one in four of all companies belonging to both a chamber of commerce and industry and a chamber of crafts and trades offered training places in the reporting year.

A7.2 Training staff in company-based training

Trainers in the dual system need to demonstrate their personal and professional aptitude in accordance with the statutory stipulations. Persons are deemed to be suitable if they are in possession of the respective occupational skills, knowledge and competencies, and can demonstrate relevant professional and vocational teaching qualifications. Evidence of such aptitude is usually provided via an examination conducted in accordance with the Ordinance on Trainer Aptitude (AEVO), although this only applies to those who are responsible for the planning and execution of training. Such persons are then registered with the competent bodies by the companies. In small and medium-sized companies, trainers often deliver training alongside their other tasks, whereas major companies frequently employ full-time training staff. www.foraus.de is a specialist portal operated by the Federal Institute for Vocational Education and Training (BIBB), which provides an information and communication platform to support training practice on a daily basis, particularly from the perspective of the ongoing digitalisation of the world of work.

Trainer aptitude examinations

In 2017, a total of 97,767 persons took part in trainer aptitude examinations conducted in the areas of trade and industry, the craft trades, agriculture, the public sector and housekeeping (63,237 men and 34,530 women). 90,660 persons passed the examination. 13,038 of these successful candidates were from the federal states of eastern Germany. The pass rate was thus 92.7%. The proportion of women amongst the successful candidates was 35.8% (36.1% in eastern Germany and 35.8% in western Germany). The total number of AEVO examinations fell slightly compared to the previous year. 40,227 of registered trainers were exempted from the AEVO examination and were thus not required to demonstrate their professional aptitude. 30,939 of these were from the area of trade and industry.

Infobox

Ordinance on Trainer Aptitude (AEVO)

Scope of application (§ 1)

Trainers are required to demonstrate the acquisition of professional and vocational teaching skills, knowledge and competencies pursuant to the present Ordinance in order to deliver training in recognised training occupations pursuant to the Vocational Training Act (BBiG). This does not apply to training in the area of the liberal professions.

Professional and vocational teaching aptitude (§ 2)

Professional and vocational teaching aptitude encompasses the competence to act autonomously in planning, conducting and monitoring vocational education and training.

1. Check training requirements and plan training
2. Prepare training and assist in the recruitment of trainees
3. Conduct training
4. Complete training

Examination (§ 4)

The examination comprises a written and a practical section. The written part has a time limit of 180 minutes and requires completion of practically related tasks from all areas of activity. The practical section of the examination is divided into two parts comprising the presentation of a training situation and a specialist oral examination of a maximum total duration of 30 minutes. The candidate selects a training situation typical to the occupation.

History

The AEVO was enacted in 1972 and updated for the first time in 1999. It was suspended during the period from 01.08.2003 to 31.07.2009 and entered back into force following a second update in 2009.

Master craftsman examinations

In 2017, 40,305 persons participated in master craftsman examinations in the areas of trade and industry, the craft trades, agriculture, the public sector and housekeeping (87.6% men and 12.4% women). 35,307 candidates passed the examination. The pass rate was thus 87.6%. The area in which the highest proportion of women passed master craftsman examinations was housekeeping, where they accounted for 98.5% of successful candidates. This was followed by the areas of craft trades and agriculture, in which the corresponding figures were 16.4% and 14.5%, respectively. The proportion in the public sector was 11.3%. Women accounted for 6.2% of passed examinations in trade and industry. There was a slight overall fall in the number of master craftsman examinations compared to 2016.

Number of trainers registered with the competent bodies

In 2017, Germany had a total of 636,078 registered trainers in the areas of trade and industry, the craft trades, agriculture, the public sector and housekeeping. 546,222 of these (85.9%) were based in western Germany and 89,853 (14.1%) in eastern Germany. 46.5% were working in the area of trade and industry, 32.6% in the craft trades, and 13.6% in the liberal professions. The figures for agriculture, the public sector and housekeeping were 3.8%, 3.1% and 0.4%, respectively. The overall figure decreased by 11,070 compared to 2016. In 2017, women made up a proportion of 25.7% of registered training staff. The figure for eastern Germany (32.8%) was higher than that for western Germany (24.5%). The following picture emerges in respect of the age of training staff. Persons over 50 and persons aged from 40 to 49 constitute the two largest groups and account for proportions of 48.2% and 27.5%, respectively. Those aged from 30 to 39 make up 18.8%. 5.5% were under 30.

A8 Costs and financial funding of vocational education and training

A8.1 Development of the training allowance

Trainees in dual vocational education and training have a legal right vis-à-vis their company providing training to receive an appropriate training allowance, which rises with every year of training (§ 17 of the Vocational Training Act, status 2018). Legislation ascribes three functions to the training allowance. Firstly, the intention is that it should remunerate trainees for their productive work at the company during training whilst also covering an appreciable amount of their living expenses. A further objective of paying the allowance is to ensure the development of a sufficient supply of up-and-coming young qualified skilled workers. The allowance payments are of considerable financial significance to the trainees. At the same time, they also constitute the largest cost factor in terms of implementation of the training programmes. Human Resource costs of trainees account for an average of 62% of company training costs and thus make up the lion's share of this expenditure. 45% of these costs are apportioned to training allowances alone. A further 17% are allotted to statutory benefits for trainees and to other benefits provided under collective wage agreements on a voluntary basis.

BIBB evaluation of collective wage agreements on training allowances

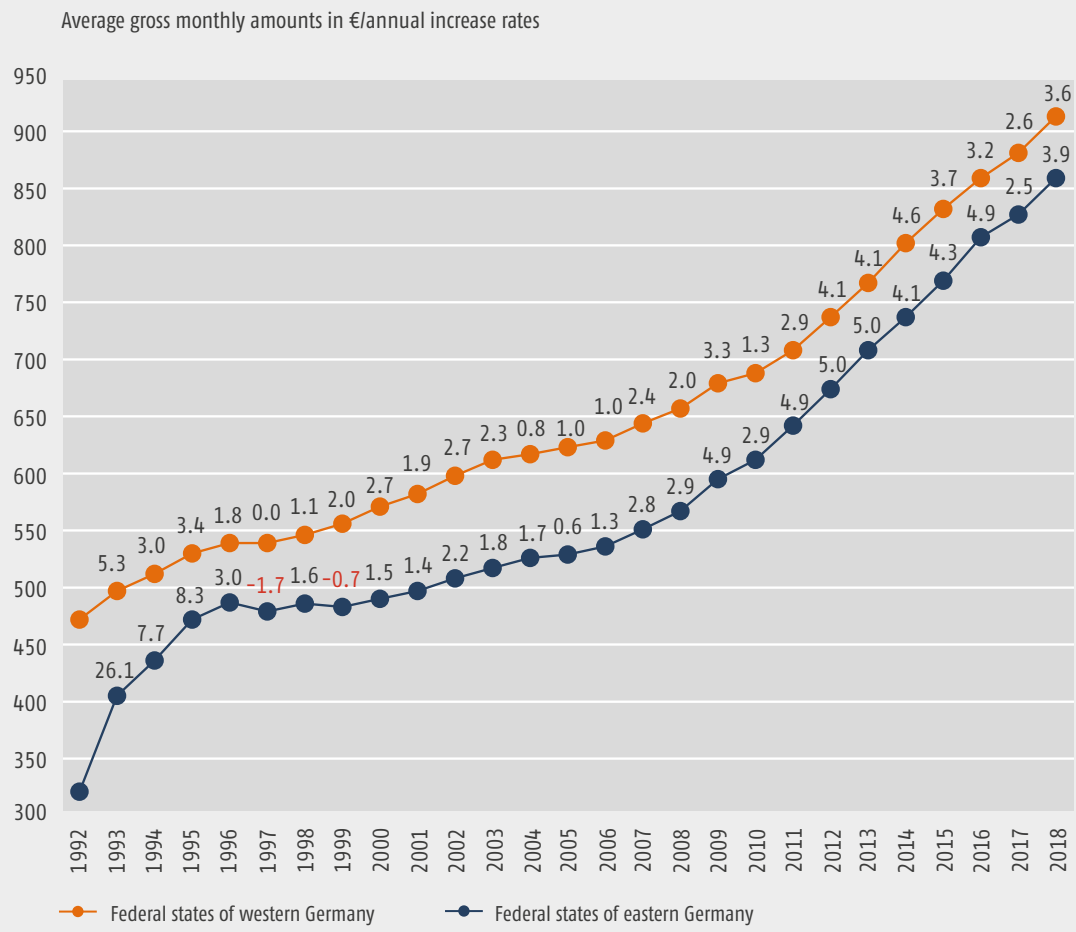
The Vocational Training Act (BBiG) does not stipulate the amount of remuneration that should be viewed as appropriate. This means that agreements in respect of training allowances are concluded in most economic sectors by the collective wage partners (employers and trade unions). A summary of the development of training allowances based on collective wage agreements since 1992 is provided in Figure A8.1-1 .[14]

A8.2 Public spending on vocational education and training

Table A8.2-1 documents spending from public budgets on vocational education and training from 2001 to 2018. It takes account of all expenditures which can be allocated in a source-specific manner in connection with the development, improvement, implementation and support of training programmes pursuant to § 1 Paragraphs 1 and 2 of the Vocational Training Act (BBiG). Items

14 The Federal Institute for Vocational Education and Training (BIBB) has been observing and analysing the development of training allowances based on collective wage agreements since 1976. For this purpose, an evaluation of the collective remuneration rates currently in force is carried out annually as of 1 October. This is compiled each year by the German Federal Ministry of Labour and Social Affairs on the basis of the collective wage agreement register that the ministry manages. Account is taken of the remuneration agreements reached in around 450 important collective wage areas in Germany. BIBB uses this database to calculate average remuneration levels in more popular training occupations. Since 1992, a separate evaluation for eastern Germany has been conducted alongside the assessment for western Germany. In 2018, 181 occupations were included for the federal states of western Germany and 153 for the eastern German states. A total of 89% of all trainees were represented in these occupations (90% in eastern Germany and 81% in western Germany).

Figure A8.1-1: **Development of training allowances based on collective wage agreements from 1992 to 2018**



Source: Calculations by the Federal Institute for Vocational Education and Training VET Data Report Germany 2019

of spending which may relate to vocational education and training but cannot be clearly allocated to the VET system in accordance with the costs-by-cause principle are not included. The latter encompass examples such as the children's and youth service measures provided by the Federal Ministry for Family Affairs, Senior Citizens, Women and Youth (BMFSFJ). Although the intention of some of these programmes is to facilitate transition to the labour market, it is highly likely that they would be implemented in an identical or similar way were a VET system not to exist.

The crosses included in Table A8.2-1 indicate whether a spending item is mainly caused by recognised VET programmes within the dual system (DS), by measures delivered in the transitional system (TS) and/or by the school-based occupation system (SBS). The division is, however, not always precise. One position may contain expenditure for one or more areas. In addition to this, no definitive delineation exists for the transitional system. A number of individual items continue to relate expenditure on continuing training, to a considerable extent in some cases (cf. Chapter B3.5). Because of these delineation difficulties, totalling the marked lines in the table only allows us to arrive in each case at an upper limit for overall public spending on VET in DS, TS and SBS. The supposition is that the volumes of spending attributable to the respective sectors are actually lower.

Table A8.2-1: **Public expenditure on vocational education and training (Part 1)**

	2001	2010[1]	2015	2016	2017	2018	DS	SBS	TS	includes continuing training[2]
	in € billion	in € billion	in € billion	in € billion	in € billion	in € billion				
BMBF[3]										
Funding for extra-company vocational training centres[4]	0,043	0,043	0,042	0,056	0,072	0,072	X		X	
Pupil grants for full-time vocational school attendees (full-time vocational schools, vocational preparation schools, specialised upper secondary schools and trade and technical schools not including VET)[5]	0,227	0,389	0,435	0,423	0,434	N/A		X	X	
International exchange and cooperation in vocational training	0,007	0,010	0,011	0,009	0,013	0,014	X	X		X
Innovations and structural development of vocational training	N/A	0,050	0,075	0,076	0,064	0,093	X	X	X	X
BIBB (operation and investments)	0,028	0,030	0,036	0,042	0,038	0,048	X	X	X	X
Support for gifted students in vocational education and training[6]	0,014	0,035	0,046	0,049	0,052	0,050				X
Measures for the improvement of vocational orientation	-	0,019	0,066	0,061	0,065	0,097			X	
Discontinued measures[7]	0,291	0,032	-	-	-	-	X	X		X
BMWi										
Vocational training for the SME sector – apprentice instruction[8]	0,042	0,047	0,044	0,045	0,047	0,045	X			
Securing a supply of skilled workers for small and medium-sized enterprises[9]	-	0,003	0,014	0,017	0,021	0,027	X		X	
BMAS[10]										
Special measures for younger persons within the legal scope of Social Security Code II (SGB II)[11]	N/A	0,395	0,127	0,121	0,122	0,121	X		X	
Federal states, local government authorities, special purpose associations[12]										
Vocational schools[13]										
▸ Part-time vocational school	3,080	3,079	2,821	2,848	2,983	3,069	X			
▸ Full-time vocational schools	1,848	2,355	2,119	2,166	2,221	2,287		X	X	
▸ Basic vocational training year, pre-vocational training year	0,515	0,454	0,428	0,479	0,608	0,639			X	
▸ Other vocational schools (not including trade and technical schools)	0,865	1,404	1,627	1,664	1,726	1,756		X		
Training programmes of the federal states[14]	0,173	Approx, 0,5	Approx, 0,5	N/A	N/A	N/A	X	X	X	
Federal Employment Agency										
Vocational education and training subsidies (company-based VET, vocational preparation schemes) including subsidy for a second programme of training	0,405	0,579	0,310	0,290	0,287	0,263	X		X	
Course costs for vocational preparation schemes	0,388	0,326	0,203	0,198	0,193	0,184			X	
Extra-company VET, training support measures[15]	0,811	0,672	0,303	0,269	0,249	0,230	X		X	
Assisted training	-	-	0,004	0,238	0,040	0,046	X			
Introductory training	-	-	0,004	0,238	0,040	0,046	X			
Measures for detailed vocational orientation[16]	N/A	0,066	0,033	0,037	0,046	0,052			X	

Table A8.2-1: **Public expenditure on vocational education and training (Part 2)**

	2001	2010[1]	2015	2016	2017	2018	DS	SBS	TS	includes continuing training[2]
	in € billion	in € billion	in € billion	in € billion	in € billion	in € billion				
Discontinued measures[17]	0,862	0,036	0,000	0,000	0,000	-	X		X	
Career entry support for young people	-	0,055	0,088	0,135	0,167	0,191			X	
Funding for young people's residential homes	0,044	-	0,001	0,003	0,009	0,007	X	X	X	X

[1] Not all years are presented for reasons of space. Information for the years from 2006 to 2009 and from 2011 to 2014 are available in earlier issues of the Data Report.
[2] Items which also contain a significant scope of expenditure on continuing vocational education and training are marked with a cross.
[3] Actual values in accordance with Federal Government budgetary calculations. Budget estimates for 2018.
[4] Figures include investments and ongoing spending.
[5] Funding pursuant to the Federal Education and Training Assistance Act (BAföG) for pupils at full-time vocational schools, vocational preparatory schools and classes at specialised upper secondary schools where completed VET is not required. Actual values for all calendar years stated in accordance with upgrading training assistance figures produced by the Federal Statistical Office. Does not take loan repayments into account. Up until the year 2014, 65% of spending was allocated to the Federal Government and 35% to the federal states. The Federal Government has borne the full financing since 2015. Benefits for pupils in classes at specialised upper secondary schools where completed VET is not required are taken into account from 2011.
[6] In accordance with its purpose, this item tends to include spending on continuing vocational education and training (continuing training scholarship) and the funding of academic education (upgrading training scholarship).
[7] Includes the Special Programme for Apprenticeship Developers and Regional Associations for Vocational Education and Training in the federal states of eastern Germany (including east Berlin), the Future Initiative for Vocational Schools (ZIBS) and the special schemes instigated by the Federal Government, the federal states of east Germany and Berlin for the creation of additional jobs in the federal states of eastern Germany.
[8] Presented here until 2011: "Funding of training courses in extra-company VET in the craft trades".
[9] The "Securing a supply of skilled workers for small and medium-sized enterprises" budget is used to fund a range of programmes and initiatives, most of which relate closely to vocational education and training. Examples include "Support to SMEs with filling training places in a precisely matched way and with the integration of foreign skilled workers", even though the main focus is on SME funding. Until 2014, only expenditure on the programme "Precise Recruitment" is listed here (interruption of series).
[10] Actual spending for the respective budgetary year. Not precisely quantifiable – grants to cover school requirements paid to parents of vocational school pupils within the scope of "Class II" unemployment benefits. These are likely to be in the low tens of millions. Not included: education and training services from authorised local government providers which are not recorded within the Federal Employment Agency's financial system.
[11] Included: extra-company VET, training support measures, assisted training, introductory training (a regular benefit within the scope of SGB III since 1 October 2008, was previously funded as a special programme from the budget of the Federal Ministry of Labour and Social Affairs, BMAS).
[12] Actual values for 2001, preliminary actual values for 2015 to 2017, target values for 2018
[13] Basis for the estimation of expenditure in the calendar years 2001 and 2010 to 2017 is the number of hours taught per type of school in the school years ending and beginning in the respective calendar year and expenditure on vocational schools. Basis of the estimation for the year 2018 is the number of hours taught per type of school in the 2017/2018 school year and expenditure on vocational schools in the 2018 calendar year. Until the 2014 Data Report, estimation took place on the basis of pupil days. Since the 2015 Data Report, however, only values estimated on the number of hours of teaching are presented, including with retrospective effect.
[14] Values stated from 2010 onwards are based on a BIBB survey. This survey has, however, not been conducted since 2016, see indications in the text.
[15] Until 2013, this item also includes expenditure on support for disadvantaged young people with disabilities (around €0.013 million in 2013). No longer included from 2014. Stated as "Vocational education and training for disadvantaged young people" until the 2016 Data Report.
[16] Pursuant to § 33 SGB III, the prerequisite for funding is third party participation of at least 50%. However, no figures are available with regard to the proportion of public and private funding within the scope of this co-financing.
[17] Items which also contain a significant scope of expenditure on continuing vocational education and training are marked with a cross.

Source: Federal Ministry of Finance, federal budgets
Federal Ministry of Finance, budget account of the Federal Government
Federal Statistical Office, Specialist Publications 11, Series 2 – Vocational schools
Federal Statistical Office, Specialist Publications 11, Series 7 – BAföG
Federal Statistical Office, Specialist Publications 14, Series 3.1 – Financial results of the public budgets
Federal Employment Agency, quarterly reports
Federal Employment Agency, Monthly Financial Results (SGB II and SGB III)
Information provided by the Federal Statistical Office (January 2018).

A9 Training and employment

A9.1 Transitions to employment

Entries to unemployment after completion of dual training

Vocational education and training makes a major contribution to integration into working life and to securing the future opportunities of young people. In addition to this, successful transition from VET to the labour market ("second threshold") is of significance to realisation of individual career and work opportunities and to subsequent occupational development. The occurrence of a first phase of unemployment at this early stage already exerts an influence on the further occupational development of those completing VET. Those who have completed company-based training and have then initially become unemployed achieve a lower entry salary than young skilled workers who enter their career seamlessly. This also applies if consideration is accorded to further factors such as the occupation in which training took place and occupation exercised or the economic sector of the entry company.

Infobox

Labour force inactivity rates and unemployment rates are associated with different concepts. The unemployment rate relates to the total of registered unemployed persons. Labour force inactivity, on the other hand, is determined via surveys. A person is deemed to be unemployed under the latter definition if they are aged between 15 and 74, works for less than one hour per week but was actively engaged in looking for a job in the four weeks preceding the survey and is available to start work within two weeks. Indeed, these two rates usually differ sharply from one another. The general labour force inactivity rate in Germany in 2017 was 3.8%, whereas the unemployment rate was 5.7%.

Extrapolations based on figures from the BA showed that 102,000 persons registered as unemployed following completion of dual VET in the year 2017. This represents an unemployment rate of 25.9% in relation to the total number of persons completing dual training (393,000 persons). The unemployment rate thus once again decreased slightly compared to the previous year (26.5%), on this occasion by 0.6 percentage points. Unemployment has been falling almost continually since 2009, when the rate was more than 12 percentage points higher.

Compared to the previous year, there was even a slight rise in the unemployment rate for young women (29.1% in 2016 and 29.2% in 2017). In the case of young men, on the other hand, the unemployment rate declined by more than one percentage point (24.7% in 2016, 23.6% in 2017). This means that the unemployment rates of young women are almost 6 percentage points higher than those of young men.

Labour force inactivity rates of young adults with different vocational qualifications in comparative terms

In 2017, the labour force inactivity rate of 18–24-year-olds who had completed dual VET was 3.3%. In the case of those aged between 18 and 34, it fell from 5.8% in 2016 to 5.3% in 2017. The labour force inactivity rate of those in this age group who had completed dual training was 3.6% in 2017 (4.2% in 2016). The rates for persons with a full-time vocational school qualification were 3.9% (as opposed to 2.7% in the previous year). The corresponding figure for those with a master craftsman or technician qualification was 1.3% (1.3% in 2016). Labour force inactivity rates are therefore mostly in decline compared to the previous year. Full-time vocational school qualifications, which have seen rising rates that now exceed the labour force inactivity rate for those who have completed dual VET, constitute an exception in this regard. Further consideration needs to be accorded to the fact that school-based and academic vocational qualifications also provide access to other occupational areas and are mostly associated with a higher school leaving qualification. Persons with advanced training qualifications (e.g. master craftsman, technician etc.), i.e. qualifications which generally build upon vocational education and training, currently exhibit the lowest rates of labour force inactivity.

