

**Resource Countries Report**

**Germany – Austria – Switzerland – Denmark – Netherlands**

*Full report*

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# Introduction: Aim and Scope of the Report

The aim of this report is to inspire the discussion of representatives of the business community as well as other stakeholders in the “Cluster Seminars”, sponsored by BusinessEurope, UEAPME, and CEEP, in order to explore “The cost effectiveness of apprenticeship schemes – making the business case for apprenticeships”.

As apprenticeships we refer to the definition used by the European Commission as formally combining and alternating company-based training (periods of practical work experience at a workplace) with school-based education (periods of theoretical/practical education followed in a school or training centre), and lead to nationally recognised qualification upon successful completion. Most often there is a contractual relationship between the employer and the apprentice, with the apprentice being paid for his/her work. [[1]](#footnote-2)*European Commission “European Alliance for Apprenticeships - Good for Youth, Good for Business”*

The report summarises information about the apprenticeship-based parts of the VET system of Germany, Austria, Switzerland, Denmark and the Netherlands. These countries referred as “resource countries”, as they have been identified as sharing relevant elements of successful VET systems, which contribute to positive outcomes in indicators as youth unemployment, skills development and business satisfaction.

The report is based on a review of selected overview studies from institutions as the OECD, CEDEFOP, European Commission, UK Commission for Employment and Skills (UKCES) as well as the national institutions of the resource countries, as far as they were available in English. Comments of stakeholders during the cluster seminar discussions as well as in written communication also informed the report. The authors´ own experiences as actors in the German research and development community on the improvement of the VET system over many years, were used to contextualize and interpret the information retrieved.

As the issue of the cost-benefit-ratio of apprenticeship arrangements is a focus of the discussion in the overall project, leading research on this cost-benefit-ratio from Germany and Switzerland has been analysed, while comparable empirical studies are not available for the other countries covered here.

The report is structured as follows:

In chapter two, key fact sheets about general characteristics of the system, strengths and weaknesses, challenges, the overall effectiveness are provided. The fact sheets also mention costs and benefits for companies as well as main motivation for SME to offer apprenticeships. Finally elements to watch/to learn from are suggested for each resource country are suggested. The intention of these fact sheets is to give a short overview of main points, in order to inspire the discussion in the "cluster seminars."

Chapter three covers main trends of Youth employment in the resource countries. Chapter four describes the VET systems of the resource countries, apprenticeship remuneration and selected occupational profiles, the legal framework, status of apprentices target groups. and geographical scope.  
Chapter five provides material to assess the overall effectiveness and funding of the system.

Chapter six focuses the cost-effectiveness of apprenticeships and puts this question in the wider context of targets and constraints of the system, the involvement of stakeholders, policy framework, and plans for improving the system. As a result, the overall motivation of SME to offer apprenticeships is discussed.

The material presents selected statements from relevant reports on the strengths and weaknesses of the systems which are interpreted on the background of the authors own experiences.

Finally the references guide the reader to the material used, which allows for an efficient exploration of additional information.

# Overview of Resource Countries: General Characteristics, Strengths and Weaknesses, Efficiency and Elements to Watch

## Germany

**General Character and main Features of the System**

* Dual track system, consisting of education in general and occupation specific subjects at public Vocational School and apprenticeship in a company
* Apprenticeship in a company is the prevalent form of vocational education
* Apprentices have a contract with the company and have a special status as apprentices
* Apprenticeships are open to all learners, selection of applicants is up to companies
* 344 recognised occupations involving formal apprenticeship training are offered
* With exceptions, duration of vocational training in the dual system is between 2 and 3 years
* Final examination leads to the award of a certificate proving the individual’s proficiency as a qualified journeyman/skilled worker
* Guiding principle and overarching aim of the apprenticeship is to develop full occupational proficiency (“berufliche Handlungsfähigkeit”)
* Apprenticeships are a fully respected part of the education system and qualify for post-secondary further vocational or general education
* The vocational track of education on secondary level can lead to the certificate as “Master” craftsman. The master craftsman/foreman is the top specialist vocational qualification and authorises the person to manage an enterprise and to train apprentices.
* Skilled workers and master craftsmen can select from a wide variety of options for further training. Examples include further training as a crafts management expert for entrepreneurs and managers
* Social partners are fully committed and highly involved in shaping the system
* Strong state, Chambers of Commerce and Industry, as well as the organisations of the skilled crafts (Guilds and Chambers of skilled crafts) are fully committed.

**Main Strengths**

* High quality of training which combines learning company specific real life situations with the development of well-defined and broad occupational competences
* Learning in real life situations addresses the needs of different types of learners
* Regulation of skills development by the number and profile placements offered by companies avoids misallocation of resources in obsolete qualifications
* Positive employment outcomes prove the efficiency of the system for companies and apprentices alike.

**Main Weaknesses**

* In times of high supply of applicants companies tend to be selective in their choice of candidates
* In times of economic crises the system proved to be unable to integrate all applicants in spite of high efforts by social partners, resulting in a high level of youth unemployment in some regions
* Sensitivity to the business cycle necessitates complementary measures to avoid a high level of drop-outs during economic crises, the “transitory system” which used to be largely unregulated and inconsistent
* Permeability of the system needs further improvement
* Outreach to non-traditional groups of learners as second-generation migrants is still limited

**Overall Effectiveness of the System**

* The system is respected to a very high degree and contributes to a low level of youth unemployment most of the time
* High engagement of companies shows that the system develops the competences needed by companies
* The high level of productivity of the German economy is often credited to its highly skilled workforce trained in the dual system, which allows for flexibility and adaptability

**Costs and Benefits for Companies**

* Companies (on average) bear a net cost of 5,398€ net cost (2012/2013; 2007: 3,596 €) per apprentice and year
* The high engagement of companies of all sizes shows that companies in spite of these costs feel that there is a net benefit in providing apprenticeships.

**Main Motivation of SME to offer Apprenticeships**

* Successful training of apprentices regarded as showcase of overall competency of the company
* Securing the skilled labour also for companies that are less competitive in the general labour market and for those who have special skills needs
* Reducing the costs of setting-in
* Facilitates the selection of the most productive junior staff
* Increases the motivation and loyalty to the company
* Secures job specific and actual qualifications
* Productive performance of apprentices

**Policy Challenges**

* Coping with demographic challenges (fewer applicants, older apprentices, migration)
* Integration of apprentices with low educational attainment
* Integration of initial training and life-long learning
* Permeability of the system
* Building support structures to foster apprenticeships in SME

**Elements of the System to Watch**

* Principle of occupational proficiency
* “Dualisation” of tertiary (academic) education
* Methodology and didactics of workplace learning
* Cooperation of SMEs in training
* Value of workplace learning for the development of personality and soft skills

## Austria

**General Character and main Features of the System**

* Apprenticeship system (dual training) part of the Austrian initial and continuing education and training system
* Young people self-responsible to find an apprenticeship training place
* 40 percent of young learners in the tenth grade took up a dual training
* Open access to the system
* In practice a positive completion of compulsory education is a prerequisite to enter an apprenticeship within the dual system in Austria.
* A good portion of the pupils attend the prevocational school (“Polytechnische Schule”) for one year in order to complete compulsory then start an apprenticeship
* 200 state-recognised professions (177 3-4 years; 131 3 years; 9 modular apprenticeships with variable duration, modular qualifications
* Two learning venues: company (80% of time) and in a part-time vocational school
* Apprentice involved in the production/service process under real work conditions
* Training company and vocational school collaborate: communication about the apprentice’s achievements and behaviour; teachers meet specialists of the branch, and companies offer work placements for part-time vocational school teachers
* Training guarantee for young people up to the age of 18 years. Young people who cannot find a company-based apprenticeship get supra-company apprenticeship training
* Almost 40% of managers in business have completed an apprenticeship

**Main Strengths**

* Positive labour market output
* High participation
* Universal acceptance and high level of consent
* Positive image
* Funding schemes for SME participation

**Main Weaknesses**

* Declining number of companies offering apprenticeships indicates difficulties to acquire applicants regarded as trainable
* Low qualified people have difficulties to find placement in company
* Too high dropout rate from training.

**Policy Challenges**

* Practical implementation of VET as pathway to higher education
* Provide VET qualification to disadvantaged young people
* Improving outcomes of general education
* Continuous adaptation of professional profiles

**Overall Effectiveness of the System**

* High

**Costs and Benefits for Companies**

* High level of company involvement and high rate of apprentices taken on demonstates perceived overall benefit
* Many companies have net cost benefit already during apprenticeship

**Main Motivation of SME to offer Apprenticeships**

* to have future qualified employees in line with their enterprise’s needs
* to select the best candidates for further employment
* apprentices contribute to company productivity, partly recovering training costs

**Elements of the System to Watch**

* Coordinated skill formation
* Funding schemes for SME participation

## Switzerland

**General Character and main Features of the System**

* Employer driven “collective skills formation system”
* Three or four year programs of vocational education and training lead to a certificate in one of more than 230 occupations (“Eidgenössisches Fähigkeitszeugnis”)
* Two year programs build practical competences
* Overwhelming majority of programs are based on apprenticeships in a host company, supported by attending professional school and industry courses part time (dual-track VET programmes)
* Vocational education and training (VET) provides two-thirds of young people in Switzerland with a solid foundation in a given occupation
* VET programs closely match the needs of the labour market
* Occupational skills defined in close cooperation with industry organisations
* High degree of flexibility of companies to train content in addition to the common minimum
* Learning within the company is guided by the extensively defined occupational profiles and qualification plans
* The actual work process is the main learning opportunity. Learners are involved more and more in the actual working process.

**Main Strengths**

* High level of overall effectiveness
* High level of acceptance from all stakeholders
* High level of company engagement
* Flexibility in addressing regional and sector specific needs
* Collective effort to secure skills base of the economy encourages responsible behaviour of individual companies, high level of coordination.

**Main Weaknesses**

* Relatively low remuneration of apprentices
* Dependency on the business cycle

**Policy Challenges**

* Addressing demographic changes
* Quality assurance
* Inclusiveness

**Overall Effectiveness of the System**

* The system is highly effective
* One of the lowest youth unemployment rates in the world
* Contributing to a highly skilled labour force on all levels

**Costs and Benefits for Companies**

* Only country with empirically proven positive cost-benefit ratio already during the apprenticeship, average net benefit of more than 8952€ achieved for 3 year apprenticeship
* Other benefits outweigh the direct economic gain: securing skills base of company, being able to select the most productive junior employees, reducing setting-in costs of well-paid fully qualified workers, company specific competences.

**Main Motivation of SME to offer Apprenticeships**

* Offering apprenticeships for many companies is a matter of course in a highly coordinated system
* Quality of apprenticeships is regarded as proof of the overall competency of the company
* Benefits as mentioned

**Elements of the System to Watch**

* Coordinated, employer driven skill formation
* Positive net benefit contributes to attractiveness for companies also in economic downturns
* Workplace learning as main learning opportunity
* Cooperation of SME in training (“Lehrverbünde”)
* Flexible pathways and modular certificates for various types of learners
* Permeability of the system
* Close orientation at regional and sectorial employer needs

## Denmark

**General Character and main Features of the System**

* System governed by Ministry of Education and social partners
* Social partners play a key role to match labour market needs and the reforms of VET system
* 6-12 month in Vocational College prepares for typically 3,5 year programme (range 1,5-5 yr.) that combines 2:1 workplace: college education
* “Sandwich” of periods in college and at the workplace
* Solidarity principle of financing VET (AUB system): All companies contribute. Employers are reimbursed for trainee wages during school periods, 80% of trainees’ travelling expenses are covered and payment for those in apprenticeship centres is financed
* Educational Guarantee: in case of programmes where school based training is an option, if student is unable to obtain an apprenticeship he can finish a programme school-based
* High level of social partner influence
* Certification of prior learning
* Integration of adults – highest level of adult learning in Europe
* Examination mostly through project assignment and oral test

**Main Strengths**

* Broad range of opportunities for all kinds and levels of learners
* Exploration of innovative high skill profiles
* Occupational profiles and skills needs identified and described by the social partners
* Robust and flexible system

**Main Weaknesses**

* Complexity
* Image of apprenticeships and vocational schools needs improvement
* VET has been seen as a system for weak learners
* Weak skills of applicants perceived by companies
* High dropout rate and low completion rate.

**Challenges**

* Raising the quality of VET programmes at VET colleges
* Increasing the recruitment of more and of ambitious and high gifted students
* Obtaining apprenticeships that match labour market needs
* Integration of weaker learners in a high-tech-high-skill economy
* Significant lowering of drop-out rate and raising completion rate
* VET Quality Reform 2014/2015.

**Overall Effectiveness of the System**

* High effectiveness, with room for improvement
* High participation, with room for improvement
* Positive macro indicators (low youth employment, high level of adult education)

**Costs and Benefits for Companies**

* Little information available
* Companies supported by solidarity fund
* High participation rate of companies indicates perception of sufficient benefits, but companies call for better qualified applicants

**Main Motivation of SME to offer Apprenticeships**

* Overall net benefit perceived. Training trainees is part of the professional pride of companies
* Lower recruitment costs
* Maintenance of skilled labour force on national, regional and sectorial level
* Control over qualifications
* Avoidance of costly mismatches in recruitment of staff

**Elements of the System to Watch**

* Individualised modular VET programmes
* Partial qualifications (modules): VET can be paused and continued as needed
* Solidarity principle of funding
* National strategy to focus knowledge intensive specialist sectors
* Integration of lifelong learning
* State and Social partner cooperation

## Netherlands

**General Character and main Features of the System**

* Balanced system of work-based and school-based programmes: two pathways (school and work-based) lead to the same qualification
* Elaborate framework of qualifications: VET builds competences in 4 sectors, 237 qualifications, 612 different exit diploma
* School-based (BOL): 20-60% internships – Work-based (BBL) >60% in-company
* 67% of pupils attend vocational track of upper secondary education
* Upper secondary Vocational Education at four levels (MBO (middelbaar beroepsonderwijs) 1-4// ISCED 2-4)
* System also open to adults (25% of apprentices >35 years old)
* Strong role of social partners and colleges, integration of market principles
* 50% of MBO graduates continue to higher professional education

**Main Strengths**

* High level of consensus among stakeholders
* Balance of different learning pathways addresses needs of different types of learners
* Balance of different learning pathways cushions the effects of economic cycles
* Flexibility and adaptability of professional profiles
* General high level of flexibility
* Integration of weaker learners and groups at risk into the regular system

**Main Weaknesses**

* Coordination and transparency
* Full implementation of conceptual principles, e.g. full company commitment

**Challenges**

* Demographic change, migration and skill shortages in some sectors
* Consequent turn towards a competence based training concept
* More active forms of work-based learning
* Building support systems for weaker learners
* Integration of young and weaker learners in work-based learning
* Introduction of more varied means of assessment, validation of prior learning
* Maintenance of close connections to regions and sectors in face of centralization of responsibilities.

**Overall Effectiveness of the System**

* High level of effectiveness. Favourable macro indicators, such as low youth unemployment
* Number of school drop-outs decreasing
* 95% completion rate of MBO training
* 75% of BBL graduates taken on by training companies

**Costs and Benefits for Companies**

* High level of company engagement indicates perception of high benefits
* Average cost 38.000€ / BBL student
* Gains through productive work of apprentices and lower recruitment costs, as high level of taking on of apprentices in regular work

**Main Motivation of SME to offer Apprenticeships**

* Well-developed regional and sectorial labour force
* Selection of most appropriate junior employees
* Flexible qualification profiles allow for adaptation to company needs
* High level of influence on occupational profiles assures high level of skill match
* Access to promising candidates in competition with larger companies
* Positive effects on productivity and quality of regular work
* Positive effects on company knowledge management
* Low risk of poaching as overall labour supply is sufficient

**Elements of the System to Watch**

* Flexible and modular qualification profiles
* School based and work-based learning pathway as equal alternatives cushions effects of economic cycles
* Close cooperation of sectors to define qualifications

# Elements of Well Established Apprenticeship Systems to Discuss when Discussing Introduction of Apprenticeship Schemes

Efforts to “export” or “transfer” successful training systems have proved to be a failure, to a quite large extent.

Training regimes are very dependent on the overall political, cultural and institutional setting of countries and even regions, therefore in fact to a certain degree the wheel *has* to be invented again, everywhere.

Nevertheless, efforts to do so can in fact profit from experiences made elsewhere, which can inform and inspire efforts to reform and expand training systems, deemed need such reform by the relevant stakeholders.

In a study commissioned by the Bertelsmann Foundation in Germany, one of the leading experts in the field, Dieter Euler, made an quite convincing effort not to reiterate the main characteristics of the (relatively) successful “German Model”, but rather to identify main elements that characterize this system (or rather characterize the direction of reforms that are much needed also in Germany), which can inform the discussion about VET reform in other countries.

The authors of the overview at hand are convinced that these elements are common characteristics of all of the systems of the resource countries studied. Therefore the elements identified by Euler can serve as a valid guideline for the interpretation of the information presented in the chapters to follow.

The elements identified mainly present general insights or guiding principles for the (re-) construction of training regimes, which are, in our opinion, the foundation for the integration and evaluation of the diverse technical details of the VET systems in the individual resource countries and the role of apprenticeships therein.

These elements also put the question of the cost-benefit-ratio of apprenticeships for individual companies in a broader framework, which is in our opinion necessary to develop a balanced view of the issue.

A common characteristic of all of the, overall quite successful, resource countries is that they were able to develop systems of *collective* skill formation, i.e. they were able to overcome the limitations of individualistic perspectives. This however was done not by putting the state in charge, but largely by common action of Employers Organisations and also Unions and other stakeholders. These were able to develop a common vision of an adequate training system which would serve their needs as well as that of companies, individuals and the wider society in general.

Euler identifies 11 crucial elements, along with explanations, which we summarise and interpret on the background of the material presented in this report[[2]](#footnote-3):

1. Common vision of a “**Broad objective: vocational training as a means of achieving economic, social and individual goals**”.  
   Stakeholders should agree that VET systems should foster economic productivity, social integration and individual development alike. Only this way a skilled labour force can be developed, which can help to promote innovation in business.  
   While the general aim is broad, Euler recommends to follow these objectives according to the actual political priorities and to start piloting new elements in those sectors of the economy where conditions seem to be favourable and success can be demonstrated.
2. **“The main objective of vocational training: to produce skilled workers with flexible qualifications who are mobile and capable of working in their chosen fields”**Reform should be guided by the principle that training must be designed to meet the practical needs of the labour market.

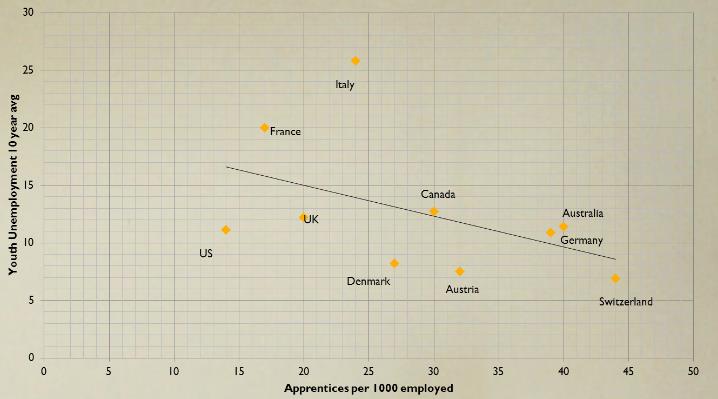
Skills should enable the individual to work, in the first place. This should be more important than tradition of a full systematic coverage of all desirable qualifications. Skills should be applicable in a number of settings and businesses. Skills should be assessed and certified by an independent expert agency according to a transparent skill profile. As the experience in the resource countries shows, this can be done in quite different ways. Skills profiles can be built gradually and participation of practitioners from companies in examinations and assessments should always be guaranteed. Skills can be built in a very diverse mixture of school based and apprenticeship settings.

1. **“Alternating learning situations in accordance with the dual principle”**The dual principle refers to the integration of theory and practice, thinking and learning, systematic and case-based learning. In any case, only the business setting can provide real-life conditions. The learning benefit of these settings depends on their quality, however, and on cooperation arrangements with the other actors.
2. **“Vocational training as a task to be carried out in partnership between government and the business community”** Cooperation may take a variety of forms, from regulated co-determination to a general “consensus principle” or informal coordination. In any case all relevant stakeholders should be actively committed and included. Institutional arrangements can be diverse, most often the most productive way is not to introduce new institutions but to assign new responsibilities to already established and respected ones. Existing avenues for cooperation should be used and activated.
3. **“Joint funding of vocational training”** As benefits are shared by businesses, individuals and society, so should the funding. The systems in the resource countries follow this principle in a variety of ways, from a strong role of state funding. While some apprenticeship arrangements even yield a net profit for companies, on average, the high participation of businesses in training demonstrates an overarching benefit felt, beyond such immediate economic benefit. The system demonstrates a level of self-organisation and responsibility of economic actors, which helps to limit state regulation and state expenses, but increases the influence of companies and stakeholders.
4. **“Complementary programs run by schools or non-business centres”** Although apprenticeship arrangements are highly beneficial, they are apt to be influenced by the business cycle. Therefore governments and stakeholders should take care to cushion this risk by providing alternative school-based pathways, which nevertheless should integrate work-based learning as much as possible. While such systems are developed to a very diverse degree in the resource countries, from a fully integrated system in e.g. the Netherlands to a rather unregulated and emergent “transition system” in Germany, such school-based, but work-oriented arrangements can be a starting point for a wider integration of apprenticeship-like learning pathways, according to the actual conditions and opportunities.
5. **“Codifying Quality Standards”**Also work-based learning and apprenticeships must have transparent and dependable outcomes. Differentiated occupational and qualification profiles are important to guide learners and companies alike. These must be implemented in a dependable way. The usefulness of such systems relies on their practical usability, however. This means that the desirable differentiation must be in balance with the need for a certain transparency and recognition of common profiles. As the experience from the resource countries shows, such a balance can be achieved in quite different institutional settings, but has to be regarded as work in progress.
6. **“Qualifications of teachers and training personnel”**Each place of learning is only as good as the quality of the instruction. As the discussion in the resource countries demonstrates, this is a permanent point of reform. While for vocational schools demographic challenges, i.e. a high average age of teachers and a limited continuing interaction with real work-place situations are discussed, also high quality workplace instruction is not a matter of course.   
   While minimum standards of pedagogical qualifications of staff with training responsibilities are part of most certification standards for training companies, efforts to improve and systematise workplace learning in order to assure the complete and high quality development of all of the required competences, has been a focus of pilot projects e.g. in Germany.   
   *Building the capacity of companies to train* not as an additional burden for the company, but in a fully work-integrated, but nevertheless considerate way, therefore must be a key point to watch in every effort to expand apprenticeship training schemes.
7. **“Balance between standardization and flexibility”**Training standards must be designed to be flexible to accommodate differences in business size, sector and training requirements. Heterogeneous groups of learners also necessitate flexibility in conducting the training, with respect to sequence, duration, etc. (e.g. part-time arrangements). While core standards, which are necessary as a dependable orientation for companies and individuals alike, should be maintained, the “how” of achieving these standards should be highly flexible.
8. **“Creating a solid basis for decisions and design”**There must be fora for ongoing research and dialogue about the development of the system, which include monitoring instruments based on qualitative and quantitative data. Appropriate VET systems are work in progress. *It cannot be expected to build a working system from scratch in short time*.   
   Experimentation and revision must be a systemic part of each VET system. Therefore resources must be set aside for such (action) research. International dialogue and exchange of experiences must be an important part of this**.**
9. **“Social acceptance of vocational training”**While in general there is a high acceptance of apprenticeship based vocational training in all of the resource countries even there the reputation is weaker regarding its openness towards some core elements of potential target groups. In Germany, as an example there are difficulties to reach out to migrants from countries without such systems, which do not fully recognize the value of the vocational track of education. It must be clearly stated and validated in practice that apprenticeships are an excellent career pathway and lead to high job security and good incomes. Stakeholders can only substantiate this claim if they take collective action to cushion changes in supply and demand, which at times seemed to threaten the legitimacy of the system.

# Youth Employment Trends since 2008

There is strong evidence that the popularity of apprenticeship schemes is correlated with a low level of youth unemployment.

Some of the countries that enjoy low levels of youth unemployment are also countries where dual track apprenticeship schemes are a main part of the VET system, like Germany and Austria, while additional countries, as Denmark, are known for a substantial integration of work-based learning in an overall well developed VET system.



Ill.: Correlation between Youth unemployment and popularity of apprenticeship schemes[[3]](#footnote-4)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | **2008** | **2009** | **2010** | **2011** | **2012** | **2013** |
| Employment rate in population aged 15-24  In Percent | Germany | 47.2 | 46.6 | 46.8 | 48.2 | 46.6 | 46.8 |
| Austria | 55,9 | 54,5 | 53,6 | 54,9 | 54,6 | 53,8 |
| Switzerland | 62,4 | 61,6 | 62,5 | 62,9 | 61,7 | 61,9 |
| Denmark | 66.4 | 62.5 | 58.1 | 57.5 | 55.0 | 53.7 |
| Netherlands | 66.8 | 65.3 | 63.0 | 63.6 | 63.3 | 62.3 |
| Youth 15-19 not in education or employment  In Percent | Germany | 3.7 | 3.8 | 3.7 | 3.5 |  |  |
| Austria | 5,6 | 6,5 | 5,3 | 5,5 |  |  |
| Switzerland | 9,4 | 7,9 | 4,8 | 5,0 |  |  |
| Denmark | 4.0 | 5.0 | 5.5 | 5.3 |  |  |
| Netherlands | 2.1 | 3.6 | 3.1 | 3.4 |  |  |
| Youth 20-24 not in education or employment  In Percent | Germany | 14.0 | 13.7 | 13.7 | 12.6 |  |  |
| Austria | 11,4 | 11,8 | 12,6 | 10,5 |  |  |
| Switzerland | 9,1 | 10,7 | 11,1 | 10,7 |  |  |
| Denmark | 8.2 | 10.1 | 12.1 | 11.9 |  |  |
| Netherlands | 5.6 | 7.9 | 7.4 | 6.9 |  |  |

Ill.: Indicators of Youth Employment in the Resource Countries[[4]](#footnote-5)

Data from all of the resource countries covered in this report show a comparatively low level of youth unemployment. On the one hand this is dependent on the general state of the economy.   
On the other hand it is often claimed that a solid VET system, based on the real needs of the labour market, contributes to this economic strength.

All of the countries are successful in retaining youth in the education system until the age of 19. After that, however over 10% of youth is NEET, which should be reason to study the system of the Netherlands more closely, as here the rate is substantially lower.

The high employment rate of youth in Switzerland and the Netherlands justifies the hypothesis that an early integration into work is critical and that efforts to expand competences and formalize learning should build on such integration.

# VET system – apprenticeship system

## Apprenticeship System – General Description

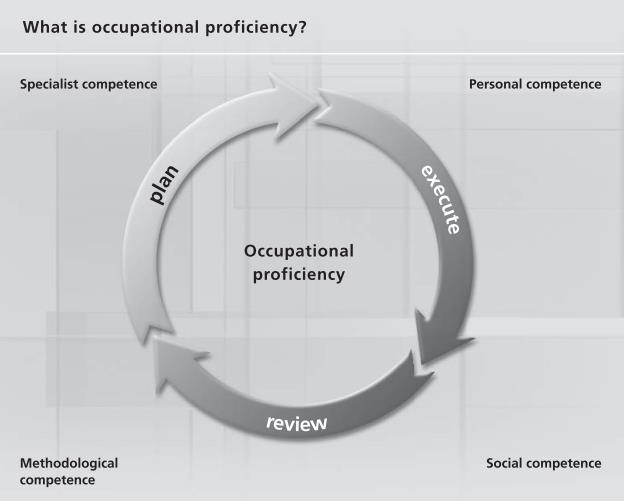
Germany

There are no formal admission prerequisites for apprentices in the dual system in Germany. All school-leavers, independent from a certain school-leaving certificate, can learn any recognized occupation requiring formal training[[5]](#footnote-6). There are about 350 such recognised professions in Germany.

For each occupation there is a training scheme with a qualification profile and examination requirements issued by the federal government.

Vocational training in the dual system is based on the occupational concept, i.e. the training is oriented to typical qualifications required for the relevant work processes of the respective occupation. Having completed the apprenticeship, the trainee should be able to work as a skilled worker (being able to plan, carry out, and check one’s work).

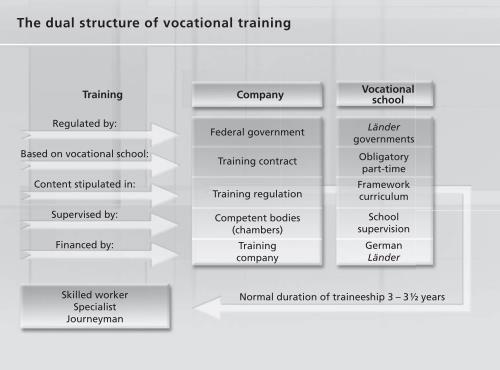
This higher-level objective has been acknowledged in the Vocational Training Act by incorporating the concept of “occupational proﬁciency” (see Ill below)[[6]](#footnote-7); the trainee should also be prepared for further training. Therefore, training in the dual system includes promoting the willingness to learn and fostering personality development.



Ill.: Concept of Occupational Proficiency in Germany[[7]](#footnote-8)

The final qualification is a state-recognised training occupation (chamber certificate): in final examinations the apprentice has to show that he/she has acquired the necessary skills, practical and theoretical knowledge that are crucial for the vocational occupation in question.

In the dual system vocational training is organised as a combination of learning (at the company and at the vocational school) and working (at the company).



Ill.: The dual structure of vocational training in Germany[[8]](#footnote-9)

Learning at the vocational school is based on a framework curriculum including general and vocational knowledge (vocational subjects: two thirds; general subjects: one third).

Learning in the company is based on training regulations for the respective occupation, and is conducted mainly at the workplace within the framework of a training contract between the apprentice and the company. The contract has to be registered at the competent chamber.

The vocational schools are established be the state (“Bundesland”). For each recognised occupation separate classes are organised. The number of classes all over the country is dependent on the number of apprenticeship contracts.

The respective vocational school and the company have a joint educational responsibility.

Apprentices spend one or two days a week on average in the vocational school and three or four days in the company. In some cases the school days are clustered in several weeks.

Imparting theory and practice, structured knowledge and active competence are tasks of the training in the school as well as in the company using the specific opportunities and strengths of the respective place of learning. Thus in-company training involves more than simply practice. In order to optimise the outcomes of apprenticeship the teachers and the instructors of the company should coordinate teaching and learning in school and in company and refer it to each other (cooperation among learning locations according to the Vocational Training Act)[[9]](#footnote-10).

In the vocational schools the lessons are held by teachers (state-approved teaching degree). In the company trainers or master craftsmen, who have passed a pedagogical examination, are responsible for the training; but there are also experienced workers (professionals in various fields) working as part-time or occasional trainers instructing the apprentices. The professional or the occasional trainers of the company also take the role of support and counselling of the trainees.

Demographic change towards a higher average age as well as immigration constitute challenges for the productivity of companies and necessitate more considerate and systematic efforts to integrate and educate a more diverse range of learners[[10]](#footnote-11).

Austria

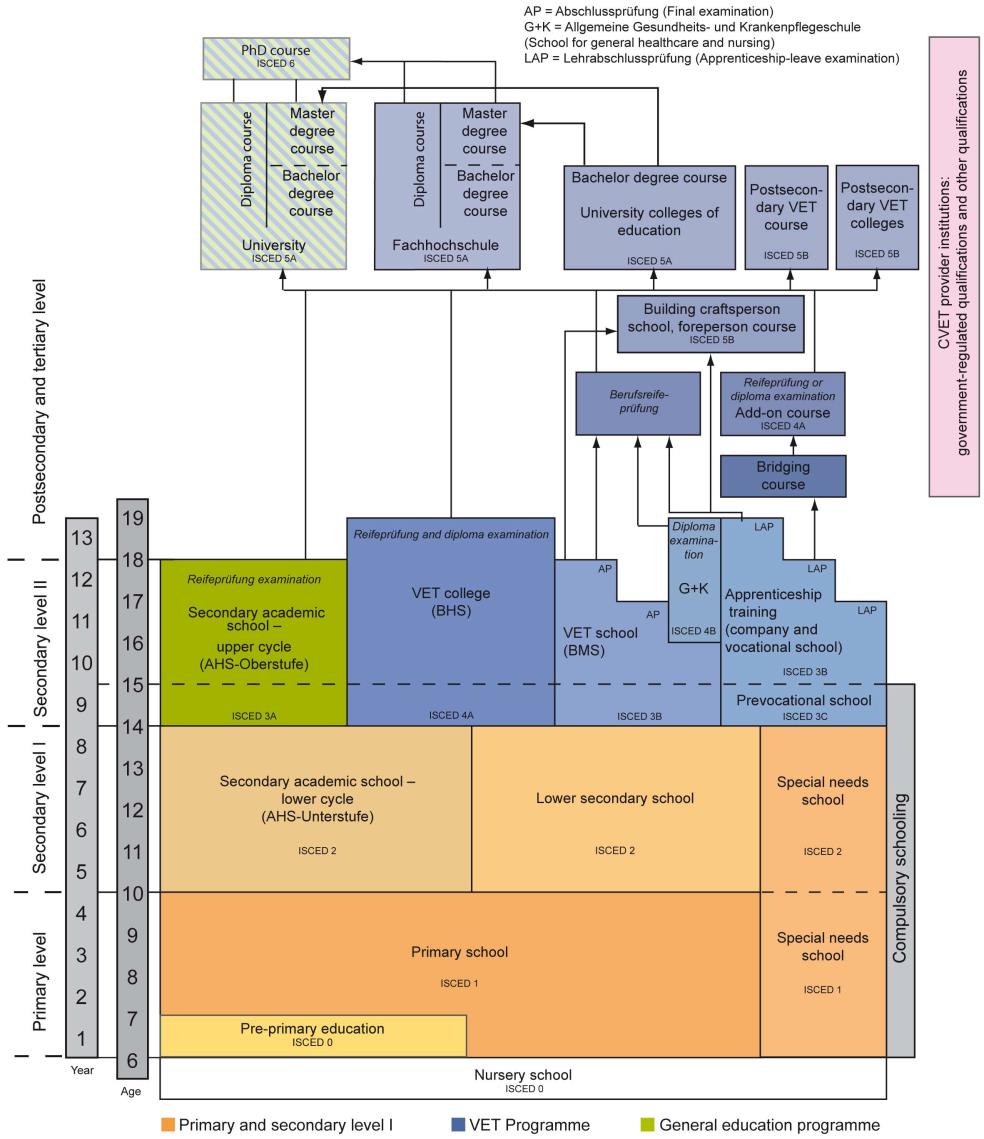
The apprenticeship system (dual training) is part of the Austrian initial and continuing education and training system.

In Austria young people are self-responsible to find an apprenticeship training place[[11]](#footnote-12). About 40 percent of young learners in the tenth grade in the school year 2010/11 in Austria took up a dual training[[12]](#footnote-13).

Access to an apprenticeship does not require any specific school qualification[[13]](#footnote-14).

In practice a positive completion of compulsory education is a prerequisite to enter an apprenticeship within the dual system in Austria.

Compulsory education period lasts for nine years. The lower secondary school ends with year eight. The last year of compulsory education corresponds to the first year of the upper secondary level (see Ill. below). Thus a good number of the pupils attends the prevocational school (“Polytechnische Schule”) for one year in order to complete compulsory education and only then are they able to start an apprenticeship[[14]](#footnote-15).



Ill: The Austrian initial and continuing education and training system[[15]](#footnote-16)

As of 2014 there are about 200 state-recognised professions in Austria; for 177 professions the apprenticeship lasts for at least 3 years up to 4 years (3 years for 131 occupations); the training period of 9 modular apprenticeships varies.[[16]](#footnote-17)

Apprenticeship training is conducted at two learning venues: within a company and in a part-time vocational school. The company-based part of the apprenticeship contains about 80 percent of the whole training time.

The apprentice is involved in the production process or the supply of services in the company acquiring the needed competences under the terms of real work conditions.

Learning in the company is based on training regulations and has to be conducted according to a training contract between the company and the apprentice. The contract has to be submitted to the “Apprenticeship Office” for recording purposes. The Apprenticeship Office examines the data of the contract and the training company’s suitability.

For each apprenticeship occupation there is a training regulation (Ausbildungs­ordnung) including the in-company curriculum or occupational profile (Berufsbild) and the competence profile or activity description (Berufsprofil)[[17]](#footnote-18).

Each trainee is obliged to attend the part-time vocational school. The tasks of the vocational school are to teach basic theoretical occupation-related knowledge, support and supplement in-company training, and broaden general education[[18]](#footnote-19).

The focus of learning at part-time vocational school is on vocational subjects (almost two thirds); general subjects make up about one third of the schooling period. Occupational instruction at vocational school also includes practical training in workshops and/or laboratories.

The curricula for the vocational school are elaborated according to the training regulation of the respective training occupation[[19]](#footnote-20) and issued by the Austrian Federal Ministry of Education and Women’s Affairs (bmbf)[[20]](#footnote-21).

The part-time vocational schools are established and maintained under the responsibility of the federal provinces (“Bundesländer”)[[21]](#footnote-22) .The appropriate part-time vocational school depends on the place of the training enterprise in the respective province. Classes are grouped according to the respective apprenticeship occupation; in some cases the classes are combined according to groups of related apprenticeship trades. Due to the branch there are different organisational forms of learning at part-time vocational schools: one full school-day or two half school-days a week (all over the year); by block, i.e. for at least eight weeks continuously; seasonally, i.e. by block at a particular time of the year[[22]](#footnote-23). The lessons in all organisational forms are taught in parallel with the apprenticeship over the whole training period.

In practice, training company and vocational school often collaborate. There is communication between the trainer and the teachers about the apprentice’s achievements and behaviour; teachers meet specialists from the branch, and companies offer work placements for part-time vocational school teachers.

Trainers of in-company training have to provide evidence on certain subject-specific and teaching qualifications, which can be proved by an IVET trainer examination (this exam is also one module of the master craftsperson examination) or acquired within a forty-hours trainer course with a vocationally-specific interview. Some exams (e.g. successful completion of a foreperson course) are equated with the IVET trainer examination[[23]](#footnote-24).

Teachers at part-time vocational schools must provide a degree from a university of education or a subject-specific university course or completion of a VET programme plus three years of professional practice[[24]](#footnote-25).

The apprentice can complete the training by taking an apprenticeship leave examination (“Lehrabschlussprüfung, LAP”). This exam aims to determine whether the candidate has acquired the skills and competences required for the respective occupation and whether he himself or she herself is able to perform competently. The exam includes a practical and a theoretical part. Graduates of an apprenticeship are not obliged to take the apprenticeship leave examination, but only with the diploma they can call themselves ‘skilled workers’ and claim better collective agreement conditions. The exam committee comprises employer and employee representatives[[25]](#footnote-26).

Following successful completion of the apprenticeship leave examination graduates have various CET (Continuing Education and Training) options, (e.g. master craftsperson exam; exam called Berufsreifeprüfung – necessary for access to higher education programmes; self-employed career:

Almost two fifths of managers in business have completed an apprenticeship![[26]](#footnote-27).

Counselling for young people looking for apprenticeships is conducted by the careers guidance of the Public Employment Service Austria (AMS). Additional help in finding apprenticeship placements as well as general information on apprenticeship training are provided by the Apprenticeship Offices of the regional “economic chambers”.[[27]](#footnote-28)

Switzerland

**General description**

The Swiss education system shares some noticeable similarities with educational arrangements in Germany and Austria. The system is even more company and employer oriented, however.



Ill: The Swiss system of VET[[28]](#footnote-29)

In Switzerland three or four year programs of vocational education and training lead to a certificate in one of more than 230 occupations (Eidgenössisches Fähigkeitszeugnis)[[29]](#footnote-30).

The overwhelming majority of these programs are based on apprenticeships in a host company, supported by attending professional school and industry courses part time (dual-track VET programmes).

Vocational education and training (VET) provides two-thirds of young people in Switzerland with a solid foundation in a given occupation[[30]](#footnote-31). Full-time VET programmes based entirely on classroom instruction (i.e. no apprenticeship) are less common and are offered by trade schools or commercial schools[[31]](#footnote-32).

VET programs closely match the needs of the labour market. This is true for the occupational skills, which are defined, in close cooperation with industry organisations. Also there is a high degree of flexibility of companies to train content in addition to the common minimum defined in the training plans.

Also the number of apprenticeships is dependent on the number of available jobs, as perceived by the companies. As a consequence applicants are motivated to choose a qualification that is actually in demand. As a consequence, Switzerland has one of the lowest youth unemployment rates among European countries. Education and training begins at upper-secondary level (VET). After finishing VET, learners can progress to tertiary level В professional education and training (PET).

VET and PET are based on clearly defined curricula and national qualification procedures. A wealth of continuing education and training (CET) courses can also be found at all levels.

Two year VET programmes leading to a Federal VET Certificate allow more practically-minded learners to obtain a federally recognised certificate that matches the needs of a specific occupational profile. Graduates of the two year VET programme may enrol directly in a three or four year VET programme leading to the Federal VET Diploma.

Federal Vocational Baccalaureate (FVB): The optional FVB consists of general education subjects. It is available to learners who attend the FVB preparatory course. The FVB entitles to enrol in any of Switzerland's universities of applied sciences (DAS) without having to take an entrance examination. FVB holders may also take the University Aptitude Test (UAT) to obtain the additional qualification needed to enrol in a cantonal university or either of Switzerland's two federal institutes of technology. This contributes to the high level of permeability between vocational and academic education. About 13% of learners obtain a FVB.

For pupils with lower academic achievement bridge-year courses, which consist of practical training and pre-apprenticeships, prepare learners for admission to an upper-secondary level VET programme[[32]](#footnote-33).

New learners enrolled 2013: 79.700; Overall learners in VET: 233.200[[33]](#footnote-34)

Elements of the dual track system include: Classroom instruction in VET schools consists of classroom instruction in vocational and general education subjects. Learners attend courses one to two days per week at the VET school. The apprenticeship at a host company lasts three to four days per week. Often initially more days are spent attending courses at the VET school and gradually decreasing the number of days to spend more time doing the apprenticeship.

Industry courses at third-party training centres run by the industries involved complement classroom instruction and work-based training[[34]](#footnote-35).

In-company apprenticeship: Learning within the company is guided by the extensively defined occupational profiles and qualification plans (see ch. 4.2 for a description of some occupational profiles).

The learning is in general work integrated. The actual work process is the main learning opportunity. Learners are progressively integrated in the working process.

Typically the necessary competences are developed through assignments and projects, which are implemented according to the actual level of prior competences and knowledge, as self-responsibly as possible by the learner. Resources are knowledge, skills and aptitudes (habits), which are relevant in order to build the competence to perform efficiently. These resources are categorised as profession-specific, methodological and social resources. All places of learning cooperate closely to build these resources as described in the catalogue of resources and competences.

Host company networks: in some cases, host companies combine their strengths to offer one or more apprenticeships in a modular format. Such host company networks are suitable for companies which have limited staff capacities or which are specialised in only one or more aspects covered by the VET programme.

There are 230 different occupations. The 20 most popular occupations enrol 60% of apprentices. At 11970 apprenticeships /yr. (2009) Commercial employee is by far the most popular occupation, followed by retail employee (8720), health care worker (2560), social care worker (2560), Cook (2100), electrician (2070) mechanical engineer (1750) and IT specialist (1690)[[35]](#footnote-36).

Quality Assurance: QualBC: Art. 8 of the Federal Vocational and Professional Education and Training Act (VPETA, SR 412.10) stipulates that VET and PET providers are responsible for quality improvement. The QualBC tool enables branch training centres to assess the quality of branch courses. Other Quality management systems can be used instead[[36]](#footnote-37).

“Swiss VET institutions are encouraged to quality assure their own activities. Professional organisations and the Swiss Conference of VET/PET Agencies (SBBK) have initiated the QualiCarte with financial support from the OPET. It is supposed to be a simple and practical tool for host companies to monitor and improve the quality of their in-company training. 28 quality criteria are listed and host companies are encouraged to self-evaluate their work with the help of this check - list and to assess where their own strengths and weaknesses lie”[[37]](#footnote-38).

Companies taking on apprentices have to fulfil certain standards. The cantons license companies to take apprentices.

Vocational trainers at host companies need to prove that they have received appropriate training and are authorised to supervise apprentices.

VET trainer qualifications: VET trainers (apprenticeship trainers in dual-track VET programmes or traineeship supervisors in school-based VET programmes) provide apprentices with apprenticeship training in the company. Also they can organize and assure training by appropriate additional staff. They make sure that the training plan accompanying each VET ordinance legal document, which defines each occupation, is implemented. The name of the VET trainer is mentioned in the apprenticeship contract. VET trainers must hold a Federal VET Diploma in the occupation in question or have received equivalent training. They must have at least two years work experience. Also they must have adequate teaching, methodological and educational expertise. This is acquired by training for VET trainers. Pedagogical diploma recognised by the Confederation must certify at least 100 hours of training.

Part of apprenticeship training can be delegated to qualified professionals, if they have completed a VET programme relating to the occupation in question. It may also be entrusted to more experienced apprentices in their area of competence. The legal responsibility for apprenticeship training, however, always remains with the VET trainer.

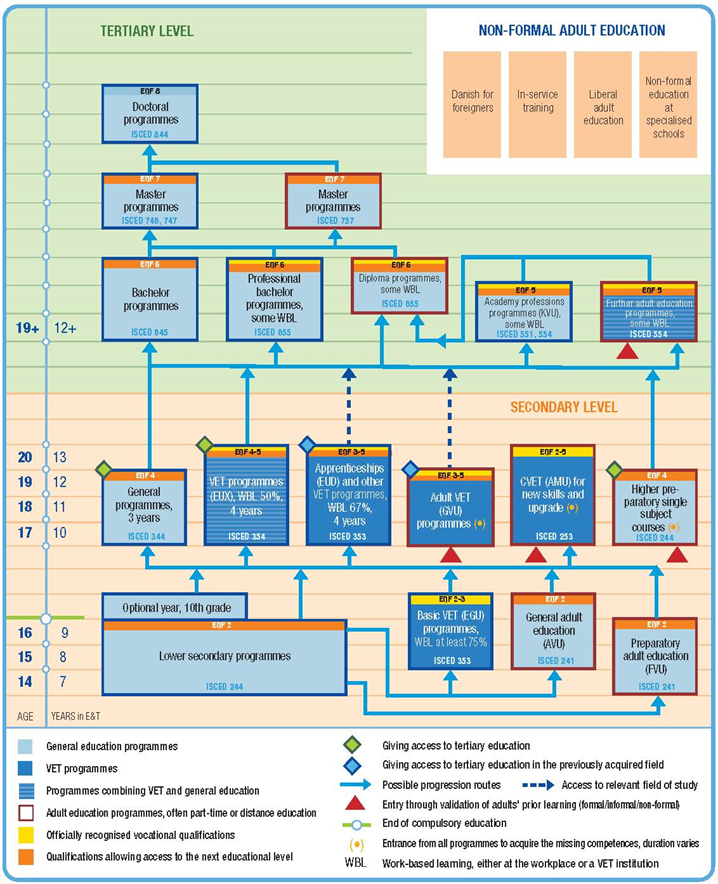
Part-time arrangements whereby VET professionals spend some of their time working in industry and some of their time teaching at a vocational school are encouraged. These arrangements add to the numbers of vocational teachers and trainers and ensure that their skills are up-to date[[38]](#footnote-39).

Denmark

Denmark gained worldwide recognition for its VET, winning the “Bertelsmann Prize” for innovations in VET, which demonstrated that the system has overcome serious problems integrating youth in the 80s and 90s[[39]](#footnote-40). It is now regarded by leading experts as more robust and inclusive than the systems of comparable countries[[40]](#footnote-41). Vocational education and training (VET) plays a key role in Danish strategy for lifelong learning and meeting the challenges of globalisation and technological change.

Denmark has a dual system for vocational education that is similar in many ways to the German model.The governance by the Ministry of Education includes social partners. Social partners play a key role in relation to match labour market needs and the development of VET system, both content and organisation[[41]](#footnote-42).

There are three levels of organizational cooperation between public authorities, social partners and stakeholders in the Danish VET system:

**

Ill: Danish System of VET [[42]](#footnote-43)

1. Danish Council for VET and labour market organizations.

2. Trade committees: 57 committees for 106 VET programs and trade organisations – i.e. employers and employees within construction or metal.

3. Local trade committees and school boards with representation of local trade union representatives and individual companies.

At national level national trade committees and national advisory councils are responsible for updating VET programmes. Based on identified needs proposals are given to the Ministry of Education which has the final decision on a renewed VET programme. The Ministry of Education annually compiles reports on developments in all vocational fields and the need for changes in supply of VET programmes based on responses submitted by national trade committees. On regional/local level vocational colleges and social partners have influence on VET programmes to adapt them to the specific skills needs of local business and industry. Regional development plans through local training committees provide assistance to colleges in the field of VET programme contents.[[43]](#footnote-44)

According datas for the years 2011/2012 up to 51% of a youth cohort was admitted to a VET. A declining share of these comes directly from compulsory education in “Folkeskolen” (primary and lower secondary education form level 9 and 10). A growing share is admitted after having completed a general or vocational upper secondary education. A number of participants are admitted after having been in the labour market.

Around 37% of each youth cohort obtains a vocational education (VE). Among them around 33% have VE as their highest completed education; 4% usually take higher education subsequently.

About 56,500 students commence a fulltime vocational education every year. The total number of students in vocational education and training programmes is approximately 125,000 at any given time[[44]](#footnote-45).

Danish VET are alternating or sandwich-type programmes, where practical training in a company alternates with teaching at a vocational college. VET programmes consist of a foundation course and a main programme. Students must enter into a training agreement with a company approved by the social partners in the trade committee (a confederation of representatives of employers and employees) in order to accomplish the main programme. The social partners have considerable influence on and thus, great responsibility for initial VET (IVET) and VET in general.

IVET is organised into 4 broad entry routes and includes technical, agricultural, commercial, social and healthcare programmes, which are organised according to the dual principle, alternating between periods of college-based learning and work-based learning (apprenticeship training) in enterprises [[45]](#footnote-46) “Foundation Courses” are associated with a certain number of main programmes and each of these again with a number of associated specialisations.

|  |  |  |
| --- | --- | --- |
| Foundation course | Number of associated main programmes | Number of associated specialisations  and steps |
| 1. Automobile, aircraft and other transportation | 8 | 22 |
| 2. Building and construction | 15 | 38 |
| 3. Construction and user service | 3 | 6 |
| 4. Animals, plants and nature | 9 | 31 |
| 5. Body and style | 3 | 4 |
| 6. Human food | 9 | 29 |
| 7. Media production | 7 | 10 |
| 8. Business | 7 | 25 |
| 9. Production and development | 26 | 69 |
| 10. Electricity, management and IT | 10 | 27 |
| 11. Health, care and pedagogy | 4 | 7 |
| 12. Transportation and logistics | 7 | 31 |

Ill.: Foundation Courses*[[46]](#footnote-47)*

A typical IVET programme (EUD) lasts three-and-a-half years with a 2:1 split between workplace and college-based training, although there are variations between programmes[[47]](#footnote-48). Technical foundation courses last an average of 20 weeks, although this can vary from 10 to 60 weeks depending on the needs of the individual student. Foundation course in commercial subjects lasts either 38 or 76 consecutive weeks (prolonging the programme up to 116 weeks is possible). Commercial programmes are lasting generally shorter (two years with possibilities for upgrading).

Once completed a foundation course, students are eligible to enter one of the 108 main programmes, each leading to a specific full vocational qualification. The main programmes also include several specialisations, each corresponding to a specific position in the labour market. Specialisations divide the main programmes into branches, each providing more specific competences targeted at a particular area of the vocational field, so that 299 different vocational qualifications are available.[[48]](#footnote-49)

By the number of main programmes the largest VET area is production and development. Yet in terms of number of students business programmes are the largest area[[49]](#footnote-50).

Recent reforms of the VET system aimed to improve it’s transparency, coherency, and flexibility to match the needs of the labour market and social challenges. Also Danish employers stated reform needs in relation to increased quality, lower drop-out rates and significantly higher completion rates in VET[[50]](#footnote-51).

In 2014 the Danish VET reform established four overall objectives for VET:[[51]](#footnote-52)

1. Untill 2025 at least 30% of a youth cohort must choose immediately after form level 9 or 10 into a VET.
2. Improvement of the completion rate from 52% (2012) to 67% by 2025.
3. Challenge for all VET students to reach their fullest potential. First target: Increasing of the share of the most gifted students (who complete a total number of subjects at a level which exceeds the compulsory minimum level set by the vocational committees year by year.   
   Second target: Maintaining of\_ the high employment rate for newly graduated students.
4. Until 2020 the well-being of the students and the satisfaction of the businesses which hire them must be gradually increased.

Danish vocational education and training programmes (VET) are alternating or sandwich-type programmes, where practical training in a company alternates with teaching at a vocational college. VET programs typically start with half a year or a year of learning in vocational college before entering a work based training agreement. They consist of a basic and a main programme. Students must enter into a training agreement with a company approved by the trade committee (a confederation of representatives of employers and employees) in order to accomplish the main programme. The social partners have considerable influence on and thus, great responsibility for IVET and VET in general.

117 colleges in Denmark offer basic vocationally oriented education programmes[[52]](#footnote-53). Of these are

* 97 technical colleges, commercial colleges, agricultural colleges or combination colleges.
* 20 colleges offer social and health care training programmes.

In addition to the basic vocational education and training programmes, the colleges also offer other education programmes: vocational upper secondary education (the Higher Commercial Examination –HHX, and the Higher Technical examination -HTX) and further education and training for adults (C-VET called AMU – Adult Vocational Training). Some of the vocational colleges cooperate with other colleges to offer short-term higher education. Further, the colleges also offer courses and programmes commissioned by companies.

The education and training programme, which have a small intake are conducted at vocational colleges, which cover a whole region or the whole country. In these cases the colleges have boarding facilities for students.

*Admission to VET:* To almost all basic VET programmes students have free admission after completion of compulsory education (10 years comprehensive school) and having past the final test in Danish and Mathematics. Most of them start with a basic course at a college, but they can also start directly in a company and take the basic course after a period of time at the company.

*Apprenticeships:* Practical Training Routes start with a training agreement with a company. During the first year the apprentice must acquire the same as the students who have followed the basic programme at a college. This requires flexible adaptation on the part of the student, the company and the college. “New Apprenticeship” is an option to make access to VET easier for students who are more inclined towards learning through practical methods.

*Apprenticeship in main programmes:* Based on a training agreement with a company the main programme is the most important part of the practical training. 50-70% of the training period takes place in a company and 50-30% during the school-based programme. The students alternate between learning in a company (practical training) and at the college. School-based periods are organised as blocks of between 5 and 10 weeks.

*Individual VET programmes:* If a VET has not been established within a certain area of employment where a student can procure a training agreement, individual VET can be composed of elements from different vocational education and training programmes, but a training agreement must be entered into. This is an innovative option, but an option which is only taken by few companies and students.

*Partial qualifications in VET programmes:* In order to increase the flexibility in nearly all VET programmes, there are one or two well-defined step steps at which the student can stop having obtained professional competence. VET can be resumed at a later date, without prolonging the overall duration of education.

*Content and educational method of the programmes:* The objective of the programmes is described as developing competencies. All programmes contain at least one area of specialisation composed of specialised subjects. Contents are composed by professionally oriented subjects and competencies (area subjects) and the fundamental general vocationally oriented subjects (basic subjects) and competencies.

Practical training takes place in both the company and the college; theoretical teaching primarily occurs at the college. Colleges are responsible for organising the teaching in a holistic manner and also have the equipment to introduce the student to the practical side of the programme. Teaching in the general subjects (e.g. mathematics, English) is considerate of specific matters that are part of the student’s VET. For this reason, mathematics teaching will be different from carpentry and electrician training. As many students prefer practical work to theoretical instruction, theory is always closely linked with the practical training.

*Teacher qualifications in VET:* Normally teachers have completed a vocational education in the subjects in which they teach and some have taken higher education, subsequently. A minimum of 5 years’ professional experience is required, but only 2 years of professional experience for teachers in the general subject areas which have normally a bachelor or master’s degree.