A9.2 Results of the BIBB/BAuA Labour Force Survey[15]

Indicators of occupational success by qualification and gender

Occupational success is multifaceted and is therefore a construct, which is by definition blurred. Distinctions are usually drawn between objective aspects of occupational success (e.g. income, professional position) and subjective factors (e.g. work satisfaction). The indicator of occupational success, which forms the most frequent

15 The 2018 BIBB/BAuA Labour Force Survey was jointly designed by the Federal Institute for Vocational Education and Training (BIBB) and the Federal Institute for Occupational Safety and Health (BAuA).

object of investigation, is income. Income increases in line with higher levels of education and training. In Germany, persons completing the tertiary sector earn around 70% more than those who do not progress beyond upper secondary education. Persons who fail to complete vocational education and training earn about 25% less. Workers with a higher education qualification are also more satisfied with their work than workers with a lower qualification. Persons with vocational qualifications are at a greater risk of unemployment than those who are in possession of higher level qualifications.

The indicators of occupational success for dependent employees are mean gross hourly wage, line manager function, responsible position, secure employment relationship, job satisfaction, professional advancement, and educational returns on qualifications. The benefits of having completed dual VET as opposed to not having achieved any formal qualifications are revealed in respect of all indicators. Workers with dual VET and with a higher education entrance qualification again differ significantly with regard to income and professional position reached. It remains clear that prior school learning and the employment opportunities associated with training or with the training occupation are of central significance to occupational success rather than the training system in itself (dual versus school-based). Compared to those with academic qualifications, workers with an advanced training qualification are more likely to hold a direct line manager position. They are comparably likely to exercise a responsible job and less likely to be in insecure employment relationships. The advantages of a higher vocational qualification vis-à-vis workers who have completed VET are revealed in the form of income, professional positioning and security of employment. Most workers with an advanced qualification view their career hitherto as constituting professional advancement.

A9.3 Young adults who have not completed vocational education and training

Development in the number of young adults who have not completed vocational education and training

The number of young adults without a formal vocational qualification is a significant labour market policy indicator. Those without a professional or vocational qualification bear a higher risk of unemployment. In 2017, the unemployment rate of persons without a professional or vocational qualification was 17.9%. This contrasts with an overall unemployment figure for Germany of only 5.8%. They also earn significantly less on average than employees who have completed VET. The number of non-formally qualified young adults in private households has been rising constantly since 2014. If we extrapolate the figures, the number of young adults without a formal qualification in 2017 exceeded the number recorded in the previous year by some 40,000 persons, they represent a proportion of 14.2% of the age cohort. For this reason, reducing the proportion of young adults not in possession of a formal qualification (nfQ)[16] is one of the main objectives of the "Alliance for Initial and Continuing Training 2015–2018".

Differences by gender, school qualifications

The proportion of persons without a formal vocational qualification (nfQ) continues to vary sharply by school qualifications. In 2017, 5.5% of persons aged between 20 and 34 with a higher education entrance qualification were without a formal qualification. This is the lowest nfQ rate in their cohorts by some distance. 68.8% of 20- to 34-year-olds without a school qualification were also not in possession of a vocational qualification. This shows that a higher level of school education clearly exerts a positive impact on the chances of achieving a formal vocational qualification. Women accounted for 45.0% of nfQs in 2017. In overall terms, therefore, the proportion of women aged between 20 and 34 who were not in possession of a formal qualification was 13.3%. This is 1.8 percentage points lower than the figure for men of the same age.

Differences by nationality and migrant background

Clear differences in nfQ rates by nationality are also visible based on the 2017 data relating to the population in private households. Whereas only 9.3% of young adults aged between 20 and 34 who hold German nationality were not in possession of a formal qualification in 2017, the corresponding figure for foreign nationals of the same age was 33.0%, more than three times higher. The proportion of Turkish nationals not in possession of a formal vocational qualification was as high as 39.6%. There was a further slight decline in the proportion of nfQs amongst German nationals aged between 20 and 34 (see Table A.9.3-1).

16 nfQs or "unskilled persons" are deemed to be all persons (of working age) who are not able to demonstrate "successful certified participation in formal (standardised, state regulated or recognised) education and training courses", i.e. who have not completed (dual or school-based) vocational education and training or a course of study at a university of applied sciences or institute of higher education (or achieved an equivalent qualification).

Table A9.3-1: **Persons aged 20 to 34 not in possession of a professional or vocational qualification by migration status 2012 to 2017 (in %)[1]**

	Jear	Men	Women	Total
Germans	2014	10.1	9.4	9.8
	2015	9.8	9.2	9.5
	2016	9.8	9.0	9.4
	2017	10.0	8.6	9.3
Foreign nationals	2014	29.5	32.3	30.9
	2015	30.8	31.6	31.2
	2016	33.4	33.5	33.4
	2017	33.3	32.8	33.0
Turkish nationals[2]	2014	43.7	49.4	46.5
	2015	41.5	47.4	44.4
	2016	38.9	45.3	42.0
	2017	36.0	43.4	39.6
Germans not from a migrant background	2014	9.0	8.3	8.7
	2015	8.7	8.2	8.5
	2016	8.9	8.2	8.5
	2017	9.0	7.9	8.5
Migrants without any personal experience of migration	2014	23.0	18.4	20.9
	2015	21.1	17.8	19.6
	2016	20.8	18.5	19.8
	2017	20.0	16.6	18.5
Migrants with personal experience of migration	2014	26.7	30.3	28.5
	2015	29.1	30.1	29.6
	2016	31.5	30.9	31.2
	2017	32.7	31.3	32.0
Migrants of Turkish origin without any personal experience of migration	2014	28.9	24.3	26.7
	2015	27.7	22.5	25.2
	2016	26.6	23.4	25.1
	2017	25.9	21.9	24.0
Migrants of Turkish origin with own migration experience	2014	53.2	64.9	59.5
	2015	51.7	65.0	58.7
	2016	46.7	61.5	54.1
	2017	45.6	60.0	53.2

[1] Because of a change to the survey method, results are based on the population in private households and on data from the 2011 census. They therefore differ from those presented in earlier data reports.

[2] Includes dual nationality

Source: Research data centres of the statistical offices, microcensus 2014 to 2017, calculations by the Federal Institute for Vocational Education and Training VET Data Report Germany 2019

A10 Young people from a migrant background and young refugees

Immigration, migration and cross-border mobility are part of the everyday social experience in Germany and Europe. Professional qualification and gainful employment are prerequisites for equal participation in society alongside language skills and general education. An important milestone within education and training pathways are set out in the transitional period following the end of general schooling. Young people from a migrant background, regardless of whether they were born in Germany or immigrated to the country themselves as children, young people or young adults, are highly heterogeneous groups in respect of their own or their family's reasons for migration, their prior learning, their regional or social origin and their life situation. If they are to enter fully qualifying training on the basis of the potential they offer, then their education and career planning, their previous schooling, their occupational experiences and their need for prevocational training measures all need to be taken into account. The integration of all young people into education or training is a key societal task irrespective of immigration status, generational status and social and regional origin.

Young people from a migrant background

In 2017, the training entrant rate of young people who are foreign nationals was 34.2%. This was once again significantly below the respective figure for young people who were German nationals (55.7%). In the case of male young people, the difference between those holding a German passport (67.1%) and a foreign passport (39.3%) was much higher than the difference recorded for female young persons (German nationals 43.6%, foreign nationals 26.9%). Only small changes were revealed in the case of German training entrants compared to the two previous years. The training entrant rate of foreign young people decreased sharply in 2015 and 2016 because of the high level of forced migration. In 2017, it rose compared to the previous year to reach 34.2%. The National Educational Panel Study (NEPS) shows that school leavers in possession of a higher education entrance qualification and with an explicit interest in dual training were considerably more likely to have progressed to in-company training within 20 months of the end of schooling than their counterparts from a migrant background (not from a migrant background 71.5%, from a migrant background 65.5%). The differences are greater still in the case of male school leavers from a migrant background (69.1%) and not from a migrant background (81.2%).

Despite committed search activities and longer transitional processes, young people from a migrant background are less likely to progress to company-based or fully qualifying training.

Even if school qualifications, final marks, training or occupational preferences, application activities, characteristics of relevance to the training market, social origin and social integration are all the same, school leavers not in possession of a higher education entrance qualification are less likely to obtain a training place if they are from a migrant background than if they are not. An effect is thus being exerted by further cause variables that lie beyond the factors taken into account, which are connected with a migrant background and indicate structural exclusion.

The creation of equal vocational training opportunities for young people from a migrant background remains one of the most important challenges in the education system. Previous results indicate that disadvantage in access to initial vocational education and training is a particular impediment to participation in VET by young people from a migrant background. For this reason, they especially need support at the transition from school to training. Approaches which offer assistance on a continuous basis, such as mentoring programmes or career entry support, have proved to be successful. Support is also required during the course of the vocational training itself in order to complete the programme successfully despite the less favourable prevailing general conditions at the outset. Promising programmes are those directed towards the trainees and the company providing training (e.g. assisted training).

Integration of refugees into training and work

According to information provided by the Federal Office for Migration and Refugees (BAMF), immigration of refugees to Germany decreased once more in 2018 as compared to the previous year. The number of asylum applications submitted fell from 198,317 in 2017 to 161,931 in 2018. The Federal Statistical Office calculated that there were around 1.68 million asylum seekers in Germany. At the cut-off date of 31 December 2017, around three quarters (74.8%) of the asylum seekers who had arrived in the country were of working age (15 to 64). About 58% were under 30.

Integration into the area of "preparation for training"

The Integrated Training Reporting System (iABE)[17] clarifies that the number of foreign national entrants to the transitional sector, which had fallen steadily between 2005 and 2014, increased once more in the following years and did not record a decline until 2017. Between September 2017 and August 2018, an annual average of 17,300 "persons within the context of forced migration" participated in career entry support, in assisted training, in vocational preparation schemes, in introductory training or in training support measures. Persons within the context of forced migration thus account for 10.6% of participants in these regulatory instruments (western Germany 11.8%, eastern Germany 5.9%). The proportion of persons within the context of forced migration taking part in introductory training was particularly high. In this case, around four in ten participants (41.0%) were from a forced migration background. 2,600 refugees participated in assisted training during the period of observation. This represents a proportion of around one quarter (24.7%) of all participants.

Qualification, further training and the labour market

A professional or vocational qualification and integration into the labour market are closely interconnected in Germany. Regardless of the professional or vocational qualification held, but in particular if they are not in possession of any such qualification, persons who are foreign nationals or from a migrant background evince lower rates of labour force and active employment than persons who are German nationals and from a non-migrant background especially. Refugees display the poorest levels of labour force and active employment in this regard, although the absence of work permits will not be the least of the factors associated with this. It remains conspicuous that foreign nationals, migrants who have experienced migration themselves and refugees with an academic qualification exhibit lower rates of labour force employment than those with other professional or vocational qualifications. Only 53.4% of refugees with an academic qualification were, for example, in active employment in 2017. By way of contrast, the rates of active employment for those who had completed vocational education and training or an advanced training qualification were 69.2% and 67.8%, respectively.

In overall terms, the results show that structural differences between persons with and without a migrant background are generally revealed in the labour force and active employment rate. The first indication of this is a higher proportion of persons without formal vocational

17 The Integrated Training Reporting System (iABE) has been in existence since the 2005 reporting year. It pools ("integrates") data taken from various official statistics and relating to the stages of education of young people. This data is systematised into four "education sectors of the training system" – "vocational education and training", "integration into vocational education and training (transitional sector)", "acquisition of a higher education entrance qualification (upper secondary)" and "higher education study".

qualifications who are less likely to be involved in active employment regardless of migrant background. Secondly, however, the utilisation on the labour market of vocational qualifications of migrants in the sense of participation in employment is also poorer. Both the above observations are to be found in particularly glaring form in the rates of labour force and active employment of migrants whose chief motivation was flight, persecution, forced migration and asylum. The results thus suggest that improved labour market integration is dependent on reduction in both of these factors – in the proportion of persons not in possession of a formal vocational qualification and in the structural differences in employment participation between persons from and not from a migrant background.

Part B: Continuing vocational education and training

B1 Key facts on continuing vocational education and training

- Analyses conducted based on the BIBB Training Panel show that one in eight companies (12%) funded upgrading training for at least one employee in 2017. Above average proportions were recorded in manufacturing industry, in medical and nursing services, and in the public sector, education and teaching.
- According to the 2018 Continuing Training Survey, the Climate Index in the continuing education sector worsened significantly compared to the previous year. It fell to +41 points, 10 points under the highest level thus far, which was reached in 2017. Providers which are financed by the employment agencies/Job Centres are the main reason for this decline. The mood is significantly better amongst providers which are financed by companies.
- Continuing vocational education and training provision offered nationally by the adult education centres in 2017 comprised 49,000 courses. This represents a further decrease. There are also various further programmes delivered by a range of providers, including institutions linked with trade unions, employers and the churches.
- Within the scope of labour market policy instruments, training is funded by the employment agencies pursuant to the German Social Security Code III, SGB III, and by the Job Centres pursuant to SGB II. In 2017, there were 314,400 entries to measures for the promotion of continuing vocational training pursuant to SGB III and SGB II. This constitutes a slight drop compared to the previous year.
- In 2017, around 164,500 persons were funded within the scope of the Upgrading Training Assistance Act, a year-on-year increase of 1.7%.
- In 2018, about 6,400 persons who had completed training in 277 occupations were newly accepted into the “Continuing Training Scholarship” programme. There were approximately 1,000 new entries to the Upgrading Training Scholarship Programme.
- Around 340,000 training grant vouchers and 28,800 savings vouchers were issued via the Continuing Education Grant Programme up until the end of December 2018. Significantly more women than men participate in this programme.
- There are currently 223 Federal Government regulations in place relating to advanced vocational training and retraining. According to the results of the Vocational Education and Training Statistics, in 2017 about 94,200 participants completed an advanced training examination in accordance with the BBiG/HwO. 51.7% of these examinations took place in the commercial sector, and 37.5% were master craftsman examinations.
- 64,400 persons completed a course at a trade and technical school in 2017. This is a slight fall compared to the previous year.

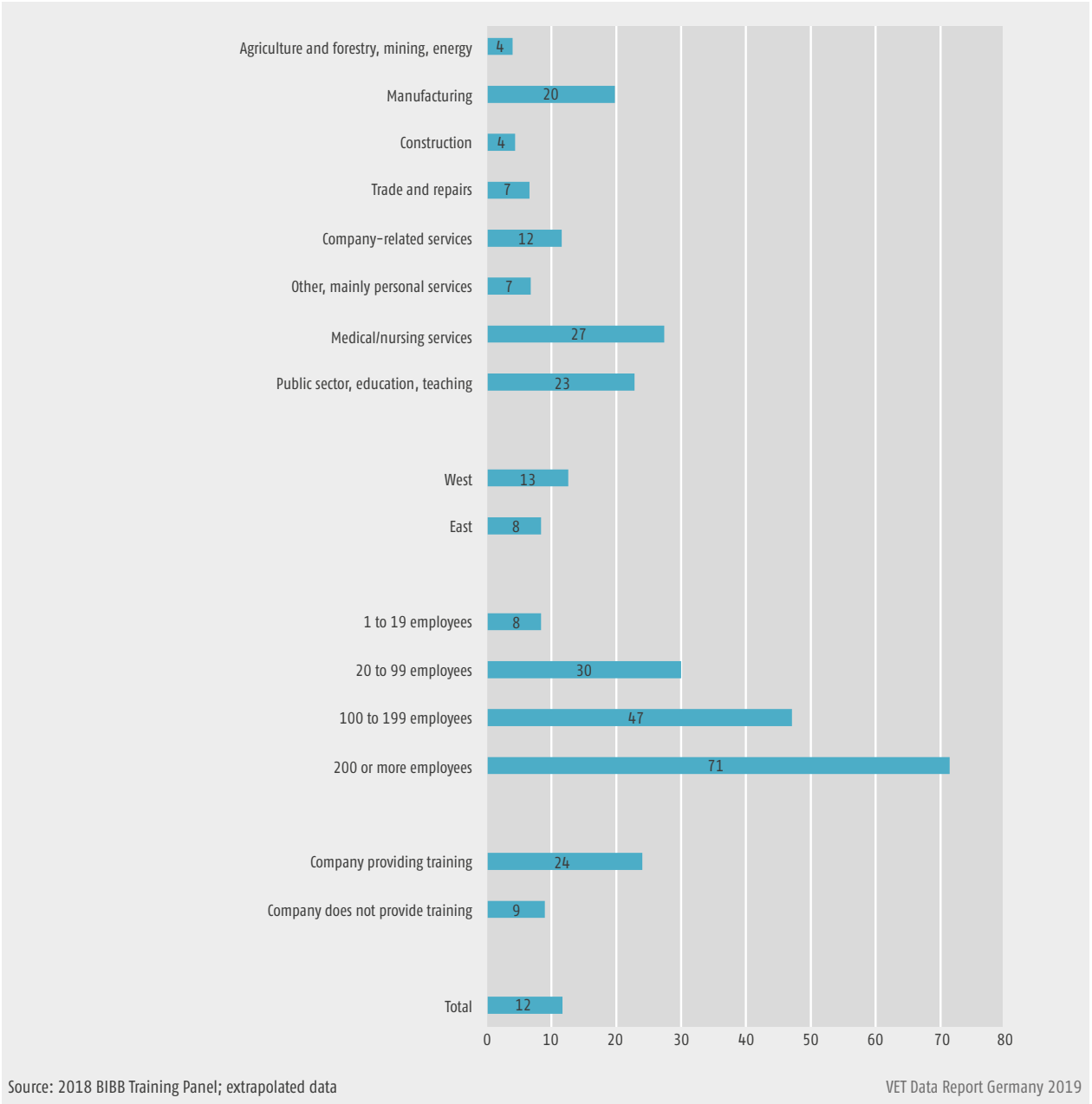
B2 Company-based advanced and continuing training

B2.1 BIBB Training Panel for company-based continuing training

The BIBB Training Panel differentiates company-funded advanced and continuing training measures as (1) general continuing training measures in the form of courses and seminars, (2) continuing training measures which do not form part of a course and which take place at the workplace directly outside organised course provision and (3) upgrading training. Continuing training measures are deemed to be company-funded if companies release their employees to take part for all or some of the time or if they pay the costs of participation in continuing training measures in whole or in part. Upgrading training programmes differ from other continuing training measures because employees gain a recognised advanced training qualification such as master craftsman or technician, which enables them to raise their formal qualification level.

According to the results of the BIBB Training Panel, 64% of companies supported continuing training measures for their employees in the form of courses and seminars in the 2017 reference year. Employees at 55% of all companies took part in continuing training measures that were not organised in the form of courses. As expected, the proportion of companies with participants in upgrading training was significantly lower. About one in eight

Figure B2.1-1: **Proportion of companies funding upgrading training in 2017 by selected characteristics (in %)**



Source: 2018 BIBB Training Panel; extrapolated data

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companies funded at least one employee to take part in upgrading training. The figure for the previous year had been 11%.

Figure B2.1-1 illustrates the proportion of companies funding upgrading training programmes in 2017 by economic sector, location, company size and status as a company providing training.

Company-based continuing training has an important part to play in light of the increasing digitalisation of the world of work. In 2017, one in five companies with a high degree of digitalisation funded upgrading training courses. Breaking things down by economic sector and by degree of digitalisation, upgrading training courses pursuant to the BBiG or HwO (e.g. certified senior clerk, specialist commercial clerk, Master Professional in Business Management) made up the highest proportion of participants in 2017 (40%). Upgrading training courses in the healthcare and social sectors (e.g. specialist nurse) were the second most popular and accounted for 29% of participants. 15% of all employees participating in company-funded upgrading training completed industrial and technical qualifications pursuant to the BBiG

or HwO, such as a master craftsman qualification in an industrial or specialist occupation or in the craft trades. The same proportion of participants (15%) completed upgrading training programmes at trade and technical schools in the areas of technology, business, design and agricultural science.

B2.2 Regulated advanced training qualifications

"The aim of further training is to retain, adapt or expand employability skills and to advance in an occupation. The aim of vocational retraining is to provide the skills to carry out a different occupational task" (§ 1 Paragraph 4 and 5 Vocational Training Act, BBiG). The BBiG, the Crafts and Trades Regulation Code (HwO), the Maritime Labour Act and the German Civil Service Act form the legal foundations for advanced training and retraining ordinances. There are currently 223 Federal Government legal ordinances and regulations in place relating to advanced vocational training and retraining (as of April 2019). The competent bodies may enact legal ordinances on the topics of advanced training (§ 54 BBiG or § 42a HwO) and retraining (§ 59 BBiG or § 42f HwO). 2,508 legal ordinances governing 736 advanced training occupations are currently in place. The competent bodies have also enacted 24 legal ordinances for 12 retraining occupations. Further to this, there are 241 continuing training regulations under federal state law for occupations in the healthcare and social sectors.

New advanced training ordinances pursuant to the Vocational Training Act (BBiG)

In 2018, BIBB was working in conjunction with specialists from the umbrella organisations of the social partners and the associations of trade and industry on the drawing up or modernisation of the following new advanced training ordinances pursuant to the Vocational Training Act (BBiG):

- Ordinance for the examination leading to the recognised advanced training qualification of Master Professional in Business Management pursuant to the BBiG.
- Ordinance for the examination leading to the recognised advanced training qualification of certified senior clerk in e-commerce.
- Ordinance for the examination leading to the recognised advanced training qualifications in the media industry (media advanced training ordinance).
- Ordinance for the examination leading to the recognised advanced training qualification of Bachelor Professional in Event Technology.
- Ordinance for the examination leading to the recognised advanced training qualification of Master Professional in Restoration in the craft trades sector.

B2.3 Advanced training occupations pursuant to the Vocational Training Act (BBiG)/Crafts and Trades Regulation Code (HwO)

Advanced vocational training forms part of VET within the meaning of the BBiG or HwO. An advanced training examination in accordance with the BBiG/HwO is usually set after completion of dual VET and following relevant subsequent occupational experience, usually of several years' duration. The task of advanced VET pursuant to § 1 Paragraph 4 BBiG is to retain and expand knowledge and skills, to adapt knowledge and skills to technical development (updating training) or to facilitate professional advancement (upgrading training). The Federal Government may enact so-called advanced training regulations for upgrading training pursuant to § 53 BBiG or § 42 HwO.