Vocational college teachers must have a specially organised pedagogical training course at diploma level before or on the job, completed within the first two years of appointment at the college.

The individual teacher is obliged to keep his/her professional and pedagogical knowledge up to date. The college is required to draw up a plan for the competence development of the teachers’ group at the college.

*Counselling and support for VET students:* Student’s competencies have to be assessed in order to receive credit for prior learning. The student, the college and if appropriate, the company offering practical training, draw up a plan for the student’s training. The plan can be adjusted if the student changes his/her educational plans along the way.

The student’s *personal* *education book* (portfolio/log-book) contains, following each school-based and practical period, his/her results, the awarded and the guidance he/she receives. Thus students can see where they need to improve. The personal education plan and education book are drawn up in an electronic system that can continuously register the parts of the programme that the student has completed.

*Guidance for VET students:* Each college has a number of educational guidance counsellors who support and guide the students in completing their education and training programmes. The student is also assigned a ’contact teacher’ to contribute to a good educational environment and support. Students with special needs will receive the support of a mentor. In special cases, they can be offered psychological support.

The college is obliged to actively assist the student to find an internship and also receives a special grant for this work, including a grant for each training agreement entered by the students and registered by the college.

*School-based practical training:* Any student has, at first, to try to obtain a practical training contract on their own. Yet in 40–50% of the vocational programmes, school-based practical training is offered to those who are unable to obtain a training agreement with a company. This is part of the above mentioned “educational guarantee”.

*Tests and examinations:* The basic programme concludes with an examiniation (project assignment and an oral test in some programmes). The purpose is to demonstrate that the student has achieved the competencies necessary to start on a VET main programme. (The project contains practical and realistic tasks and is assessed by a teacher from another college or a person from a local company etc. )

In the final part of the programme, the student takes part in a concluding practical and theoretical examination (journeyman’s test) which is meant to assess the competencies obtained by the trainee. The external examiners are from the trade committees (usually in parity), who in some cases develop the final tests.

*Quality Assurance:* The quality assurance of vocational colleges builds on self-assessment as the main method. However also external monitoring plays an increasing role aiming mainly to monitor the output and results rather than regulating the “how” of training delivery.

The implementation of political priorities as well as in how far regional and sectorial needs are met, are main criteria[[53]](#footnote-54).

Quality assurance is also handled by the trade committees and the local education committees. The trade committees consist of members representing the social partners and the local education committees work locally on behalf of the trade committees. The trade committees are responsible for the quality of the company based education whereas the local education committees work together with the vocational colleges to ensure the quality of the local programmes. The colleges also have quality assurance mechanisms that are established by the Ministry of Education. Hence, quality assurance is carried out by three parties: the VET colleges, the social partners as represented in the trade and local education committees and the Ministry. Furthermore, the Ministry consults the Council for Vocational Training where all main employer organisations and trade unions are members.

*Monitoring* is conducted on system level. Here the effectiveness of the programmes is monitored. On institutional level, next to financial monitoring, the degree to which colleges provide programmes adequate to the regional and sectorial skill needs is assessed. Other criteria include completion/drop-out rates and examination pass rates.

Within companies, the social partners have a monitoring role via national trade committees and local training committees[[54]](#footnote-55).

Netherlands

The Netherlands are an example of a system of “collective skill formation” (Busemeyer/Trampusch) where apprenticeship based and school based vocational education tracks exist side by side and are integrated into a holistic, if perhaps complex system.

High youth unemployment in the 80s motivated a general reform of VET in the Netherlands. It was decided that neither traditional apprenticeships with little additional theoretical components nor traditional Vocational Schools education was adequate to the needs of a changing economy and society. It was decided to move to a dual form of VET, i.e. to include a school-based component in apprenticeships and work-place learning to Vocational School education. The “Waasenaar Accord” of 1982 strengthened the labour market orientation of vocational training and raised the number of apprenticeships[[55]](#footnote-56).

Vocational training was substantially reformed in 1996 by the new Vocational Training Act (Wet educatie en beroepsonderwijs; WEB), which formally equated both the school based and the employer-based vocational training pathways. Thereby a large number of vocational schools were joined by large regional training centres (ROCs), (Visser and Cox, 2008). The WEB additionally integrated the social partners in the formation of training and introduced the four different levels of intermediate level training (MBO).

The system comprises six elements: (a) primary education, (b) special education, (c) secondary education, (d) upper secondary vocational education and general education for adults, (e) vocational courses and training for adults (CVET), and (f) tertiary or higher education. Education is compulsory for pupils from 5 to 16 and for those aged 16-17 on August 1 of any year.

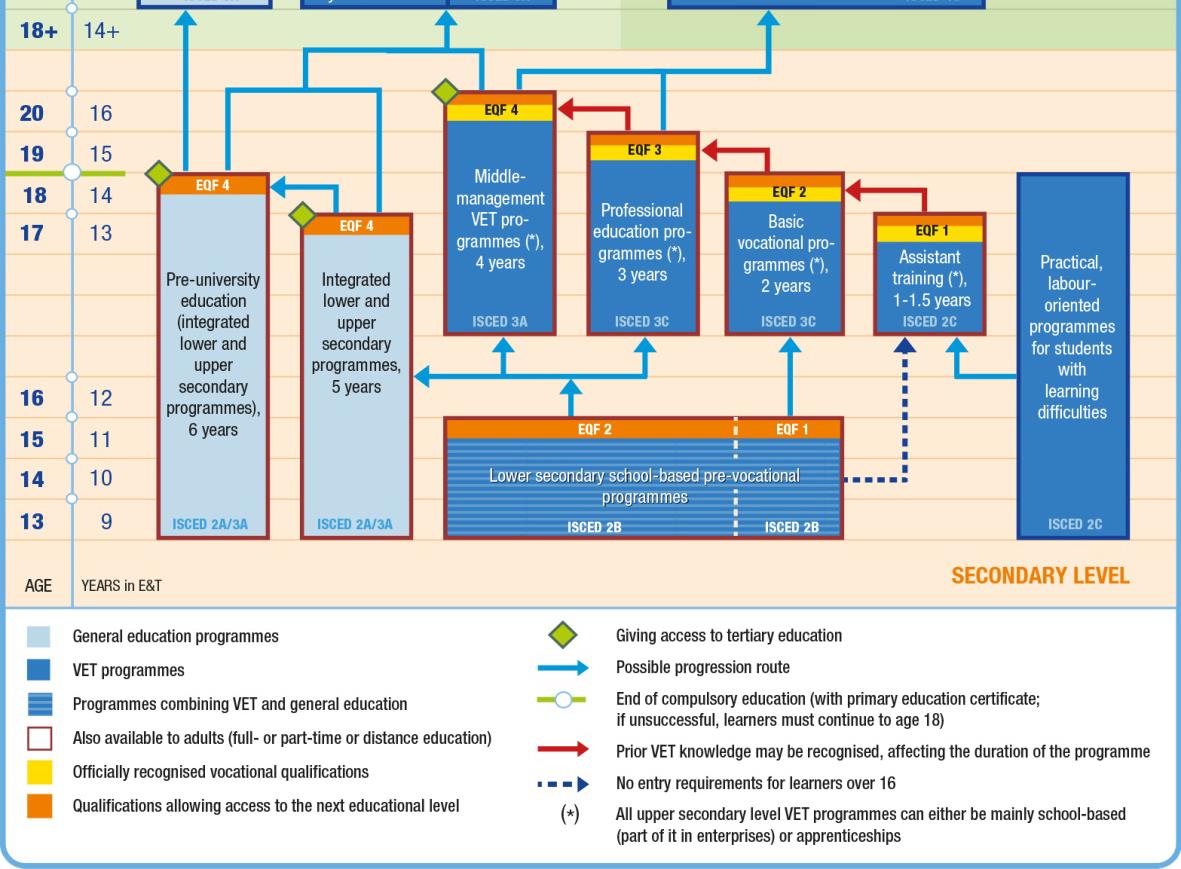
The upper secondary vocational education (ISCED levels 2, 3 and 4) is vocational education with several programmes in four sectors of the labour market; at four levels (MBO levels 1, 2, 3 and 4, EQF levels 1, 2, 3, 4 and partly 5).

As part of the Dutch VET system, this type of education is discussed below - MBO – middelbaar beroepsonderwijs. Age of pupils/apprentices is from 16 upward.

Higher professional education (HBO – hoger beroepsonderwijs) leads to mainly Bachelor degrees (EQF level 5-7). As part of the VET system, this type of education is beyond the scope of this report[[56]](#footnote-57). Both of the two columns of the Dutch system, general and vocational education, allow for extensive transfer between levels.

“The vocational education track starts in lower secondary pre-vocational education (study year 3, VMBO) with transfer possibilities to upper secondary vocational education; MBO level 4 graduates can continue their studies in higher professional education (HBO). Upper secondary vocational education (MBO level 1-4) is the pivot in this column. For some students, it is the end of initial vocational education, and is completed with an initial qualification. For others, it is an alternative route to higher professional education; nowadays, about 50% of the level 4 graduates continue without breaks their studies in higher professional education”[[57]](#footnote-58).

Vocational education at upper secondary level is quite popular: 67% of pupils attend the vocational path of upper secondary education. Remarkably these programs are attended also by adults up to 35, expanding their educational attainment. Subsidized programs are offered by 43 regional, multi-sectorial VET schools. Private institutions also offer recognized programmes. The system is open, therefore



Ill.: Upper Secondary VET system in the Netherlands[[58]](#footnote-59)

Two pathways can be differentiated**:** school based full or part time programmes with practical periods in enterprises (BOL: Beroepsopleidende leerweg) and a dual pathway (apprenticeship training) (BBL: beroepsbegleidende leerweg) in which working and learning is combined.

In the school based pathway practical periods in companies make up 20-59% of the student´s time, while in the dual track company based time is more than 60%. [[59]](#footnote-60) Despite the legal basis, in practice two subsystems exist. While the BOL tracks prepares its participants for jobs in middle management or higher education, the BBL tracks trains its participants as skilled workers at an executive level. This comes from the historical background of both systems but is also partly influenced by the fact that on the BOL (school-based) track more level 4 occupations are provided than within the BBL (work-based) track[[60]](#footnote-61).

The school based pathway is more popular among youngsters, while more than 50% of dual track students are aged 24 and over.

There are four levels:

MBO 1 “assistant training” 6-12 months, prepares for simple executive tasks (ISCED 2/EQF 2) (will be/is replaced by entry level courses)

MBO 2: “basic vocational education” 2-3 years prepares for executive tasks (ISCED 3C, EQF 2). This level is the basic level regarded as appropriate for full labour market participation. Up to now no access limitations applied but in the future MBO1 or other basic training will be necessary to be admitted. Progression to MBO 3 is possible.

MBO 3: “professional education” 3-4 years (two years after MBO 2) prepares for carrying out tasks independently (ISCED 3C EQF 3)

There are post-secondary MBO 4 middle management and “specialist-training” programmes as the highest level of upper secondary VET.

Policy is to reduce the duration of all of the programs and to smoothen the transition between them to encourage early entrance to the labour market.

Programmes are more broadly defined than in the other resource countries with only four main sectors, but following the modular structure of the system, the programmes result in 237 competence-based qualifications and as many as 612 exit differentiations/diploma. Each qualification describes the desirable outcomes and is defined by the “Centres of Expertise” (Kenniscentrum) for the sectors[[61]](#footnote-62).

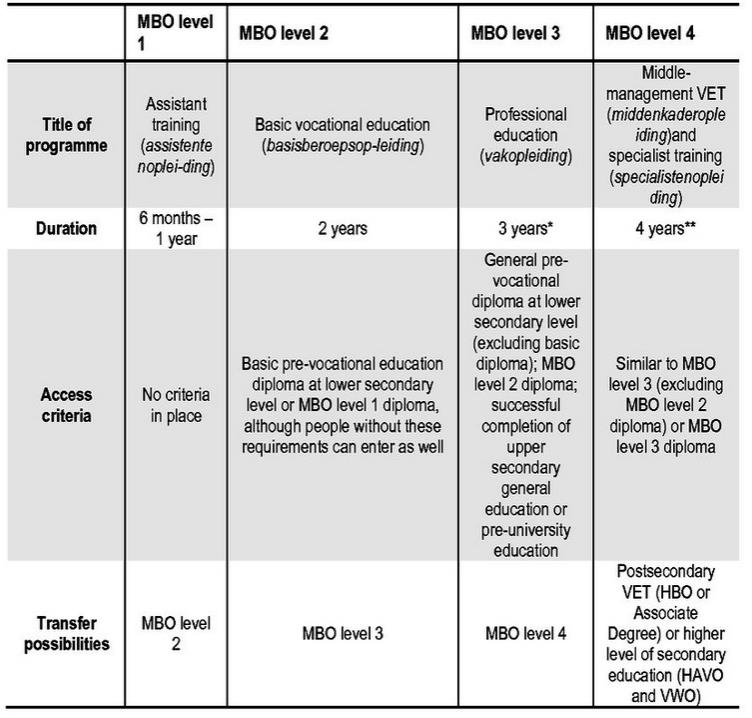
Qualification and curriculum design in upper secondary vocational education follows a national qualification structure that is defined by the desired output, shaped by social partners, educational schools, the 17 branch specific Knowledge Centres for VET. Last but not least they need to be adopted by the Ministry of Education, Culture and Science. Schools develop curricula based on the ordinance[[62]](#footnote-63).

Qualifications are based on competencies. Competencies are the sum of knowledge, skills and attitudes that are needed for the job, in society or for further study.

Examinations in upper secondary VET are up to the schools, which have to involve the learning companies. The Education Inspectorate supervises the quality of the exams[[63]](#footnote-64) .

In the Netherlands, Centres of Expertise on VET and the labour market, have the legal task to develop and maintain qualifications files. The foundation for Cooperation between Vocational Education, Training and the Labour Market (SBB) is responsible for the qualifications structure as a whole and officially presents these to the Ministry of Education. Currently the qualifications structure is under revision with the aim to give more room for regional-specific education, taking into account economic differences within the regions of the Netherlands.

The centres of expertise, educational institutions and the labour market therefore collaborate closely on the examination process within SBB, by developing examination profiles. The examination profile is a standard document in which agreements are laid down on examination at three levels: national, sectorial and regional. The foundation for Cooperation between Vocational Education, Training and the Labour Market (SBB) was established on 1 January 2012. The SBB brings together senior secondary vocational education (mbo education) and the organised labour market. Colo, the association of 17 centres of expertise, has transferred to this organisation[[64]](#footnote-65).



Ill.: MBO levels in the Dutch VET system[[65]](#footnote-66)

Upper secondary VET schools enjoy a high level of autonomy for policy making. The school controls deployment of staff and educational programs offered, industry-specific portfolios in the region and choice of collaboration partners. It can allocate the budget received from the government[[66]](#footnote-67) .

Schools are managed by a chairperson and a board of supervisors, teachers, students and parents are represented in committees.

Schools are expected but not obliged to involve regional stakeholders as employers, local government and other relevant organisations.

*Teachers* in upper secondary Vocational Education are trained to higher professional level and 13% of them are University trained. Raising teacher´s qualifications is a pivotal political issue and large investments have been made in recent years by the government (see action plan “Teachers 2020 - A strong profession”). Focus is on strengthening the quality of teachers, on building a professional, results-based culture in schools and on improving the quality of teacher training courses. Teachers are entitled to 59 hours of professional training each year and receives a personal budget for training of 0,8% of its annual salary. A lack of teachers is forecast and students´ achievement is declining in a number of indicators.

*Trainers* in companies are trained in the “Knowledge centres for VET”, through commercial, industry specific courses[[67]](#footnote-68) .

*Quality:* The Department for Quality Assurance of SBB assesses all senior secondary vocational education qualification dossiers, carries out research and advises the board of the SBB on the qualification structure. As part of the SBB office, the Department for Quality Assurance has its own independent task in assessing qualification dossiers and other SBB products. Independent assessment is essential to assure the quality of the products and thus to guarantee that they fulfil the legal frameworks. On behalf of the board of the SBB, the Department for Quality Assurance analyses VET and gives recommendations to internal and external stakeholders, provides information and manages the qualification structure.

## Apprentice Remuneration and Selected Occupational Profiles

### Training allowance

**Germany**

All recognized training occupations are governed by training regulations; for implementation of the training in the company there are overall training plans; the content and the methods of instruction in part-time vocational school are fixed for each profession in separate framework curricula[[68]](#footnote-69).

Teaching and learning of the knowledge, skills, and competences needed for an occupation is based on the typical requirements of work and business processes in companies and prepares the apprentices for a specific job. The training is provided in a company and at part-time vocational school. The trainees acquire practical skills in a real working environment in the company; they attend part-time vocational school on one or two days per week learning general and vocational knowledge related to their training occupation.

Salary regulation in principle in Vocational Training Act (section 17): entitlement to an allowance; but the wage level is due to collective agreements.

The training allowance bargained in collective agreements was 802 EUR for Germany-West and 737 EUR for Germany-East on average in 2014.

The exact level of training allowance as well as of a starting salary after completion of the training is dependent on the branch, where the trainee or the worker is employed, because there are negotiated different collective agreements by the employer association of the respective branch and regional entity and the unions.

The training allowance in the industry and commerce sector was about 871 EUR for Germany-West and 797 EUR for Germany-East on average in 2014. In the trade sector it was about 669 EUR for Germany-West and 572 EUR for Germany-East.

The actual allowance depends on the year of training: in the first year of training it was 723 EUR for Germany-West and 661 EUR for Germany-East; in last (4th) year of training it was 903 EUR for Germany-West and 865 EUR for Germany-East. But only some of the training occupations last for more than three years.

**Austria**

The apprentice receives a training allowance from the employer. The wage level usually is bargained among the social partners in sector- or company-specific collective agreements. There are no statistics of training allowances available at Austrian institutions. London Economics (Conlon et al. 2013) estimated training allowances for the year 2013 on average (representative picture of the current average levels of apprenticeship pay) on the basis of the Rosenthal website (ewaros[[69]](#footnote-70)) and calculated collectively agreed monthly wages (training allowances) across all occupations for the particular apprenticeship years. According to this calculation in 2013 the monthly training allowance was in the first year of training 575.39 EUR, in the second year 745.61 EUR, in the third year 1,007.47 EUR, and 1,206.30 EUR in the last year on average[[70]](#footnote-71).

This salary is on average 25% in the first, 32% in the second and 43% in the third training year, of the wage received by a fully qualified worker[[71]](#footnote-72).

The monthly entry-level incomes of employees in their first post-graduation employment within two years after they have completed their apprenticeship vary due to the branch and the collective agreement for salaries.

According to the qualification-related professional career monitoring by “Statistics Austria”, apprenticeship graduates enjoy the shortest period until they find their first employment and the highest entry-level incomes – compared to graduates of other educational pathways (VET school, academic secondary school, VET College).

Only 12 percent of the apprenticeship graduates receive a salary of less than 1,200 EUR, 27 percent have in income of between 1,200 and 1,800 EUR, 33 percent, receive between 1,800 and 2,400 EUR, and about 28 percent have more than 2,400 EUR at their disposal[[72]](#footnote-73).

**Switzerland**

As mentioned, Switzerland´s apprenticeship system is, on average, cost-neutral for companies, as apprentices are highly productive from their second year on. Another factor might be the level of wages that these companies pay to their apprentices.

Salaries for learners are variable according to sector and company, however in a quite limited range.

There is no statutory minimum remuneration, but only a general recommendation by social partners which is between 600 and 650 CHF (570 to 618 €) for the first year, 800 to 850 CHF (760 to 808€) to for the second, 1050 to 1150 CHF (998 to 1093€) for the third and 1150 to 1250 CHF (1093 to 1198) for the fourth year[[73]](#footnote-74).

According to London Economics hourly wages for apprentices vary according to sector from CHF 4,61 (3,8 €) in the motor vehicle sector to 6,72 CHF(5,7 €) in “hospitality” in three year occupations[[74]](#footnote-75).

Of particular interest is the apprentices´ income as a proportion of the income of fully qualifies skilled workers.

London Economics (Colon et al) calculates this proportion as only 12% in the first to 20% in the third year of training, resulting in an average of just 16%[[75]](#footnote-76).

According to Colon et al this level of compensation is well below the level of Germany and Switzerland and far behind Denmark and the Netherlands.

This might be one main reason for the positive cost-benefit ratio of apprenticeships for companies in Switzerland.

However, companies can make their own arrangements[[76]](#footnote-77).

No information is available for salaries immediately after the apprenticeship.

**Denmark**

In Denmark unions and employer organisations set wages in collective agreements. There is a wide range of wage levels for unskilled and skilled workers. Apprentice pay is also set by such agreements.

An in-official minimum of apprentice remuneration is set by school practice compensation, paid by the state which is about 275€ for trainees under 18 and around 660€ per month for older trainees[[77]](#footnote-78). In fact almost all apprentice wages are higher than this grant[[78]](#footnote-79).

Employers must adhere to the collective agreement between employer organisations and trade unions when hiring an apprentice, including the minimum wage for apprentices agreed therein.

The first year minimum apprentice pay ranges from 48% to 64% of the minimum wage. In year 4, the proportion ranges from a low of 59% to 88% in Media production, depending on the industry. Expressed as proportion of the average full - qualified workers wage, the range is between 63% and 77% in the first year and 90% and 104% (sic!) in the fourth year[[79]](#footnote-80).

**Netherlands**

As the leading international study on the issue[[80]](#footnote-81) points out, the determination of apprentice pay in the Netherlands “is exceptionally complex, and varied, and therefore a great deal of care should be exercised when interpreting the findings.”

The Dutch system does not legally oblige companies to compensate their apprentices. However their pay is regulated in collective agreements, which regulate more than 80% of contracts and can be declared generally binding. Negotiations at the company level are also common. As a result, apprentice wages depend on the particular economic sector, occupation, and company, may however be not lower than legal minimum wages for youths and adults.

Wages are determined by age, not the training year. Wages between the ages of 16 to 21 increase with each year. They are highest for Level 3 apprentices at each age.

Wages of Level 1, 2, and 3 apprentices who are older than 22 depend on functional classifications.

As a result of this specific structure, Dutch apprenticeship wages in the construction sector, as an example, range from €4.88 per hour for 16‐year old Level 1 apprentices to €15. Level 3, apprentice earnings converge to the fully qualified rate with increasing age. Level 3 apprentices at 18 earn 87% of the fully qualified rate, they receive 100% of the fully qualified rate by the age of 21. Finally, all apprentices who are 22 or older are entitled to the same earnings as workers who successfully completed an apprenticeship programme in the construction sector, independent of the level, function and age.

As can be observed from the estimates, apprentices in construction earn noticeably more than the predicated minimum wage level, independent of their age and training level, with apprentice wages amounting to between 169% and 216% of the age dependent minimum wage. As to the representativeness of the construction sector, the report calculates the wages in the construction sector as being between 42-76% of the average wages for middle qualified work in all sectors for the age groups 17-21 for Level 3[[81]](#footnote-82).

### Occupational Profiles

In order to give an idea of some of the most relevant occupational profiles in the resource countries the chapter to follow characterizes these briefly. Where information has been available, remarks about the general concept of defining these profiles is added in some introductory paragraphs. It is advisable to consult the sources cited in the footnotes as the concepts used are interesting, but in fact more complex than it may appear from the description of the profiles that can be reported in the context of this short report.

**Germany**

All recognized training occupations are governed by training regulations; for implementation of the training in the company there are overall training plans; the content and the methods of instruction in part-time vocational school are fixed for each profession in separate framework curricula.[[82]](#footnote-83)

Teaching and learning of the knowledge, skills, and competences needed for an occupation is based on the typical requirements of work and business processes in companies and prepares the apprentices for a specific job. The training is provided in a company and at part-time vocational school. The trainees acquire practical skills in a real working environment in the company; they attend part-time vocational school on one or two days per week learning general and vocational knowledge related to their training occupation.

**Austria**

For the in-company training the responsibility lies with the Federal Ministry of Science, Research and Economy. The training regulations for the particular training occupations (issued by the Federal Ministry of Science, Research and Economy ) contain the designation of the state-recognised occupation, the activity description (activities the candidate is able to carry out after successful apprenticeship –leave exam), the occupational profile (vocational skills, knowledge, and qualifications to be taught during the in-company part of apprenticeship) .

For each apprenticeship occupation there is a training regulation (Ausbildungs­ordnung) including the in-company curriculum or occupational profile (Berufsbild) and the competence profile or activity description (Berufsprofil). The occupational or job profile is a type of curriculum for the in-company part of the training, which states the minimum knowledge and skills to be taught to apprentices by the company. It provides a catalogue broken down by apprenticeship years. It is binding for the training provided in the companies. The competence profile defines the competences a trainee should have acquired at the end of the apprenticeship in an outcome-oriented manner[[83]](#footnote-84).

Switzerland

Occupations are defined by VET ordinances. A training plan accompanies each ordinance, guiding the implementation of training at work.

**Denmark**

50 trade committees (faglige udvalg) (10 to 14 members, parity of membership between employer and employee organisations) are responsible for 110 main courses perform a central role in creation and renewal of VET courses by closely monitoring developments in their particular trade and have a dominant position in formulating learning objectives and final examination standards, based around the key competences deemed as required in the labour market; they decide the regulatory framework for individual courses within boundaries set by the legislative framework. They are responsible for issuing journeyman’s certificates. Local training committees, meanwhile, are affiliated with each vocational college [[84]](#footnote-85).

**Netherlands**

“The basis for a qualification file is an occupational profile (A). This is a description of the professional practice of a fully qualified professional. Social partners decide to draw up an occupational profile. The Centre of Expertise develops a qualification file based on an occupational profile (B).

The qualification file in which the requirements for a starting professional practitioner have been laid down is offered to the Coordination Centre for Senior Secondary Vocational Education Qualifications (VET). This is an independent body by authority of the Ministry of Education, Culture and Science that assesses the quality of the qualification files (C). The files that have been checked by de Coordination

Centre are officially approved by the Ministry and are subsequently used by the educational institutes (D). The Netherlands find it important that professional practitioners have citizenship skills. A separate document describes the competencies that relate to the profession, to society and to Life Long Learning.”[[85]](#footnote-86)

The national qualification framework comprises 237 qualification profiles with different exit

differentiations (627 in February 2010). This means that occupations that include common activities are often combined into one qualification profile. The contents of the qualification profiles

are described in so-called Process Competency Matrices In this, the required competences for each work process are indicated. For all qualification profiles a single format is laid down with a fixed set of 25 competencies[[86]](#footnote-87).

#### IT technology specialist

**Germany**

**Information technology specialist (“Fachinformatiker/in”)**

Profile of skills and competences acquired:

* Design and realise complex information technology and telecommunications systems by integrating hardware and software components
* Install and configure networked information technology and telecommunications systems
* Commission information technology and telecommunications systems
* Apply project planning, implementation and control methods
* Rectify malfunctions through the use of expert and diagnostic systems
* Administer information technology and telecommunications systems
* Present system solutions
* Advise and train users.[[87]](#footnote-88)

**Austria**

**Information technology specialising in informatics (“Informationstechnologie – Informatik”)**

Profile of skills and competences acquired:

* ability to read and apply technical documents, also in the English language
* specification of steps, work equipment and working methods
* appropriate selection, procurement and examination of the required equipment and material and electronic data processing programmes
* collection of technical data on workflow and work results
* performance of all tasks taking into consideration relevant quality, safety and environmental standards
* tailoring of requirement analyses and concepts for programmes and user interfaces to customer needs
* creation and testing of programmes in accordance with content and business-related requirements
* development of user interfaces
* installation, configuration and testing of data processing programmes
* analysis, diagnosis and elimination of faults and defects
* consultancy services and training for users
* administration and backing up of data
* preparation of documentation and collection of technical data related to the installation of hardware and software for the client
* analysis of customer requirements and preparation of solution options
* provision of service and support schemes
* acceptance of deliveries, checking, storage, maintenance and delivery of the articles; keeping records of the inventory
* appropriate written and oral command of language and mode of expression as well as use of job-related foreign language.[[88]](#footnote-89)

**Switzerland**

**ICT Expert (Informatiker EFZ)**

4 year training program[[89]](#footnote-90). ICT experts develop, implement, test and run IT solutions. There are different foci of training, application development, IT system management and IT administration.

The focus of application development specialists is software development for new products or processes. IT system specialists focus on implementation and maintenance of IT systems, including IT security and user support. IT administration specialists maintain Server and network structures, but are also involved in the development of solutions and application development, particularly in the development of database solutions.

**Denmark**

**Data Technician specialising in infrastructure** (Datatekniker med speciale i infrastruktur)[[90]](#footnote-91)

Profile of skills and competences acquired:

* basic knowledge of the technology that lies behind IT systems
* advise on products in a qualified way and select up-to-date solutions for tasks
* ability to construct, configure, maintain and manage server and network solutions
* design advanced LAN and WAN networks
* specialising in infrastructure with analysis, design, implementation and administration of security solutions on server-based networks
* programming.

**Data Technician specialising in programming** (Datatekniker med speciale i programmering)

Profile of skills and competences acquired:

* development of programmes, including advanced programme
* development of IT systems as stand-alone applications, client-server applications, web applications, etc.
* development tasks within embedded systems and database systems
* installation, configuration, maintenance and administration of server and network solutions.

**IT Supporter** (IT Supporter)

Profile of skills and competences acquired in accordance with regulations and applicable safety regulations:

* construction, installation, maintaining, controlling, troubleshooting on PCs, servers and networks with associated peripheral units
* guiding and instruction of customers and users of hardware and software
* designing, constructing and implementation of databases by using the industry's software
* configuration, troubleshooting on web and mail servers, machines and products
* testing and measuring of industrial equipment
* preparation of technical and user documentation as well as instructions
* planning of work processes.

**Telecommunication system technician** (Telesystemstekniker)

Profile of skills and competences acquired:

* Designing, installation, configuration and maintain of smaller IP-bases telephones
* Building up local networks with standard network components
* Performing customer installations of typical telecommunication products and supplementary
* Installation parts including troubleshooting on installations.

**Telecommunications Installation Technician** (Teleinstallationstekniker)

Profile of skills and competences acquired:

* installations within the telecommunications area,
* e.g. systems with analogue, impulse, digital, computer and data transmission technology
* participation in the design and structuring of local networks with standard network components
* performing customer installations of typical telecommunication products and supplementary installation parts, including troubleshooting on installations.

**Netherlands**

**ICT Management Assistant**

EQF 3 The Dutch Middelbaar Beroepsonderwijs (MBO) [secondary vocational education] is based wholly on a competence oriented qualification structure. At all stages of the training it is the aim to make the student feel what it will be like at work in practice. The qualification structure defines what may be expected of a qualified practitioner.

The ICT management assistant works in ICT service companies or in the ICT department of other companies. They work independently.

Core tasks include: Install hardware and software, assemble systems, install and configure systems and (standard) applications, install cabling infrastructure; maintain and manage hardware and software, prevent malfunction, locate and repair failures; support system users, instruct user, incident notification, handle incidents[[91]](#footnote-92).

#### Information technology and telecommunications system electronics technician

**Germany**

**Information technology and telecommunications system electronics technician (m/f) („Informations- und Telekommunikationssystem-Elektroniker/in“)**

Profile of skills and competences acquired:

* Inform and advise customers on possible uses of information technology and telecommunications equipment and systems
* Install and configure information technology and telecommunications equipment and systems
* Install power supplies and test electrical safety measures
* Install networks and wireless transmission systems
* Set up information technology and telecommunications equipment according due consideration to ergonomic aspects
* Carry out maintenance work to information technology and telecommunications equipment and systems
* Deploy expert and diagnostic systems to locate and rectify faults
* Instruct users on the operation of systems
* Invoice customers for services provided
* Carry out work in the capacity of skilled electrical and electronic engineering workers under the provisions of the Prevention of Accidents Regulations.[[92]](#footnote-93)

**Austria**

**Electronic engineering technician specialising in information and telecommunications technology („Elektronik - Informations- und Telekommunikationstechnik“)**

Profile of skills and competences acquired:

Basic and main module:

* Installation, commissioning, testing and shielding of systems of the information and telecommunications technology
* systematic search, localisation and elimination of faults, defects and failures on systems of the information and telecommunications technology
* maintenance and servicing of systems of the information and telecommunications technology
* installation, commissioning, testing and shielding of analogue and digital communication systems and their components
* systematic search, localisation and elimination of faults, defects and failures on analogue and digital communication systems and their components
* maintenance and servicing of analogue and digital communication systems and their components
* performance of all tasks taking into consideration relevant quality, safety and environmental standards
* appropriate written and oral command of language and specialist terminology as well as use of job-related foreign language.

Diverse training courses in special modules can be provided in addition to the basic and main module, with the aim of offering more in-depth know-how and specialisation (network technology, railway telecommunications technology[[93]](#footnote-94).

**Netherlands**

**First mechanic data electricity (“Eerste monteur data-elektra”)**

“First mechanic data electricity” (“Eerste monteur data-elektra) is a Level 3 occupational profile.

The first mechanic data / electrical works on new and existing networks or data communication networks.

He is responsible for the quality of his work. He organizes the work on the jobsite and addresses changing and unexpected circumstances. He guides less experienced colleagues.

Core Tasks: Maintaining and repairing failures in transport and distribution, performance of activities in and commissioning of stations / data networks, work organisation[[94]](#footnote-95).

#### Management Assistant for Retail Service

**Germany**

**Management assistant for retail service (“Kaufmann/-frau im Einzelhandel”)**

This is one of the most common occupational profiles in Germany

Profile of skills and competences acquired include:

* Sell goods and services
* Use product knowledge to Inform and advise customers and provide service
* Operate the till and calculate the till balance
* Assist in developing the product range
* Arrange and present goods in the sales area
* Assist with sales promotion activities
* Check and maintain product stocks, Assist in accepting and checking goods
* Label and store goods
* Determine product requirements, Procure goods
* Assist with the company's logistics processes
* Evaluate key indicators and statistics to monitor success and use this information to develop measures
* Assist in the planning and organisation of work processes
* Plan human resources deployment in own field of activity
* Work as part of a team, work in a customer and process-oriented way and use customer service skills
* Use information and communication technology systems.[[95]](#footnote-96)

Austria

**Retail trade services specialising in general retail (“Einzelhandel - Allgemeiner Einzelhandel”)**

Profile of skills and competences acquired:

* Identification of demand for merchandise procurement; placement and handling of orders for goods in the company - specific communication form
* supervision of goods deliveries and their treatment in administrative terms
* acceptance, examination, storage and servicing of goods
* preparation and presentation of the company's range of goods for sale
* customer advisory services in product selection and provision of services
* sales negotiations
* acceptance and handling of orders and customer orders including invoicing and payment transactions
* handling customer complaints
* appropriate written and oral command of language and mode of expression as well as use of job-related foreign language.[[96]](#footnote-97)

**Switzerland**

**Detailhandelsfachmann/-frau EFZ (Grundbildung/Grundberuf)** In Switzerland this is also a very common profile.

Retail Professionals work in sales. They advise and serve customers on purchasing; they are responsible for the storage and management of goods.

They must be friendly and knowledgeable; they cater to the needs of customers and help them with the choice of products. They are informed about the properties, the care and proper use of the product. After the customer decides to purchase, they operate the cash register and wrap goods.

They know the product range and prices, the latest trends in the retail sector and inform customers about it. If they receive a complaint regarding goods, they provide a solution.

Retail experts focusing on management mainly work in the warehouse and office. They order the products at the manufacturing or supplying companies.

Retail professionals have an important role in logistics.

The initial training lasts 3 years. 2 year basic training and 4 year expert training (Detailhandelsmanager) is also available[[97]](#footnote-98).

**Denmark**

Information on the multitude of comparable modular qualification certificates (as “Personal sales - the customer's needs and solutions” or “Commercial assistant (services)” can be found at http://certsupp.uds.dk/

**Netherlands**

**Verkoopspecialist (MBO 3)**

As in the other countries also in the Netherlands this is a very common profile.

As usual in the very differentiated Dutch system, the profile is further detailed in: “Verkoopspecialist detailhandel“, „Eerste verkoper“, „Verkoopspecialist mode“ (fashion), „Verkoopspecialist elektrotechnische detailhandel“(electrics), „Verkoopadviseur wonen“(Interiors), „Verkoopmedewerker showroom“(showroom). We describe “Verkoopspecialist detailhandel”, Retail Sales Specialist.

The retail sales specialist works in retail in various store formats in both the food and non-food sector. Because of the great diversity of branches in retail the retail sales specialist is trained and can be deployed within different industries. Typical professional attitude: The retail sales specialist is focused on providing service and services to customers. He leaves a motivating professional look and sets an example for others. He is proficient in dealing with customers; he can advise and convince the customer. He knows how he can influence the customer by presentation and promotion, and serves as an expert on the set.

Role and responsibilities: The retail sales specialist has an executive role. He is responsible for his own tasks and performs the work independently and on its own initiative. He is accountable to his supervisor. He supports and accompanies colleagues in his role as specialist.

The occupational profile shows some complexity: For the work of the sales specialist retailers sometimes apply standard methods, but in other cases it will work at their own discretion. Sales specialist retailers will face a number of dilemmas. They need to prioritise the time they spend on activities. They must estimate what work has priority. The retail sales specialist must find the right balance between customer and company interests. He has to ensure that the customer is helped as fast and in as customer-friendly a way as possible, while other clients, other activities and business interests must also be addressed[[98]](#footnote-99).

#### Car Mechatronics

**Germany**

**Motor vehicle mechatronics technician („Kraftfahrzeugmechatroniker/in“)**

The profile of skills and competences acquired includes:

* Diagnose faults and malfunctions in vehicles
* Carry out service and maintenance works
* Disassemble, repair and assemble components, sub-assemblies and systems
* Carry out tests on vehicles in accordance with legal stipulations
* Operate vehicles and systems
* Decommission and commission technical vehicle systems
* Measure and check systems
* Fit, refit and retrofit vehicles
* Plan and prepare work processes, check and evaluate work results
* Company and technical communication
* Carry out quality assurance measures.[[99]](#footnote-100)

**Austria**

**Motor vehicle engineering technician (“Kraftfahrzeugtechniker”)**

Profile of skills and competences acquired:

* Ability to read and apply technical documents, operating manuals, and electronic circuit diagrams
* specification of steps, work equipment and working methods
* planning and control of workflows, assessment and documentation of the results of work, application of quality control
* performance of the work by taking into consideration relevant safety regulations, standards, safety standards and environmental standards
* selection, procurement and examination of the required material for the work
* measurement, assessment and performance of tests of job-specific physical variables
* operation of measuring, examination and testing equipment and electronic diagnostic equipment, evaluation of results
* testing, repair and servicing of mechanical parts installed in motor vehicles and trailers
* testing, repair and servicing of electric and electronic parts installed in motor vehicles and trailers
* performance of tasks on the chassis and vehicle body
* recognition, assessment and use of all fuels, coolants and lubricants and other fluids required for the operation of the vehicle
* advisory services for customers on the use, application and service of motor vehicles and trailers
* ability to apply foreign-language technical terms and expressions[[100]](#footnote-101).

**Switzerland**

**Car Mechatronic**

The Car Mechatronic in Switzerland receives a training (berufliche Grundbildung) of 4 years.

Car mechatronics diagnose and check cars and utility vehicles. They maintain and repair these. Since these vehicles have more and more electronic components, car mechatronics have in depth competences in car electronics and can install, adjust, maintain and repair electronic components. They are also responsible for higher level repairs of mechanic components. They use technical documentation, and circuit diagrams. They have a strong focus on accuracy and consistency of their work and follow safety and health measures and regulations meticulously. Using IT systems diagnosis systems they test components. They install and start up additional components, according to customer requirements, as navigation systems, alarm systems etc. They consult customers, mange supplies and logistics[[101]](#footnote-102).

According to the occupational ordinance the competences to follow are included:

Technical Competences include knowledge and abilities in the areas of basics of technology: arithmetic, physics, material, electronics, production. Extended basics include: Communication, customer service, technical information, spare part services, IT. Automotive Technology basics: Extended Automotive Technology includes extended knowledge and abilities in electrics, electronics, engines, drivetrain, chassis Art. 5 Methodological competences: a. Methodology of learning: acquisition of information, keeping account of learning, ways of learning, ability to transfer learning, learning process, learning strategies. b. Methodology of work: Strategies of problem solving, networked thinking, business mind, punctuality, flexibility, ecological thinking, planning of work, working methodology, documentation of work.

**Denmark**

Information on modular qualification certificates can be found at http://certsupp.uds.dk/

**Car mechanic**

(Uddannelsesbevis for Automekaniker)

“A trained car mechanic is able to:

* organise and complete rational work processes in connection with servicing of and error detection in petrol- and diesel-powered vehicles, including the repair or replacement of worn defective parts;
* assess the possibilities of repair and advise on the most economical repair based on customer requirements and expectations as regards cost, road safety, the appearance and utility value of the vehicle and environmental requirements;
* carry out work using repair manuals in Danish and other languages as well as other available data including public authority requirements concerning motor vehicles, using the minimum equipment required in the trade;
* carry out work in accordance with applicable road traffic legislation, safety regulations and environmental requirements in accordance with instructions and applicable safety regulations.

A trained car mechanic has experience in:

* Motor vehicle maintenance, servicing, error detection and correction.
* Using the tools of the trade as well as testing and measuring equipment.
* Planning work processes.
* Using technical documentation as well as user documentation and instructions. (…)

The total duration of the education and training programme 4 years, with 55 weeks of formal education and training and 153 weeks of on-the-job training.”[[102]](#footnote-103)

**Netherlands**

**Eerste Autotechnicus**

In the Netherlands Car Mechatronic is differentiated in entry level (“Autotechnicus” (Level 2)) “Eerste Autotechnicus” (Level 3) “Technisch Specialist Personenauto’s” (Level 4) profiles. Level 3 is described here.

Car Mechanics work in passenger car companies such as dealerships, universal businesses and quick service companies.

They perform technical work on cars as standard maintenance, repairs, ready for delivery create new and used cars, assembly of (electronic) and accessories diagnoses. First Automotive Technicians carry out complex maintenance perform repairs and diagnosis. They mount (electronic) accessories such as navigation and alarm systems, tow bars and more complex audiovisual systems. They exchange information with the customer. They guide students and less experienced colleagues and are responsible for their work[[103]](#footnote-104).

#### Mechatronics

**Germany**

**Mechatronics Technician (Mechatroniker)**

Mechatronics comprises of 3,5 years of training. Skills and competence acquired include how to[[104]](#footnote-105):

* Plan and manage work processes
* Process mechanical parts
* Assemble sub-assemblies and components into mechatronics systems
* Install electrical sub-assemblies and components
* Measure and test electrical values
* Install and test hardware and software components
* Build and test control systems
* Programme mechatronics systems
* Assemble sub-assemblies and components into machines and systems
* Assemble and dismantle machinery, systems and plants, transport and secure
* Test and adjust the functioning of mechatronics systems
* Commission and operate mechatronics systems
* Maintain mechatronics systems
* Hand over plants, instruct users in their operation and provide services
* Work with English language documentation and communicate in English

**Austria**

**Mechatronics Technician (Mechatroniker)**

Profile of skills and competences acquired:

* Ability to read and apply technical documents
* specification of steps, work equipment and working methods
* planning and control of workflows; assessment of final results/the results of work; application of quality management systems
* manufacture, processing and treatment of mechatronic parts; assembly and adjustment of mechatronic subassemblies and components
* assembly, fitting and installation of mechanical, electrical and electronic elements, sub-assemblies and components
* measurement and testing of parameters related to mechanical engineering as well as of electric variables
* fitting, installation and testing of mechatronic hardware and software components
* establishment and testing of electrical, pneumatic and hydraulic controls
* programming and testing of mechatronic systems
* assembly, fitting, examination, and testing of machinery, plants and installations
* installation, fitting, testing, adjustment, operation and commissioning of enterprise-specific systems in equipment, machinery, and installations
* maintenance and servicing of mechatronic systems
* localisation, diagnosis and clearing of faults, defects and failures of mechatronic systems
* establishment, examination and documentation of protective measures to prevent damage to persons and damage to property
* performance of the work taking into consideration relevant safety regulations, standards and relevant environmental standards
* collection and documentation of technical data on workflow and work results
* advisory services for customers on the use, application and servicing of mechatronic systems
* appropriate written and oral command of language and mode of expression as well as use of job-related foreign language[[105]](#footnote-106).

**Switzerland**

In Switzerland, Mechatronics is a post-secondary professional profile, not covered in the scope of this report.

**Denmark**

Electro-mechanical technician (Uddannelsesbevis for Elektrofagtekniker)

“A qualified electro-mechanical technician is able to:

* carry out winding on the basis of a diagram; install and adjust electric motors, generators, transformers and other electromechanical devices; detect and correct errors; and carry out preventive maintenance of such devices;
* fit components and cables in control units;
* detect and correct errors and adjust the controls of electromechanical systems;
* use documentation in Danish and other languages;
* make minor mechanical components on the basis of technical drawings, using relevant tools and machinery

in accordance with instructions and applicable safety regulations.

A qualified electro-mechanical technician has experience in:

* Assembling, installing and maintaining systems, machines and products and in error detection and correction.
* Using the tools of the trade as well as testing and measuring equipment.
* Planning work processes.
* Preparing technical documentation, user documentation and instructions. (…)

The total duration of the education and training programme 4 years, with 50 weeks of formal education and training and 158 weeks of on-the-job training.”[[106]](#footnote-107)

**Netherlands**

**Mechatronics**

In the Netherlands “Mechatronics” is only defined as a Level 4 qualification, which therefore is described here, in spite of generally referring to level 3 occupations only.

The mechatronics technician works mainly in medium and larger metal companies belonging to the sector machinery industry and equipment. The work is usually carried out within the company. Machinery / equipment is fully assembled on site or phased out.

In the work of the mechatronics in particular the following aspects of attitude are typical: accuracy and precision, quality awareness, signalling capability (act appropriately to imperfections or incorrect assumptions of a work assignment), social and communication skills.

The mechatronics technician has an executive and supervisory role. He develops and builds complete machines independently or in a small team. The mechatronics technician is responsible for his own work supporting machine builders. He has the final responsibility to stop work or not to release the machine with defects. Both within the company and on location at the customer he guides (less experienced) peers. He should pay close attention to the safety aspect, both his own personal security (protection) and safety of machine / plant and the members of the team with which he co-operates. Key tasks include Production of sub-products and building machines and / or mechatronic products., Test equipment and / or mechatronics products, Installs and maintains equipment and / or mechatronics products and regulates this off, designing mechatronics (sub) products[[107]](#footnote-108).

# Legal framework

This chapter covers the main statutory regulations on which the apprenticeship system is built. The sources cited allow access to in detail information.

**Germany**

The legal framework for the dual system now is the amended Vocational Training Act (“Berufsbildungsgesetz”)[[108]](#footnote-109). This law applies to vocational training in industry and commerce as well as to the service sector all over Germany. Vocational trainings in crafts occupations are governed by the “Crafts and Trade Code”.

Training in the company is also governed by labour law provisions like the “Protection of Young Workers Act”, Protection of Working Mothers Act” or the German Civil Code (BGB).

The Vocational Training Act consists of seven parts:

Part 1 “General Provisions” defines the terms, objectives and learning locations of vocational training and the scope of the law, part 2 “Vocational Training” comprehends regulations on initial training (chapter 1), further training (chapter 2), retraining (chapter 3), and vocational training for special groups of persons (chapter 4), part 3 “Organization of Vocational Training” includes regulations on competent bodies and competent authorities, supervision of vocational training, and vocational training committees at different levels. The other parts of the Vocational Training Act establish vocational training research, planning, and statistics, the tasks of the Federal Institute for Vocational Education and Training (BIBB) and other provisions.

For the in-company training the responsibility lies with the federal government, companies and workers and their organisations (employers organisations and unions). The training regulations and the overall training plans are prepared and developed by the Federal Institute for Vocational Education and Training (BIBB) and discussed and agreed by the BIBB-Board (8 representatives each of the employers, of the employees, and of the federal states, 5 representatives of the federation). The Federal Government (competent ministries) has issued training regulations for about 350 recognised occupations according to part 2, section 4 and 5, of the Vocational Training Act.

The training regulations determine the state-recognition of the occupation, the designation of the training occupation, the duration of the training, the training occupation profile (vocational skills, knowledge, and qualifications), an outline of the syllabus and timetable (overall training plan), and the examination requirements.

The responsibility of the school-based part of apprenticeships is up to the federal states.

The qualification requirements for trainers (suitability of training employers and instructors, personal and technical qualifications) are defined in the sections 28 to 30 of the Vocational Training Act. Detailing these regulations the Federal Minister for Education and Research in the year 2009 has issued an Ordinance on trainer aptitude (Ausbildereignungsverordnung AEVO) Each training company must have at least one person with an AEVO certificate. The occupational aptitude of trainers comprehends the competence to plan, act, and control the vocational training autonomously in the fields of vocational education and training.

**Austria**

The legal framework for the dual system in Austria is the Vocational Training Act (“Berufsausbildungsgesetz – BAG”) first issued in 1969[[109]](#footnote-110). This law applies for vocational training in industry and commerce as well as for the trade and the service sector all over Austria. Relevant for the in-company part of apprenticeship are also other regulations and law, e.g. the Trade, Commerce and Industry Regulation Act (“Gewerbeordnung – GewO) and the law on child and youth employment (“Kinder- und Jungendbeschäftigungsgesetz – KJBG”).

The part of the vocational school is governed by the School Organisation Act (“Schulorganisationsgesetz – SchOG”) first issued in 1962[[110]](#footnote-111).

The Austrian Vocational Training Act consists of 36 paragraphs define the legal status of the apprentice, the status and the requirements on an authorised apprenticeship trainer („Lehrberechtigter“) and an IVET trainer (“Ausbilder”), the apprenticeship occupations and the duration of apprenticeship, responsibility for editing a list of apprenticeships (“Lehrberufsliste”). As a measure to assure appropriate quality of in-company training in § 8 in addition is stated the relation between the number of apprentices and the number of examined professionals as well as the relation between the number of apprentices and the number of trainers employed by the company.

The law also stipulates the constitution of the Federal Advisory Board on Apprenticeship (“Bundes-Berufsbildungsbeirat” – BBAB) and the Regional Advisory Boards on Apprenticeship (“Landes-Berufsbildungsbeiräte”).For the Federal Advisory Board on Apprenticeship respectively six members entitled to vote are nominated by the Austrian Federal Economic Chamber (WKÖ) (employers’ representatives) and by the Federal Chamber of Labour (BAK) (employees’ representatives); in addition two non-voting members are nominated by the Federal Minister of Education and Women’s’ Affairs. The main tasks among others are proposals and comments on development or change of training regulations and other initial training issues governed by the Vocational Training Act.

Respectively two members of the Regional Advisory Boards on Apprenticeship are nominated by the regional economic chambers (employers’ representatives) and by the regional chambers of labour (employees’ representatives). Main tasks of these Regional Advisory Boards are – among others – to compose recommendations, comments, and encouragements with regard to implementation of the tasks of the apprenticeship office, conduction of apprenticeship-leave examinations as well as trainer exams and trainer courses.

The responsibility for the part-time vocational schools within the dual training lies with the Federal Minister of Education and Women’s’ Affairs.

In June 2008 a youth employment pact (negotiated by the social partners) was set into force by the Federal Government. It introduced, among other things, the training guarantee for young people up to the age of 18 years. Thus supra-company apprenticeship training has been implemented as an equivalent part of dual VET alongside the regular company-based training[[111]](#footnote-112).

**Switzerland**

The federal law on professional education (Bundesgesetz über die Berufsbildung (Berufsbildungsgesetz, BBG)) regulates all professional training outside the Universities in Switzerland, including upper secondary level (Berufslehre) as well as tertiary professional education. The law was passed in 2004.

It strengthened the “triangle of professional training”, the cooperation between the federal level (Eidgenossenschaft), as coordinating institution, the federal states (26 cantons) who, together with “organisations of work”, select and accompany the learners. New components of the law include the industrial courses which became regular part of the training program,

The principle of permeability, i.e. every certified training must entitle for access to the next higher educational program was implemented.

The provision of VET and PET is regulated as a mission shouldered by the confederation, the cantons and professional organisations.

An evaluation of the law, which was implemented since 2004, highlights the following:

Orientation on training potential of companies and labour market, problems occurring related to transition to the regular labour market and imbalances caused by demographic and economic trends could be solved through minor adaptations rather than systemic changes.

The evaluation mentions the following challenges: To achieve the aim of a 95% level of young people achieving an upper secondary degree.

In tertiary professional education the report mentions the increased international acceptance of tertiary professional training (Copenhagen process) and international recognition of qualifications. Also innovation should be fostered in a more systematic way[[112]](#footnote-113).

**Denmark**

In Denmark the main legal regulations for IVET are:

The Vocational Education and Training Act of 2010, last changed in 2014 is the most important law and covers the entire IVET system (overall objectives, access to, form and content of programmes, appointment of advisory committees, role of enterprises offering apprenticeship placements, students’ legal rights, etc.).

The act for institutions for vocational education and training of 2009, last changed in 2014 governs vocational colleges

The Statutory order regarding vocational education and training of 2014 is an ordinance implementing the two laws mentioned.

Several more specific laws regulate other aspects[[113]](#footnote-114).

Major reforms are implemented from August 2015.

**Netherlands**

With the Industrial, Technical and Domestic Education Act of 1919 vocational education by technical schools and apprenticeships was founded in parallel, the latter following quite ancient traditions of the guilds. The Mammoth Act of 1968 and Apprenticeship Act of 1969 established general and vocational secondary education as equal alternatives alongside each other with the possibility of reciprocal transfers. The Adult and Vocational Education Act of 1996 further elaborated the system, accounting for a general expansion of higher level education needs[[114]](#footnote-115). Typical for the latter development is that it established major education providers with a high level of autonomy.

“Secondary Education Act” (WVO – Wet op het Voortgezet Onderwijs) 1968,”Upper secondary vocational education” (MBO – middelbaar beroepsonderwijs; the “General Adult Education and Vocational Education Act” (WEB – Wet Educatie en Beroepsonderwijs; 1996 with later amendments are the backbone of the legislative framework. Other relevant legislation is the “Registration and Coordination Act” (RMC: Regionale Meld- en Coördinatiewet; 2001), aimed at combatting early school leaving: 39 regions throughout the country are responsible for combatting early school leaving. The “Professions in Education Act” (Wet BIO – Wet op Beroepen in het Onderwijs) regulates the minimum requirements for teachers[[115]](#footnote-116).

Recently some amendments are made to the General Adult Education and Vocational Education Act. Based on the policy document ‘Focus on Craftsmanship’ new measures will be introduced primarily focusing on raising efficiency in VET (curtailing the length of training in upper secondary VET, achieve faster transit through the vocational education column, introduction of entry level courses).

## Target groups

In general in all the "resource countries" the apprenticeship based VET targets all of the young people and in general is also a respected and popular pathway of education. While there is a general trend towards academic tertiary degrees in all of the countries, apprenticeships are in no case the “last resort” for the “loosers and drop outs” from the education system.

Nevertheless apprenticeship based VET is in all of the resource countries a pathway of education that proved to be able to attract a variety of learners, from those who feel more attracted to do “practical” work as soon as possible, to young people with a high level of talent, who aim to make a career in crafts, start their own business or take responsible positions in production. In recent years the permeability of the systems in all of the resource countries has been improved, including opportunities to access University education. The main strength of the system however is, that it has proved capable of integrating a very broad variety of learners and provide them with flexible pathways of education, which open additional opportunities at different stages of their career.

**Germany**

There are no restrictions with regard to the participation in an apprenticeship. First of all, apprenticeship in the dual system is a vocational initial training offer for school leavers with or without the minimal Certificate of Secondary Education (“Hauptschulabschluss”) and for young people with Intermediate Secondary Education Leaving Certificate (“Realschulabschluss”); but it can also be attractive for young people with Upper Secondary School Leaving Certificate (“Abitur”).

The selection of trainees is up to the companies only. While in practice companies proved to be quite selective and chose candidates according to their academic credentials, lately demographic changes, i.e. a regional shortage of school leavers resulted in new chances also for applicants with lower certificates and weaker marks.