If no nationally standardised regulatory measures have been put in place, the competent bodies (chambers) may act themselves to stipulate advanced training regulations for their own regional area of responsibility in accordance with § 54 BBiG or § 42a HwO. There are currently 223 Federal Government legal ordinances in place alongside and 2,508 legal regulations issued by individual chambers in respect of the 736 advanced training occupations they govern.

Pursuant to § 6 of the Ordinance on Trainer Aptitude (AEVO), persons who have demonstrated their professional and vocational teaching aptitude by passing a master craftsman examination or another advanced training examination in accordance with the BBiG/HwO are deemed to be professionally and pedagogically suitable to provide training in recognised BBiG/HwO training occupations.

During the period from 1992 to 2006, the number of passed advanced training examinations pursuant to BBiG/HwO fell (-27.1%) from 132,424 to 96,526. This downward trend did not continue in the subsequent years. Over 100,000 successfully passed advanced training examinations were once again registered between 2011 and 2013. An initial new record high of 102,987 was achieved in 2012. A continuous decline in the number of advanced training examinations passed has once more been discernible since this time. 94,212 participants passed an advanced training examination in the 2017 reporting year. In 2017, men (84.9%) were

Table B2.3-1: **Participants passing an advanced training examination pursuant to BBiG/HwO from 2009 to 2017 by specialisms**

	2009	2010	2011	2012	2013	2014	2015	2016	2017	Percentage change	
										2017 vs. 2009	2017 vs. 2016
Commercial advanced training examinations	**40,755**	**50,742**	**54,894**	**55,404**	**53,067**	**51,177**	**50,772**	**48,921**	**48,702**	**19.5**	**-0.4**
Specialist commercial clerk	7,132	7,995	8,586	8,106	8,946	9,150	8,799	7,116	5,340	-25.1	-25.0
Certified senior clerk	18,547	27,063	29,850	31,353	28,842	27,360	28,398	27,534	27,342	47.4	-0.7
Master Professional in Business Management	3,444	3,105	3,588	3,663	3,282	3,681	3,936	4,332	4,314	25.3	-0.4
Other commercial advanced training examinations	11,632	12,579	12,870	12,282	11,997	10,986	9,639	9,939	11,703	0.6	17.7
Master craftsman examinations	**30,232**	**31,203**	**35,250**	**36,777**	**36,591**	**37,050**	**36,798**	**37,167**	**35,307**	**16.8**	**-5.0**
Industrial foreman	7,944	7,827	9,240	9,966	10,071	10,374	10,611	11,073	10,077	26.9	-9.0
Specialist foreman	1,727	1,848	2,085	2,049	1,782	2,292	2,649	2,898	2,778	60.9	-4.1
Master craftsman	19,085	19,659	22,236	22,674	22,749	22,260	21,450	20,847	20,373	6.7	-2.3
Other master craftsman examinations	1,476	1,869	1,689	2,088	1,989	2,124	2,088	2,349	2,079	40.9	-11.5
Other advanced training examinations	**12,963**	**11,409**	**12,015**	**10,806**	**10,863**	**10,509**	**10,260**	**10,029**	**10,203**	**-21.3**	**1.7**
Specialist assistant in the healthcare sector	2,524	2,496	2,502	2,505	2,565	2,565	2,616	2,667	2,574	2.0	-3.5
Other advanced training examinations in service occupations	896	705	591	504	612	570	570	354	345	-61.5	-2.5
Other industrial and technical advanced training examinations	9,543	8,208	8,922	7,797	7,686	7,374	7,074	7,008	7,284	-23.7	3.9
Total	**83,950**	**93,354**	**102,159**	**102,987**	**100,521**	**98,736**	**97,827**	**96,117**	**94,212**	**12.2**	**-2.0**

Source: Federal Statistical Office, Specialist Publications 11, Series 3, calculations of the Federal Institute for Vocational Education and Training. For data protection reasons, all figures (absolute values) are in each case rounded to a multiple of 3. The overall value may therefore deviate from the total of the individual values.

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again slightly more successful than women (82.1%). The higher pass rates achieved by men on each occasion can be consistently observed since 1992. A breakdown by specialisms reveals a dominance of commercial advanced training occupations (Table B2.3-1).

B3 Continuing training providers

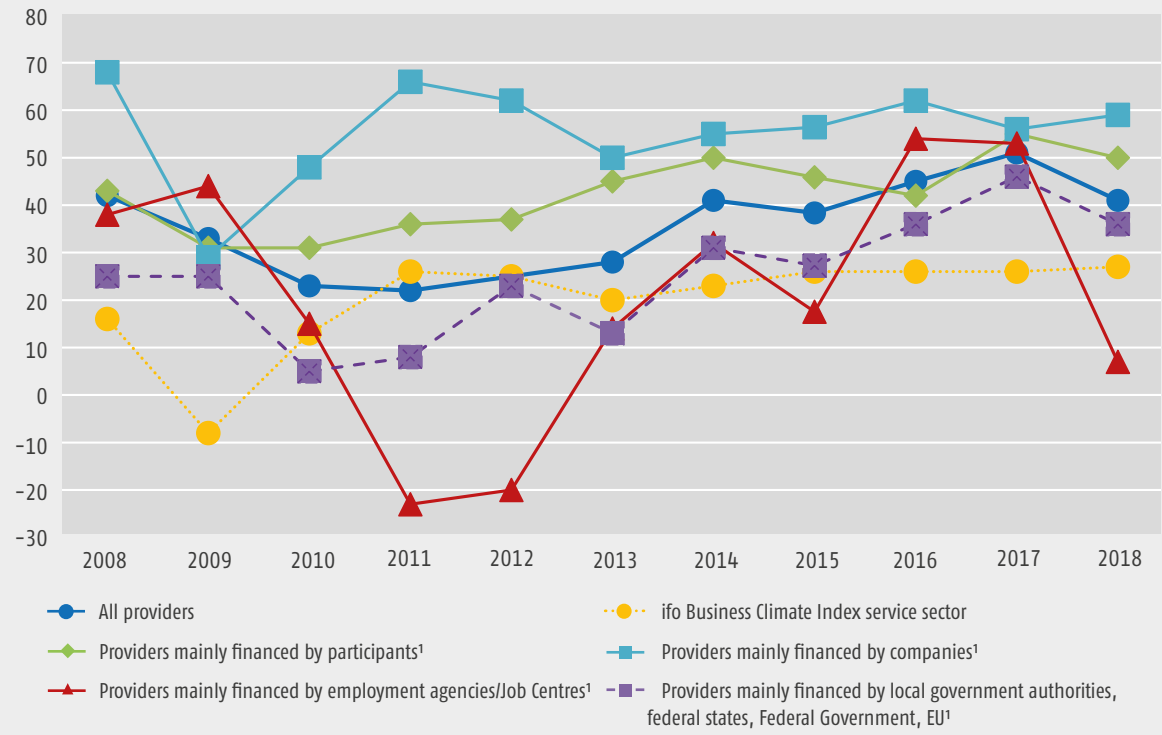
B3.1 Results of the 2018 Continuing Training Survey[18]

The business mood of continuing training providers was significantly positive in 2018, although a deterioration occurred compared to the previous year. The Continuing Training Monitor Climate Index was at +41, 10 points below the highest level thus far, which was reached in 2017. Despite this decline, the climate in 2018 was above average. Since 2013, continuing training has displayed a better business mood as opposed to the entire service sector. In May/June 2018, the Institute for Economic Research (ifo) Business Climate Index for service providers stood at +27255, 14 points lower than the Continuing Training Monitor Climate Index (see Figure B.3.1-1).

Whereas both, the Continuing Training Monitor Climate Index and the Business Climate Index for service providers, take a similarly positive view of the current situation (values of +48 and +45, respectively), the continuing training providers were displaying a significantly greater degree of future optimism than service sector companies as a whole. One reason for the clearly more positive expectations of the continuing training providers is likely to be the fact that digitalisation is associated with an increasing need for CVET. The ongoing boom, which is especially being experienced by providers who work for business customers (the Climate Index of these providers has been at least 50 points since as long ago as 2011), corresponds with the high degree of commitment to continuing training which companies have displayed since the end of the economic crisis. Technological development has brought relevant changes in work requirements, and an increase in continuing training activities

18 The following results are based on the weighted and extrapolated information supplied by 1,267 institutions within the scope of the 2018 Continuing Training Monitor (wbmonitor).

Figure B3.1-1: **Development of Continuing Training Monitor Climate Index values from 2008 to 2018**



¹ 50% or more of revenues in continuing training originate from the financing sources stated.
The climate values are informed by evaluations of the current and future situation. They may fluctuate between -100 and +100. Higher values indicate a better climate.

Source: BIBB/DIE Continuing Training Monitor 2008 to 2018; ifo Business Climate Index service sector 2008 to 2018 (until 2017 monthly value for May; 2018 average of monthly values for May and June)

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can be observed on the part of companies which have invested in World of Work 4.0 technologies. Shortages of skilled workers may also possibly have caused companies to focus more strongly on continuing training.

One year previously, providers working for employment agencies or Job Centres were still viewing the future with a great deal of optimism. One of their assumptions may have been that funding numbers would rise within the context of the labour market integration of refugees. During the first half of 2018, double-digit growth rates were indeed recorded for entry to continuing vocational training measures by persons from non-European countries of origin. These figures, however, only represented 6% of all entries.

The long-term positive climate values shown by continuing training institutions, which draw the majority

Infobox

The Continuing Training Monitor (wbmonitor) is a cooperative project conducted by the Federal Institute for Vocational Education and Training (BIBB) in conjunction with the German Institute for Adult Education – Leibniz Centre for Lifelong Learning (DIE). Every year in May, all providers of continuing vocational and/or general training known to wbmonitor are requested to complete an online questionnaire on changing main thematic foci, the economic climate, services and structures. The 18,981 providers invited to take part in 2018 responded to the survey by the end of June.

The Continuing Training Monitor Climate Index maps the way in which the continuing training providers assess the economic situation. It is calculated based on the geometric mean of the differences between positive and negative verdicts of the current business situation and expectation in one year. The information given by the providers is weighted based on the volume of training hours delivered in the previous year. Values lie between -100 and +100.

of their revenues from the participants themselves, correspond with the constantly high take-up of both individual occupationally related continuing training and of non-work-related continuing training. The expectation value of institutions which receive the bulk of their revenues from participants or self-payers is +42. This allows the conclusion that there is an ongoing demand for continuing training provision by persons who pay all or a significant amount of the costs themselves. Private sector institutions made up the largest group of providers. 24% of all providers were commercial companies under private law, whilst 19% operated on a not-for-profit basis. 19% of providers are institutions run by a church, a political party, a trade union or a foundation.

Significant differences were shown with regard to distribution of principal financiers by the various types of provider. Whereas three quarters of vocational schools (also) received most of the funding for their continuing training activities from the public purse (local government authority, federal state, Federal Government, EU), the main source of financing for seven out of 10 institutions delivering academic continuing training was the individual participation fees paid.

Even in the age of digitalisation, classical course formats still dominate services and training offered in the area of continuing training. Seminars, courses and face-to-face learning were the main focus of provision for more than three quarters of institutions. By way of contrast, e-learning and distance learning were a central focus for fewer than one provider in ten. A higher proportion (27%) offered this learning format as a supplementary option. The findings stated give rise to the supposition that e-learning is often used as a blended learning concept to back up face-to-face teaching.

B3.2 Continuing vocational education and training services from adult education providers

B3.2.1 Continuing vocational education and training at adult education centres

In accordance with the relevant federal state laws, adult education centres play a particular role in the provision of continuing training to the population in many federal states. In some cases, provision of an adult education centre by the local government authorities is funded by means made available by the federal state in question on the basis of number of inhabitants. In other federal states, however, adult education centres receive equal funding together with independent federal state and local government providers. Fundamental responsibility for CVET lies with the Federal Government, whilst the federal states have charge of general and political continuing training.

In 2017, 49,080 courses were carried out in the "work and occupations" programme area at adult education centres. As on every occasion since 2008, this represented a further decline in the overall number of courses (by 4.2%) compared to the previous year. During the same period, there were drops in the number of hours taught and in take-up of 4.1% and 7.4%, respectively. Most of the specialisms covered by the open courses in the "work and occupations" programme area (specialisms of "technical ICT applications" and "organisation/management") are affected by declines in all three indicators – number of courses and hours taught, take-up. Courses conducted as commissioned and contract measures grew compared to the previous year (+5.2%) and accounted for 14.0% of courses within the specialism in 2017. Number of hours taught in commissioned and contract measures also rose by 3.1% to account for 37.6% of the programme area. The open courses in the "work and occupations" programme area saw a decline vis-à-vis the previous year, too. Average duration in 2017 was 20.8 hours of teaching. In relation to the whole of the course provision offered by the adult education centres, 8.5% of courses were held in the "work and occupations" programme area in 2017. As in the previous years, this represented a continued fall in the proportion.

Both in absolute terms and in relation to number of inhabitants, significantly more hours of teaching in the "work and occupations" programme area took place in western Germany than in eastern Germany. In 2017, hours of teaching in the states of both western Germany and eastern Germany fell once more as compared to 2016. This forms part of a longer-term trend, although the decrease in western Germany (-3.9%) has been slightly less pronounced than in eastern Germany (-5.9%). As a consequence of this, the frequency of continuing training in the "work and occupations" programme area continued to fall in both parts of the country.

B3.2.2 Continuing training by institutions with trade union and employer links

Major societal groups such as churches, political parties, trade unions, employer associations and professional bodies are also involved in delivering continuing training programmes alongside providers operating in the public and private sectors. According to the results of an exten-

sive survey carried out by the Federal Institute for Vocational Education and Training (BIBB) and the German Institute for Adult Education (DIE), continuing training institutions with trade union and employer links collectively accounted for around 7% of providers in 2008.

Trade union–related education and training institutions

The main foci of trade union-related education and training institutions are on political education and on training that is aligned to the world of work or to employees. This provision is primarily aimed at members of representative bodies within companies and trade unions. The major trade unions maintain their own educational departments or else act as CVET providers. Examples include the German Salaried Employees Academy (DAA) and the training and consultancy company run by the service sector trade union ver.di (ver.di Bildung und Beratung GmbH, ver.di b+b). Mention should also be made within this context of the member institutions of the Federal Working Group on Work and Life, which are sponsored by the German Confederation of Trade Unions (DGB) and the German Association of Adult Education Centres (DVV). In addition to this, the DGB has founded its own CVET organisation in the form of the Training Institution of the German Confederation of Trade Unions (bfw). Compared to 2016, increase was recorded in 2017 both in the number of programmes offered by the bfw (up 9.4% to 2,689) and in the number of participants these attracted (plus 2.5% to reach 44,341).

Continuing training institutions with employer links

The "Wuppertaler Kreis e. V. – Federal Association for Company-based Continuing Training" sees itself as a consortium of leading continuing training institutions from trade and industry. The association had 46 members in 2018. 127,900 programmes were provided in 2017 according to the institutions taking part in the annual survey. This constitutes a further sharp decline in relation to the last ten years, although the total number of members and the number of members responding to the survey remained constant in 2016 and saw a slight rise in 2017. Open seminars, which SMEs in particular see as a good option for their staff, accounted for the largest proportion of sales in relative terms (35.1%) in 2017. This segment's share fell by 3.3 percentage points compared to the previous year. In-house seminars for companies made up a good fifth of turnover (22.2%). The average proportion of sales generated by measures for public sector contracting bodies (e.g. pursuant to Social Security Code, SBG) was nearly as high (20.3%).

Provision of continuing vocational education and training by the chambers of commerce and industry

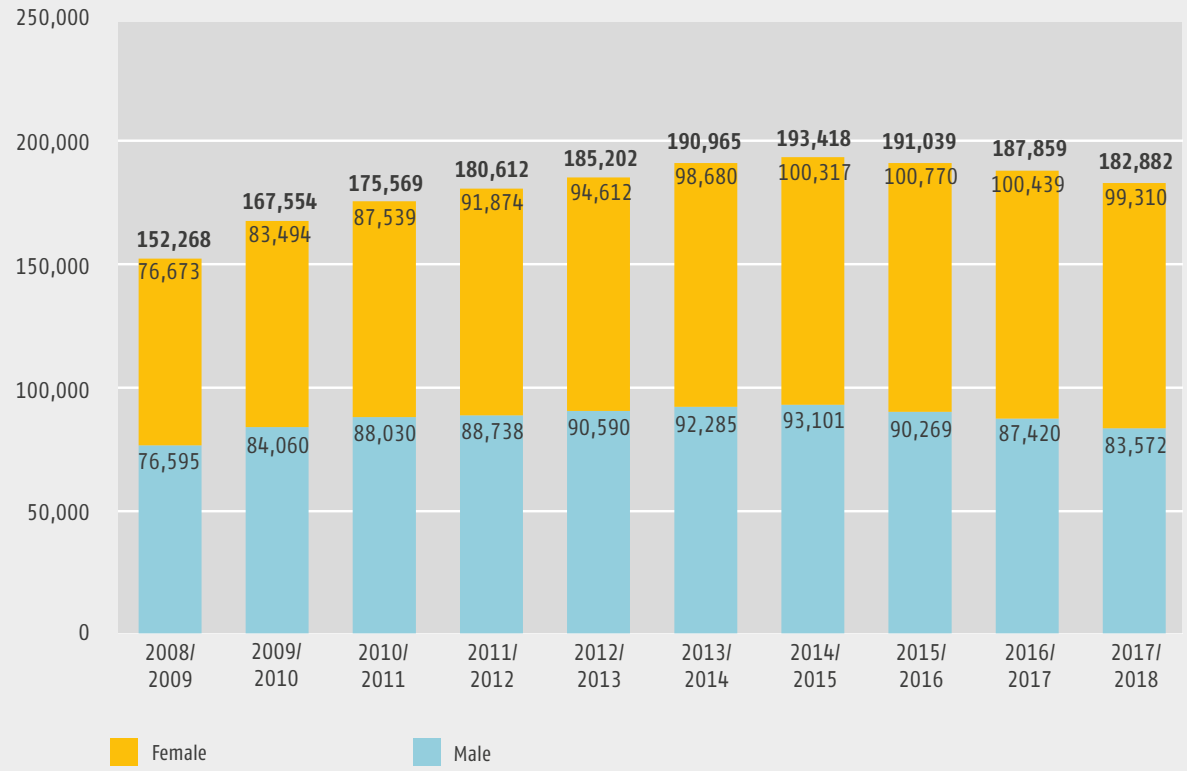
Germany currently has 79 chambers of commerce and industry, which work on behalf of the industrial sector. They undertake tasks under public law and offer a range of services to the private sector companies in their area of regional responsibility, which are required by law to be members. The spectrum of provision includes continuing training programmes aligned to company practice, which the chambers of commerce and industry realise in conjunction with their training centres. The main focus is on in-service seminars and courses, some of which prepare candidates for chamber of commerce and industry examinations.

In the year 2017, the chambers of commerce and industry implemented a total of 23,166 continuing training programmes with a volume of 2.04 million teaching hours in which 317,174 persons participated. A slight decrease was recorded compared to the previous year. A consideration of certain segments and thematic areas covered by the continuing training programmes of the chambers of commerce and industry compared to the previous year shows a bucking of the overall trend. In quantitative terms, the number of programmes delivered in the key areas of commercial training (+3.8%), AEVO (+1.4%) and industrial and technical training (+0.3%) all rose slightly or else remained stable. At the same time, however, small decreases were seen both in the number of hours taught and in the number of participants (commercial training -3.1% and -4.4%, AEVO -3.3% and -2.0%, industrial and technical training -3.9% and -3.0%). This means that there was a decline in the average volume of teaching hours and a slight drop in the average number of participants per programme.

B3.3 Continuing vocational education and training at trade and technical schools

Continuing training programmes at trade and technical schools constitute an important pillar within the overall context of training opportunities. They form part of the CVET options, which are governed by federal state law. Courses are offered in the specialist areas of agriculture, design, technology and business and social studies. These generally follow on from initial vocational education and training and train skilled workers to take on management roles at companies, administrative bodies and other institutions. Completion of a trade and technical school qualification may also be recognised as fulfilling the prerequisites for inclusion in the Register of Crafts and

Figure B3.3-1: **Development of the number of pupils at trade and technical schools from 2008/2009 to 2017/2018**



Source: Federal Statistical Office, Specialist Publications 11, Series 2, representation by the Federal Institute for Vocational Education and Training

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Trades. A continuing training qualification is also an indicator of professional autonomy and offers a challenging alternative to academic training at the Bachelor level.

In the 2017/2018 school year, there were 1,444 trade and technical schools in Germany comprising 9,195 classes and 182,882 pupils. The past few years have seen a continuous decline in pupil numbers (see Figure B.3.3-1). In the 2017/2018 school year, the number of pupils fell by 2.6% compared to the previous year. The decrease in relation to the 2014/2015 school year was 5.4%. If we look at the fall in pupil numbers in gender-specific terms, a sharper drop is revealed in the 2017/2018 school year for men (4.4% as opposed to 3.2% in the previous year) than for women (1.1% and 0.3% in the previous year). The downward trends vary greatly depending on the programme of training and federal state.

B4 Publicly funded continuing training

B4.1 Continuing vocational education and training measures funded pursuant to SGB III and SGB II

Training within the scope of labour market policy instruments is funded via the employment agencies in accordance with German Social Security Code III (SGB III). Support provided by the Job Centres for persons who are capable of work but require assistance takes place pursuant to German Social Security Code II (SGB II). The funding of continuing vocational education and training (FbW) measures pursuant to SGB III (labour promotion) and in accordance with SGB II (provision of basic benefits to job seekers) is one of the key elements of active labour promotion.

In order to increase motivation to complete qualifications-related continuing training programmes success-

fully, a bonus may be paid to candidates achieving a pass in the intermediate or final examination in the case of continuing training measures that lead to a qualification in a training occupation (applies to measures commencing up until and including December 31, 2020).