**Austria**

Apprenticeship in the dual system is open to all young people, who have successful completed compulsory schooling at least, all over Austria[[116]](#footnote-117). There are no restrictions with regard to age, but usually young people after completion of compulsory schooling enter into an apprenticeship.

The selection of trainees is up to the companies.

**Switzerland**

All youth and adults from upper secondary level can apply for an apprenticeship. There is no specific target group by region or background can be. Apprenticeships are the standard form of VET and PET, exclusively school based training is the exception.

Switzerland declares the aim to provide at least 95% of young people with an upper-secondary degree.

Particularly the permeability of the system assures a high level of acceptance, as education and training at all levels allows for a continuation of the studies: the principle of “Kein Abschluss ohne Anschluss” , which means that all degrees entitle to access the next level of education has been implemented more consequently in recent years.

**Denmark**

The target Groups of Danish VET programmes are all young people, who are encouraged to obtain relevant competences for a smooth transition to the labour market, as with a completed VET they can immediately work in industry or trade.

A particularity of the Danish (as well as the Dutch) system in recent years is a renewed focus on adults 25 years or older with prior vocational experience. From 2015 on they are offered more attractive, shorter, predictable and goal-oriented pathways from low skilled to skilled worker in a VET for adults are offered (EUV).

A distinct group are young people who are motivated for education but who begin a VET without a realistic chance of completing it. They get access to a combined post-compulsory education for a maximum of two years that leads to a title of “occupation assistant” within a specified job area.

**Netherlands**

Also in the Netherlands there is no specific target group for apprenticeships, though recently there was an inflow of students with quite low educational attainment into upper secondary vocational education, which necessitated the expansion of general education subjects and general courses in the first year[[117]](#footnote-118). A strong point of the Dutch system is that the target group is broad, attracting also a relevant number of adults.

## Status of the Apprentices

Germany

The apprentices have a particular status in the companies. This status is fixed in the training contract[[118]](#footnote-119).

**Austria**

The apprentices have a particular status in the companies. This status is fixed in the training contract. But they are also employee of the company, thus they receive remuneration [[119]](#footnote-120).

**Switzerland**

A special status as learners/apprentices distinct from regular employees and pupils/students exists. Learners are paid by the companies and have a contract with companies,which is limited by the duration of the 3 or 4 year apprenticeship.

The learning contract is a contract between the learner and the hosting company. It is a sub-case of a regular work contract (Lehrvertrag). The learning contract is regulated in the chapter “Der Lehrvertrag” of the labour code. The same contract template is used in all of the cases. It includes the occupation, the wage, the responsible trainer, the professional school to attend, the duration of the training and other components. It is signed by the learner and/or his parents (for minors), the host company and the cantonal administration.

**Denmark**

The apprentices have in the framework of the Danish VET system the status of an employee. Before the student can start the main programme, he or she has to have concluded an apprenticeship contract with an employer, i.e. an approved company which offers training. During the apprenticeship the enterprise pays a wage to the apprentice for his or her work related to the minimum wages in the relevant collective agreement.

**Netherlands**

BBL is the Dutch abbreviation for vocational guidance track (beroepsbegeleidende leerweg). The ratio between theory and practice is 20 to 80, the reversal of the BOL track. BBL students spend 20% of their study time at school and 80% on the job. BBL students are in education while working, they have an employment contract. They are covered in the usual collective agreements between social partners[[120]](#footnote-121).

# Funding and Effectiveness of the Apprenticeship System

## Funding

As the OECD emphasizes, a solid funding of the VET system yields positive returns for individuals, companies and the society as a whole[[121]](#footnote-122).

Funding is quite solid in all of the resource countries covered in this report.

Germany

The in-company training parts of apprenticeships are completely funded by the companies. They have to provide and bear the expenses for the premises, the training staff, they have to pay the allowance for the apprentice; in addition the have to bear the fees for external trainings (necessary for parts of the training scheme, which cannot be taught within the company itself; e.g. inter-company vocational training) and examinations within and at the end of the training period to the chamber.

The costs for the vocational schools, the wages of the teachers, the costs for material needed for the lessons are born by the federal states.

If specific support is needed for weak trainees, there are support programmes (e.g. remedial teaching) funded by the employment agency.

According to the Federation of Employers organisations, BDA[[122]](#footnote-123)" „A dual system that is completely organised and funded by the state without real commitment and responsibility of employers will not work because employers must be willing to take over co-responsibility for the system as a whole - also financially. This includes offering suitable training places, providing qualified training personal and paying remuneration to the apprentices.“ However, according to this statement state assistance for training specific weaker target groups would be appreciated and BDA also states that assistance by public funds might be needed as „seed money“ to introduce comparable systems elsewhere.

Austria

The company part of apprenticeships is paid by the companies themselves. This includes costs for the premises, training staff, remuneration of the apprentice, fees for external trainings and examinations within and at the end of the training period.

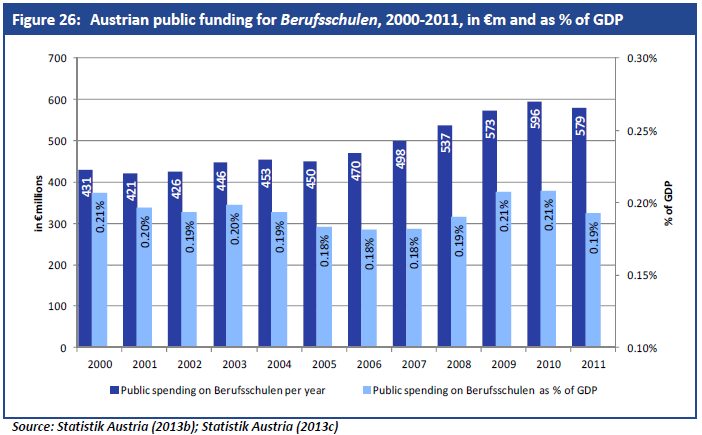
There are public subsidies for the companies for various types of costs:[[123]](#footnote-124)

* Basic funding (“Basisförderung”) was introduced 2010 in order to increase the number of apprenticeships; it is a reimbursement of training allowances differentiated by training year (from three monthly gross allowances in the first training year down to one monthly gross allowances in the years three and four; for half training years the refund is a half of a monthly gross allowance, each pursuant to the respective collective agreement.
* Quality enhancement is covered by a grant for successful participation in a quality-related procedure aiming to prove qualification (training documentation and practical test after half of the apprenticeship period is required) for training
* Inter- and supra-company training measures: subsidies for training alliances, training of job-specific additional qualifications for apprentices, preparatory courses for apprenticeship-leave exam.
* Measures of continuing education and training for training staff
* Measures for apprentices with learning difficulties
* Measures to equalise access for young women and men to different apprenticeship occupations[[124]](#footnote-125).

For the companies there are additional benefits from non-wage labour costs: health insurance contributions are waived in the first two years of apprenticeship, accident insurance for apprentices throughout the apprenticeship, unemployment insurance contributions are only payable in the last year of the apprenticeship. The remaining apprenticeship costs reduce the taxable profit of the enterprise – and thus its tax costs. These savings are indirect releases to the apprenticeship costs of the companies borne by the state[[125]](#footnote-126).

School maintenance (constructing and equipping) and payment of teachers is up to the federal provinces. 50 percent of teachers’ costs are refunded by the federal government[[126]](#footnote-127) .

Between 2000 to 2010 public funding of part-time vocational schools increased almost continuously. In absolute levels funding increased from 431 million EUR in 2000 to 596 million EUR in 2010; it decreased slightly to 579 million EUR in 2011 (see figure 3).[[127]](#footnote-128) In 2012 it again increased to about 592 million EUR[[128]](#footnote-129).



Ill.: Public funding for part-time vocational schools from 2000 to 2011 in EUR[[129]](#footnote-130)

Switzerland

Government institutions provide no direct subsidies to training firms for taking on apprentices. Instead, the state bears primary responsibility over funding the required off‐the job education in “Berufsfachschulen”.

The Confederation, the cantons and professional organisations, fund the VET sector.

Most of the costs are borne by companies, however. The cantons are responsible for implement VET/PET. They provide three quarters of public funding.

It is remarkable that 10% of federal funding is used to promote VET/PET development projects.

Funding of the VET/PET system by Confederation and cantons constitutes only 12% of total public education funding. In 2010, around CHF 3-4 billion was allocated to the VET/PET system.

“Professional organisations provide both services and funding for the Swiss VET/PET system: they do the groundwork, run their own training centres and promote specific occupations (VET sector) and professions (PET sector)”. According to information provided by policy makers in Switzerland host companies generally benefit from taking part in VET programmes, also financially.

Public expenditure 2012: VET: Preparation for VET 237 Mio CHF; VET schools; 2.546 Mio CHF; Industry courses 116 Mio CHF; Qualification procedures 106 Mio CHF. There is a consistently positive cost benefit ratio. Data are available for 2009: Overall productive output in this year was 5,8 Bio CHF, while overall cost was only 5,3 Bio CHF, resulting in a net benefit of 0,5 Bio CHF.

Denmark

Public financing is central to the Danish VET system. VET colleges receive performance-based block grants. Coordinated by the AUB system (Arbejdsgivernes Uddannelses Bidrag, employer’s educational contribution) apprenticeships are financed by as solidarity principle: all enterprises, regardless of their involvement in VET, contribute a fixed amount per employee to a central fund (DKK 2.921 approximately EUR 393 per full-time employee in 2012)[[130]](#footnote-131). Enterprises are then partially reimbursed for compensating their expenses for paying apprentices wages during school periods[[131]](#footnote-132).

In the Danish VET programmes, the wages for apprenticeships are paid when a student has entered into a training agreement. The wages are between DKK 8,000 and 12,000 a month and are spelt out in the collective agreement. The wages vary between the lines of industry and normally correspond to the student’s average productivity during the year of education in question.

Students in the basic programme who do not have a training agreement can receive grants from the Danish State Education Grant and Loan Schemes if they meet the required criteria[[132]](#footnote-133).

Netherlands

The Ministry of Education, Culture and Science administers almost all central government expenditure on education; an agency (Service Institute Education (Dienst Uitvoering Onderwijs - DUO)) of the Ministry has been charged with this task.

Until recently companies offering learning places for apprentices/dual pathway received a tax facility of €2,500 for each place occupied, which is turned into a subsidy now. Companies spend an average of €8,400 for ‘guided learning activities’ for each participant in the dual system (upper secondary and higher VET level) and €1,750 for students in practical learning periods in full-time school-based VET[[133]](#footnote-134).

For the whole of Work-based secondary vocational education (MBO 1-4 BBL) an total funding of 5,7 bn € is reported for 2009, reflecting an average cost of 38600€/student[[134]](#footnote-135). OECD reports a public funding of 6800€/ yr. in upper secondary vocational education. Individual financial contributions are low, leading to high participation rates in VET[[135]](#footnote-136).

## Enterprises Involved in the Apprenticeship System and Number of Graduates

The involvement of companies and enterprises in the VET system is critical, as apprenticeship schemes depend on the number and quality of placements available. This on the one hand helps to closely relate the structure of educational opportunities to the real and actual needs of companies. On the other hand, particularly in times of crisis, companies tend to cut back on training expenses, affecting the opportunities of young people. In all of the resource countries however, company involvement is strong and overall quite stable.

Germany

In the year 2012 (last available data) about 447,700 enterprises with at least one employee were engaged in vocational training within the dual system[[136]](#footnote-137). Of these enterprises 225,585 were very small companies, 154,929 small companies, 55,110 medium sized companies, and 12,122 large companies.

Important indicators for the engagement of the enterprises in the vocational training system are the ratio between the number of enterprises contributing to vocational training and the whole number of enterprises in the country (training company rate = “Ausbildungsbetriebsquote”) and the ratio between the number of trainees and the number of employees, who are subject to compulsory social insurance (vocational training rate = “Ausbildungsquote”).

The training company rate in 2012 was 21.3 percent on average, and the vocational training rate was 5.6 percent on average. Both numbers, while still demonstrating a high level of company engagement, are the lowest since 1999. One of the factors for this decline is demographic change, the sharp decrease in school leavers, which has led to a high level of vacancies in some regions and some less popular occupations.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Size of the enterprises (number of employees)** | **Number of enterprises engaged in vocational training** | **Number of enterprises in Germany** | **Training company rate** | **Vocational training rate** |
| **Very small enterprises**  1-9 employees | 225,585 | 1,666,997 | 13.5% | 6.3% |
| **Small enterprises**  10-49 employees | 154,929 | 340,396 | 45.5% | 6.3% |
| **Medium sized enterprises**  50-249 employees | 55,110 | 80,617 | 68.4% | 5.5% |
| **Large enterprises**  250 and more employees | 12,122 | 14,134 | 85.8% | 4.9% |
| **Total** | 447,746 | 2,102,144 | 21.3% | 5.6% |

Ill.: Number of enterprises in vocational training, total number of enterprises, training company rate (percentage of companies engaged in training), and vocational training rate (percentage of apprentices among all employees) by size range in Germany 2012[[137]](#footnote-138)

1,391,886 apprentices were trained in the dual system in Germany in 2013[[138]](#footnote-139). 478,374 persons have participated in final examinations within the dual system in 2013. A proportion of about 45 percent of young learners aged from 19-27 complete an apprenticeship each year on average (2009: 45.6%; 2010: 46.3%; 2011: 46.5%; 2012: 44.2%)[[139]](#footnote-140).

**Austria**

32,189 companies in Austria were engaged in apprenticeship training in 2013[[140]](#footnote-141). There are no data available differentiating participation in apprenticeship by size of the company, but there are statistics with regard to the vocational training rate. This is one important indicator for the engagement of the enterprises in the vocational training system; it is the ratio between the number of trainees and the number of employees, who are subject to compulsory social insurance (vocational training rate = “Ausbildungsquote”). The ratio is based on the situation at the end of the year.

In 2013 the vocational training rate of the enterprises was 4.6 percent on average over all companies. Very small companies (1-9 employees) had a rate of 5.5 percent, small companies (10-49 employees) a rate of 5.8 percent, medium sized companies (50-249 employees) as well as large companies (250 and more employees) a rate of 4.0 percent[[141]](#footnote-142). The share of companies offering apprenticeships becomes larger according to the size of the company.

In 2013 the number of apprentices trained in Austria was 120,579. According to Wirtschaftskammer Österreich 40.2 percent of young people in Austria at the age of 15 years were enrolled in the first year of an apprenticeship in 2013[[142]](#footnote-143).

46,743 trainees successfully passed the apprenticeship-leave exam in 2013; expressed as a percentage: 82.2 percent of apprentices having undertaken the exam were successful[[143]](#footnote-144).

According to statistics for the year 2012 published by the Federal Ministry of Education and Women’s Affairs 399,800 people at the age of 25 to 34 years or 36.4 percent of this class has attained apprenticeship-leave exam as the highest level of education. Referring to the age group from 25 to 64 years the proportion of apprenticeship-leave exam holders is at 40.1 percent[[144]](#footnote-145).

**Switzerland**

According to the latest data available (2008) 58761 companies offered apprenticeships   
(18, 3 % of all companies).

|  |  |
| --- | --- |
| **Size of company** | **% of companies engaged** |
| Mikro1 (0-4 VZÄ) | 7,3 % |
| Mikro2 (5-9 VZÄ) | 39,7 % |
| KU (10-49 VZÄ) | 52,3 % |
| MU (50-249 VZÄ) | 72,7 % |
| GU (250+ VZÄ) | 87,2 % |

Ill: Percentage of training companies by size of company[[145]](#footnote-146)

A majority of all but the smallest companies offers apprenticeships. The role and engagement of small companies for providing apprenticeships is not fully reflected by the seemingly low proportion of small companies offering placements. As the provision of apprenticeships mostly depends on the need for staff, small companies provide apprenticeships only every few years.

Every year two-thirds of young people enrol in a VET programme after they graduate from their compulsory school education. Therefore in Switzerland dual-track VET programmes are by far the most common form of vocational education.[[146]](#footnote-147)

In 2013 58,049 apprentices graduated in an EFZ via a dual track programme[[147]](#footnote-148).

**Denmark**

Denmark is a small, dynamic economy, characterised by a relatively high concentration of small and medium-sized businesses than the European Union as a whole. Very small firms (micros) are comparatively more prevalent. The sectorial distribution of SMEs in Denmark resembles the EU average, with a higher proportion of SMEs in services and a comparatively lower concentration of SMEs in manufacturing and trade. The estimated total amount of Danish SMEs is 198.083, among all enterprise a share of 99,6%.

Indicators like skills/training show that Denmark is the EU top performer. Danish SMEs perform very well on the other indicators in this area, such as their IT readiness, the level of training and skills of their employees.

As in the other resource countries the involvement of companies in the apprenticeship system is correlated to the size of the company.

|  |  |
| --- | --- |
| **Size of company** | **% of companies engaged** |
| Up to 10 |  |
| 10-49 | 45% |
| 50-249 | 60% |
| 250 or more | 90% |

Ill.: Denmark: Percentage of companies providing initial vocational training[[148]](#footnote-149)

In 2012 over 60 000 companies were approved to offer apprenticeship training in at least one training field, over 140 000 approvals existed for apprenticeship offers in several fields.

In February 2014 a total of 82,689 students were taking one of the core course modules. 74,456 of them have a training agreement with a company, while 6,681 were doing school-based practical training.

**Netherlands**

In the four MBO levels of BBL (beroepsbegleidende leerweg) 147.300 places in companies were funded in 2011/2012, demonstrating a strong employer engagement[[149]](#footnote-150).

## Enterprises in the Apprenticeship System – Good Practice Examples

Germany

Companies and their organisations are developing the system and practice of apprenticeships on a continuing basis.

This development is supported by pilot projects as a form of action research in vocational education (“Modellversuche”), which is a regular task of the BIBB.

This research yielded a wealth of elaborated and evaluated concepts for improvements of the system and practice companies.

A wealth of good practice examples for evaluated vocational training concepts are documented in the „Good Practice Centre“ of the Federal Institute for Vocational Education and Training (BIBB)[[150]](#footnote-151) and at the website “Forum for trainers in vocational training” (foraus.de)[[151]](#footnote-152).

Trying to select good practice examples has to consider the needs, context and conditions of the area or the sector, where it should be implemented; thus good practice examples should not be delivered by supply but by demand. And this demand must first of all be analysed in detail[[152]](#footnote-153).

Matching of applicants and apprenticeship companies and positions as well as avoiding drop out from the apprenticeship is a priority of recent development efforts, as a relatively high drop-out rate is a concern. Therefore some examples of pilot projects which addressed this problem are mentioned here, as they represent first-hand experience of the authors of this report. They are but examples of a wealth of similar efforts by other actors.

In order to support small and medium-sized companies (SME) in improving the matching of demand of the company and prequalification of training applicants an evaluated concept of in-company training for selection procedures is available, tested within a BIBB pilot project: “bevoplus AoBp On the job training and practical vocational preparation - utilising training potential for SMEs in Eastern Bavaria”[[153]](#footnote-154). The concept supports company in identifying in-depth the training potential of pupils during their internship in companies. Another part of the concept is a more thorough and considerate implementation of such internships. The concept thus contributes to the wider competency of also smaller SME to professionally select, educate and integrate apprentices. It could be demonstrated that the implementation of the concept can reduce the risk of dropping out of an apprenticeship.

Examples of concepts for strengthening the training capacity of SME and improving the match between SMEs and applicants are the projects „QUAM - Qualification Concept for experienced staff concerned with training duties in SMEs” and “KOMPLAN - Competency development planning through strategic training”[[154]](#footnote-155) (also developed and tested within a BIBB pilot project). It is a concept of external support of SME in managing vocational in-company training. The pilot projects developed a comprehensive support concept which qualified experienced workers with duties in training junior staff and apprentices. Fundamental pedagogical knowledge was taught. A comprehensive online support system guides the training of junior staff and apprentices by the senior workers. Some of the main elements were working and learning assignments, an innovative methodology which stimulates self-learning by the junior workers and apprentices through guiding questions, practical work assignments including planning, implementation and evaluation of work projects. As the testing of the concept revealed, a more considerate and systematic practice of training apprentices has important learning effects not only for the apprentices, but even more for the company itself, as challenge of training apprentices necessitates a more systematic reflection and documentation of all processes and a competent and exemplary working style of the trainers. The creation of didactical material as work- and learning assignments by the trainers and apprentices proved to reinforce this effect[[155]](#footnote-156).

Austria

In Austria supporting material for IVET trainers is available on the web site of the employers’ research institute (ibw - Institut für Bildungsforschung der Wirtschaft): “Qualität in der Lehre” (quality in apprenticeship)[[156]](#footnote-157). There are guidelines for apprenticeship in several occupations, a checklist on the quality of apprenticeship[[157]](#footnote-158), etc.

The Minister of Economy awards the prize “State-honoured training company” to training enterprises for special achievements in apprenticeship training. In addition there is a state prize “Best training enterprises - Fit for future” conferred once a year by the Ministry of Economy in the categories small, medium-sized and large enterprises. The aims of this prize are to improve quality, innovation and sustainability in apprenticeship training[[158]](#footnote-159).

Switzerland

Leading Swiss representatives regard the whole Swiss system of apprenticeship based VET as best practice, which can and should be replicated. They cite a number of international initiatives to transfer the system, as with Slovakia, Cyprus, India, South Africa and others[[159]](#footnote-160).

Particular practices of interest for transfer include:

**Multi company collaboration** in the field of apprentice training (Lehrbetriebsverbund): A multi company collaboration in the field of apprentice training is a collaboration of several enterprises towards the goal to make a broad practical VET training possible in several specialized companies. The goal is to broaden the apprenticeship market. Small and medium-sized companies, which are too specialized to offer training in all areas required in the curriculum, train together and share the cost The SERI (former OPET) has the possibility to support the establishment of multi-company collaborations with initial funding[[160]](#footnote-161).

**Apprenticeship marketing:** Cantonal VET offices act as support structure for companies. They keep contact with local businesses, support creation of placements, support young people in the search of a suitable position through information and making contacts. In the case of structural changes, economic fluctuations, host company ratio, demographic changes and changes in young people’s preferences government supports change by offering additional incentives or by supporting specific VET related projects which aid companies to stay attractive for young people. The most important marketing measures are: information and career guidance, apprenticeship records, creation of host-company networks, provision of state sponsored transitional options (e.g. bridge courses), VET promotion agents (dealing with companies to encourage them to create apprenticeship positions), placement and individual mentoring of young people who have been unable to find a suitable apprenticeship[[161]](#footnote-162).

**Coaching Berufsbildung (COBE):** Learners and hosting companies can, if difficult situations occur, register for a “Coaching VET training”. Aim is to work out solutions and to avoid dropout from training which are costly and unpleasant for all actors concerned. The increased complexity of apprenticeships can lead to problems and can put a substantial burden on the host companies. In these situation the coaching supports the companies and the learners. A neutral expert supports the company. A strategy to tackle the problems is developed with the client[[162]](#footnote-163).

**Case management for learners at risk of dropping out of VET programmes:** Case management is a structured procedure that applies adequate measures to young people whose access to the labour market may be seriously compromised. Activities are coordinated beyond institutional and professional boundaries. Learners are accompanied not only before and up to the beginning of the learning contract, but also during the apprenticeship. Aims is to provide seamless support, guiding from compulsory education to employment.

This particularly consists in helping young people at risk to become more responsible for their decisions and increasing effectiveness by coordinating the work of all the interested parties, including young people.

The cantons are in charge of implementing case management with the financial support of the Confederation[[163]](#footnote-164).

Denmark

Denmark is a small, dynamic economy, characterised by a relatively high concentration of small and medium-sized businesses than the European Union as a whole. Very small firms (micros) are comparatively more prevalent. The sectorial distribution of SMEs in Denmark resembles the EU average, with a higher proportion of SMEs in services and a comparatively lower concentration of SMEs in manufacturing and trade. The estimated total amount of Danish SMEs is 198.083, among all enterprise a share of 99,6%.

Indicators like skills/training show that Denmark is the EU top performer. Danish SMEs perform very well on the other indicators in this area, such as their IT readiness, the level of training and skills of their employees.

As in the other resource countries the involvement of companies in the apprenticeship system is correlated to the size of the company.

|  |  |
| --- | --- |
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Ill.: Denmark: Percentage of companies providing initial vocational training[[164]](#footnote-165)

In 2012 over 60 000 companies were approved to offer apprenticeship training in at least one training field, over 140 000 approvals existed for apprenticeship offers in several fields.

In February 2014 a total of 82,689 students were taking one of the core course modules. 74,456 of them have a training agreement with a company, while 6,681 were doing school-based practical training.

Netherlands

No information available in English at the time of this report.

## System-level Arrangements for the Management of Apprentices

Germany

Organising and conducting as well as financing of vocational training is up to the training companies themselves. But there are also system-level arrangements for the management of apprenticeships in responsibility of the competent bodies (= chambers of industry and commerce, chambers of crafts and trades, chambers of agriculture, and chambers for the liberal professions such as general medical councils)[[165]](#footnote-166).

The tasks (with regard to the apprenticeship) of the competent bodies are:

* Supervising and provision of initial vocational training
* Maintaining the register of training contracts
* Advising companies on all initial vocational training issues via training advisors
* Monitoring the aptitude of training staff and the suitability of the training establishment
* Conducting intermediate and final (journeyman) examinations
* Supporting and supervising periods of training, which are completed by the trainees abroad.

The social partners are involved in the system-level arrangements for apprenticeship:

According to the Vocational Training Act the competent bodies have to implement vocational training committees consisting of six trade union representatives, six employer representatives, and six vocational school teachers. The vocational training committees shall be informed of and consulted on all important matters connected with vocational training. Furthermore they are commissioned to continuously improve the quality of VET[[166]](#footnote-167).

A monitoring system for apprenticeships is run by the chambers. Each training contract has to be registered at the competent chamber. The mid-term as well as the final examinations of the apprenticeship have to be passed at the board of examiners of the chamber.

The certification of apprentices is managed by the chambers; there are implemented boards of examiners at each chamber for each profession. The board of examiners must include equal numbers of employers’ and employees’ representatives (social partners) and at least one vocational school teacher[[167]](#footnote-168).

The certificate for training qualification (recognition) is issued by the chamber.

In the context of a scarcity of apprenticeships offered by companies particularly in the eastern federal states of Germany a number of federal programmes supported the SME in developing their training capacities. One example is the programme “Jobstarter-training for the future”[[168]](#footnote-169). While the program was originally focused on the creation of apprenticeships, a new focus is to develop apprenticeships as an alternative pathway for drop-outs from the academic tertiary education system.

Initiatives to support companies to offer apprenticeships are a regular task of the Chambers, who devote quite substantial staff to this task.

Austria

In Austria various national and regional institutions share competences in VET[[169]](#footnote-170).

National level: The enterprise-based part of apprenticeship training is within the sphere of competence of the Ministry of Economy (now: Federal Ministry of Science, Research and Economy). The legal basis of the dual system is fixed in the Vocational Training Act (BAG). The regulations for the particular apprenticeship occupations are issued by the Ministry of Economy on the basis of expert opinions submitted by the Federal Advisory Board on Apprenticeship.

Provisions concerning the organisation of part-time vocational schools and the cornerstones for the framework curricula are laid down in the Federal School Organisation Act. The Ministry of Education (now Federal Ministry of Education and Women’s Affairs) issues framework curricula for part-time vocational schools for each apprenticeship trade following the respective training regulation.

The Federal Advisory Board on Apprenticeship (BBAB) consists of representatives of the social partners and part-time vocational school teachers as advisory members. The Federal Advisory Board on Apprenticeship submits expert opinions to the Ministry of Economy, e.g. on the restructuring of apprenticeship trades.

Regional level: Apprenticeship offices (Lehrlingsstellen) located at the Economic Chambers are responsible for the administration of apprenticeship training (examination of the training companies’ suitability jointly with representatives of the Chamber of Labour, the recording of apprenticeship contracts, the organisation of apprenticeship-leave examinations, etc.).

At regional level provincial governors act as apprenticeship authority of the second instance. They decide on appeals in apprenticeship training matters, such as the withdrawal of the authorisation as a training enterprise, and on cancellations of illegally registered apprenticeship training contracts. Provincial governors have to appoint the members of their respective regional advisory board on apprenticeship.