Funding of continuing vocational education and training

Funded CVET has undergone relatively constant development over the past six years following a temporary rise in funding which reached its zenith in 2009. In 2017, the number of entries to CVET measures fell by 3.5% compared to the previous year.

Funding of continuing training of low-skilled workers and employed older persons in companies (WeGebAU)

The WeGebAU Programme was first launched in 2006 and extended for an indefinite period in 2012. It focuses on providing initial funding for the continuing training of employees, particularly in small and medium-sized companies, and of low-skilled employees in order to give them additional skills for the labour market and retain or enhance their employment chances and employability.

Following a decrease in entries of approximately 70% from 102,450 in the year 2010 to 29,029 in 2011 and a further decline to 18,404 instances of funding in 2012, a fall which was mainly caused by the removal of the funding basis for qualified employees, the number of entries into the programme have risen slightly once more over the past five years and reached 30,628 in 2017.

"Initiative to support structural change (IFlaS)" and Future Starter initiative

IFlaS enables low qualified unemployed persons and re-entrants to the labour market to acquire a recognised vocational qualification or certified partial qualification. In 2017, funding was provided to 30,000 persons in receipt of unemployment benefits within the scope of IFlaS. The "Initial training for young adults" initiative (2013 to 2015) is being continued for the period from 1 August to

Table B4.1-1: **Participation in continuing vocational education and training under the legal sphere of SGB III and SGB II in the year 2017**

	Total number of participants (annual average)			Admissions/entries/approvals (annual total)		
	Total	SGB III	SGB II	Total	SGB III	SGB II
Continuing vocational education and training 2017	**169,134**	**109,777**	**59,357**	**326,237**	**208,165**	**118,072**
Funding of continuing vocational education and training	154,018	94,929	59,087	314,389	196,680	117,709
of which general rehabilitation continuing training measures	6,933	4,791	2,142	6,992	4,614	2,378
Grant to supplement the pay of employees in continuing vocational education and training	15,117	14,847	270	11,848	11,485	363

Source: Federal Employment Agency 2018a: Labour Market Statistics 2017 – Annual Figures

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Table B4.1-2: **Entries to funded continuing vocational education and training (including extra-company training for persons with a disability) by selected characteristics 2012 to 2017 (in %)**

Entries to funded continuing vocational training by	2012	2013	2014	2015	2016	2017
Proportion of women entering funded continuing vocational training	46.2	45.6	44.7	45.7	43.7	43.7
Proportion of measures leading to a qualification in a recognised training occupation	13.8	16.3	16.0	15.9	14.8	15.0
Proportion of persons who have not completed VET	36.1	33.7	34.6	34.6	35.2	33.9
Proportion of persons aged under 25	10.2	9.1	7.9	7.2	7.2	7.1
Proportion of foreigners	13.5	13.3	15.0	16.4	19.5	21.4
Proportion of long-term unemployed	15.2	12.7	13.1	12.1	12.6	11.0

Source: Federal Statistical Office 2017e, 2018n, calculations by the Federal Institute for Vocational Education and Training

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2020 under the name “Future Starter”. The aim during this time is to attract 120,000 adults aged between 25 and 35 without a vocational qualification into qualifications-related training. 28,000 young adults commenced qualifications-oriented continuing training in 2017, 17,600 within the legal scope of SGB III and 10,400 within the legal scope of SGB III. In addition to this, 8,400 young adults embarked upon funded VET.

B4.2 Funding and take-up of upgrading training

The Upgrading Training Assistance Act (AFBG) is jointly financed by the Federal Government and the federal states and has existed since 1996. It provides for an individual right, irrespective of age, to funding of upgrading training courses – i.e. courses leading to a master craftsman qualification or other programmes to prepare for a comparable advanced training qualification. According to the AFBG statistics published in August 2018, funding for 164,537 persons was approved in the year 2017. This represents an increase of 1.7% compared to the previous year. A total of 81,222 persons (49.4%) completed a full-time measure, whilst 83,315 (50.6%) finished a part-time measure. Compared to the previous year, the rate of change for persons funded in full-time and part-time measures was +8.1% and -3.8%, respectively. The proportion of women in 2017 was 35.4% (58,249). As in the preceding years, the vast majority of those receiving funding (81.6%) were aged between 20 and 35.

There were 78,791 funding approvals (47.9%) in the trade and industry sector (for advanced training objectives pursuant to the Vocational Training Act). As in the previous years, this area occupied the top position. It was followed by the craft trades sector, in which 39,276 funding approvals took place (23.9%). In 2017, total funding of €640,651 million was authorised. This figure includes grants in the amount of €269,9 million and loans amounting to €370,741 million. In overall terms, the rate of change in respect of financial expenditure approved compared to the previous year was 11.2%. In 2017, total financial spending in respect of funding taken up was €544,761 million. The proportion of grants was €269,9 million, whilst loans accounted for €274,861 million. The average funding sum approved per person per month in 2017 was €1,301. In 2017, a total of €36,534 million in loan rebates was granted to 28,898 persons in receipt of funding following an examination pass (“pass rebate”). The average rebate was €1,264.

B5 Public spending on continuing vocational education and training

Continuing vocational education and training is funded by the Federal Government, the federal states, local government authorities and the Federal Employment Agency (BA). Table B5-1 documents spending from public budgets on continuing vocational training from 2001 to 2018. Expenditure on general, political, cultural and scientific continuing training is not presented.

The Federal Government’s Continuing Education Grant Programme

The continuing education grant has been in place since December 2008. Its aims are to support participation in individual CVET by workers in receipt of low incomes, to impart occupationally specific knowledge and skills, and to promote continuing training programmes which serve to strengthen general employability. The Federal Ministry of Education and Research (BMBF) and the European Social Fund (ESF) fund the Federal Continuing Education Grant Programme. It is currently in its third funding phase.

Around 340,000 continuing education grant vouchers and 28,800 savings vouchers had been issued by the end of December 2018. Experiences from the two preceding funding periods have shown that just under 75% of grant vouchers are actually redeemed.

Over the three funding periods, participant structure in terms of individual socio-demographic characteristics has altered only slightly. If the aspect of gender is considered, the disproportionately high number of women is conspicuous. The employment structure of persons participating has developed differently. Significant growth is discernible in the case of dependent employees, who accounted for a proportion of 36% in the first funding phase. They now make up almost half (49%) of all participants. The proportion of full-time employees fell significantly from 40% to 26% during the same period. Over the course of the funding period, the proportion of self-employed persons rose from 19% at the outset to 23% in the third funding period.

The continuing education grant is mainly used in sectors in which there is a high degree of pressure for continuing training accompanied by low levels of income and/or in sectors in which employers are less likely to contribute to the continuing training costs of their employees. The most common sector represented is “Healthcare, veterinary services and social services” (42%), followed by “Education and teaching” (11%).

Table B5-1: **Public expenditure on continuing vocational education and training**

	2001	2010[1]	2015	2016	2017	2018	initial training[2]
	€ billion	€ billion	€ billion	€ billion	€ billion	€ billion	
BMBF[3]							
International exchange and cooperation in vocational training	0,007	0,010	0,011	0,009	0,013	0,014	X
Innovations and structural development of vocational training	N/A	0,050	0,075	0,076	0,064	0,093	X
BIBB (operation and investments)	0,028	0,030	0,036	0,042	0,038	0,048	X
Support for gifted students in vocational education and training	0,014	0,035	0,046	0,049	0,052	0,050	X
Upgrading Training Assistance Act (AFBG)[4]	0,045	0,149	0,182	0,200	0,252	0,266	
Continuing training and lifelong learning	N/A	0,048	0,038	0,047	0,079	0,047	
Upgrading training assistance for pupils at trade and technical schools who have completed VET[5]	0,081	0,124	0,124	0,117	0,112	N/A	X
BMWi							
Vocational training for the SME sector – advanced training institutions[6]	0,027	0,024	0,029	0,025	0,018	0,029	
BMAS[5]							
Funding of continuing vocational training within the legal scope of SGB II[7]	N/A	0,827	0,563	0,568	0,543	0,506	X
Grants to supplement pay for the continuing training of unskilled workers and employees threatened by unemployment (AEZ-WB)	N/A	0,001	0,001	0,002	0,002	0,003	X
Federal states, local government authorities, special purpose associations[8]							
Trade and technical schools[9]	0,566	0,608	0,746	0,820	0,811	0,758	X
Upgrading Training Assistance Act (AFBG)	0,013	0,051	0,051	0,056	0,071	0,075	
Adult education centres (funding code 152), "work and occupations" programme area[10]	0,088	0,051	0,036	0,035	0,035	N/A	
Other continuing training (funding code 153)[11]	0,485	0,333	0,363	0,389	0,425	0,493	X
Advanced and continuing training for teaching staff (funding code 155)	0,130	0,091	0,119	0,130	0,136	0,160	
Federal Employment Agency							
Funding for continuing vocational education and training[12]	6,982	1,064	1,068	1,149	1,235	1,287	
Unemployment benefits whilst undertaking continuing vocational training[13]		0,962	1,060	1,093	1,126	1,107	
Funding for young people's residential homes	0,044	-	0,001	0,003	0,009	0,007	X
Supplementary training provision co-financed via funding from the ESF in the case of receipt of short-time allowance, seasonal short-time allowance or transfer short-time allowance	-	0,043	0,000	-0,000	-0,000	-0,000	

[1] Not all years are presented for reasons of space. Information for the years from 2006 to 2009 and from 2011 to 2014 are available in earlier issues of the Data Report.
[2] Items which also contain a significant scope of expenditure on initial vocational training are marked with a cross.
[3] Actual values in accordance with Federal Government budgetary calculations. Budget appropriations for 2018.
[4] The values presented do not provide any information on funds actually paid out to recipients in the respective period; cf. note in text.
[5] Funding for pupils at trade and technical schools requiring completed VET Actual values for all calendar years stated in accordance with upgrading training assistance figures produced by the Federal Statistical Office. Does not take loan repayments into account. Up until 2014, 65% of spending was allocated to the Federal Government and 35% to the federal states. The Federal Government has borne the full financing since 2015.
[6] Up until 2011: "funding of extra-company advanced training institutions". This records funding for extra-company vocational training centres which mainly focus on advanced and continuing training activities.
[7] Actual spending for the respective budgetary year. Not included: BMAS expenditure for authorised local government providers not recorded via the finance system of the BA.
[8] Actual values for 2001, preliminary actual values for 2015 to 2017. Target values for 2018.
[9] Basis for the estimation of expenditure in the calendar years 2001 and 2010 to 2017 is the number of hours taught per type of school in the school years ending and beginning in the respective calendar year and expenditure on vocational schools. Basis of the estimation for the year 2018 is the number of hours taught per type of school in the 2017/18 school year and expenditure on vocational schools in the 2018 calendar year. Until the 2014 Data Report, estimation took place on the basis of pupil days. Since the 2015 Data Report, however, only values estimated on the number of hours of teaching are presented, including with retrospective effect.
[10] Estimated with the assistance of public spending on adult education centres according to the Federal Statistical Office and the proportionate volume of teaching in the "work and occupations" programme area according to the adult education centre statistics (2010: 15.0%, 2013: 11.3%, 2014: 10.5%, 2015: 9.3%, 2016: 8.2%, 2017: 7.8%).
[11] Function 153 collates the former functions 151 (funding of continuing training) and 153 (other continuing training institutions). In addition, the items contain expenditure on general and political continuing training. The extent to which continuing training programmes of the federal states have been taken into account here is unclear. These may be allocated to other functional areas in the annual financial statistics, cf. notes in text.
[12] This item collates BA expenditure on the funding of continuing vocational training and grants to supplement pay for the continuing training of persons in employment (AEZ-WB) from the year 2014 onwards. Includes, inter alia, expenditure on the "Initiative to support structural change (IFlaS)" and "Training for persons in employment (WeGebAU)". Because of changes to the aggregation of expenditure, continuing vocational education and training and AEZ-WB are no longer stated separately.
[13] See notes in text.

Quelle: Source: Federal Ministry of Finance, federal budgets
Federal Ministry of Finance, budget account of the Federal Government
Federal Statistical Office, Specialist Publications 11, Series 2 – Vocational schools
Federal Statistical Office, Specialist Publications 14, Series 3.1 – Financial results of the public budgets
Federal Employment Agency, quarterly reports
Federal Employment Agency, Monthly Financial Results (SGB II and SGB III)
German Institute for Adult Education, adult education centre statistics
Information provided by the Federal Statistical Office (January 2018).

Part C Special focus: Vocational education and training 4.0 – skilled worker qualifications and competencies for the digitalised work of the future

The ongoing digital shift is connected with many issues relating to the future of work and of initial and continuing training. The future of work and learning will depend on how digital change can be shaped and achieved in a way which equips young people for a digitalised world of work via the vehicle of VET. Older employees must also be provided with the kind of continuing training that will enable them to cope with the shift. A response needs to be found to the issue of how the prerequisites can be put in place to ensure job security and labour market effectiveness by means of lifelong learning, and initial and continuing training that is adapted to individual occupational pathways. Given a world of employment that is undergoing constant and ever more rapid change, the task we face is to use initial and continuing training to create the right conditions and a basis for "innovative potential" which will allow the active adoption and implementation of all changes that occur during a career, even the changes of which we currently have absolutely no knowledge.

In the light of ever evolving information technologies, questions arise as to their possible uses and practical relevance and feasibility and therefore also in respect of their significance for companies and skilled workers. Future developments are contingent on infrastructure at the companies with regard to aspects such as the compatibility of various file formats being deployed in the areas of development, production and administration. Alongside the companies, which have embraced digital operations, there are also still "down-to-earth" firms where the progress of digitalisation is sluggish. The Federal Institute for Vocational Education and Training (BIBB) has undertaken a multitude of investigations and analyses in conjunction with its partners in order to discover more about the actual utilisation and dissemination of digitalisation, to use robust data to answer questions relating to the future of VET and to evaluate developments for the world of work and employment.

C1 Occupational projections – the influence of digitalisation on work

The BIBB-IAB qualifications and occupational field projections were conducted for the fifth time in 2018. The basic projection of the fifth wave describes what will happen to the labour if present developments and correlations continue. Other deviating developments are, however, also conceivable. These are calculated in the form of scenarios and can be related to the results of the basic projection. The digitalised world of work scenario of the Federal Ministry of Labour and Social Affairs[19], for example, shows what the world of work could look like if sectors in which there is a lower degree of digitalisation invest comparatively more in digital technologies. The database underlying both of these calculations was adjusted to the altered prevailing political and economic conditions. Differentiated results are available for 141 occupational groups (according to KldB 2010[20]). The main results of the two projections are presented below, and major differences are addressed in order to highlight the influence of digitalisation on future labour market developments.

Both projections are based on the QuBe population projection, which forms the foundation for mapping available labour supply on the labour market. A consideration of population development from 1996 to 2035 makes it clear that peak population has not yet been reached. This runs contrary to long-held assumptions. The population of Germany will grow to 84.4 million by 2027 and will then fall to 84.0 million by 2035. The reasons for the further increase in the population are the immigration that has taken place over recent years, a rise in birth rates and higher life expectancy. The population increase influences labour supply. From a starting point of 44.9 million persons in 2015, labour supply will reach a peak of 46.8 million in 2024 before falling back to 45.5

19 The "digitalised world of work" scenario builds on the "Economy 4.0" scenario, which it expands by adding the areas of e-governance and a stronger rise in online retail.

20 The 2010 Classification of Occupations (KldB 2010) encompasses a total of 144 occupational groups. However, because no rank differentiation is made in respect of members of the regular armed forces, only 141 occupations are shown.

million by 2035. Even though a decrease in labour supply is indicated from 2025, it is still forecasted to be higher at the end of the projection than in the starting year. This is in contrast to earlier projections.

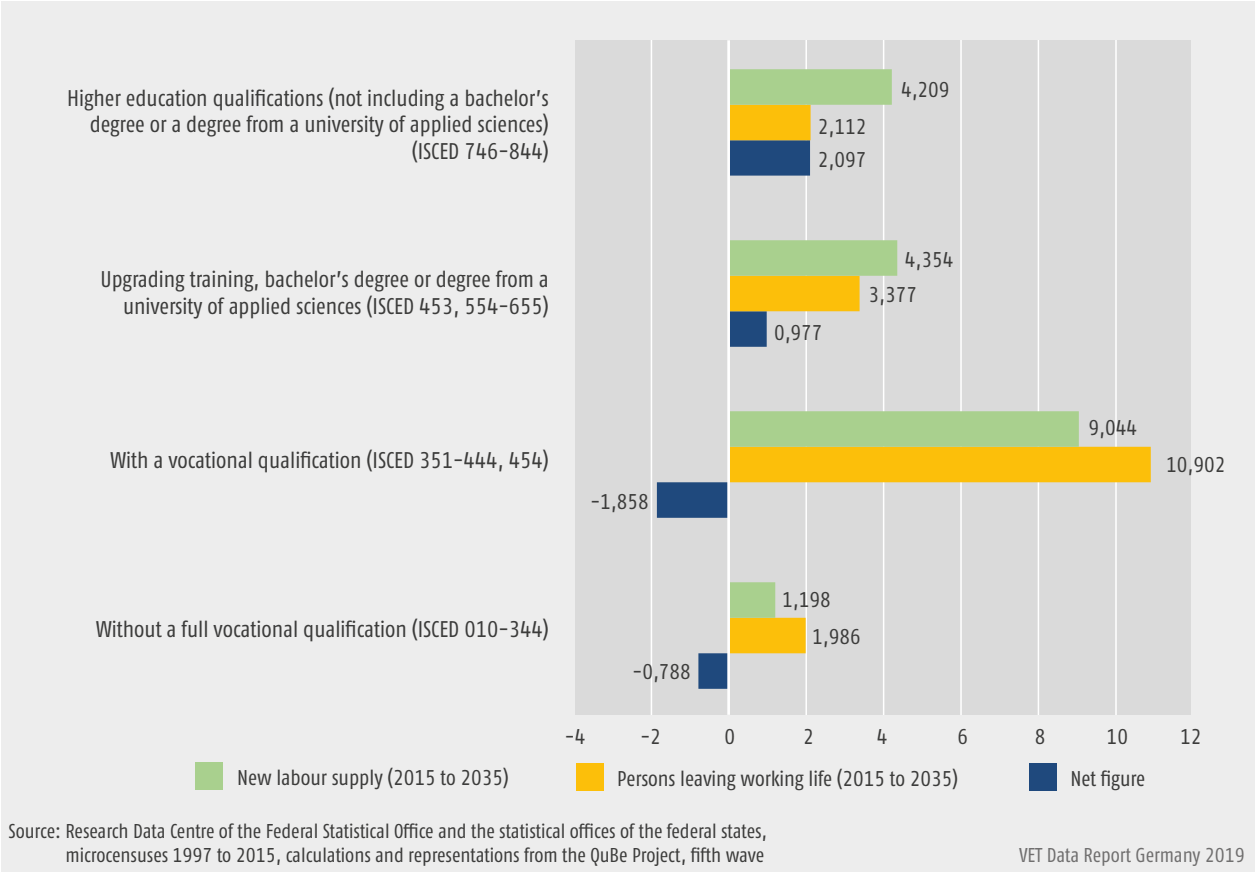
The QuBe population projections

The QuBe population projection is based on the population projections of the integrated labour supply and population model developed by the Institute for Employment Research (IAB). The specific characteristics of this model are that it differentiates between German and non-Germans and that it estimates and updates individual components (birth figures, survival probabilities, influxes and outfluxes and naturalisations) using analytical methods based on time series.

C2 Development of the qualifications and occupational structure of the labour supply

This section presents the central findings of the fifth wave of the BIBB-IAB qualifications and occupational field projections. Both the QuBe basic projection and the digitalised world of work scenario have been addressed. The latter is an assumptions-aided calculation of the impacts of digitalisation in the German economy on the labour market. As opposed to preceding projections, it reveals that, as a result of increased birth rates, higher life expectancy and the immigration of recent years, the population will not reach its peak until 2027. This means that labour supply will be greater at the end of the projection in 2035 than in the starting year of 2015. A comparison of labour demand and supply shows that matching problems will increase at a specialist level. Whereas digitalisation may help to compensate for the decrease in labour supply in sales occupations in the retail trade in particular, there will be an especial deterioration in the recruitment situation in occupational groups which are directly involved with the implementation of digitalisa-

Figure C2-1: **Development in new labour supply and persons leaving working life from 2016 to 2035 (in millions of persons)**



Source: Research Data Centre of the Federal Statistical Office and the statistical offices of the federal states, microcensuses 1997 to 2015, calculations and representations from the QuBe Project, fifth wave

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Table C2-1: **New labour supply and persons in the labour supply leaving working life by qualification levels (in thousands of people)**

Nr.	Main occupational group of the 2010 Classification of Occupations	Labour supply 2015	New supply (cumulated from 2016 to 2035)	Left working life (cumulated from 2016 to 2035)	Labour supply 2035	Difference labour supply 2035-2015
		(1)	(2)	(3)	(4)	(4) - (1)
01	Members of the regular armed forces	15	8	8	15	0
11	Occupations in agriculture, forestry, and farming	648	206	386	468	-180
12	Occupations in gardening and floristry	370	159	169	359	-10
21	Occupations in production and processing of raw materials, glass and ceramic making and processing	144	47	96	95	-49
22	Plastics manufacture and processing, wood production and processing	654	279	289	643	-11
23	Occupations in paper making and processing, printing, and in technical media design	413	247	164	496	83
24	Occupations in metal making and metal working, and in metal construction	1,801	574	1,065	1,311	-491
25	Technical engineering and vehicle occupations	2,549	1,061	1,278	2,332	-217
26	Mechatronics, energy and electrical occupations	2,086	979	1,057	2,007	-78
27	Occupations in technical research and development, construction, and production planning and scheduling	467	263	226	504	37
28	Textile and leather making and processing	591	102	410	283	-308
29	Occupations in food production and processing	1,141	413	517	1,037	-103
31	Occupations in construction scheduling, architecture and surveying	529	279	249	558	29
32	Occupations in building construction above and below	875	254	491	637	-238
33	(Interior) construction	781	332	358	755	-26
34	Occupations in building services engineering and technical building services	637	258	315	580	-57
41	Occupations in mathematics, biology, chemistry and physics	819	642	376	1,085	266
42	Occupations in geology, geography and environmental protection	139	131	60	209	70
43	Occupations in computer science, information and communication technology	603	579	162	1.020	417
51	Occupations in traffic and logistics (not including vehicle driving)	693	366	287	773	80
52	Drivers and operators of vehicles and transport equipment	241	79	147	173	-68
53	Occupations in safety and health protection, security and surveillance	280	150	145	286	6
54	Occupations in cleaning services	58	25	29	54	-4
61	Procurement, sales and commercial occupations	632	312	275	670	38
62	Sales occupations in the retail trade	2,266	819	1,063	2,021	-245
63	Tourism, hotel and restaurant trade	653	393	172	874	221
71	Occupations in business management and organisation	4,114	2,018	1,734	4,398	284
72	Occupations in financial services, accountancy and tax consultancy	1,204	570	550	1,224	20
73	Legal and administrative occupations	1,730	872	773	1,828	98
81	Medical and healthcare occupations	3,167	1,663	1,248	3,582	415
82	Non-medical healthcare, body care and health and beauty occupations, medical technology	1,258	661	521	1,398	141
83	Education, social and housekeeping occupations, theology	1,547	842	661	1,728	181
84	Teaching and training	1,070	739	518	1,291	221
91	Occupations in philology, literature, humanities, social sciences, and economics	908	770	327	1.351	443
92	Occupations in advertising and marketing and in commercial and editorial media design	198	167	63	302	104
93	Occupations in product design, artisan craftwork, fine arts and the manufacture of musical instruments	246	159	119	286	40
94	Performing arts and entertainment	210	190	82	317	107
	No occupation learned	5,999	1,198	1,986	5,211	-788
	In education and training	3,208	-	-	3,327	119
	Total	**44,940**	**18,805**	**18,377**	**45,488**	**548**

Source: Research Data Centre of the Federal Statistical Office and the statistical offices of the federal states, microcensuses 1997–2015. Calculations and and representations from the QuBe Project, fifth wave

tion. Although the results presented here depict a more optimistic picture given the fears frequently expressed within the public debate that digitalisation will bring massive job losses in its wake, they cannot hide the fact that, against the background of the expected structural changes, extensive endeavours will be needed in terms of preparing the labour demand for the new challenges. This particularly affects investments in initial and continuing training.

Change to the qualifications structure

In overall terms between 2016 and 2035, around 18.4 million persons will leave the labour market and about 18.8 million will join it. The labour supply will, however, develop differently at the individual qualification levels. Whilst labour supply to the upper qualification levels will continue to increase, this will not be the case for persons with a vocational qualification. Although a majority still acquires a full vocational qualification (9 million persons or 48.1%), 10.9 million of the labour supply at this qualification will have entered retirement by 2035. Nevertheless, the gains acquired via migration over the past years will mean that the labour supply in possession of a vocational qualification will not fall as sharply as assumed in previous projections.

Change to the occupational structure

The trend towards higher qualifications will also be reflected in the future occupational structure. In almost all occupational groups in the manufacturing sector, over half of the labour supply with a vocational qualification will leave working life between 2015 and 2035. The main occupational groups of "Occupations in paper making and processing, printing, and in technical media design" and "Occupations in technical research and development, construction, and production planning and scheduling", where new supply from the training system will exceed the number of persons departing working life, form an exception in this regard. In the service sector occupations, the area in which labour supply will fall most sharply during the period from 2015 to 2035, in this case by approximately 245,000, is in the "Sales occupations in the retail trade" where qualification is obtained via training. By way of contrast, an increase in skilled workers is expected to occur in most of the other service occupations. The strongest increases in the labour supply of something above 400,000 in each case may be recorded in the "Medical healthcare professions", "Occupations in philology, literature, humanities, social sciences, and economics" and "Occupations in computer science, information and communication technology". The change in comparison to amount of labour supply in the starting year will be relatively strong in the latter two. The main reasons for this are a sharp increase in training and higher education study provision in these areas over the past years coupled with the fact that only a small number of persons will enter retirement in the next 20 years.

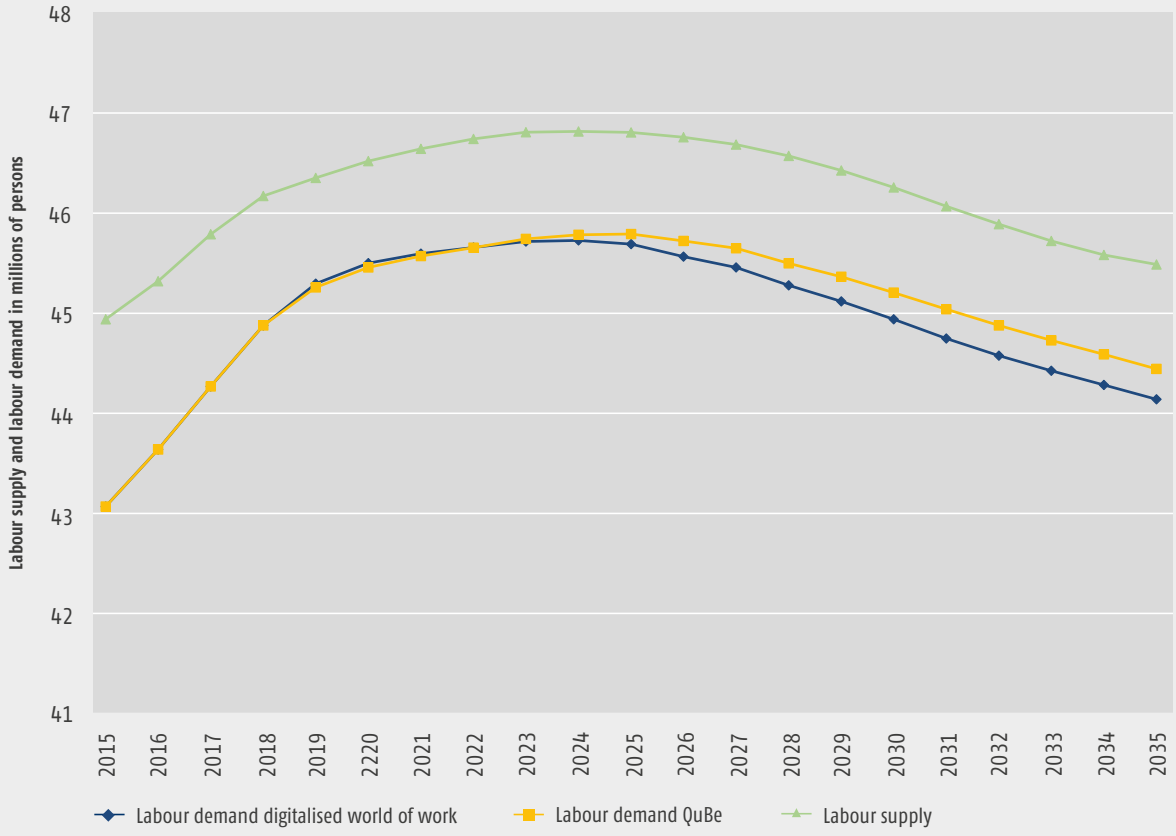
C2.1 Development of labour demand

Labour demand is determined by economic development. The developments outlined below form the foundation both for the basic projection and for the digitalised world of work scenario. Economic growth will fall to below 1% in the long term. One of the factors here is the decline in labour supply which is beginning to take effect, and for which increases in productivity are not able to compensate fully. In addition to this, the population decrease will cause a loss of momentum in private household consumption after 2027. Although foreign trade will continue to make a positive contribution to growth over the medium term, it will not be possible to maintain this boost. Because falling economic growth will take place within the context of a smaller population, average growth rates per capita will remain at a higher level. As a result of the ageing of society and the associated need for nursing staff, the healthcare sector will gain in significance and will become the sector with the greatest level of labour demand by 2035.

The digitalised world of work scenario deviates from the empirical approach adopted by the basic projection by assuming that increased investments will be necessary in order for Germany to take on a pioneering role or to maintain its position in the shift to Economy 4.0. These assumptions have repercussions for projected economic development as well as an impact on demand for workers.

The development of labour demand for the QuBe basic projection and for the digitalised world of work scenario shows the following. The influence exerted by digitalisation on labour demand will be relatively slight in overall terms. A difference of 300,000 in labour demand is expected for 2035 (see Figure C.2.1-1). The serious job reductions often feared in connection with the digitalisation of the German economy are thus not discernible. However, a differentiated consideration of the change in labour demand in the wake of digitalisation shows that the world of work will be greatly divergent from that of 2018. Almost 3.3 million jobs, which currently do not yet exist, will be created by 2035. Nevertheless, 4.0 million jobs will disappear over the same period. If we relate this to today's labour demand of nearly 45 million, then 16% of all jobs on the labour market of the future will be different (7.3 million = |- 4.0 million | + 3.3 million). The aim of the following section is to investigate the extent to which the change processes in labour supply and demand match each other.

Figure C2.1-1: **Developments of labour supply and demand from 2015 to 2035**



Source: QuBe Project, fourth wave

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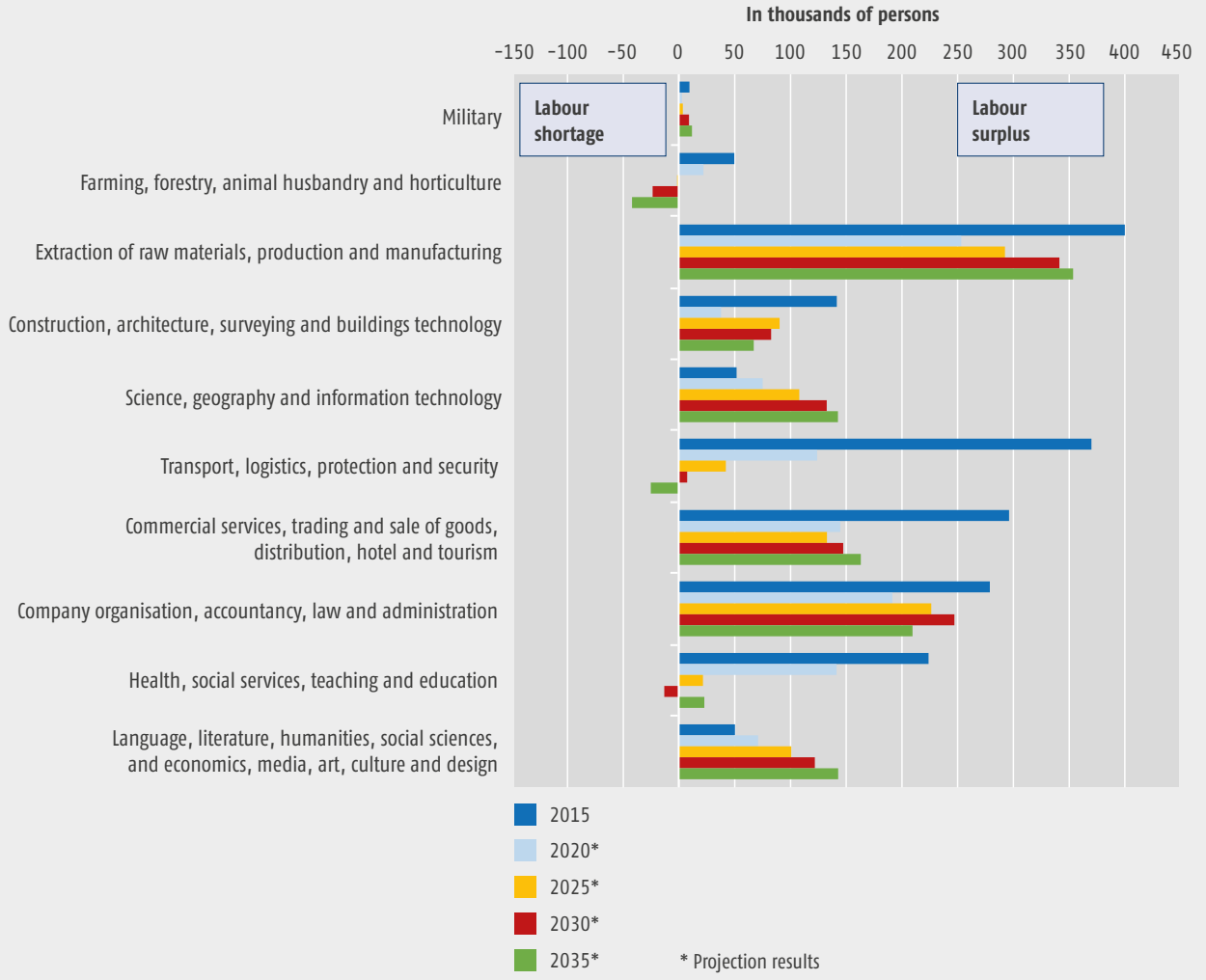
C2.2 Labour supply and demand by occupations

The consequences of job losses or creations for the skilled worker situation at the occupational level will depend on the matching of labour supply and labour demand. The question that arises is the extent to which impending matching problems as a result of digitalisation of the economy are reinforced or mitigated. Figure C2.2-1 shows the ten main occupational groups which will see the strongest increases or decreases in labour demand when the *digitalised world of work* scenario is compared to the QuBe basic projection. The greatest job reductions are to be expected in the main occupational groups of "Sales occupations in the retail trade", "Transport and logistics", "Drivers and operators of vehicles and transport equipment" and "Cleaning occupations". All these main occupational groups involve comparatively monotonous tasks, and a high degree of potential for replacement[21] by digital innovations is thus exhibited. The main occupational group which will derive the most benefit from transformation of the Germany economy to a digital world of work will be "Computer science and other ICT occupations". By way of contrast, growth rates in the remaining main occupational groups will tend to be slight.

Nevertheless, simply evaluating the change in the skilled worker situation at a personal level is insufficient. Arithmetical shortages at an occupational level do not mean that no one can be found to exercise an occupational activity. The recruitment situation that companies face tends instead to depend on a number of ancillary conditions (e.g. production processes or attractiveness of jobs) which can only be partially mapped within the model context.

21 The BIBB potential for replacement indicator (states the extent to which the tasks of an occupation can be replaced by machine-based processes). Calculations are based on self-assessments by 20,000 workers with regard to their work tasks and the activities they carry out.

Figure C2.2-1: **Difference between labour supply and labour demand by occupational areas (single-digit code of the KldB 2010) from 2015 to 2035, taking account of occupational compensation processes for the QuBe basic projection (in thousands of people)**



Source: Research Data Centre of the Federal Statistical Office and the statistical offices of the federal states; microcensuses 1997 to 2015, National Accounts produced by the Federal Statistical Office; BA Employee Statistics. Calculations and representations of the QuBe Project, fifth wave

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C3 Occupation Screening 4.0 in selected occupations

The digital transformation of the economy is altering company work organisation along the lines of value-added chains, which are becoming increasingly automated and global. Training contents and the requirements made of dual vocational education and training are changing accordingly.

C3.1 Investment in digital technologies and use of technology in training (BIBB Training Panel)

Companies providing training and companies not providing training differ with regard to investments made in digital technologies. We may observe that more companies providing training (26%) than companies not providing training (17%) stated that they were making major digital investments. It is also still the case that the larger its size, the more likely a company is to make significant investments in digital technologies. At the sectoral level, the lowest proportions of companies mak-

ing major digital investments were recorded in agriculture, forestry and mining (8%), and in the construction industry (9%). The public sector led the way with 34%. A further conspicuous aspect is the fact that only 9% of craft trade companies made major investments in digital technologies.

Frequency of use of the technologies differs by companies providing training and all companies. In the three survey years, it is shown that companies providing training exhibit a higher degree of use than companies in Germany. Furthermore, it may be observed that an increasing focus was placed on networking and big data during the period from 2016 to 2018. The most important role in this regard was played by technologies enabling networking with customers. In 2018, such technologies were deployed by 80% of companies providing training (as opposed to 70% of all companies). Communication with customers is therefore a key objective of companies, and investments have been made in relevant technologies.

A sharp increase was recorded in respect of the use of big data technologies for the purpose of collection, storage and processing of large quantities of data. Use of these technologies rose from 39% amongst companies providing training in 2016 (33% of all companies) to 70% in 2018 (56% of total companies). In addition to this, in 2018, over half of companies providing training used technologies for networking with suppliers (55%) and for human resources and work organisation (60%). In the case of all companies, the deployment rate of these two technologies was under 50%.

C3.2 Degree of digitalisation at the company by training occupations

The results of the occupation screening make it clear that all occupations investigated are affected by digitalisation. Nevertheless, digital penetration exhibits differences in the individual occupations. This is also revealed by the assessment made by respondents with regard to degree of digitalisation (see Figure C3.2-1).

This means that digitalisation operates broadly and does not take effect at individual companies at the same time. As far as most occupations are concerned, companies which are more conventional continue to exist alongside innovative and digitalised companies. Differing requirements profiles emerge in each case. In respect of work tasks and requirements profiles at highly digitalised companies, there are also frequently conventional tasks that still need to be performed as well as digitalised subtasks. The following chapters on the training occupations investigated will examine this more closely. With regard

Infobox

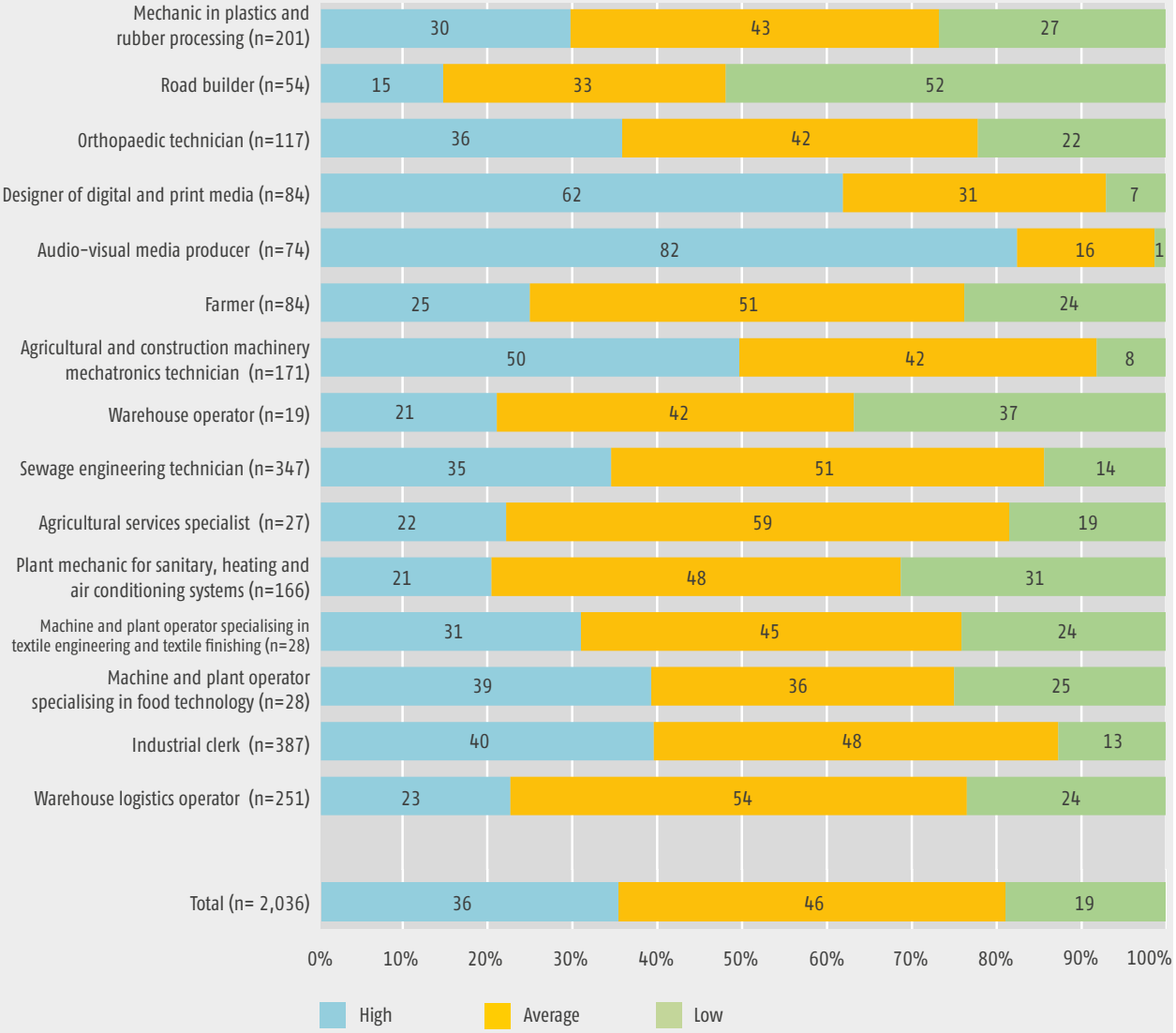
The impacts of digitalisation on task structures in the workplace, on skills requirements for qualified workers, on the demand for skilled workers and on vocational training were studied via the example of 14 recognised training occupations in various branches and economic sectors within the scope of an occupation screening process. The key objective was to use this as a basis for the submitting of recommendations for the design of initial and continuing vocational education and training in the occupations forming the object of investigation and for the further development of the vocational education and training system in general and for these recommendations to inform the VET policy debate.

Selection of occupations for the screening was made in a criterion-led way and in consultation with the Federal Ministry of Education and Research (BMBF). Occupations were chosen if there was an expectation that they are particularly affected by digitalisation and if they are of an exemplary nature. This means that they

- have their origin in as many different economic sectors and branches as possible;
- constitute "major" or "relatively small" occupations in terms of training numbers;
- are occupations with varying training durations (two-year, three-year and three-and-a-half-year occupations);
- have not usually been updated for at least five years.