The Regional Advisory Boards on Apprenticeship (LBAB) (members also named by the social partners) elaborate proposals and suggestions on apprenticeship training in the respective province.

School supervision is incumbent on the respective regional education board. The regional education board is also responsible for the implementation of the federal framework curricula in the respective federal province. Supervising schools in educational and technical matters is conducted by school inspectors.

Local level: Authorised apprenticeship trainers (“Lehrberechtigte”) are responsible for the provision of apprenticeship training in the company. They are assisted by IVET trainers. In various sectors of industry apprenticeship counsellors provide subject-specific counselling to training companies. One of their tasks is to promote cooperation between training enterprises and part-time vocational schools.

The second pillar of the apprenticeship is the part-time vocational school. Direct contact with the training enterprises is a key prerequisite to ensure optimally fulfilling their educational tasks.

Monitoring of initiation and conduction of apprenticeships is one of the main tasks of the apprenticeship offices at the Economic Chambers. They are responsible for the examination of the training companies’ suitability (criteria: necessary technical equipment and training facilities to teach the skills and knowledge required, sufficient number of subject-specific and pedagogical educated training staff; approval by social partners), the recording of apprenticeship contracts, the organisation of apprenticeship-leave examinations, the documentation of the results, etc. They have to advise authorised apprenticeship trainers and IVET trainers as well as apprentices[[170]](#footnote-171).

The examination regulations are part of the respective training regulation, which is issued by the federal ministry of economy. On this legal basis the examinations are organised by the regional apprenticeship offices.

Switzerland

The Swiss system is categorized by Busemeyer/Trampusch as a “collective” skill formation system. In a matrix of Public commitment towards vocational training and involvement of firms in initial vocational training, they differentiate statist systems with high public commitment but low firm involvement, as France, liberal skill formation systems with low public commitment and low firm involvement, as the US, “segmentalist” regimes with low public commitment, but high firm involvement as Japan and collective systems, characterized by high public commitment as well as high firm involvement[[171]](#footnote-172). Switzerland is the prototypical example of the latter.

Collective skill formation systems are characterized by strong cooperation between state and firms. There is a high involvement of firms in the provision and administration of vocational training. There are intermediary associations such as employer´s associations and trade unions playing an important role. The state delegates much of the day to day management to these intermediaries. The authors point out, referring to relevant scholarly literature that “these private interest governments are superior to state bureaucracies or private market mechanisms in enforcing training standards, because they involve all major stakeholders”[[172]](#footnote-173).

The provision of VET and PET is a mission shouldered by the Confederation, the Cantons and professional organisations. These three partners are jointly committed to the highest possible standard of VET/PET. They also strive to ensure the availability of an adequate number of apprenticeships and CET courses.

Confederation: The Swiss Federal Office for Professional Education and Technology is responsible for the VET and PET sectors at federal level. SFIVET mainly provides basic and continuing training to VET and PET professionals, particularly teachers. SFIVET is also involved in research and the provision of services.

Professional organisations: Trade associations determine training content and national qualification procedures, organise VET and PET courses.

Social partners, other relevant organisations and VET/PET providers together with trade associations are also involved in the further development of VET/PET.

Companies provide VET apprenticeships and PET traineeships, thereby paving the way for the next generation of qualified workers. Their involvement in VET/PET is voluntary.

The Cantons are generally responsible for education and training in Switzerland. Inter-cantonal cooperation through EDK helps to consolidate cantonal authority over education. 26 cantonal VET/PET offices Responsible for implementing VET and PET at cantonal level, VET/PET offices coordinate their activities through the Swiss Conference of VET/PET Offices (SBBK), one of EDK's specialized conferences.

Occupational, educational and career guidance counselling services provide information and guidance to both young people and adults.

Denmark

In Denmark the parliament sets out the overall framework for EUD which is administered by the Ministry of Children and Education. The ministry defines the overall objectives for programmes and provides the legislative framework. Denmark is a case of very strong social partner involvement. They interact in the national advisory council on vocational upper secondary education and training (Rådet for de grundlæggende erhvervsrettede uddannelser), advising the Ministry of Children and Education down to the local level through local training committees. These advise colleges on local adaptation of EUD, taking into account local skill and labour market needs.

50 national trade committees (faglige udvalg) of 10 to 14 members constitute the backbone of the EUD system. They are responsible for 109 main courses. The committees normally have and are formed by labour market organisations.

Responsibilities include the creation and renewal of EUD courses, defining final examination standards, based around the key competences deemed as required in the labour market; to conduct relevant analyses, development projects, etc., and maintain close contact with relevant stakeholders. They also decide the regulatory framework for individual courses and approve enterprises as qualified training establishments. Therefore, they “function as gatekeepers to the trade as they are responsible for issuing journeyman’s certificates, both in terms of the content, assessment and actual holding of examinations”[[173]](#footnote-174).

Local training, consisting of representatives from local employers and employees committees, ensures close contact between vocational colleges and the local community. They assist in developing enough suitable local training placements.

Colleges are responsible for day to day teaching and examination. They are self-governing institutions, led by a governing board, again involving all stakeholders, as teachers, students and administrative staff representatives as well as social partner representatives[[174]](#footnote-175).

Netherlands

In the Netherlands the Ministry of Education and its agency DUO (Dienst Oitvoering Odervijs) supervise and document VET[[175]](#footnote-176).

While schools enjoy a high level of autonomy in delivering education and shaping the “how” of developing the defined qualification profiles, one main support structure, involving a wide array of social partners, labour market representatives and education organisations is the foundation for Cooperation between Vocational Education, Training and the Labour Market (SBB) The centres of expertise, educational institutions and the labour market therefore collaborate closely on the examination process within SBB, by developing examination profiles. Colo, the association of 17 centres of expertise, has transferred to this organisation.

Vocational education and the labour market have traditionally shared close ties. Almost 70 educational institutions (regional training centres, agricultural training centres and vocational schools) and private providers of education together with more than 223,000 accredited work placement companies train students in senior secondary vocational education for a successful career. The SBB offers education and the labour market a platform for advising the Minister. SBB is responsible for cross-regional and cross-sector management and harmonisation of themes relating to the compatibility between vocational education and industry[[176]](#footnote-177).

## Promotion of Apprenticeships

Germany

Chambers, guilds, employer associations, and trade unions as well as the employment agencies and the Federal Institute for Vocational Education and Training (BIBB) promote apprenticeships. And also ministries of the state foster apprenticeships.

All of these organisations encourage young people to start an initial vocational training within the dual system and they encourage companies to offer apprenticeships.

Fostering initial vocational training within the dual system includes yearly campaigns (e.g. run by employer associations, chambers, and guilds), counselling pupils of the general education system and of young people having left school (continuously conducted by the employment agencies.

Chambers and vocational training institutes counsel companies with regard to all questions on vocational training in the dual system (chambers and employment agencies).

All relevant agents participate in vocational training fairs (chambers, guilds, employer associations, and companies offering initial vocational training), and organise conferences at regional, federal states or national level (organised and funded by the Federal Ministry of Education and Research and by ministries of the federal states, conducted by the Federal Institute for Vocational Education and Training (BIBB)).

There is a high level of social acceptance for the vocational training[[177]](#footnote-178). The image of apprenticeship schemes is very good from the point of view of enterprises, chambers, and social partners (employer associations as well as trade unions), and also of intermediary entities.

But all of these organisations postulate to improve the prospects for personal growth and the access paths to higher education.

One approach in order to increase the attractiveness of initial vocational training within a company is the **dual study programme**, a combination of an apprenticeship in a company and a degree as a bachelor[[178]](#footnote-179).

All of the organisations mentioned above stipulate and support more involvement of young people, parents, enterprises, vocational schools and also schools of the general education system into the promotion of vocational training in the dual system.

Austria

The social partners as well as ministries of the federal state promote apprenticeships.

The Chambers of Labour and the Trade Unions publish information material and organise information events[[179]](#footnote-180). This is also true of the economic chambers: The Austrian Economic Chambers offer a lot of services at their websites with regard to apprenticeship (information on apprenticeship in general, apprenticeship occupations, apprenticeship-leave exams, counselling on all these issues, promoting, apprenticeship competitions, information on the legal regulations, subsidies for training companies, etc.)[[180]](#footnote-181).

The federal government has issued or supported a lot of information brochures about apprenticeship in Austria, many of them elaborated by the ibw – Institut für Bildungsforschung der Wirtschaft. The Minister of Economy awards the prize “State-honoured training company” and once a year the state prize “Best training enterprises - Fit for future”.

Apprenticeship is also promoted by the Public Employment Service Austria (AMS). For apprenticeship post seekers, AMS operates an apprenticeship post platform jointly with the Federal Economic Chamber[[181]](#footnote-182). The “day of apprenticeship” each year conducted by the chambers and the training companies inviting pupils of the public schools to get familiar with training occupations aims to raise young people’s awareness of the wide range of apprenticeship occupations.

The annually held “day of apprenticeship” also contributes to enhancing the apprenticeship’s image. But the level of social acceptance for the vocational training is already very high in Austria from the point of view of enterprises, chambers, social partners and intermediary entities as well.

About 80 percent of young people in the tenth grade attend a VET pathway, about 40 percent of the young learners in this grade are enrolled in an apprenticeship[[182]](#footnote-183). Another indicator for the good image of apprenticeship schemes is that almost 40 percent of the managers in the business sphere have completed an apprenticeship[[183]](#footnote-184) .

However the social partners postulate to increase attractiveness of the successful apprenticeship scheme. A first step, introduced in 2008, was the access to the exam and certificate Berufsreifeprüfung (BRP) or “Berufsmatura” (which provides access to all higher education study programmes) for apprenticeship graduates already in the frame of apprenticeship scheme[[184]](#footnote-185).

Switzerland

The State Secretariat for Education, Research and Innovation SERI within the Federal Department of Economic Affairs, Education and Research EAER is the federal government's specialised agency for national and international matters concerning education, research and innovation policy.

The SERI has 280 members of staff and controls an annual budget of around CHF 4 billion. In the current Legislative Plan, the Federal Council states: “Switzerland considers education, research and innovation to be a top priority.” With the agreement of the Cantons, and based on the strategic plans of grant funding recipients, the Federal Council has established three ERI policy guidelines for 2013-2016 along with corresponding objectives.

In its mission statement the institution defines as its aim to “Satisfy the demand for workers with general education or VET/PET qualifications, ensuring a wide range of diverse and permeable education and training programmes through balanced funding of general education and VET/PET pathways.“

Further aims include

* ensuring the high quality and solid international reputation of the Swiss higher education sector, particularly by creating adequate professor-student ratios.
* consolidating the national and international position of VET/PET by giving equal value to general education and VET/PET pathways, as required by the Federal Constitution.
* improving the learning capabilities and employability of young people by ensuring that at least 95% obtain upper-secondary level qualifications.
* ensuring that the education system is open to the rest of the world by encouraging the international mobility of VET learners, baccalaureate students, university students and teaching staff.
* maintaining the quality of baccalaureates by ensuring that baccalaureate holders have acquired the requisite academic skills. Coordinating introduction of the new Federal Act on Funding and Coordination of the Higher Education Sector.
* creating the general conditions for continuing education and training (CET), among other things by improving the level of transparency and quality of CET courses[[185]](#footnote-186).

The general image and acceptance of the apprenticeship VET in Switzerland is high. All relevant actors are actively involved and there is no initiative to change the system or any of its main characteristics.

There is a consensus that the dual-track apprenticeship system is one of the main strengths of the Swiss system in general.

Denmark

VET in Denmark is promoted by

* the government in up dated vocational education plans for 2014-2020,
* the Ministry of Education setting the overall framework for IVET with a starting reform in 2015 to get more young people in vocational trainings,
* VET institutions together with the boards and the local trade committees,
* the trade committees (in their role of national qualification authorities),
* social partners as mentioned before: employer organisations, branch organisations and trade unions who are involved in policy making,
* enterprises who provide apprenticeship contracts.

**Netherlands**

The promotion of VET in the Netherlands is covered in Ch. 4.3 on the institutional framework

# Evaluation of Outcomes of the Apprenticeship System

## Labour market outcomes

### **Germany**

The outcomes of the apprenticeship system of Germany have been evaluated in various respects:

**Employability of the apprentices**

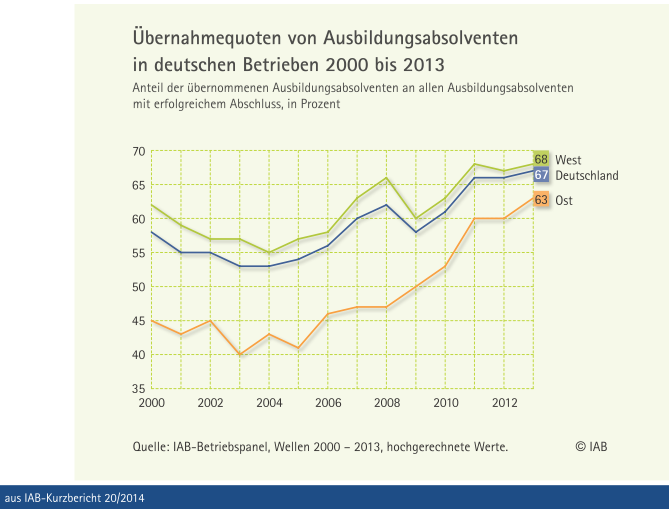
The unemployment rate of skilled workers has continuously decreased from 6.6 percent in 2009 to 5 percent on average in 2012; these statistics, however, do not only refer to skilled workers having passed the dual system, but also do include graduates of the (quantitatively less relevant) vocational school system.

While in comparison to the unemployment rate of university and college graduates of about 2.5 percent in 2012, this might seem weak, a more accurate comparison is the unemployment rate of unskilled workers, which has been as high as 21.9 percent in 2009 and 19.0 percent in 2012[[186]](#footnote-187).

Thus the employability of skilled workers can be considered as much higher than of unskilled workers, but not as high as of university and college graduates.

However, on the other hand the vocational track of education is in its tertiary part even more promising than purely academic studies: the unemployment rates of university of applied sciences graduates, master craftsmen, and technicians decreased from 3.5 percent in 2009 to 2.1 percent in 2012. This is lower than of university graduates (decreased from 3.3 percent in 2009 to 2.6 percent in 2012)[[187]](#footnote-188).

The chances of apprentices to be hired upon completion of their training in 2013 were more promising than ever before. In 2013 the ratio of apprentices employed by their training company after completion of their training all over Germany was 67 percent (see Ill.)[[188]](#footnote-189). Thus for two thirds of the apprentices there is no period of unemployment after the successful end of their training in the company. As quite a lot of smaller companies offer apprenticeship placements above their own staff needs, it can be presumed that, given the low level of youth unemployment, also a large majority of graduates have no serious problems finding a job.



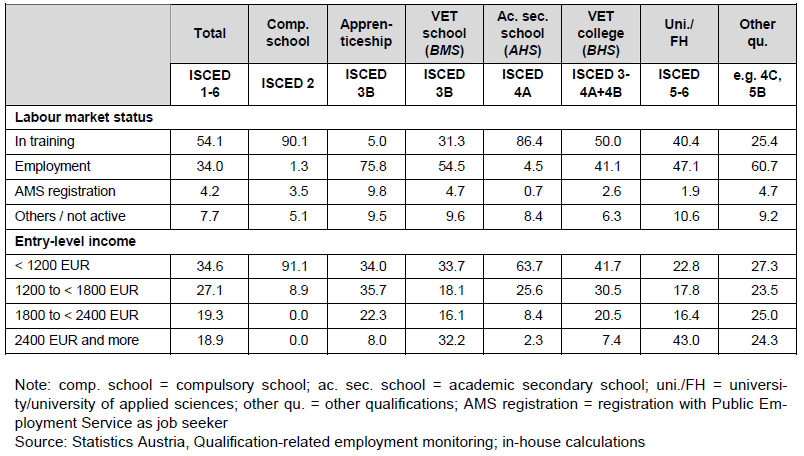
Ill.: Share of apprentices hired by their training companies immediately after the apprenticeship („Übernahmequote“)[[189]](#footnote-190)

Employers’ views on the appropriateness and reliability of the learning acquired by apprentices is positive. The high ratio of employment after training can also be considered to be a good indicator for the appropriateness and reliability of the learning acquired by apprentices from the point of view of the employers.

### **Austria**

Labour Market Outcomes:

The high level of employability of apprentices can be demonstrated by labour market status 18 months after completion of the training. Apprenticeship graduates reach the by far the highest figures in the (direct) transition to employment after graduation. More than three quarters of the apprenticeship graduates of the VET age group 2008/09 were employed. Graduates of VET schools and colleges reach much lower rates (schools (berufsbildende mittlere Schulen, BMS): 55 percent; colleges (berufsbildende höhere Schulen, BHS): 41 percent)[[190]](#footnote-191). The proportions are shown in table 3. The high portion of apprenticeship graduates in employment (76 percent) is also true for the VET age group 2009/10. The employment rate of the other VET graduates was for this age group lower than 50 percent[[191]](#footnote-192).



Ill.: Labour market status 18 months after obtaining qualification by educational qualification, graduation year group 2008/09 (in column-percent  
Ill: Labour market status 18 months after obtaining qualification, and income (in EUR) from the first dependent employment, by educational qualification, graduation year group) [[192]](#footnote-193)

Average length of time an apprentice is unemployed before getting a job: according to Dornmayr and Nowak 89 percent of the apprenticeship graduates of the training year 2009/2010 were employed within one year after exam, 50 percent already within 3 months. With the other graduates the employment rates within one year were much lower (BHS: 81 percent; BMS: 77 percent; AHS: 67 percent), as well as within 3 months (BHS: 33 percent; BMS: 42 percent; AHS: 25 percent)[[193]](#footnote-194). These data again confirm the quick transition of apprenticeship graduates into employment compared with graduated of other VET pathways.

Employers’ views on the appropriateness and reliability of the learning acquired by apprentices:

The high employment rates after training as well as the short time for transition into employment with apprenticeship graduates can be considered to be a good indicator for the employers’ view on the appropriateness and reliability of the learning acquired by apprentices[[194]](#footnote-195).

Regarding the time apprentices devote to developing their occupationally-specific skills, there are no data available.

### **Switzerland**

The State Secretariat for Education, Research and Innovation SERI (Staatssekretariat für Bildung, Forschung und Innovation SBFI) runs a monitoring system for apprenticeships (“Lehrstellenbarometer”).

The Swiss Coordination Centre for Research in Education (Schweizer Koordinationsstelle für Bildungsforschung, SKBF) every four years issues a comprehensive Education Report (Bildungsbericht, SKBF, 2006) in which all the available data on education and educational research are used as indicators to evaluate the system.

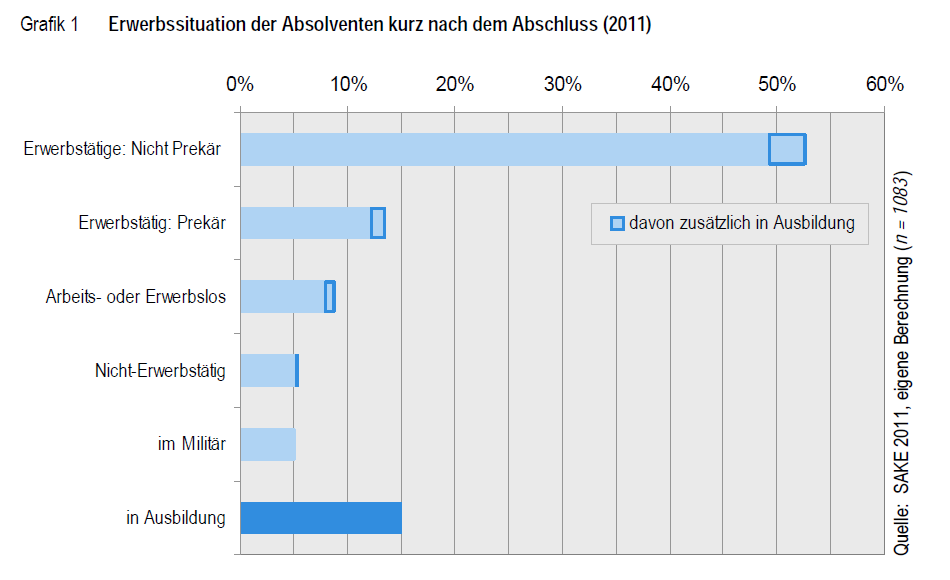
In face of the low level of youth unemployment in Switzerland the question of the effectiveness of the system is a matter of course, to some degree. Training based on apprenticeships can only partly be compared to occupations with school based VET, since they split up by occupation.

The unemployment rate for entrants to the labour market in 2010 was 10,4% which is in the long-time average, but above the rate for 2007/2008, where the good economic situation resulted in a 6,3% rate. The rate of unemployment for youth with a EFZ is about half the rate without such training.

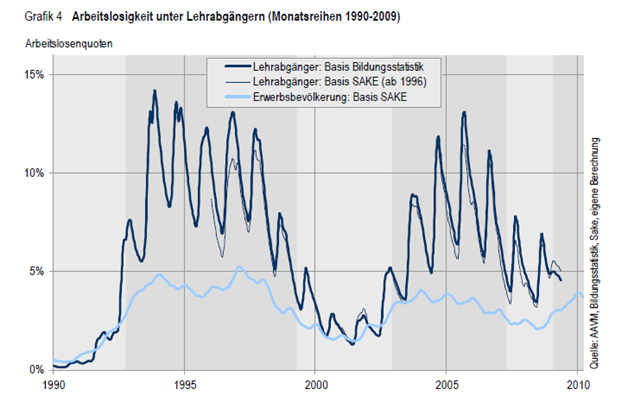
The monitor assesses that the slightly bigger transition problems do not result in a higher level of precarious employment, but rather in a somewhat longer transition period.

The labour market for new entrants develops more or less parallel to the general labour market.

For the “entry age 18-21” in 2012 unemployment immediately after the end of the apprenticeship was just under 10 % and decreases to just above 5% during the first year after the end of the apprenticeship. In general there is a smooth transition without relevant involuntary transition time: In 2011 just over 52% of graduates found non-precarious employment, about 8 % were unemployed, 15% went on to other forms of training and 5% each were not seeking employment or in the military.



Ill.: Employment situation just after graduation (2011): (from top): employed, non-precarious; employed, precarious; unemployed; not seeking[[195]](#footnote-196)



Ill.: Switzerland: Unemployment among graduates (1990-2009) „Arbeitslosenquoten“ = unemployment rates; „Lehrabgänger“ = graduates; „Erwerbsbevölkerung = working population[[196]](#footnote-197) (employment; in the military; in training or education)[[197]](#footnote-198)

In Switzerland the employers’ views on the appropriateness and reliability of the learning acquired by apprentices is positive.

As the high level of recruitment of graduates, as well as the consistently high participation of companies in the provision of dual track training shows, employers are satisfied with the appropriateness of the learning. There is some criticism of the learning prerequisites of learners acquired in the lower secondary level of education, however.

The systems includes systemic measures to make sure that broad professional skills are trained, in contrast to only company specific skills. VET ordinances incorporate relatively broad conceptions of vocational competencies.

### **Denmark**

While, according to the EC, recent data for a in detail evaluation of outcomes of the apprenticeship schemes within VET in Denmark are not easily available in English[[198]](#footnote-199), the effectiveness of Vocational Upper Secondary Education and Training (IVET traineeship) seems to be high, considering the meta-indicators like youth unemployment.

27 months after completion of the programme only 13,7% of students were in education. The „Basic Vocational Education“ (EGU) programmes, targeting youth in risk of drop-out from the system, also yield results that are regarded as a success. 10% of the graduates receive unemployment benefits, which is regarded as low, given the target group, 46,5% were in education and 15,1% in further education[[199]](#footnote-200). These programmes are, not regarded as an “apprenticeship part” of Danish VET, however.

### **Netherlands**

While, according to the EC, data for an in detail evaluation of outcomes of the apprenticeship schemes within VET are not available, the overall effectiveness of the Dutch system can be evaluated as high. 58% of MBO 3 BBL graduates think that the training was a good basis to enter the labour market and 75% of BBL graduates are taken on by their training companies[[200]](#footnote-201).

The OECD shares this positive assessment, pointing to a low youth unemployment rate. However there are indicators of a skills mismatch in upper secondary education as 18% of school based graduates had no job[[201]](#footnote-202).

Remarkably between 2007 and 2011 unemployment rates were three times higher in school-based VET than in apprenticeship based VET a half year after graduation[[202]](#footnote-203)

Taking the year 2011 as an example unemployment rates of school based vs apprenticeship based VET was 20%75% for level 1 and 2, 8%/2% for level 3 and 4[[203]](#footnote-204).

## Cost Effectiveness of the Apprenticeship System

Cost-benefit Ratio for Companies

Unfortunately, according to the latest research, at this time only two countries, Germany and Switzerland, have implemented empirical and representative studies on the cost and benefit of apprenticeships from the perspective of companies[[204]](#footnote-205).

The discussion in the chapter to follow will therefore focus these two countries. For Austria, Denmark and the Netherlands indicators for the perceived cost – benefit ratio will be discussed according to the fragmentary and inconsistent information available.

### **Germany**

The Federal Institute for Vocational Education and Training (BIBB) has for quite some time sponsored and implemented empirically valid research on the costs and benefits of apprenticeships for companies.

Data for cost-effectiveness of the apprenticeship scheme in Germany on average are shown below after having introduced the BIBB-model of costs and benefits for companies engaged in apprenticeship.

The Federal Institute for Vocational Education and Training (BIBB) has developed a model to assess apprenticeship costs to employers, cost dividing in three categories (costs of apprentices: salaries and social benefits; remunerations for the training personnel; other costs)[[205]](#footnote-206). This model was refined by the BIBB-team: other costs were divided into capacity costs and material costs (costs for workplace equipment, training workshop, in-company education) on the one hand and various miscellaneous costs on the other hand (costs for learning and teaching material, external courses, protective and specialist clothing, administrative costs to manage the training including fees to the Chambers, and costs for recruiting trainees)[[206]](#footnote-207).

The data from the BIBB survey do not provide information about the cost-effectiveness of specific apprenticeship schemes of ICT, commerce or engineering. Data are only available for the economic sectors industry and commerce, trade, agriculture, liberal professions, and public services. For the 2012/13 survey, a random sample was drawn from all training companies providing initial vocational training in a training occupation according to the dual system. Information was inquired about 211 different occupations, but as a majority of occupations were represented by low numbers of cases, individual evaluations are not possible[[207]](#footnote-208).

The first and most important reason for employers to decide to offer apprenticeship is to cover their own need of skilled workers. In the BIBB-survey in 2012/13 this is indicated as important or very important by 83 percent (2007: 84 percent) of the interviewed enterprises.

In the BIBB-survey in 2012/13 this is indicated as important or very important by 83 percent (2007 Survey: 84 percent) of the interviewed enterprises. In the 2007 survey, to select the best ones after the end of the training scheme was a second reason (important or very important by 70 percent of the interviewed enterprises). Avoiding risk of miscast, vocational training as a task of the economy, avoiding high fluctuation of employees, and assuring availability of junior employees in the branch or region were further important or very important reasons for about 60 percent of the surveyed enterprises. Productive work already within the apprenticeship sequence was an important or very important reason for 55 percent of the interviewed enterprises, this was not important for only 17 percent. Further criteria were tradition of apprenticeship in the company, saving job training and personnel recruiting costs. About the half of the interviewed enterprises was satisfied by the overall cost-effectiveness of the apprenticeship scheme; only 11 percent were dissatisfied.[[208]](#footnote-209).

In 2012/13 survey the second reason is that IVET is considered a shared task of business and industry, and hence a service for society (important or very important by 63 percent of the interviewed enterprises). Productive work already within the apprenticeship sequence is the third important or very important reason for 41 percent of the interviewed enterprises. Further criteria again are tradition of apprenticeship in the company (important or very important by 41 percent), and saving job training and personnel recruiting costs (important or very important by 36 percent). According to the 2012/13 survey 59 percent of the interviewed enterprises are satisfied by the overall cost-effectiveness of the apprenticeship scheme; again 11 percent are dissatisfied.[[209]](#footnote-210)

The benefits to employers of taking apprentices can be outline as in figure below.