The joint approach for the empirical part of the investigation was based on a sector analysis for each occupation looked at (evaluations of existing studies, literature and structural data) and on sample company case studies. The changes identified in respect of work tasks and skills requirements were checked for broader validity via an online survey, and questions relating to current initial and continuing training were added. Finally, the results were mapped against present training regulations in order to ascertain the extent to which the changes identified as being triggered by digitalisation were already covered. The findings were summarised in occupationally related sub-studies, and a further comparative evaluation then took place so that they could be included in an overall report.

Figure C3.2-1: **Assessment of the degree of digitalisation at the company by training occupations (in %)**



Source: 2018 BIBB/BMBF online survey "Qualifications and competencies of skilled workers for the digitalised work of tomorrow", n=2.036

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to the skills and knowledge, which will be necessary in future, respondents across all occupations believe that there will be a particularly large growth in significance in the following categories:

- Learning (ability to learn)
- Occupationally specific skills and knowledge
- Process and system understanding
- Digital technologies/knowledge of IT
- Flexibility/spontaneity
- Knowledge of software

This assessment clearly indicates a deficit which is obviously perceived by the respondents and should provide a reason for investigating how VET can take account of these requirements now and in the future and whether the regulatory instruments in the individual training occupations are sufficiently aligned to this.

A further set of questions in the occupation screening centred on the restructuring of company-based training in the wake of digitalisation. Two thirds of respondents stated that restructuring measures had been instigated at their companies. 30% replied in the negative. The online survey investigated the extent to which digitalisation is

causing shifts in the requirement for or deployment of skilled workers and whether qualified skilled workers who had completed training could possibly be replaced by semi-skilled and unskilled workers or by skilled workers with academic qualifications. Considering all occupations, it is clear that this does not tend to be the most common shift. Another point of interest as digitalisation takes place was the importance of individual continuing training forms and measures to skilled workers. It is apparent that the primary way in which skilled workers are prepared for the changed requirements that digitalisation brings is via instruction given in the workplace (72%). At least half of the respondents in each case reported training courses held at the company by internal staff (59%), external continuing training courses (56%) and manufacturer training (50%). Rather less frequent use was made of upgrading training courses (45%) or of self-directed learning (38%). Only 5% of the respondents stated that work tasks and requirements had not changed as a result of digitalisation at the company.

C4 Selected results of the occupation screening

C4.1 The training occupation of industrial clerk

The training occupation of industrial clerk centres on commercial and business management and is a generalist "cross-sectional occupation" in which training takes place across all sectors of industry. 17,829 new training contracts were concluded in the occupation of industrial clerk in 2017. This put it in fifth place in the ranking list. Trainees receive insights into all the major functional areas of a company, such as procurement, marketing, sales, financial accounting, production and human resources. In the third training year, employability skills are expanded and enhanced in one specific area of deployment over a period of eight to 10 months. In the commercial sector, the digital shift is particularly characterised by a higher degree of automation which may extend to encompass the smart networking of people, resources, information and objects on the basis of cyber-physical systems (CPS)[22], leading in turn to independent communication between systems which are interlinked. This is associated with extensive leeway for companies with regard to their business and production processes and corporate organisation and business models, something which gives rise to consequences for the task and training requirements of industrial clerks.

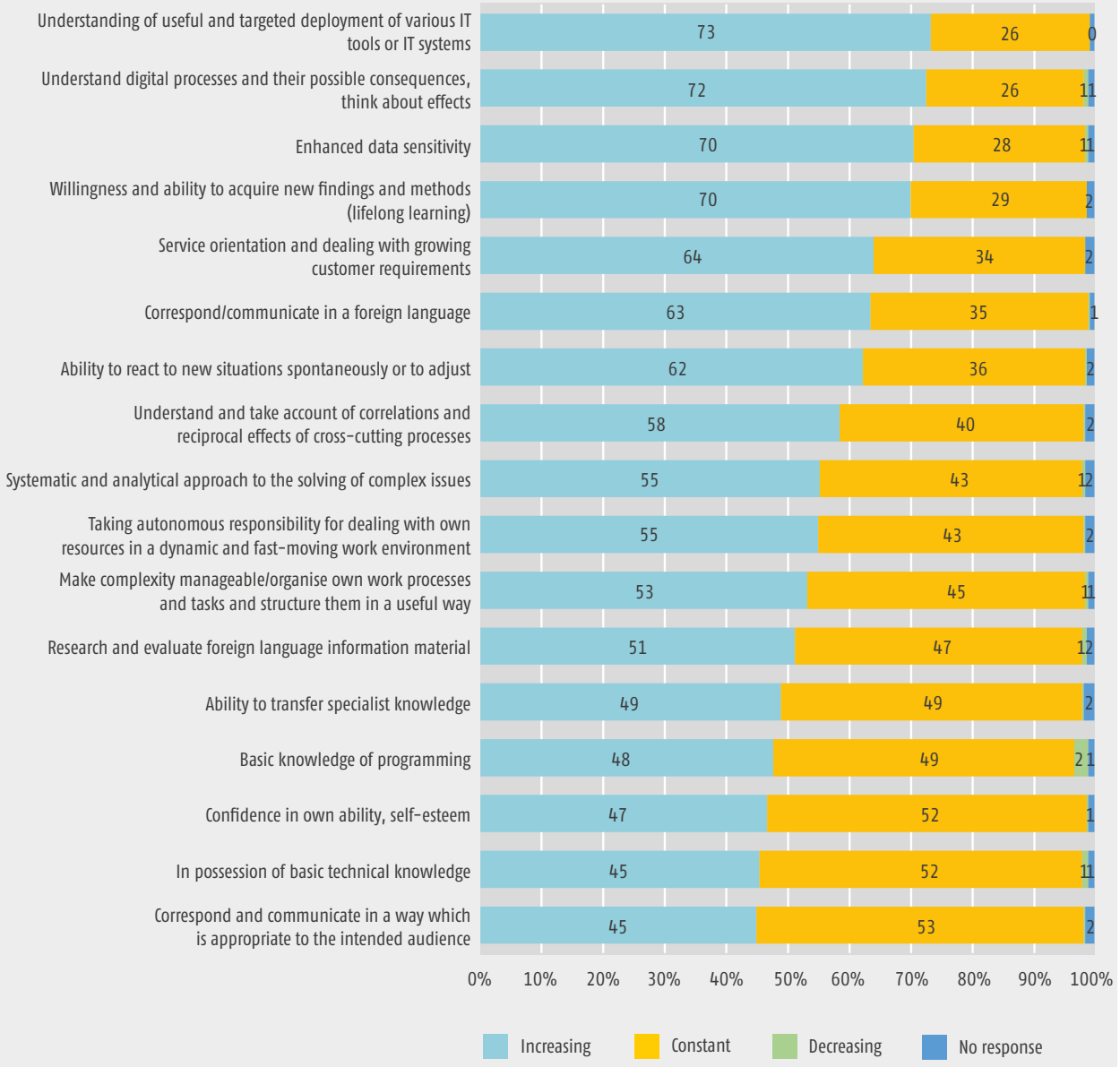
Digitalisation and networking approaches in company practice

Digital technologies have been deployed in the task domain of industrial clerks for many years, and the necessary knowledge, skills and competencies were firmly established in training regulations when the occupation was last updated in 2002. The digitalisation process towards later generation technologies has tended to be sluggish, and no revolutionary shift has thus taken place within the area of deployment of industrial clerks. Nevertheless, significant changes have occurred in ways of working and in processes in some cases, for example, in communication, data exchange and data analysis. Both deployment and use of technologies are multifarious. The qualitative interviews and the quantitative investigation conducted have both revealed that companies often deploy programmes which are specific to different areas, such as product or warehouse management in logistics, customer relationship management in sales and electronic applicant portals in human resources. The extent of the networking of the systems ranges from purely internal to the possibility of data access from outside by external parties, such as in the case of suppliers which avail themselves of the delivery management systems or procurement platforms of their customers. The investigations notably showed that so-called enterprise resource planning systems (ERP systems) are a technology that is gaining a high degree of significance in the commercial sector. A central database is used to store and process operational data, and this enables companies to plan and execute all business processes from a single system. The quantitative results show that almost all (97%) major companies make use of ERP systems. Dissemination amongst small and medium-sized enterprises (SMEs) is also wide (81%), although 13% of firms in this category state that they do not use or plan to use the technology.

The aspects associated with later generation digital technologies, which exert a particular influence on commercial tasks therefore relate in particular to the topics of networking and automation and to the scope of the data which is processed digitally. However, just the number of technologies deployed does not determine how "digitalised" a company is or what "degree of digitalisation" it has. The extent to which the technological opportunities afforded by the individual IT systems are exploited is far more crucial.

22 These systems are characterised by the linking of real physical objects and processes with information processing virtual objects and processes via open information networks which are sometimes global and which are connected with one another at all times. Sensors are used to capture data relating to situations in the physical world, and this is then interpreted and made available for network-based services.

Figure C4.1-1: **Future significance of the competencies of industrial clerks**



Source: 2018 BIBB/BMBF online survey "Qualifications and competencies of skilled workers for the digitalised work of tomorrow", industrial clerks (n=399)

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Changes in tasks

Increasing automation and networking is associated with a change in the tasks performed by industrial clerks. The results of the investigation indicate that routine tasks such as administration, recording vouchers, executing simple order processes and preparing and processing invoices are undergoing a particular loss of significance. Many of these are being performed in an automated way via a work sequence that is electronically stipulated or have else been outsourced to be carried out by other people. The consequence of this is that industrial clerks are assuming more responsibility for tasks involving monitoring. Industrial clerks are particularly likely to intervene in search of a solution when problems or special cases occur. Thus, whilst routine tasks are becoming less significant in the occupational profile of industrial clerks, other tasks are gaining in importance. For example, industrial clerks frequently assume interface and coordination tasks in cross-cutting areas. They are closely integrated into projects and take on tasks within an international context. The change to business processes also means that customers are being provided with additional services.

The qualitative results indicate that these are frequently performed by industrial clerks.

The extent to which tasks shift and the tasks which industrial clerks take on depend, however, on the company. This is especially revealed within the scope of the project work alluded to. There are, for instance, companies in which industrial clerks assume full autonomy for the preparation, planning and execution of small or medium-sized projects. They sometimes even generate such projects themselves. At other companies, they merely take partial responsibility for individual project stages and assistance functions.

A further growth in significance is particularly shown in the analysis and monitoring of data. The topic of "big data" is thus also becoming more relevant within the occupational profile of industrial clerks. Big data is characterised by large volumes, diversity of data, data sources and data structures, differing significance and quality of data, high-speed data processing and dissemination, change momentum, and areas of potential for the creation of added value. From the point of view of the interview partners, this gives rise to tasks connected with filtering the data and making it easier to manage. Account needs to be taken in this regard of categorising and understanding the origin, context and significance of the data and of arriving at decisions. For example, particularly in the area of marketing and human resources, industrial clerks research data on "social media platforms" and then suitably combine this information so that it can subsequently be processed for internal company purposes. This includes evaluation of data and sources and the preparation and visualisation of results. Nevertheless, companies and departments adopt differing approaches in respect of the degree to which industrial clerks assume responsibility for tasks of this nature. Decisions are often taken depending on data structure. From the point of view of the respondents, task shifts are being accompanied by changes in competence requirements (Figure C4.1-1).

Skills requirements

Companies are countering the changes by adopting different recruitment strategies. Most companies still consider VET in the occupation of industrial clerk to be a necessary and useful prerequisite for operational deployment. The reason they give is that industrial clerks are trained to be generalists and are thus in possession of an overall view of the company's structure and processes. Some companies, on the other hand, are starting to employ more Bachelor graduates. Individual respondents justify this by stating that those with a bachelor's degree are able to absorb complex correlations quickly and are also in possession of the necessary self-competencies. Nevertheless, the low amount of practical experience is viewed as being a deficit. Based on the results of the investigation, it is possible to conclude that, up until now, the technologically neutral wording used in the regulatory instruments to describe knowledge, skills and competencies means that many of the required tasks and competencies have already been taken into account in the training regulations for industrial clerks of 2002. The interviews make it clear that the main areas in which skilled workers need more rigorous training are dealing with data, software use, project management, knowledge of English, and personal development. New qualification opportunities will have to be created, but there is now also a stronger expectation that skilled workers will display initiative in terms of their willingness and ability to acquire new findings and methods.

C4.2 Selected results of the occupation screening on the basis of the example of the occupations of farmer and agricultural services specialist

Farmer and agricultural services specialist are two of the 14 "green" recognised training occupations in the agricultural sector.

Training in the occupation of farmer dates back to 1995 and is broadly divided into the areas of plant production and animal production. The former contains nine different branches, whilst animal husbandry encompasses eight. Two branches need to be selected from each of these two areas during the three years of training. Such a structure facilitates individual combinability of branches in accordance with requirements, the underlying concept being that this will train the skilled workers to be "all-rounders". Training in the occupation of agricultural services specialist was developed in 2005 before being permanently enshrined in law in 2009. This training occupation focuses entirely on the area of crop growing and has been tailored to meet the needs of agricultural contractors, i.e. companies which perform services for farmers. The training is also of three years' duration, and particular significance is attached to competencies in the area of plant growing, to working with agricultural machine technology, to the marketing of agricultural services, and to dealing with customers.

Changes in tasks

With regard to the change in activities and tasks, dealing with computer-aided tools and technologies is shown to be an increasingly relevant factor in the daily practice of skilled workers. A shift from operational tasks to activities relating to control and monitoring is a discern-

Table C4.2-1: **Current and future significance of skills and competencies in the occupation of farmer**

Current significance \ Future significance	**Increasing** (More than 60% of respondents judge competencies to be "increasing")	**Constant** (Less than 60% of respondents judge competencies to be "increasing")
Important (More than 60% of respondents judge competencies to be "important")	▶ Logical and analytical thought ▶ Willingness to learn ▶ Process understanding	▶ Organisational ability ▶ Use own senses to perceive processes ▶ Professional competencies in animal breeding and husbandry
Less important (Less than 60% of respondents judge competencies to be "important")	▶ Targeted deployment of specialist software ▶ Use IT systems ▶ Check plausibility of data ▶ Media competence ▶ Research and critically evaluate information ▶ Evaluate and use data ▶ Communication skills	▶ Problem-solving skills ▶ Team player ▶ Professional competencies in plant production

Source: 2018 BIBB/BMBF online survey "Qualifications and competencies of skilled workers for the digitalised work of tomorrow", Farmer (n = 88)

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ible part of this process. Tasks and activities involving planning, checking and documenting – i.e. contents within the context of operational and work organisation, or management – are already important for farmers and will become even more important in the future. The rising significance of using data for operational processes and for the optimisation of such processes also forms part of this picture. However, increasing complexity with regard to the adjustment and operation of equipment, machines and plants is also leading to a situation in which technological opportunities are frequently not even fully exploited. Essentially, no completely new tasks are currently arising. Instead, existing tasks in the areas of crop growing and animal husbandry are becoming technologically concentrated because of the emergence of new tools in the form of assistance systems. Given the present conditions, therefore, no change is discernible in terms of the fundamental way in which the occupation is understood. Although it is possible to accelerate growth processes, the basic pace continues to be set by nature.

Future competence requirements

Dealing effectively and purposefully with digital and networked systems requires an ability to control machines, equipment and plants and also increasingly involves the handling of data, i.e. acquisition, processing and use. This also very much needs to be seen against the background that farmers and agricultural services specialists are usually data users and do not carry out programming and maintenance tasks. They are therefore dependent on cooperation with IT service providers. The fundamental focus is on distinguishing between what is important and what is not, on avoiding becoming lost in a flood of data, and on critically investigating the plausibility of data rather than trusting in it blindly. This particularly applies when dealing with animals and plant life. For this reason, and despite all the digitalisation and networking, key significance continues to be accorded to tasks and activities in the areas of plant and animal production and to the basic skills and competencies associated with these. Skilled workers need to be in a position to use their own senses to perceive and recognise facts and circumstances, developments and possible risks.

One conspicuous aspect with regard to skills and competencies, which will be of importance in the future, is a clear division between cross-cutting competencies and IT-related competencies. Logical and analytical thought, process understanding and willingness to learn already play an important role for farmers today, but their significance will continue to grow in the future (see Table C4.2-1). The application of IT systems, the targeted deployment of specialist software and media competence – i.e. aspects which take digital competencies along a pathway towards becoming an additional and fourth "R" – have tended to be of subordinate importance thus far. But they are becoming increasingly significant. The respondents do not believe that there are any contents in the training regulations which can be omitted. The observation is, however, that there is a shift in focus away from plants and animals and towards technology.

Skills requirements

There is (yet) no perception of any urgent necessity to modernise the recognised training occupations of farmer and agricultural services specialist because of digitalisa-

tion and the networking of agricultural companies. The technologically neutral way in which skills and knowledge are formulated in the general training plan represents a kind of "anti-ageing protection". Even though the current significance of digitalisation and networking could not have been predicted when the ordinance was last updated in 1995, the existing formulations are still fundamentally able to map these developments. Current changes can be imparted at the level of the training structure without the need for ensuing changes at the curricular level.

The topic of digitalisation and networking tends to be accorded a strategic alignment in advanced and continuing training. This differs from the alignment in initial training, which is more operational. Alongside the topics of work organisation and human resources management, growing significance is also especially being attached to process management, process control and process optimisation within the scope of company management, whereby consideration also needs to be accorded to increasingly complex success parameters. Competencies in the areas of data collection and differentiated use of data have a particular role to play in this regard. The focus of interest here is more on the interplay between technologies, including with regard to the networking of IT systems, rather than on the handling of specific technologies. A further relevant issue within this context is the weighing up of benefits and drawbacks in order to arrive at a response to the question of whether and to which extent the system is a structural and business match for the prevailing facts and circumstances at the company and of the form in which it can and should be deployed.

Part D: Monitoring of the internationalisation of vocational education and training

This section expands on the indicators-based reporting system adopted by the Data Report to accompany the Report on Vocational Education and Training by adding selected data relating to the internationalisation of vocational education and training worldwide and in Europe in particular.

D1 Indicators for vocational education and training in Europe

D1.1 Development of vocational education and training in selected countries with dual VET

Dual vocational training which places the main emphasis on company-integrated learning is of particular significance to the acquisition of skills that are in demand on the labour market. Countries with dual systems exhibit particularly low rates of youth unemployment. Nevertheless, the analysis of provision of company-based training in different countries is not without its problems. Making comparisons is frequently hampered by the structural differences between their various VET systems. The training rate is arrived at by dividing the number of trainees by the total number of employees subject to mandatory social insurance contributions. Recording the training rate as a relevant indicator of dual VET practice is therefore certainly suited to the investigation of various VET systems. In many cases internationally, company-based training is linked to post-secondary education and training provision rather than being aligned to the secondary school sector. The trend that has emerged in Germany over recent years points to a further reduction in the training rate. Switzerland, too, is seeing a decline in its training rate. France still has the lowest training rate.

D1.2 Youth unemployment in European comparative terms

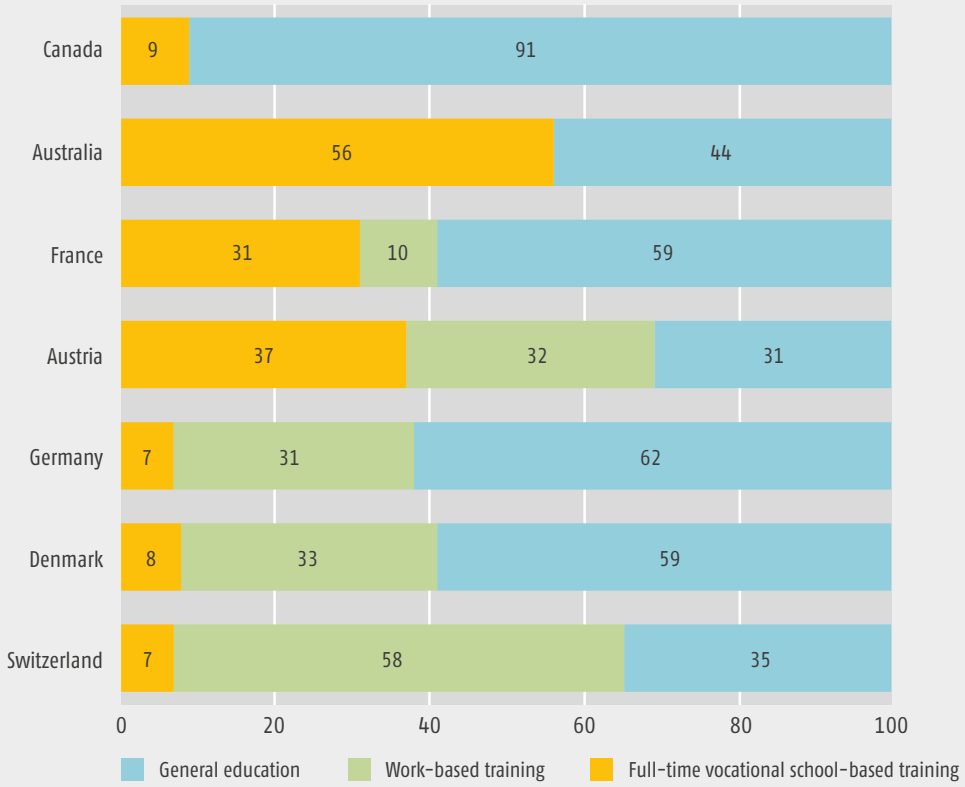
Due to the extreme increase in joblessness amongst young people that was recorded in many countries of southern Europe in connection with the economic and financial crisis, data relating to the measurement of youth unemployment in internationally comparative terms has been attracting particular attention since 2013 at least. When using and interpreting data, consideration needs to be accorded to the fact that different concepts are used to measure youth employment. These include the following:

- Unemployed young people as a proportion of the labour supply of the same age which is in employment
- Unemployed young people as a proportion of the population of the same age (labour supply and economically inactive persons)
- Relative youth unemployment
- The NEET rate – not in education, employment or training – young people who do not form part of the labour demand and are not engaged in education or continuing training

These various definitions and empirical design concepts produce significant differences in the data, and these are portrayed in Table D1.2-1.