Ill.: Germany: Perception of arguments in favour of dual training as perceived by companies[[210]](#footnote-211)

A more differentiated analysis of the benefits for the companies distinguishes three categories:

* Benefit for the apprentices: productive work of the apprentices during training in the company.
* Benefit for the former apprentices after apprenticeship: This benefit occurs after successful completion of the training by employing the former apprentice (saving costs for external recruitment, avoiding cancellation expenses caused by vacant positions, avoiding costs caused by miscast and fluctuation of employees).
* Benefit for the apprenticeship: this benefit is due to conducting apprenticeship (raising one’s reputation with customers, providers, and public by acquiring new competences within the apprenticeship, which occurs by dealing with challenges and problems of vocational training).[[211]](#footnote-212)

With regard to the cost-effectiveness of the apprenticeship scheme in Germany can be reported the net costs. In the year 2012/13 the net costs (= gross costs of 17,933 EUR reduced by benefits of apprenticeship added up to 12,535 EUR) amount to 5,398 EUR by trainee and year of training on average.[[212]](#footnote-213) A detailed distribution of gross costs, benefits, and net costs, differentiated by economic sectors and size of the enterprises as well as by in-company training with or without apprenticeship workshop is shown below.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Gross costs (EUR)** | **Benefits (EUR)** | **Net costs (EUR)** |
| **Total** | **17.933** | **12.535** | **5.398** |
| **Region** |  |  |  |
| Eastern Germany | 15.726 | 9.412 | 6.314 |
| Western Germany | 18.309 | 13.067 | 5.242 |
| **Company size-class** |  |  |  |
| up to 9 employees | 15.911 | 10.807 | 5.104 |
| 10 to 49 employees | 16.452 | 12.199 | 4.254 |
| 50 to 499 employees | 18.111 | 12.720 | 5.391 |
| 500 or more employees | 21.757 | 14.403 | 7.354 |
| **Domain of IVET** |  |  |  |
| Industry and trade | 19.535 | 13.389 | 6.146 |
| Skilled crafts | 15.187 | 10.798 | 4.390 |
| Agriculture | 14.043 | 12.750 | 1.293 |
| Free professions | 16.474 | 12.769 | 3.705 |
| Public services | 19.801 | 11.768 | 8.032 |
| Home economics | 15.329 | 8.945 | 6.385 |
| **Vocational group** |  |  |  |
| Commercial occupations | 18.206 | 14.684 | 3.522 |
| Industrial occupations | 16.116 | 11.859 | 4.257 |
| Technical occupations | 19.092 | 10.153 | 8.939 |
| **Training workshop** |  |  |  |
| No training workshop | 16.889 | 13.492 | 3.396 |
| Training workshop | 21.869 | 8.928 | 12.942 |

Ill.: Gross costs, benefits, and net costs by trainee and year of training in Germany 2012/13 by various criteria[[213]](#footnote-214)

The training occupation profiles obviously match the professional profiles, needed in the companies well. The training occupation profiles are modernised continuously by the Federal Institute for Vocational Education and Training (BIBB) agreed with the social partners. Other VET alternatives aim at other target groups or prepare for different vocational profiles. Thus most young people are trained in the dual system[[214]](#footnote-215), even if the proportion of students in other VET alternatives is increasing. In addition there can be stated a high degree of social acceptance of apprenticeship[[215]](#footnote-216).

**About 30 percent of apprentices produce net returns for their company; the returns from these trainees’ productive work exceed the gross costs of apprenticeship**[[216]](#footnote-217)**.**

Another category of companies will recoup the employer’s investment in apprenticeship after the successful termination of the apprenticeship and only, if the former apprentice is contracted as a skilled worker in the training company. These costs are **savings of personnel recruiting costs**.

A company will **save 8,715 EUR on average**, which it had to pay in the case of recruiting one skilled worker via the external labour market. These costs consist of costs for the application procedure (928 EUR), costs for further training during the period of vocational adjustment of a new worker (723 EUR), and costs for productivity deficits of new skilled workers during induction (2,966 EUR) – all costs on average. Unlike previous surveys, the BIBB cost benefit survey 2012/13 in addition takes account of the costs caused by the other personnel in the company having instructed the new colleague. These costs amount to 4,097 EUR on average, which is almost half of the total personnel recruitment costs.[[217]](#footnote-218) This calculation seems quite conservative in face of the empirically verified much higher values in Switzerland and an increasingly tight labour market.

These savings represent benefits for the period immediately after the termination of the apprenticeship, and they top the net costs. Thus there emerges a net benefit of apprenticeship for the company very soon after the in-company training.

On top of this, there are other benefits, which cannot be quantified, but may be of high relevance: differences in productive efficiency between former trainees of the company and skilled workers hired via labour market even after the period of vocational adjustment of the new workers; reduction of risks of miscast; avoiding cancellation expenses, which can occur, if needed skilled workers cannot be found, and an order cannot be executed[[218]](#footnote-219).

Benefits from the productive work of the apprentices will start to occur already after six months, because the productive achievements are due to unskilled and skilled work in almost equal parts (unskilled work: 50%; skilled work: 47%);[[219]](#footnote-220) unskilled work can be conducted very soon after having started the apprenticeship.

The companies should outline and discuss the HRD opportunities and pathways within the company with the trainees and agree opportunities for personal development and advancement. This will considerably reduce the danger of leaving the company after completing their training.

### Austria

Hoeckel 2008 defines the costs of VET as follows:

„VET costs can be divided into direct costs including apprentice wages, salaries for training personnel, teaching material, equipment, building infrastructure etc. and indirect costs such as tax expenditures or subsidies but also opportunity costs (forgone earnings as unskilled workers) and drop out costs.“ (Hoeckel 2008, p. 6)

In addition there can be stated further costs like fees for external trainings and examinations within and at the end of the training period.

The high proportion of apprentices related to the young learners and the big number of companies conducting apprenticeship trainings is also interpreted as evidence that apprenticeship pays off for the companies. Enterprises provide training on a voluntary basis and at their own expense. They are convinced that training is the best way to cover their needs for a skilled workforce[[220]](#footnote-221).

This summary of the employers’ perspective is supported by the results of a survey of enterprises: According to the CEDEFOP Briefing note – 9088 EN, the main reasons why enterprises train apprentices (answers collected within the fourth continuing vocational training survey 2010) are:

* to have future qualified employees in line with their enterprise’s needs (86 percent of respondents);
* to select the best candidates for further employment (62 percent);
* because apprentices contribute to company productivity, partly recovering training costs (45 percent).[[221]](#footnote-222)

Hoeckel 2008 defines the benefits of VET as follows:

“Benefits can take various forms and arise at different points in time, during or (much) after the course or training. ... Employers’ benefits arise mainly from apprentices’ productivity increases.“ [[222]](#footnote-223)

From the point of employer’s view the benefits of VET according to Hoeckel arise from the increased productive performance of trainees after the training, saving costs of external skilled workers recruitment, costs due to skills shortage, performance differences between company trained and external skilled workers, image improvement. Employers reap benefits from saving costs they would have to incur if they had to acquire new employees (including the recruitment process, integration of new employees and the risk of hiring a new worker)[[223]](#footnote-224).

The occupational profiles (Berufsbild) of the different professions meet best the qualification requirements of the companies, because they are derived from the labour market needs. The training regulations are modernized continuously, prepared by the Federal Advisory Board on Apprenticeship. In a different way from other VET alternatives with apprenticeship training the biggest part of the training time (80 percent) is conducted within the training company; thus the skills and knowledge to be acquired by the student can be influenced by the company in the most strictly manner.

Learning in apprenticeship for the most part is learning at the work place. Thus in the course of their training, apprentices will contribute their productive work increasingly with every apprenticeship year[[224]](#footnote-225).

When an apprenticeship graduate starts to work as a skilled worker in his former training company, he is quite familiar with the specific needs and tasks from the very beginning of his employment; the period of introductory training and initial “learning by doing” has taken place while the wage level was only apprenticeship remuneration[[225]](#footnote-226).

Tritscher-Archan and Nowak point out that in a medium-term cost-benefit calculation, in many apprenticeships the apprentice’s productive work should be assessed higher than training costs; employment of apprentices can save wages of unskilled and semi-skilled labour[[226]](#footnote-227). The company is not obliged to continue employment with the skilled worker after termination of the training and the subsequent period of employment in the training enterprise, nor is the qualified apprentice obliged to remain in the company. The qualified apprentice can leave to another company, and the training company can hire other skilled workers from the labour market. This fluctuation is a significant feature of a liberal VET system.[[227]](#footnote-228) In order to reduce the risk of leaving the company after successful apprenticeship-leave exam, i.e. the risk of investment without return, the company should outline and discuss the HRD opportunities and pathways within the company with the trainees from the beginning of the apprenticeship (and if possible even in the process of recruiting apprentices) and agree opportunities for personal development and advancement.

### Switzerland

Also in Switzerland rich empirical research on the cost-benefit ratio of apprenticeships has been developed and implemented, which, together with its German counterpart, can be regarded as state-of-the art in the field.

Although the primary data collected by the leading study on cost effectiveness may allow for a calculation of the cost effectiveness of training in individual occupations, such analyses are not published. Therefore, a general discussion of the cost-benefit ratio of apprenticeships in Switzerland follows.

A deep crisis in the nineties provoked a general public debate about functioning and sustainability of the Swiss system.

Pioneering cost-benefit studies by the University of Bern contributed to the maintenance of the system when employers and politicians found that defending the system “only from tradition” was not enough, leading to a new general acceptance of the system.

Schweri et al 2003, Mühlemann et al 2007, Stupler/Wolter 2012, implemented several waves of in-depth studies on the cost-benefit ratio of apprenticeship training schemes for companies.

As the authors point out, the economic cycle and changes in cost and wages necessitate a periodic repetition of the studies .

In 2010, 15000 companies have been surveyed[[228]](#footnote-229) from which only 1/3 (4447) were prepared to participate. The survey has been only partly profession specific. Already the evaluation at this aggregate level is regarded as state of the art and has attracted international attention.

The cost-benefit model used matches German studies from 2007: The calculation of a cost-benefit ratio is based on a comparison with a situation with no apprenticeship[[229]](#footnote-230).

The general model developed is:

The productive results of the work of the apprentices

– gross expense for the training of the apprentices by the company

= Net benefit during the apprenticeship

Net benefit + opportunity benefits = Gross benefit (after apprenticeship)

Gross cost includes the wage costs of learners, trainer cost, staff cost for administration and recruiting, capital expenditures, cost of material and other. Marginal costs are costs which would not occur if no training took place[[230]](#footnote-231).

The main cost are wages of apprentices and trainers which add up to 80% of the overall cost[[231]](#footnote-232).

The productive gain is further differentiated along the categories :

a) simple productive work = work which substitutes unskilled labour

b) complicated productive work, which substitutes skilled labour (prod gain I vs II)[[232]](#footnote-233)

**Strupler/Wolter calculate the average productive gain at 31.000 CHF (29.233€)/year, which is comprised of about % 50/50 p I / p II.**

The use of apprentices for unskilled simple work is justified by the acquisition of general skills like punctuality, accuracy, dependability etc. Therefore the ratio of p. II should rise during the duration of an apprenticeship up to the level of a skilled worker, who also partly performs tasks which would not require his specific skills[[233]](#footnote-234).

Strupler/Wolter calculate the overall cost-benefit ratio as follows:

In a three- year apprenticeship arrangement: 1. Year -200 CHF 2. Year: 3269 CHF 3.Year: 5643 CHF = Overall benefit: 8713 CHF (8259 €)

In a four - year apprenticeship arrangement: 1. Year -5540 CHF 2. Year:-1275 CHF 3. Year: 3961 CHF 4. Year: 11241 = Overall benefit: CHF = 8387 CHF (7933€)[[234]](#footnote-235)

Strupler/Wolter conclude: “On average there is a positive cost-benefit ratio for companies in Switzerland already during the apprenticeship”[[235]](#footnote-236).

Therefore companies do not depend on employing their apprentices also after the apprenticeship in order to cover investments.

Strupler/Wolter calculate that “66% of apprenticeships end with net benefit for companies” [[236]](#footnote-237)

In labour markets characterized by a shortage of qualified labour the “recruiting effect” of apprenticeships could be the main reason for apprenticeships in addition to the short term benefit.

Strupler/Wolter report that the average recruiting and introductory training costs in Switzerland are as high as 21.256 CHF (about 20.115€) (between 1200 CHF for small companies and 30000 CHF for bigger ones)[[237]](#footnote-238).

This indicates that the benefit of apprenticeships for companies is highly dependent on the kind of labour used (skilled, unskilled) and the situation on the skill-specific and regional labour market.

The quite modest compensation for apprentices compared to the on average in international comparison quite high wages of qualified workers, may add to this profitability of apprenticeships.

A very important factor for SME seems to be the opportunity to fill vacancies with the best of candidates, selected from several cohorts of apprentices. Since the apprenticeship is cost neutral in itself, also SME can wait for the “perfect match”.

Larger companies tend to retain their apprentices to a higher degree than smaller ones (retainance rate after 1 year in companies >9 employees = 25% versus in companies >99 employees = 46,8%).

The gross overall benefit of apprenticeships in 2009 is calculated by Strupler/Wolter at 375 Mio CHF (354 Mio. €) (3 year arrangements) + 98,2 Mio CHF (92,6 Mio. €) (4 year arrangements)[[238]](#footnote-239).

As Stupler/Wolter report, the cost benefit ratio has even improved compared to the prior wave of the study in 2004, as a consequence of slightly lower wage costs for apprentices relative to the general development of prices[[239]](#footnote-240).

In an overview matrix for selected occupations Strupler/Wolter plot the comparative cost-benefit ratio[[240]](#footnote-241).

Among the occupations with comparatively high benefits and low cost according to this estimate are: painter, dental assistant, carpenter, gardener, sanitary installer.

Occupations with high productive contributions but also high costs are bricklayer, merchant, cook.

Low costs, as well as low productive gain characterizes the occupation automotive expert.

Stupler/Wolter point out that the cost-benefit-ratio for companies is a necessary, but not a sufficient motivation for apprenticeships[[241]](#footnote-242).

The study quoted here focusses on the benefit for companies, not apprentices, but studies on effects for apprentices prove that since the apprenticeship market is functional in Switzerland, there is a benefit for all actors[[242]](#footnote-243).

Stupler/Wolter admit that their studies on the cost-benefit ratio of apprenticeships depend on the data obtained from companies. There are some problems connected with this, as most companies do not have an apprenticeship controlling system and costs and benefits are easy to define but hard to measure in practice[[243]](#footnote-244).

With reference to leading studies in Germany[[244]](#footnote-245) the authors admit that only occupation-specific studies would be precise enough, but emphasize that there is a consensus that in Germany and Austria many companies bare a net cost during the apprenticeship.

Therefore they conclude that there the benefits other than the economic gain from the apprentices is the main motivation for offering apprenticeships and therefore the profitability of the apprenticeship is but one of the determinants of participation of SME in apprenticeship systems[[245]](#footnote-246).

As differences Stupler/Wolter identify:

* Higher apprenticeship benefits/wages in Germany
* A higher share of unproductive practicing in Germany vs productive work in Switzerland
* Longer absence in Germany due to school and sickness leave[[246]](#footnote-247)

The authors claim that the cost-benefit-ratio may have hanged in recent years as also in Germany, as there is a tendency towards more productive work and more work-integrated learning[[247]](#footnote-248). Also recruitment costs rise as the labour market becomes tighter as a consequence of demographic changes[[248]](#footnote-249).

As Mühlemann (2007) points out, the number of apprenticeships in Germany is determined by the quantity of qualified employees needed, not by extent of the cost-benefit-ratio during the apprenticeship.Improving the cost-benefit-ratio therefore does not necessarily result in more apprenticeships[[249]](#footnote-250).

One of the main concerns of SME regarding the introduction of apprenticeship schemes is the “poaching” effect. This means companies are afraid that a net investment made in training would be in vain if the apprentice leaves for another company.

As most apprenticeships yield a positive cost benefit ratio already during the apprenticeship, this concern is less relevant in Switzerland. There are no formal arrangements to bind the apprentice after the training and there are no initiatives to change this.

Most companies are glad to have the choice to maintain the apprentice or not, which is in itself an important argument for offering apprenticeships as opposed to recruiting externally.

The argument may be even more important for smaller companies. These have a much lower retention rate. However there is not much dissatisfaction with that, as the demand for additional staff is limited and therefore companies can choose the best from several generations of apprentices, therefore avoiding costly mismatches.

### Denmark

Reliable data on cost effectiveness on company level are not available at this moment[[250]](#footnote-251).

As has been shown, remuneration for apprentices in Denmark is relatively high in absolute as well as in relative terms, compared to fully qualified workers. A net benefit for companies therefore seems to be quite improbable.

However, this might be modified by companies benefitting from the solidarity principle in VET, as all employers pay an annual contribution of about 380€, to fund an employer fund for training[[251]](#footnote-252).

Also in Denmark companies seem to feel that they benefit from apprenticeships, many of the arguments for the other resource countries apply.

By providing initial vocational training companies enable themselves to better select and train their future employees. Small companies of less than 20 employees are in a particularly difficult situation in terms of skills.

The potential impact of hosting an apprentice for a SME is having young employees with an awareness of the reality of the job, being able to train the apprentice according to the own needs and therefore a better match of skills and jobs.

Yet one of the great barriers for SMEs to host an apprentice is a partially low quality of school leavers in comparison to the growing skill requirements (i.e. lack of suitable applications, deficiencies in general skills, discipline). In Denmark this leads to an expansion of general educational subjects, reducing the time for productive work.

### Netherlands

According to EC 2013 data for cost effectiveness of VET are not available. Average cost per student overall (government + companies) is estimated at 38.600€[[252]](#footnote-253).

The OECD claims that recent policy initiatives to raise educational standards in general educational topics as well as shortening the duration of level 3 and 4 apprenticeships may have adverse effects on company participation, as they increase the net costs for companies. More time needs to be devoted to developing general skills and less time is available for productive work[[253]](#footnote-254).

The OECD also is quite sceptical about the integration of the regional and sectorial Knowledge Centres in to SBB, which might harm the traditionally very close connection to actual regional and sectorial qualification needs. Also the reform of company tax deductions for training may have adverse effects[[254]](#footnote-255).

The OECD report for the Netherlands in spite of these potential inhibitors, sees apprenticeships as a means to increase the cost effectiveness of VET[[255]](#footnote-256). The authors claim that the cost benefit ratio, whereas a net cost for companies seems to be probable during the apprenticeship itself, particularly given the trend to cut time for productive work by shortening the apprenticeship, may have adverse financial effects for the individual company. On the other hand, however, this cost is balanced by lower recruitment costs, and a more efficient throughput of trainees, which allows for a more rapid development of higher level skills in the labour force[[256]](#footnote-257).

## Targets and Constraints with Regard to the Apprenticeship System

### Germany

There is the target to increase the number of apprenticeship contracts. Each young person should have the opportunity to start a vocational training within the dual system. (“**National Pact for Career Training and Skilled Manpower Development in Germany**” (Ausbildungspakt 2004). In 2010 this pact was prolonged until 2014[[257]](#footnote-258).

However, since the decision on offering an apprenticeship is up to the companies only, in spite of a quite high number in vacancies in less popular regions and occupations, not all young people looking for vocational training opportunities did and do receive a training contract at the place and in the profession of their choice.

In December 2014 a new “Alliance for vocational education and training” (“Allianz für Aus- und Weiterbildung” was agreed by the Federal Government, the employer organisations (trade associations, employer associations), trade unions, and federal states (Bundesländer). The main target of this new pact is: Every person interested in training should be provided with a pathway, on which he/she can achieve a training qualification as early as possible. Vocational training within companies clearly has priority in this initiative[[258]](#footnote-259).

### Austria

In 2003 integrative IVET (Integrative Berufsausbildung, IBA) was anchored in the Vocational Training Act as an alternative VET measure. The goal was to provide a VET qualification to disadvantaged young people (young people with special pedagogical support needs at the end of compulsory school, young people without a lower secondary school qualification, young people who cannot complete an apprenticeship training programme without special support) and integrate them into working life. Integrative IVET is facilitated and supported by vocational training assistance. Assistance includes support of apprentices, training companies, and other parties[[259]](#footnote-260). The number of participants in the integrative IVET has increased continuously from 1,114 young people in 2004 up to 6,475 apprentices in 2014[[260]](#footnote-261).

In 2008 a youth employment pact (elaborated and agreed by the social partners and the Federal Government) entered into force. Among other things it introduced the training guarantee for young people up to the age of 18 years. The target group of this measure are young people who cannot find a company-based apprenticeship place despite every effort. Thus supra-company apprenticeship training has been set up as an equivalent part of dual VET alongside the regular company-based variant[[261]](#footnote-262).

There are no constraints with regard to subsidies for training companies in order to increase the engagement of companies in apprenticeship training.

### Switzerland

See ch. 8.9.

### Denmark

While demand for skilled labour continues to increase, IVET is expected to accommodate increasingly heterogeneous types of learners. Reforms in DK therefore increase VET teachers’ minimum qualification requirements as well as VET students’ minimum entrance requirements. As it is now mandatory for unemployed people under 30 receiving social benefits to participate in education and training, numbers of weaker learners increase. As a target value by 2015, 95% of youth should complete upper secondary education.

Therefore the system faces the challenge to address very weak and very strong learners alike.

While company engagement overall is strong, it proves to be a challenge to develop placements in companies for both of these groups.

The implementation of 50 practical training centres (2013) and a planned 1000 new placements in companies is planned. According to CEDEFOP substantial upskilling and reskilling of young and adult learners alike will be needed to „avoid a considerable part of the workforce becoming permanently excluded from the labour market. The 2014 growth plan includes funding for the unskilled to become skilled workers through targeted adult VET programmes[[262]](#footnote-263).

### Netherlands

Target is to maintain an efficient VET system to world class standards.

As the OECD points out, a number of constraints can be identified, which are presently on the political agenda, as demographic problems regarding the supply of students as well as teachers, the cost-benefit ratio of apprenticeships and the continuing close relationship between the companies needs at regional and sectorial level and the efforts to systematise and standardise qualification profiles in order to facilitate transparency and transition processes.

## Involvement of Social Partners

A strong involvement of social partners is a characteristic of all of the resource countries.

They all have been characterised as systems of “collective skill formation” (Busemeyer/Trampusch).

The focus of this involvement however is different. While in Germany, Austria, Denmark and the Netherlands there is a quite balanced involvement of Social partners, Switzerland is a rare example of a strongly employer driven collective system.

Germany

The social partners are involved in implementation and management of the apprenticeship-system at all levels[[263]](#footnote-264).

At federal level they are represented in the Board of the Federal Institute for Vocational Education and Training, which is responsible for drafting vocational training schemes, vocational training regulations and other ordinances under the Vocational Training Act. The Board may state its views on these drafts[[264]](#footnote-265).

At the level of federal states they are members of “Land” Committees for Vocational Training. The tasks of the Land committees are: advise the Land (state) government on vocational training issues; endeavour to steadily improve the quality of vocational training[[265]](#footnote-266).

At regional level of the competent bodies the social partners are members of the vocational training committees[[266]](#footnote-267). Examinations are one of the quality assurance instruments within the dual system. Examinations have to prove, if the apprentice has reached the objectives of the training; this is considered to be an important indicator for the achievements / expected results of the apprenticeship. The social partners are involved in the boards of examiners: The membership of the board of examiners must include equal numbers of employers’ and employees’ representatives[[267]](#footnote-268).

Austria

Social partners are involved to a very high degree, reflecting the generally „corporatist“ character of the Austrian state and society. As an example, the Federal Advisory Board on Apprenticeship (“Bundes-Berufsbildungsbeirat” – BBAB) and the Regional Advisory Boards on Apprenticeship (“Landes-Berufsbildungsbeirät) respectively six members entitled to vote are nominated by the Austrian Federal Economic Chamber (WKÖ) (employers’ representatives) and by the Federal Chamber of Labour (BAK) (employees’ representatives); in addition two non-voting members are nominated by the Federal Minister of Education and Women’s’ Affairs. The main tasks among others are proposals and comments on development or change of training regulations and other initial training issues governed by the Vocational Training Act.

Respectively two members of the Regional Advisory Boards on Apprenticeship are nominated by the regional economic chambers (employers’ representatives) and by the regional chambers of labour (employees’ representatives). Main tasks of these Regional Advisory Boards are – among others – to compose recommendations, comments, and encouragements with regard to implementation of the tasks of the apprenticeship office, conduction of apprenticeship-leave examinations as well as trainer exams and trainer courses.

Switzerland

According to OECD[[268]](#footnote-269), Switzerland has the highest involvement of social partners in matters of decision making, curricula, number of VET placements, acquired competences, examinations etc. among all OECD countries. In all cases social partners are 100% involved in the decision making.

“The VET system is strongly employer-driven; the partnership works well at each level. Employers have responsibility for determining the content of VET (through ordinances which describe the competencies to be taught in every programme, and training plans) and of national examinations, and have the exclusive right to initiate the design of new ordinances, or update existing ones, and prepare training plans.”

“Employers are also directly engaged in the provision of VET by offering apprenticeship places, contributing to the establishment and operation of industry courses and carrying out the part of the national examination process that is related to the workplace”[[269]](#footnote-270).

The tri-partite Swiss system relies on the principles of consensus and cooperation.

While this can lead to lengthy decision processes and a great deal of variety among regions, this is balanced by a high level of commitment by the companies and responsiveness to the needs of the companies. Once decisions are made, the implementation of reforms has been described as extremely smooth and quick, since employer support for the reform is built-in[[270]](#footnote-271).

This reflects the wider characteristics of the Swiss economy and governance, which has been termed a “coordinated market economy”, with e.g. a high level of coordination of wages and close relationships between firms in the economy and an all party coalition in government[[271]](#footnote-272).

Denmark

Social partners play a major role in the management, priority setting, development, organisation and quality assurance of vocational training programmes, and at local level through representatives in school boards and education committees. Active participation by social partners guarantees that the content of individual VET programmes meets the demands of the labour market and that qualifications are recognised in business and industry.

Social partners nominate a number of members in a Council for Vocational Training, which is appointed by the Minister for Education. The task of the Council is, on the general level, to give advice on the educational issues concerning the vocational education and training system, for example on structure, accreditation of colleges and on the framework for content and assessment.

The social partners are represented in the Vocational Education Training Council (Erhvervsuddannelsesrådet – EUR) which gives advice to the Minister of Education on objectives and structures, admission requirements, qualification needs, certification and quality issues; the national Trade Committees (de faglige udvalg) that provide sector relevant advice on the content, structure, duration and evaluation of programmes and courses and in the Local Training Committees (de lokale uddannelsesudvalg) which assist schools in planning the content of programmes. They provide advice on all matters concerning training and help strengthen contact between schools and the local labour market.

Netherlands

Likewise in the Netherlands, Social partners are an important player in the VET system. E.g., the foundation for Cooperation between Vocational Education, Training and the Labour Market (SBB) which was established on 1 January 2012 fully involves the social partners. The SBB brings together senior secondary vocational education (mbo education) and the organised labour market. Colo, the association of 17 centres of expertise, has transferred to this organisation.

Social Partners and educational institutions can both take the initiative to introduce new occupations or qualifications or renew existing qualifications. They have the explicit duty to introduce such qualifications into the national qualification structure for upper secondary vocational education[[272]](#footnote-273). Social partners are also responsible for the collective wage agreements, which determine the wages of the apprentices and therefore have a strong impact on the cost-benefit relationship of apprenticeships.

On systems level Social Partners are part of the Social Economic Council (Sociaal Economische Raad – SER) and are also involved in sectorial bodies (sectorkamers)[[273]](#footnote-274).

## Stakeholders of the Apprenticeship System

Germany

Representatives of the chambers, representatives of companies, the social partners at national, federal states, and regional level (representatives of employer associations and trade unions), directors and teachers of vocational schools and schools of the general education system have an important role in managing and first of all delivering aspects of the apprenticeship system.

Austria

Politicians as well as representatives of the social partners at national, regional, and local level, representatives of (training) companies, directors and teachers of vocational schools and schools of the general education system have an important role in delivering aspects of the apprenticeship system.

Switzerland

See above. The system is mainly federal state (confederation), canton and employer driven.

Denmark

Denmark is regarded as a benchmark case of stakeholder involvement, which is regarded as one main characteristic of the system [[274]](#footnote-275).