In all countries observed in 2017, unemployment amongst young people (aged 15 to 24) was significantly higher in overall terms than amongst the age group of those from 25 to 74. Nevertheless, youth unemployment fell in all countries considered as compared to 2016. This development has been clear since 2013 for badly affected countries such as Greece, Italy, Spain and Portugal in particular. The EU average has fallen accordingly (18.6% in 2016 compared to 16.7% in 2017). However, if we consider relative youth unemployment in 2017, the degree to which the young labour supply is affected compared to adults in EU average terms (27 countries) has risen slightly (2.48% in 2016 compared to 2.49% in 2017). One explanation for this is decreasing unemployment in the 25 to 74 age group. This trend is also discernible for Germany, where young people's likelihood of being affected by unemployment has risen despite a small drop in youth unemployment (1.87 in 2016 versus 2.00 in 2017). Young people have thus benefited from the upturn on the

Figure D1.1-1: **Proportion of pupils at upper secondary level in vocational and general educational programmes in European and international comparative terms in 2016**



Remarks: included are programmes leading to qualifications aligned to ISCED levels 3 (a, b, c). When comparing the data, account needs to be taken of the fact that the length of educational programmes varies internationally (e.g. 12 or 13 years of schooling, compulsory education until the age of 16 or 18). The data for Austria places pre-vocational training in the category of "full-time school-based vocational training" (6%). For Germany, programmes are recorded as follows:
General education – upper secondary schools (upper secondary level), integrated comprehensive schools (upper secondary level), independent Waldorf schools (Years 11 to 13), schools for pupils with learning difficulties (Years 11 to 13), two-year specialised upper secondary schools, specialised grammar schools, full-time vocational schools which lead to a higher education entrance qualification.
Vocational – vocational preparation programmes with a credit transfer for the first year of an apprenticeship (at full-time vocational schools, basic vocational training year), vocational schools (dual system), full-time vocational schools which lead to a full professional or vocational qualification (not including healthcare and social services occupations and nursery school teacher training), one-year programmes in healthcare professions (at full-time vocational schools or healthcare sector schools). Pupils in the so-called "transitional sector" are not included in the data (cf. Chapter A4). Vocational programmes are divided into the categories of work-based and full-time school-based. Programmes in which more than 25% of learning occurs in the workplace are allocated to the work-based category. Pupils who have already completed a training programme or the upper secondary school leaving certificate and would now need to be allocated to the upper secondary sector for a second time (training + upper secondary school-leaving certificate, upper secondary school leaving certificate + training etc.) are not included in the data for ISCED level 3.

Source: Organisation for Economic Co-operation and Development (OECD):
Bildung auf einen Blick – OECD-Indikatoren. Paris 2018 (B1, Tabelle B1.3).

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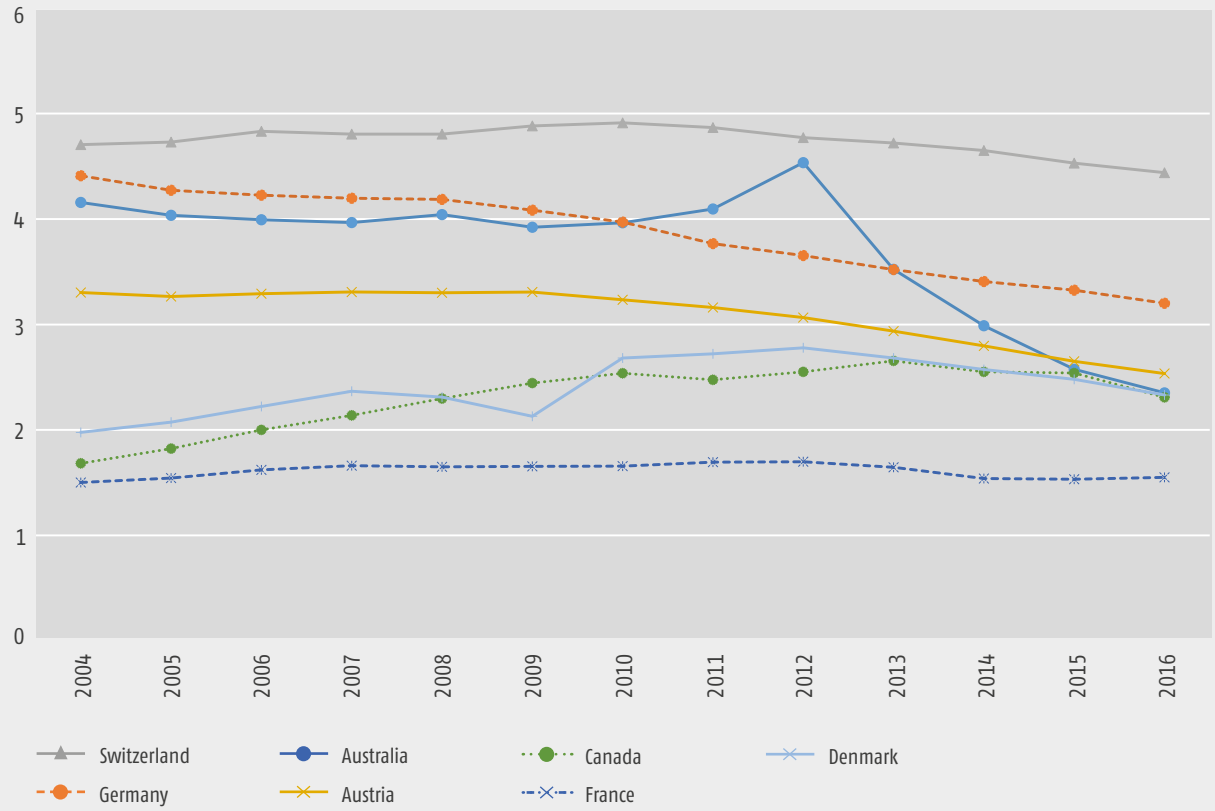
labour market, but older persons have derived a particular advantage. If we look at unemployed young people as a proportion of the population of the same age, then we see that Italy, Spain, Greece and Portugal were amongst the countries with the highest numbers of unemployed 15 to 24-year-olds in 2017. France and Sweden also exhibited comparatively high rates. The NEET rates also show a correlation between higher youth unemployment rates and higher percentage shares of economically inactive young people who were not involved in education or continuing training in 2017.

Figure D1.1-2: **Training quota – company-based trainees as a proportion of labour demand from 2004 to 2016 in international comparative terms (in %)**



Information on training contracts in the respective countries are taken from the following sources which are based on national statistics (full details in the bibliography). **Austria** (Austrian Chamber of Commerce and Industry 2018); **Canada** (Statistics Canada 2018); **France** (Direction de l'évaluation 2013, pp. 154f.; 2015, pp. 144f.; 2017, pp. 136f.; 2018, pp. 136f.); **Switzerland** (Federal Statistical Office 2018b); **Germany** (BIBB Data Report 2018c, Chapter A5.2); **Australia** (National Centre for Vocational Education Research 2018); **Denmark** (Statweb Denmark 2018).
Data relating to labour demand is, however, taken from the international statistics of the ILO (International Labour Organization 2018). Calculations by the Federal Institute for Vocational Education and Training.

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Table D1.2-1: **Unemployment, youth unemployment, relative youth unemployment and NEET rates in European comparative terms (Part 1)**

Country	Unemployment rate in % of the labour supply aged 15 to 24: Youth unemployment[1]									Ranking (2015)	Ranking (2016)	Ranking (2017)	Ranking (2018Q3)	Unemployment rate in %[1] of the labour supply aged 25 to 74								
	2005	2009	2012	2013	2014	2015	2016	2017	2018Q3[4]	ALQ (15-24)	ALQ (15-24)	ALQ (15-24)	ALQ (15-24)	2005	2009	2012	2013	2014	2015	2016	2017	2018Q3
European Union (27 countries)	18.6	19.9	23.1	23.5	22.0	20.2	18.6	16.7	m					7.6	7.5	9.0	9.4	8.9	8.2	7.5	6.7	m
Belgium	21.5	21.9	19.8	23.7	23.2	22.1	20.1	19.3	16.3	*10*	*10*	*10*	*10*	7.1	6.6	6.4	7.1	7.3	7.3	6.8	6.1	5.0
Denmark	8.6	11.8	14.1	13.1	12.6	10.8	12.0	11.0	11.0	*4*	*5*	*5*	*5*	4.2	4.9	6.3	5.9	5.5	5.3	5.1	4.8	3.8
Germany	15.5	11.2	8.0	7.8	7.7	7.2	7.1	6.8	6.6	*1*	*1*	*1*	*1*	10.6	7.3	5.1	4.9	4.7	4.4	3.8	3.4	3.0
Greece	25.8	25.7	55.3	58.3	52.4	49.8	47.3	43.6	36.3	*15*	*15*	*15*	*15*	8.4	8.4	22.3	25.4	24.8	23.4	22.2	20.2	17.3
Spain	19.6	37.7	52.9	55.5	53.2	48.3	44.4	38.6	33.0	*14*	*14*	*14*	*14*	7.7	15.7	22.5	23.8	22.3	20.2	17.9	15.7	13.2
France	20.3	22.9	23.7	24.1	24.2	24.7	24.6	22.3	21.5	*11*	*11*	*11*	*12*	7.1	7.1	7.9	8.4	8.9	8.9	8.6	8.1	7.4
Italy	24.1	25.3	35.3	40.0	42.7	40.3	37.8	34.7	29.2	*13*	*13*	*13*	*13*	6.3	6.4	8.9	10.3	10.7	10.1	10.0	9.8	8.1
Latvia	15.1	33.3	28.5	23.2	19.6	16.3	17.3	17.0	11.0	*7*	*7*	*8*	*5*	9.3	15.4	13.6	10.7	10.0	9.3	9.0	8.1	6.6
Luxembourg	13.7	17.2	18.8	15.5	22.6	17.3	18.9	15.4	15.8	*8*	*8*	*7*	*9*	3.8	4.1	4.2	5.2	4.8	5.7	5.3	4.7	5.2
Netherlands	8.2	6.6	11.7	13.2	12.7	11.3	10.8	8.9	7.3	*5*	*2*	*2*	*2*	4.1	2.8	4.7	6.1	6.5	6.1	5.1	4.1	2.9
Austria	11.0	10.7	9.4	9.7	10.3	10.6	11.2	9.8	9.6	*3*	*3*	*3*	*3*	4.7	4.4	4.2	4.7	4.9	5.0	5.3	4.9	4.3
Portugal	16.2	20.3	37.9	38.1	34.8	32.0	28.0	23.9	20.0	*12*	*12*	*12*	*11*	6.7	8.6	13.9	14.7	12.5	11.1	9.9	7.8	5.7
Sweden	22.8	25.0	23.6	23.5	22.9	20.4	18.9	17.9	14.2	*9*	*8*	*9*	*8*	5.8	5.9	5.7	5.7	5.7	5.6	5.3	5.2	5.0
United Kingdom	12.7	19.1	21.2	20.7	17.0	14.6	13.0	12.1	12.0	*6*	*6*	*6*	*7*	3.3	5.6	5.7	5.4	4.4	3.8	3.6	3.2	3.0
and Norway	*11.5*	*9.2*	*8.5*	*9.1*	*7.9*	*9.9*	*11.2*	*10.4*	*9.6*	*2*	*3*	*4*	*3*	*3.3*	*2.1*	*2.3*	*2.5*	*2.8*	*3.4*	*3.7*	*3.3*	*3.2*

Table D1.2-1: **Unemployment, youth unemployment, relative youth unemployment and NEET rates in European comparative terms (Part 2)**

Country	Younger people affected compared to older people (ALQ 15-24) / (ALQ 25-74) (relative unemployment)									Ranking (2015)	Ranking (2016)	Ranking (2017)	Ranking (2018Q3)	Ratio of unemployed persons (15-24) of employed and unemployed persons (15-24)[2]				NEET (15-24)[3]	NEET (15-24)	NEET (15-24)
	2005	2009	2012	2013	2014	2015	2016	2017	2018Q3	ALQ (15-24)/ ALQ (25-74	ALQ (15-24)/ ALQ (25-74)	ALQ (15-24)/ ALQ (25-74)	ALQ (15-24)/ ALQ (25-74)	2015	2016	2017	2018Q3[5]	2015	2016	2017**
European Union (27 countries)	2.45	2.65	2.57	2.50	2.47	2.46	2.48	2.49	m					8.4	7.7	7.0	m	12.0	11.5	10.9
Belgium	3.03	3.32	3.09	3.34	3.18	3.03	2.96	3.16	3.26	*11*	*10*	*11*	*12*	6.6	5.7	5.4	5.3	12.2	9.9	9.3
Denmark	2.05	2.41	2.24	2.22	2.29	2.04	2.35	2.29	2.89	*4*	*6*	*6*	*8*	6.7	7.9	7.0	7.1	6.2	5.8	7.0
Germany	1.46	1.53	1.57	1.59	1.64	1.64	1.87	2.00	2.20	*1*	*1*	*1*	*3*	3.5	3.5	3.4	3.3	6.2	6.7	6.3
Greece	3.07	3.06	2.48	2.30	2.11	2.13	2.13	2.16	2.10	*6*	*5*	*4*	*2*	12.9	11.7	10.9	8.4	17.2	15.8	15.3
Spain	2.55	2.40	2.35	2.33	2.39	2.39	2.48	2.46	2.50	*7*	*7*	*7*	*5*	16.8	14.7	12.9	11.6	15.6	14.6	13.3
France	2.86	3.23	3.00	2.87	2.72	2.78	2.86	2.75	2.91	*8*	*9*	*8*	*9*	9.1	9.1	8.2	8.5	12.0	11.9	11.5
Italy	3.83	3.95	3.97	3.88	3.99	3.99	3.78	3.54	3.60	*15*	*15*	*14*	*14*	10.6	10.0	9.1	7.5	21.4	19.9	20.1
Latvia	1.62	2.16	2.10	2.17	1.96	1.75	1.92	2.10	1.67	*2*	*2*	*3*	*1*	6.7	6.9	6.8	4.5	10.5	11.2	10.3
Luxembourg	3.61	4.20	4.48	2.98	4.71	3.04	3.57	3.28	3.04	*12*	*12*	*12*	*11*	6.0	5.8	4.7	5.5	6.2	5.4	5.9
Netherlands	2.00	2.36	2.49	2.16	1.95	1.85	2.12	2.17	2.52	*3*	*4*	*5*	*6*	7.7	7.4	6.1	5.1	4.7	4.6	4.0
Austria	2.34	2.43	2.24	2.06	2.10	2.12	2.11	2.00	2.23	*5*	*3*	*1*	*4*	6.1	6.5	5.5	5.7	7.5	7.7	6.5
Portugal	2.42	2.36	2.73	2.59	2.78	2.88	2.83	3.06	3.51	*9*	*8*	*9*	*13*	10.7	9.3	8.1	7.3	11.3	10.6	9.3
Sweden	3.93	4.24	4.14	4.12	4.02	3.64	3.57	3.44	2.84	*13*	*12*	*13*	*7*	11.2	10.4	9.8	8.2	6.7	6.5	6.2
United Kingdom	3.85	3.41	3.72	3.83	3.86	3.84	3.61	3.78	4.00	*14*	*14*	*15*	*15*	8.6	7.6	7.0	6.9	11.1	10.9	10.3
and Norway	*3.48*	*4.38*	*3.70*	*3.64*	*2.82*	*2.91*	*3.03*	*3.15*	*3.00*	*10*	*11*	*10*	*10*	*5.5*	*6.1*	*5.6*	*5.4*	*5.0*	*5.4*	*4.6*

** The latest data for NEET rates are from 2017.

[1] Eurostat: unemployment rates by gender, age and nationality, LFS Series – detailed annual survey results, 2018a.

[2] Eurostat: population by gender, age, nationality and employment status LFS Series – detailed annual survey results, 2018b.

[3] Eurostat: young people who do not form part of the labour demand and are not engaged in education or continuing training, 2018d.

[4] Eurostat: unemployment rates by gender, age and nationality LFS Series – detailed annual survey results, 2018f.

[5] Eurostat: population by gender. age. nationality and employment status LFS Series – detailed annual survey results, 2018g.

m = missing

ALQ = Unemployment rate

Source: Calculations by the Federal Institute for Vocational Education and Training

D2 Digitalisation and vocational education and training in international comparative terms

The anticipation is that increasing digitalisation will impact on various areas of society. The world of work of tomorrow in particular is expected to undergo considerable changes. Because the VET contents and forms are also affected by this, the intention is that measures initiated in the VET system should help counter the challenge of digitalisation. The changes may be observed from labour market economy and from industrial-sociological perspectives. The main approaches and concepts with regard to consequences of digitalisation for the labour market and for occupations are contained in Table D.2-1 set out below.

The average likelihood of automation for the 32 OECD countries (and for the occupations considered) is estimated to be 47%, although there are major differences between countries in respect of degree of automation capability. Countries with a lower likelihood of automation are mainly to be found in northern Europe (Norway, Finland, the United Kingdom, Sweden, the Netherlands and Denmark), whereas countries in southern and eastern Europe display a higher risk of automation. Germany's likelihood of automation was 52%, above the average level for the OECD. The occupational groups mostly likely to be automated are generally those in which no specific skills, training or qualifications are required. Sectors where the risk of automation is high are mostly to be found in the primary and secondary sector, whereas sectors with a lower average likelihood of automation are aligned to the service sector. In overall terms, however, the results tend to indicate an even decrease in the risk of automation in line with a rising qualification level.

The new European Skills Agenda (European Commission 2016) continues to place a main focus on digitalisation. Taking the lack of basic digital skills in the EU population and changes to work and business processes as its starting point, the European Commission has instigated a coalition for digital competencies and jobs. In 2016, the European Commission's Communication assumed that almost half of the EU's population were not in possession of fundamental digital competencies and noted that demand for skilled IT workers had risen by 4% annually during the period from 2006 to 2016.

The analysis of actual substitution effects of previous digitalisation also shows that new jobs are created by the introduction of new technologies to the labour market. Complementarity effects of digital technologies frequently seem not only to mitigate complete displacement of jobs but also even lead to a growth in employment. One material finding entirely within the context of the thesis of the transformation of work and employment is that it is not very probable that occupations will disappear entirely. The much more likely scenario is that existing occupations will undergo change to a greater or lesser degree. From an industrial-sociological perspective, this should be viewed in connection with the current or most recent developments in the area of vocational education and training. The constant adaption and further development of training regulations creates a complementarity between new technology capital and labour capital (new technologies and new qualifications). This may also lead to the emergence of new occupational tasks. At the international or European level, too, initiatives such as alliances for sector-specific competencies which focus on digital skills in particular (Erasmus+ Sector Skills Alliances) and the Digital Skills and Jobs Coalition serve to illustrate the increasing significance of the digital shift within the world of work. The main results and differences between the countries with regard to empirical

Table D2-1: **Summary of concepts for the consequences of digitalisation for the labour market and for occupations**

	Automation and substitution	Polarisation	Upgrading	Transformation
Main focus of the argument	Replacement of the production factor of work by capital (technology)	The consequence of automation and substitution will be a massive loss of significance for medium qualifications groups. Jobs will be divided up between highly qualified workers and the low qualified.	Automation of routine tasks – new and more demanding tasks will emerge in areas such as refitting, configuration, control and quality assurance.	The reorganisation of work and business processes will lead to new occupational and task profiles and to new forms of work organisation. Flexibilisation of occupational work and dissolution of its boundaries
Labour market effect	Job losses	Competition will lead to a polarised wage structure.	Jobs will be lost and new jobs created at the same time.	Jobs will be lost and new jobs created at the same time.
Perspective	Economic/quantitative	Economic/quantitative	Industrial-sociological/ qualitative	Industrial-sociological/ qualitative

Source: Hirsch-Kreinsen 2016; Pfeiffer 2004; Autor/Levy/Murnane 2003 VET Data Report Gemany 2019

Table D2-2: **Digitalisation – changes on the labour market and in occupations in Germany, Austria and Switzerland**

Indicator	Germany	Switzerland	Austria
Labour market effects of digitalisation			
Substitution potential	▸ High degree of substitution within industrial production, unskilled and skilled tasks also particularly affected	▸ Automation potential focused on unskilled workers, employees in production and in agriculture and forestry and low to medium-qualified office workers	▸ Unskilled workers, machine operators and craft trade workers particularly affected
	▸ Low risk in the area of "social and cultural service occupations"	▸ Public sector, healthcare and social services and information and communication the areas least affected	▸ Low risk for managers, persons with academic qualifications and technicians
Task structure	▸ 1995 to 2010: substitution of manual and cognitive routine occupations	▸ 1996 to 2015: substitution of routine task (cognitive and manual routine)	▸ 1995 to 2017: manual routine and non-routine tasks mostly slightly under the starting level since 1995
	▸ Increase in non-routine tasks (analytical, interactive and manual non-routine)	▸ Increase in non-routine tasks (analytical, interactive and manual or service-oriented non-routine)	▸ Growth in analytical and interactive non-routine tasks and in cognitive routine tasks
			▸ Manual non-routine tasks increasing once more in recent years
Net effects of digitalisation/ automation	▸ Compensation for employment substituted or employment growth (1995 to 2010): complementarity effects for non-routine occupations	▸ Employment increased in overall terms (1990–2015)	▸ Number of full-time equivalents (independent and dependent employees) increased in overall terms (1995–2015)
	▸ Structural shift as a result of computerisation – reduction in primary and secondary sectors, growth of tertiary sectors	▸ Reduction of employment in trade and industry, in the construction sector and in agriculture and forestry	▸ However, fall in employment volumes in agriculture and industry (mining and manufacture of goods) in particular
		▸ Increase in employment in service-related occupations and within the information and technology area	▸ Significant increase in FTEs worked in commerce, tourism, education, healthcare and social services, the area of information services and company-related services
Changes to regulatory policy	▸ Digital competencies increasingly being offered as an additional qualification or expansion focus in training occupations, but progress of digitalisation uneven thus far	▸ Increasing significance of cross-cutting (social) competencies such as communication and interaction with customers and patients	▸ Establishment of main and special modules with digital focuses
	▸ New development of training occupations within the scope of new task areas which have emerged as a result of digitalisation processes	▸ Development of new occupational profiles with digital focuses	▸ Development of new and modernised training regulations with a central alignment to digital contents and focuses or with increasing orientation to requirements which are gaining in significance within the context of digitalisation
	▸ Consequences of digitalisation for skilled work particularly revealed in changes to process sequences	▸ Effect mechanisms of digitalisation also shown in the emergence of new products, new sales channels and new production processes	▸ Learning contents within the scope of autonomous main focuses within full-time school-based VET heavily aligned towards digitalisation
	▸ Increasing significance of hybrid forms of qualification and of cross-cutting core competencies	▸ Increasing cooperation between various specialisms	

Source: Compilation by the Federal Institute for Vocational Education and Training

labour market effects and regulatory policy changes are summarised in Table D2-2.

D3 Mobility in vocational education and training

Erasmus+ (2014 to 2020) is a programme to support education, training, youth and sports in the European Union. It supports the meeting of the objectives set out in the "Europe 2020" Strategy and is helping to achieve a strategic framework for cooperation in education and training. The central instrument of the Erasmus+ project is funding. Alongside the four education sectors of vocational education and training, adult education, schools and higher education, the programme also encompasses the areas of young people and sports. The target perspective at an individual level remains focused on improving competencies and employability. There is also a main focus at an institutional and systemic level. The aim is that participation in mobility projects will help companies and institutions to enhance the quality and attractiveness of training provision and to foster the internationalisation of their own organisations. At the level of education systems, the objectives are to improve the recognition of competencies, to smooth transitions between education sectors, including the informal sector, and to initiate policy reforms in the long term. Within the scope of mobility projects, trainees, full-time vocational school pupils, persons in vocational preparation measures, those in formal continuing vocational training and anyone who has completed one of the above programmes are afforded the opportunity to spend periods abroad of between two weeks and a year. VET staff may go to another European country for between two days and two months for learning how to train or teach.

Table D3-1 states the number of Erasmus+ projects funded in 2015 for the 20 most popular training occupations and shows how internationally mobile these occupations are by presenting which percentage of persons completing such training programmes have undertaken a stay abroad within the scope of Erasmus+.

Goods and services are being traded globally to an ever greater extent nowadays. This gives rise to calls for German skilled workers to be capable of deployment all over the world. Because of the limited geographical reach of Erasmus+ and of other national funding programmes, the BMBF launched a programme called "Ausbildung-Weltweit[23]" in 2018. The National Agency Education for Europe at BIBB implements AusbildungWeltweit. The target countries are all those not covered by the European education programme Erasmus+. Stays abroad of between three weeks and three months undertaken by trainees in the dual system (BBiG/HwO) and by persons undergoing training pursuant to other federal laws governing the professions are eligible for funding. This allows the gathering of practical experience and companies and helps prepare for occupational activity in a globalised world of work.

The number of stays abroad in VET has risen steadily and significantly, and the assumption is that this figure will increase further. Almost half (49%) of the stays abroad are financed via Erasmus+. The trainees themselves, companies and schools all take an equally positive view of the effect that stays abroad produces for knowledge, skills and competencies. The 2017 mobility study 'Stays abroad in vocational education and training' addresses the perspective of the companies and schools and embraces in particular the perspective of those companies and schools which have not previously participated in the international mobility of their learners. When they are asked about the reasons for their inactivity, it initially becomes clear that even inactive schools and companies assume that stays abroad by trainees would have a positive impact both on the young people and on their institution. The possible reason for their inactivity, the cause most agreed with, is the statement that the school or company was not offered the opportunity to send trainees abroad. When asked about the form that support should take, companies and schools express a desire for more information on the topic of stays abroad, more practical assistance and firm establishment within the regulatory instruments (see Figure D3-1).

23 "Training Worldwide", **www.ausbildung-weltweit.de**

Table D3-1: **Erasmus+ funded stays abroad by training occupations (top 20)**

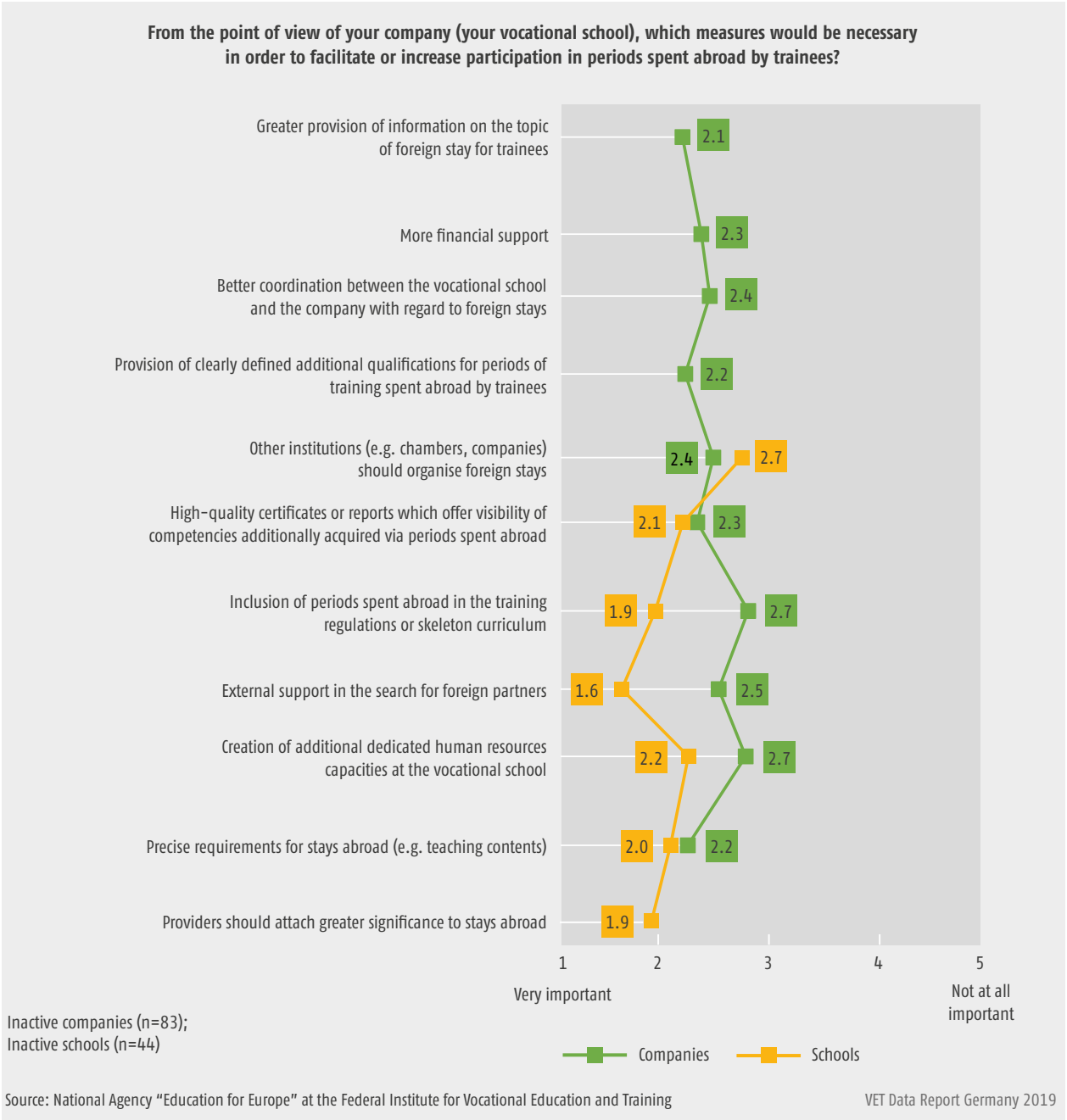
Training occupation	Completions 2016[1]	Erasmus+ funded stays abroad 2015	Erasmus+ mobility rate[2] (in %)
Total (for Erasmus+ only scholarship recipients in training pursuant to BBiG/HwO)	**392,934**	**9,099**	
Total of the top 20 training occupations	221,223	5,341	
of which:			
Management assistant for retail services	24,216	178	0.7
Office manager	22,827	802	3.5
Sales assistant for retail services	17,583	80	0.5
Industrial clerk	17,352	1,788	10.3
Motor vehicle mechatronics technician	14,763	196	1.3
Industrial mechanic	12,957	271	2.1
Wholesale and foreign trade clerk (all specialisms)	12,879	411	3.2
Bank clerk	12,198	194	1.6
Medical assistant	11,427	147	1.3
Information technology specialist (all specialisms)	9,054	151	1.7
Qualified dental employee	8,448	19	0.2
Warehouse logistics operator	7,887	104	1.3
Electronics technician (all specialisms)	7,173	43	0.6
Mechatronics fitter	7,047	242	3.4
Specialist in the hotel business	6,573	258	3.9
Plant mechanic for sanitary, heating and air conditioning systems	6,534	46	0.7
Electronics technician for industrial engineering	5,715	79	1.4
Milling machine operator	5,646	55	1.0
Joiner	5,511	154	2.8
Hairdresser	5,433	53	1.0

[1] The term of the Erasmus+ projects approved in 2015 runs from June 2015 to May 2017. For this reason, the most appropriate comparison is with those completing training in 2016.

[2] Number of Erasmus+ funded stays abroad as an arithmetic proportion of all those completing training in the relevant occupation

Source: National Agency Education for Europe at the Federal Institute for Vocational Education and Training:
"Trainee Database" of the Federal Institute for Vocational Education and Training based on data from the Vocational Education and Training Statistics of the Federal Statistical Office and the statistical offices of the federal states (survey as of 31 December), training occupations as a whole not including § 66 BBiG/ § 42m HwO

Figure D3-1: **Support wishes of inactive companies and schools**



Inactive companies (n=83);
Inactive schools (n=44)

Source: National Agency "Education for Europe" at the Federal Institute for Vocational Education and Training

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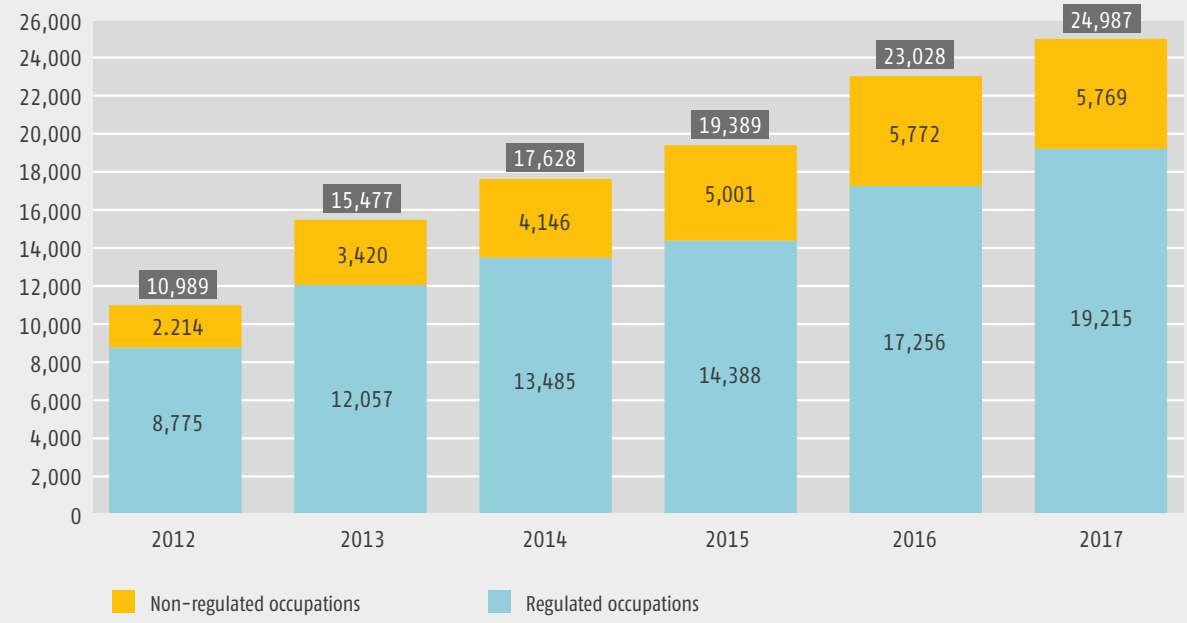
D4 Recognition of foreign professional and vocational qualifications

In 2017, skilled workers made around 35,900 applications for recognition in Germany of professional and vocational qualifications obtained abroad. The recognition acts pursue two main goals. The first aim is to improve the integration of persons with foreign qualifications who are already living in Germany. A second objective is that the immigration of qualified workers will help address the country's skills gap. For the 2017 reporting year, the competent bodies recorded 24,987 applications for recognition of a foreign qualification in professions and occupations governed by federal law. The Federal Recognition Act currently covers some 600 professions and occupations. A distinction is drawn in this regard between regulated professions and non-regulated occupations. 23.1% of applications reported related to non-regulated occupations and 76.9% to regulated professions. The pro-

Figure D4-1: **Development of application numbers from 2012 to 2017 in regulated occupations and non-regulated occupations**



In the first reporting year of 2012, the competent bodies responsible for recognition were only determined within the course of the reporting year in some cases. For this reason, reports may not always have been complete or have taken place in a timely manner. In 2013, the reports made by a number of agencies were incomplete and erroneous. No data is available for Bremen for the year 2015. For this reason, information from 2014 has been used for this particular federal state. In the 2016 reporting year, the area of the medical healthcare professions was under reported by a figure in the low hundreds for the federal states of Hamburg and Schleswig-Holstein. To this extent, the federal result should be viewed as a minimum figure.

From 2016: including applications in respect of which procedures ended without a notice (withdrawn applications).

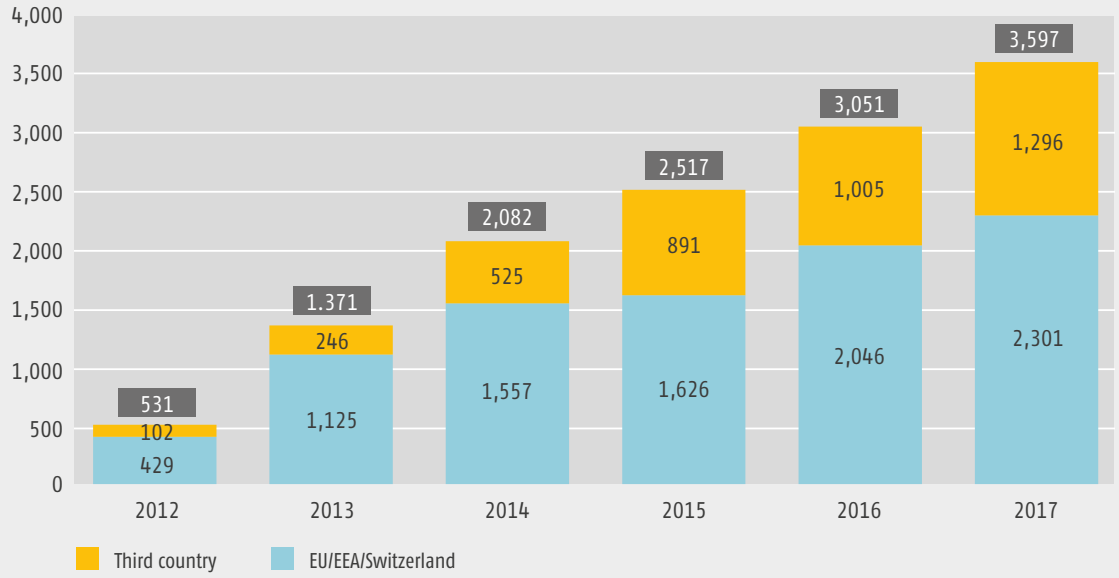
Source: Official statistics pursuant to § 17 of the Federal Professional Qualifications Assessment Act (BQFG) or pursuant to the respective laws governing the professions which make reference to § 17 BQFG. Surveys of the Federal Statistical Office, reporting years 2012 bis 2017. For data protection reasons, all figures (absolute values) are in each case rounded to a multiple of 3. The overall value may therefore deviate from the total of the individual values. Evaluation and representation by the Federal Institute for Vocational Education and Training.

VET Data Report Germany 2019

portion of applications in the regulated sector increased by two percentage points and decreased accordingly in the non-regulated sector.

The legal entitlement to a recognition procedure applies regardless of place of residence, country of training, nationality and residence permit. This means that persons living abroad may also seek to begin a recognition procedure. The number of applications from abroad has been increasing since 2012. The most common country of qualification for applicants in 2017 was Syria. Bosnia and Herzegovina and Serbia (not including Kosovo) followed in second and third places, respectively. In the case of the regulated professions, 63.0% of procedures resulted in full equivalence. A majority (55.2%) of procedures for non-regulated occupations led to the issuing of a notice of full equivalence. The Recognition Portal is the main Internet information platform for the recognition of foreign professional and vocational qualifications. A new record of 3.2 million visits to the site was achieved in 2018. This represented a growth of 37% compared to the previous year (2.4 million visits in 2017). The portal recorded around 257,000 hits in its first year of 2012. The EU Professional Recognition Directive ensures occupational mobility and freedom of movement of labour within Europe. It is implemented in Germany via the recognition acts passed by the Federal Government and the federal states. Persons from non-EU third countries or those who have completed training in a third country are also allowed to undergo the recognition procedure as well as EU citizens. Professional and occupational recognition is part of ensuring successful migration to Germany and is becoming increasingly important, especially in respect of immigration from third countries. The Recognition Portal is available in multiple languages so that skilled workers abroad interested in seeking recognition can be provided with timely responses to any questions they may have relating to all aspects of the process for the recognition of foreign professional and vocational qualifications. The Recognition Finder is a tool which offers visitors to the

Figure D4-2: **Development of application numbers from 2012 to 2017 for applications from abroad**



Note: Applications from abroad are identified via "Place of residence of the applicant". This characteristic has formed part of the statistics since 2012. Reporting did not become mandatory until August 2013 pursuant to Article 23 of the Federal e-Government Act. The assumption is, therefore, that under reporting of foreign applications took place from 2012 to mid-2013. Under reporting should also be presumed for further reporting years because sometimes correspondence addresses in Germany were recorded rather than the actual place of residence. Place of residence may also shift from abroad to Germany during the course of the recognition procedure. The notes to Figure D4-1 fundamentally apply in this instance too.

Source: Official statistics pursuant to § 17 of the Federal Professional Qualifications Assessment Act (BQFG) or pursuant to the respective laws governing the professions which make reference to § 17 BQFG. For data protection reasons, all figures (absolute values) are in each case rounded to a multiple of 3. The overall value may therefore deviate from the total of the individual values. Evaluation and representation by the Federal Institute for Vocational Education and Training.

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portal an extensive description of the recognition procedure for their own professional or vocational qualification acquired abroad. In 2018, the number of enquiries received via the contact form on the Recognition Portal increased by 9% compared to the reporting period of the previous year. Visitors to the site submitted both enquiries of a general nature relating to recognition and specific questions regarding recognition within the context of immigration and searching for a job.

Annex: List of abbreviations

Abbreviation	German	English
AES	Erwachsenenbildungsstudie	Adult Education Survey
AFBG	Aufstiegsfortbildungsförderungsgesetz	Upgrading Training Assistance Act
BA	Bundesagentur für Arbeit	Federal Employment Agency
BAföG	Bundesausbildungsförderungsgesetz	Federal Training Assistance Act
BAuA	Bundesanstalt für Arbeitsschutz und Arbeitsmedizin	Federal Institute for Occupational Safety and Health
BAMF	Bundesamt für Migration und Flüchtlinge	Federal Office for Migration and Refugees
BBiG	Berufsbildungsgesetz	Vocational Training Act
BIBB	Bundesinstitut für Berufsbildung	Federal Institute for Vocational Education and Training
BMBF	Bundesministerium für Bildung und Forschung	Federal Ministry of Education and Research
CIS	Gemeinschaft Unabhängiger Staaten	Commonwealth of Independent States
CVET	Weiterbildung	Continuing vocational education and training
CVTS4	Erhebung zur beruflichen Weiterbildung	Continuing Vocational Training Survey
DIE	Deutsches Institut für Erwachsenenbildung – Leibniz-Zentrum für Lebenslanges Lernen e. V.	German Institute for Adult Education – Leibniz Centre for Lifelong Learning
DQR	Deutsche Qualifikationsrahmen	German Qualifications Framework
EQF	Europäischer Qualifikationsrahmen	European Qualifications Framework
EQI	Einmündungsquote Ausbildungsinteressierte	Progression rate of persons interested in training
ESF	Europäische Sozialfonds	European Social Fund
HwO	Handwerksordnung	Crafts and Trades Regulation Code
IAB	Institut für Arbeitsmarkt- und Berufsforschung	Institute for Employment Research
iABE	Integrierte Ausbildungsberichterstattung	Integrated Training Reporting System
ISCED		International Standard Classification of Education
NAA	Neu abgeschlossene Ausbildungsverträge	Newly concluded training contracts
SGB II (Wissenschaftsdatenbank)	Grundsicherung für Arbeitssuchende	Basic income support for jobseekers
SGB III (Wissenschaftsdatenbank)	Arbeitsförderung	Employment promotion
SOEP	Sozio-oekonomisches Panel	German Socio-Economic Panel
UN-BRK	UN-Behindertenrechtskonvention	UN Convention on the Rights of Persons with Disabilities
VET	Berufsbildung	Vocational education and training
WeGebAU	Weiterbildung Geringqualifizierter und beschäftigter älterer Arbeitnehmer in Unternehmen	Funding of Continuing Training of Low Skilled Workers and Employed Older Persons in Companies

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