Major stakeholders in VET are besides parliament and the Danish Vocational Education and Training Council are the Ministry of Education and the national trade committees, Vocational schools and local training committees and schoolboards.

Stakeholders included in the Council for Vocational Training are representatives of management, teachers and students, special experts and policy-makers.

These stakeholders give advice on the educational issues concerning the vocational education and training system, for example on structure, accreditation of colleges and on the framework for content and assessment.

The employers and employees set up approximately 50 trade committees. Within the general framework the trade committees are responsible for contents of the VET programmes according to the duration and structure, their objectives and assessment, as well as the distribution between practical training and school-based teaching.

At the colleges, the trade committees appoint local education committees for each of the programmes at the college. At the local level, they are required to advise the colleges and strive to obtain in cooperation with local trade and industry more apprenticeships.

The trade committees are obliged to conduct continuous quality development and quality assurance of the educational and training programmes and the companies offering practical training. In particular, they must follow developments in employment and completion of the trainees. They are in continuous dialogue with the Ministry.

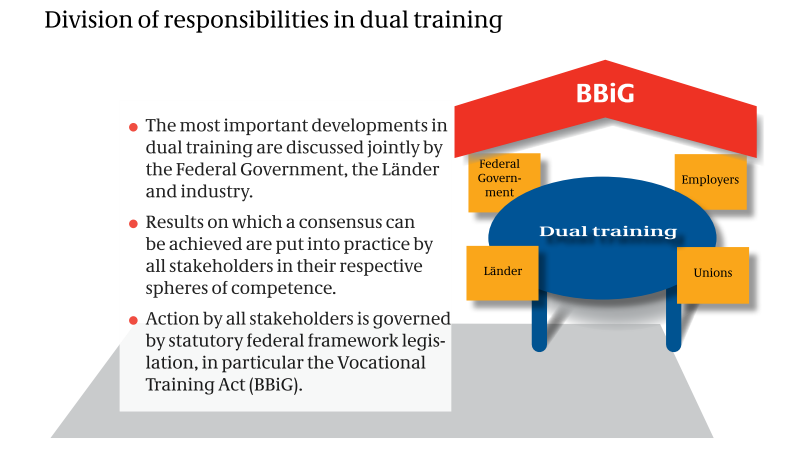
Netherlands

Government, regions, Vocational Schools and Social Partners are stakeholders of the system, as are the individuals and companies themselves.

## Policy Framework for Development and Implementation of the Apprenticeship System

Germany

The policy framework stipulating and supporting the development and the implementation of the apprenticeship system at all levels is the Vocational Training Act (BBiG).[[275]](#footnote-276) The division of responsibilities is shown in the illustration below.



Ill.: Policy making framework in German Dual System[[276]](#footnote-277)

In addition support of development and innovation of vocational training and vocational training schemes within the dual system is explicitly task of the Federal Institute for Vocational Education and Training and its Board.

Austria

The policy framework supporting development and implementation of the apprenticeship system at all levels is the Vocational Training Act (BAG) with the regulations according to the responsibilities of the various stakeholders of the apprenticeship system (including responsibilities with respect to modernisation of training regulations)[[277]](#footnote-278) .

Switzerland

The provision of VET and PET is regulated as a mission shouldered by the confederation, the cantons and professional organisations.

At Confederation level the “Federal Office for Professional Education and Technology (OPET)” is responsible for the VET and PET sectors at federal level.

The “Swiss Federal Institute for Vocational Education and Training (SFIVET)” mainly provides basic and continuing training to VET and PET professionals, particularly teachers. SFIVET is also involved in research and the provision of services. It has three regional campuses.

On Cantons level the “Swiss Conference of cantonal Ministers of Education (EDK)”is the main statutory body. The Cantons are generally responsible for education and training in Switzerland.

Inter-cantonal cooperation through EDK helps to consolidate cantonal authority over education.

26 cantonal VET/PET offices are responsible for implementing VET and PET at cantonal level, VET/PET offices coordinate their activities through the Swiss Conference of VET/PET Offices (SBBK), one of EDK's specialized conferences.

Occupational, educational and career guidance counselling services provide information and guidance to both young people and adults.

VET schools: VET schools provide classroom instruction and prepare learners for the Federal Vocational Baccalaureate Examination. Some VET schools offer a full-time curriculum[[278]](#footnote-279).

Denmark

The Ministry of Education is responsible for setting up the framework for VET.

The national advisory council, which monitors relevant trends relevant for VET, consists of 35 representatives from the social partners. It issues recommendations to the ministry.

50 national trade committees, which consist of representatives of social partners, are responsible for 110 main courses.

For details see the description in the chapters above.

Netherlands

Following recent reforms SBB developed into one of the main fora for shaping the system. Schools are still quite autonomous and among the important shapers of VET practice.

## Plans to Improve or Change the Apprenticeship System

Germany

According to the Vocational Training Act innovation and improvement of vocational education and training are permanent tasks (including research on vocational training, statistics, planning, pilot projects (developing and testing new pedagogical, organisational, funding, and management concepts), modernisation and development of training regulations for new professional profiles[[279]](#footnote-280).

There is published a yearly report on the status of vocational education and training (“Berufsbildungsbericht”) by the Federal Ministry of Education and Research discussing problems, challenges, achievements, solutions, and perspectives of the VET system.

There are no plans to change the apprenticeship based dual system.

Topics for reform include the integration of the European Qualification Framework, a more flexible and modular system taking account of needs of a growing diversity of learners.

This growing heterogeneity of learners has been the topic of a group of pilot projects sponsored by the Federal Ministry of Education and Research.

Policy initiatives aim therefore at the strengthening of the system.

As main development in recent years, a growing process orientation of workplace training of apprentices, mainly in the newly shaped Metalwork and Electronics Occupations can be mentioned.

Problems to motivate enough companies for training, particularly in Eastern Germany until recently, have led to growing efforts to support SME. Here traces of a newly developing “trilateral” (as an expansion of the “dual” system) have been identified, as training centres, institutionalised cooperation of companies in training (Ausbildungsverbünde) became new relevant actors.

More recently demographic change posed the challenge to train also youths with weaker academic credentials also in quite complex occupations, which necessitates a more developed training system within companies.

A new wave of immigration to Germany has been welcomed by employers and society alike, as this migration will help to keep a demographic balance in face of deteriorating fertility rates. Particular crafts associations made efforts to recruit young people from South and Eastern European countries. This however poses an additional challenge for the training capacity and competence of particularly smaller companies and will necessitate more elaborate support systems in the near future.

In concrete terms, BDA welcomes some recent changes, made to support the integration of more vulnerable target groups: „To encourage companies to offer training positions to low-performing youths, they need an appropriate support structure because apprentices with educational deficits and social problems require special assistance to successfully complete their apprenticeship.

In the framework of the “training support scheme” (ausbildungsbegleitende Hilfen) the Federal Employment Agency finances back-up teaching and socio-educational support for this group of trainees. This is a very good instrument that still has to made more widely known among both companies and trainees. In the training year 2015/2016 there will also be up to 10.000 places for "assisted apprenticeships“ (assistierte Ausbildung). This new instrument is meant to improve training opportunities for low-achieving young persons by combining targeted support measures for the trainees with organizational assistance for the training companies. In dealing with a more heterogeneous group of trainees, we also need more flexibility in structural terms. The introduction of training profiles with a duration of 2 years and less complex requirements has been a good starting point[[280]](#footnote-281)“.

Austria

Adjustment of existing and development of new training occupations are continuously on the agenda of the stakeholders of the apprenticeship system. The efforts are based on professional and practical requirements of the sector[[281]](#footnote-282) .

According to the amendment to the Vocational Training Act in 2006 apprenticeships can be designed by modules. This aims to increase the attractiveness of apprenticeship training. In modular apprenticeships training comprises three modules: basic module (knowledge and skills required for carrying out basic activities of the apprenticeship; minimum duration: two years), main module (knowledge and skills required for exercising the chosen specialisation; minimum duration: one year), special module (knowledge and skills for special services, products or their production; training period: half a year or a full year). Every apprentice in a modular scheme is obliged to complete the basic module and select a main module. In addition he can be trained in another main module and one or several special modules[[282]](#footnote-283).

The benefits of a modular design of occupation profiles for the companies and for the trainees as well are a higher flexibility with respect to the design of training and the introduction of new content. The possibilities to combine various modules can make it unnecessary to develop new occupational profiles. This can lead to a useful reduction of the number of apprenticeships (while maintaining training diversity). Thus it would also improve transparency of the apprenticeship occupation landscape[[283]](#footnote-284).

Switzerland

There is a high level of consensus about the system. There is continuing reform of details, but no major changes are foreseen at this time.

Denmark

Because of its success there is no intention to change the system in principle. Nevertheless the VET system in Denmark is in a period of new political priorities and structural changes.

Among recent reforms the VET system reform (2014) established VET teachers’ minimum qualification requirements and VET students’ minimum entrance requirements to increase quality in VET. It will be implemented with effect from 1 August 2015. Objectives include:[[284]](#footnote-285)

Objective 1: More students to start a VET immediately following school level 9 or 10. The share must increase to at least 30% by 2025;

Objective 2. More people to complete a VET. The completion rate must be improved from 52% in 2012 to at least 60% by 2020 and at least 67% by 2025;

Objective 3. VET must challenge all students to reach their fullest potential. The share of the most gifted students – measured as the share of students who complete a total number of subjects at a level which exceeds the compulsory minimum level set by the vocational committees – must increase year by year. The high employment rate for newly graduated students must be maintained.

Objective 4. The trust and well-being in the VETs must be strengthened … and the satisfaction of the businesses which hire the students must be gradually increased up until 2020.

*Structural changes*: Instead of present 12 basic access channels for pupils from form levels 9 and 10 there will be in 2015 only *four main subject areas* upon admission to VET: Care, health and pedagogy; Office, trade and business service; Food, agriculture and experiences; Technology, construction and transportation.

Therefore the development of cross-sectorial transferable competences is strengthened, as students’ choice among the 107 different VETs will be postponed to a later date. To give more young people an opportunity to pass an upper secondary education at the same time as a VET (EUX). EUX will be offered in connection with all relevant educations and within all four main subject areas. 50 *internship centres* will be established all over the country to improve the opportunities for students to obtain an apprenticeship. Lack of suitable training placements in enterprises is a primary reason for student dropout. On the other side students have be more qualified, clarified and motivated in order to be attractive for enterprises. 1000 new placements in ’Vækstplan 2014’are foreseen[[285]](#footnote-286).

The Danish government set in 2014 the ambitious national target of 95% of a youth cohort is to complete at least an upper secondary education by 2015, 60% of a youth cohort is to complete a higher education by 2020 and at least 25 per cent is to complete a long-cycle higher education[[286]](#footnote-287).

Yet the policy initiatives and undertaken reforms indicate that there is for several reasons (dying SMEs because of the global financial crisis) a gap between supply and demand of training places also in Denmark.

In the context of the European Future cohesion policy 2014-20 youth employment-related country-specific recommendations by “Inside Europe” stated: “Improve the quality of vocational training to reduce drop-out rates and increase the number of apprenticeships”[[287]](#footnote-288).

Also VET has to compete with academic education for a sufficient supply of students: „The number of applicants to the VET system from the Folkeskole has fallen drastically over the last 8-10 years and this is one of the reasons for reforming the VET system. The more academically oriented upper secondary education programmes are simply more popular for a number of reasons. This is a result of a focus on the wonders of higher education in the Danish public debate and a lack of apprenticeships in companies at the same time, making VET programmes a “risky” choice in the minds of many young people and their families[[288]](#footnote-289)“

Netherlands

Also in the Netherlands, based on a consensus about the general principles of the VET system, there are efforts to update priorities and further improve the implementation.

A major policy initiative is the plan “Clearing the way for workmanship: future orientated vocational education. It strives to increase people´s versatility in a “learning economy”. It builds on the “Focus on Workmanship” plan and shall support policies for the wider economy as described in the reports “Handmade in Holland” and “Towards a learning economy”. The initiative claims that the VET system, while building on solid foundations has been too slow to react to technology developments, particularly in VET and lacks enough opportunities for lifelong learning. Measures proposed include a quality assurance campaign in VET schools, strengthening education for talented VET students including promoting the title of “master” and improving the quality of exams[[289]](#footnote-290).

## Motivation and Key Success Factors of SME’s to offer Apprenticeship Schemes

As the discussion about the cost-benefit-ratio of apprenticeships has shown, a positive monetary net benefit from apprenticeships can be an important factor for SME to participate in the system by offering training placements.

The only country for which such positive benefit is empirically substantiated is Switzerland. Already in Germany, on average apprenticeships is an investment for companies and the same is quite probable for the other resource countries.

The chapter to follow therefore summarises the main arguments identified in the literature, why companies and SMEs in particular participate in the system.

As the participation is the strongest in Germany and Switzerland we focus the discussion on these countries, as the main arguments for SME participation are broadly discussed there.

The European Commission summarizes the general arguments and key success factors for SMEs to participate in apprenticeship schemes. They apply to all of the resource countries.

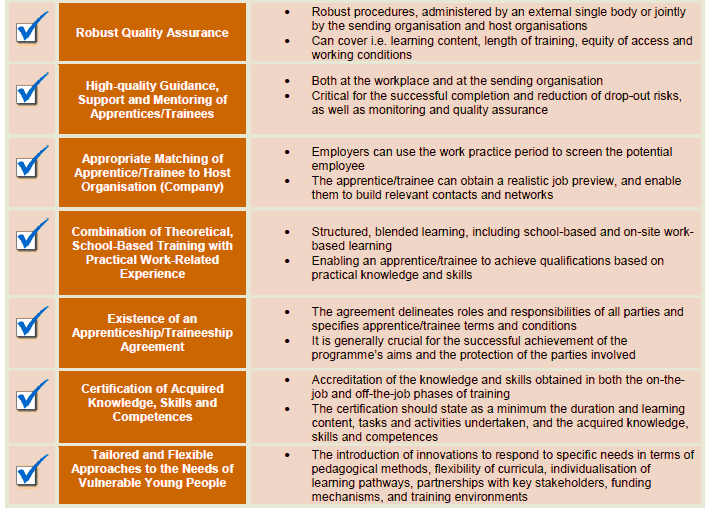
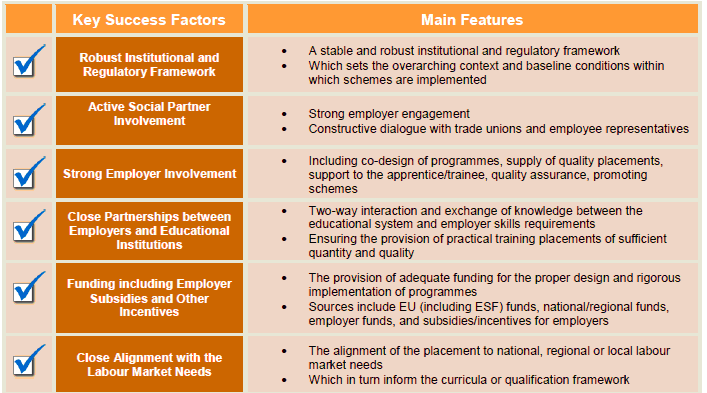
Economic growth and demographic change will contribute to motivate SMEs to offer apprenticeship schemes in order to gain the necessary skilled employees and specialists

Five advantages of apprenticeship schemes for the training companies from the individual enterprise perspective are summarised in the final report on Apprenticeship supply in the Member States of the European Union:

Work-based training periods act as suitable “assessment centres” for the recruitment of future skilled employees (“recruitment benefit”), since employers obtain key information of potential employees’ capacities in real life situations and, at the same time, apprentices are educated accordingly to the enterprise’s needs, values and cultures (skill tailoring);

* apprentices and trainees undertake useful work and generate a productive benefit for the employer (“productive benefit”);
* apprentices bring new up-to-date knowledge and fresh perspectives to enterprises, where this fact can be very important for the smallest enterprises;
* apprenticeships are often used by enterprises as a tool for raising the qualification of current workers
* enterprises that provide in-house vocational training enjoy a higher social profile amongst stakeholders[[290]](#footnote-291).

Key factors for the success of apprenticeship schemes have been identified over all apprenticeship systems in Europe in the Guidebook for Policy Planners and Practitioners, ed. by the European Commission, DG for Employment, Social Affairs and Inclusion in 2013 “Apprenticeship and Traineeship Schemes in EU27: Key Success Factors”. The dual apprenticeship in company and school in Austria is evaluated as a “very effective instrument in facilitating STW transitions”[[291]](#footnote-292). In the illustration below a checklist of those key factors for the success of apprenticeship schemes is presented.



*Ill.: EC Checklist of Key Success Factors*[[292]](#footnote-293)

Germany

SMEs are motivated to offer apprenticeship schemes in order to gain the necessary skilled employees and specialists. Due to the economic growth and the demographic change it is getting more and more difficult for the companies to acquire skilled workers from the labour market. Thus the only way to maintain or/and to receive a qualified crew is to offer apprenticeships.

The key success factors of the apprenticeship scheme are summarized in the apprenticeship guidebook of the European Commission (DG for Employment, Social Affairs and Inclusion) as follows:

“i) Vocational education and training is a defining feature of the German education system and is a highly respected educational pathway;

ii) Strong involvement of social partners in design, monitoring and quality control;

iii) National regulation of content and structure of the vocational education, which sets nation-wide qualification standards;

iv)The system is financially well-resourced – there is a large range of designated support measures/ programmes on all levels to prevent drop-outs (e.g. ‘*Ausbildungsbegleitende Beihilfen’*) and to increase the number of apprenticeships (e.g. ‘JOBSTARTER – *für die Zukunft ausbilden*’ – Training for the future)”[[293]](#footnote-294)

These key factors should be discussed with the SME representatives.

In the light of problems to acquire skilled workers via the labour market and skills shortage due to the demographic change at the one hand and the benefits of involving in apprenticeship on the other hand they may revise their opinion and get ready to offer apprenticeship.

In addition there can be stated some advantages and benefits of vocational training within the dual system, which are pointed out by owners, managing directors, HRD managers and training practitioners of the companies:

High level of matching demand of skills and competences by in-company training, training is related to the professional demand of the company

* Acquisition of occupational proficiency by training in the dual system
* The company knows the way the competences were acquired
* Practical experience during the training
* Support of vocational mobility and flexibility
* Low cost of vocational adjustment for new tasks in the company after the apprenticeship
* Knowledge of the whole company system acquired already in the period of training
* Productive work in the frame of training.

As already pointed out under section one of the main means of retention of apprentices vs efforts to poach them by larger enterprises is to outline and discuss the Human Ressources Development opportunities and pathways within the company with the trainees. It is important to provide and make transparent opportunities for personal development and advancement, which exist particularly in smaller companies as there often more responsible positions are available to young people at earlier stages of their career. This will reduce considerably the danger of leaving the company after completing their training.

Austria

A list of key factors for the success of apprenticeship systems and the possibilities for know-how transfer in Austria was provided by a study of the IBW[[294]](#footnote-295).

The 7 key factors (identified in the apprenticeship system in Austria) are:

* Success factor 1: Governance and funding
* Success factor 2: Occupation-based VET approach
* Success factor 3: Benefits for companies
* Success factor 4: Mechanisms of quality assurance
* Success factor 5: Adjustment and innovation Mechanisms
* Success factor 6: Demand by young people
* Success factor 7: Administration and implementation.[[295]](#footnote-296)

These key factors should be discussed with the SME representatives. In the light of problems to receive skilled workers via labour market and skills shortage due to the demographic change at the one hand and the benefits of involving in apprenticeship on the other hand they may revise their opinion and get ready to offer apprenticeship.

In addition some advantages and benefits of vocational training within the dual system, were stated by owners, managing directors, HRD responsibles, and training practitioners of companies in Austria:

* High level of matching demand of skills and competences by in-company training, training is related to the professional demand of the company
* Acquisition of occupational proficiency by training in the dual system
* The company knows the way the competences were acquired
* Practical experience during the training
* Support of vocational mobility an flexibility
* Low cost of vocational adjustment for new tasks in the company after the apprenticeship
* Knowledge of the whole company system acquired already in the period of training
* Productive work in the frame of training[[296]](#footnote-297).

As already pointed out the company should outline and discuss the HRD opportunities and pathways within the company with the trainees from the beginning of the apprenticeship (and if possible even in the process of recruiting apprentices) and agree opportunities for personal development and advancement.

Switzerland

In Switzerland, in view of the positive monetary net-benefit for companies, the reasons to train seem to be obvious. However also here research emphasizes that this financial incentive may not be the most important motivation.

According to Strupler/Wolter the majority of Swiss companies do not offer apprenticeships. 68% of companies smaller than 10 employees do not offer apprenticeships, while only 25% of companies larger than 99 employees abstain[[297]](#footnote-298).

While the arguments most commonly cited as reasons to provide apprenticeships more or less are based on qualitative data or convictions, which are generally shared and accepted in the Community of VET practitioners and researchers, Strupler/Wolter used their unique set of empirical data to identify factors which make it more likely that companies train[[298]](#footnote-299).

* Companies with one or more of the characteristics to follow train more:
* depend on public assignments, which depend on provision of apprenticeships,
* where a low rate of fluctuation of staff is regarded as “important or very important”,
* technologically advanced,, highly Innovative, highly efficient and highly attractive companies.

This is mirrored by characteristics of companies with a low engagement in apprenticeships. They tend to be companies with foreign owners, low innovativeness, low attractiveness, low technological standard, low effectiveness, and/or a bad economic situation[[299]](#footnote-300).

From this findings it can be deduced that a high engagement in training reflects a high quality, health and innovativeness of the company.

Strupler/Wolter backed up these findings by results of qualitative responses. Top reasons for not engaging in apprenticeships include:

* not enough time to train (58%)
* demand for qualified staff is already satisfied (39%),
* company is too specialized to cover a whole profession (37%)
* apprenticeship implantation regarded as too complex (31%)[[300]](#footnote-301)

Strupler/Wolter also documented suggestions for what needs to be changed in order to make training more attractive. Suggestions by Swiss companies include:

* better academic education
* financial incentives,
* more flexibility,
* where the top three suggestions, while wages were not regarded as very important[[301]](#footnote-302).

Strupler/Wolter briefly discuss potential behaviour of companies in a recession, based on two hypotheses: a) companies reduce apprenticeship to save costs, b) companies maintain apprentices to substitute more expensive qualified employees.

As a result of empirical data the authors, quite surprisingly, conclude that apprenticeships seem to be even more attractive in a short recession[[302]](#footnote-303).

This might be explained by a calculation that, while saving wage expenses for fully qualified workers during the downturn, the company can start the new business cycle with a sufficient number of well selected and newly trained employees as a consequence of providing apprenticeships.

Strupler/Wolter highlight that companies themselves can influence the factors for the decision to offer apprenticeships to a high degree:

The more experience a company has in the proper and arrangement of the apprenticeship, the higher the cost-benefit ratio and the higher the stability of the decision to offer apprenticeships[[303]](#footnote-304).

Being able to provide profitable as well as fully qualifying apprenticeships therefore is an indicator of a high general competence of a company.

On a systems level OECD 2009 highlights that “The apprenticeship system is “market-driven” in the sense that provision is determined by the availability of training places in companies (alongside students’ preferences). Students, in order to start their apprenticeship need first of all to find a place in a company and sign a contract. A place in a vocational school is then automatic. In this way student choice is balanced by employers’ needs.

Students are more likely to find a job in their field of training upon finishing their apprenticeship than in an exclusively school-based system because the provision of apprenticeship places is directly linked to employer needs.” This raises the system efficiency and avoids a misallocation of funds, as can be observed when students trained at high cost in a school setting are not able to find adequate employment afterwards[[304]](#footnote-305).

In Switzerland apprenticeships are the proven and accepted model. Therefore companies have a lot of experience with implementing apprenticeships, which are profitable as a consequence. School based training exists to a degree, but has not proven to be competitive in most sectors. Even the tertiary education is organised as dual-track training to a high degree (PET), as can also be observed in Germany.

Therefore there is no relevant discussion to change the system or to offer other (school-based) alternatives to a higher degree. One exception might be large multinational companies, which, as in other resource countries, tend to rely more on internal labour markets and therefore aim to offer company based internships or traineeships[[305]](#footnote-306).

One of the most discussed inhibitors of developing more apprenticeships in countries where dual track VET is not prevalent, is the problem of poaching. For the case of Switzerland, as a prototype of a dual track system of collective skill formation which has a long tradition and is deeply rooted in the political-institutional system of the country as a whole it can be concluded that there is no particular problem of apprentices leaving one company as the apprenticeship itself is mostly profitable. SME have a retention rate of less than 50%. However, they continue to engage in training. One of the factors is that companies appreciate the possibility to select the best candidates from various cohorts of apprentices. This makes it possible to select the best candidates for the jobs available.

The leading expert on cost-benefit-calculation of VET, S. Wolter describes the general rationale of companies as follows:

“Offering apprenticeships may benefit an employer in at least three ways: First, as apprentices work (part-time) for the training firm, the value of their productive contribution may already offset the firm's costs of providing training (i.e. material and infrastructure costs, and wages for instructors and apprentices). Second, a firm can use training as a screening device to identify the most talented and motivated apprentices. Although the apprenticeship contract ends by the end of training, the firm can always offer a work contract to the most able individuals (based on superior knowledge of the trainee's aptitudes that is not available to other firms) and thereby avoid costly mismatches. Third, a firm can train apprentices in regard to its specific skills requirements - an increasingly important advantage in times of skilled worker shortages in many industries that make it more difficult to fill vacancies with workers from the external labour market. An externally-hired worker still needs to acquire specific skills during a period of adaption that initially restricts the productivity of a new hire. In many cases, external hiring costs are substantially higher than the potential net investment associated with training an apprentice. However, the relative importance of the three types of training benefits varies across firms, sectors, occupations, and even across countries, as differences in labour market regulations may shift the focus from long-term considerations to short-run goals”[[306]](#footnote-307).

A policy paper by Heike Suter Hoffmann (Government, SERI), Bruno Weber Gobet (Trade Union), Jürg Zellweger (Employers), George Waardenburg (SERI) for the ACVT Workshop Best practice in VET in 2013[[307]](#footnote-308) puts the rationale this way:

“Why should companies invest in VET training?

1. Receiving tangible benefits: Consistently over the past ten years cost-benefit-calculations for Swiss firms have shown that the productive contribution of an apprentice in a typical Swiss training firm exceeds the training costs by more than 6000 EUR per apprenticeship.

2. Strengthening the image: Customers become aware of the company taking their social responsibility seriously.

3. Knowing the latest trends: Young people bring fresh ideas and challenge old habits.

4. Investment in the future: Well-trained employees can quickly adapt to new developments and can be a decisive factor for success. Engaging in VET/PET will help to find suitable staff in the future.”

Tackling problems of demographic change through VET becomes ever more important. In particular, SME must secure the supply of qualified staff in face of ever smaller number of school graduates[[308]](#footnote-309).

Denmark

The arguments listed in the literature on the system in Denmark echo those presented for the first three resource countries. In general the system in Denmark represents a win-win situation for all parties involved. Therefore the main rationale for companies to become engaged in apprenticeships is the high level of efficiency of the system as a whole.

Factors to engage SME’s in apprenticeships are:[[309]](#footnote-310)

* Effectiveness of job/labour market transitions; apprenticeship graduates are typically the first to be hired by the companies, which expresses the appreciation of the quality of the training and reflects the matching and socialisation function of the apprenticeship
* The employer fund that supports apprenticeships helps to limit the financial investment of the company
* Close alignment with the labour market needs results in well matched qualification profiles
* The high completion rate of about 70% reflects the efficiency of the system and the quality of the support systems
* Certification procedures which lead to nationally recognised qualification. On passing the final journeyman examination, the apprentice achieves the qualification and skilled worker status
* 50 trade committees, set up by employers and employees
* Final assessments with methods of school-based exam and a journeyman’s exam (svendeprøve) carried out by trade committees.

On the whole the participation in the system for SME in Denmark is a matter of course, as they profit from one of the most developed, modern and efficient VET systems in the world, which they also can shape according to their own individual and sectorial needs.

Netherlands

Although the share of apprenticeship based VET lags behind the other resource countries the engagement of SME is strong also in the Netherlands. The literature does not reveal arguments for SME engagement additional to those discussed for the other resource countries. The Dutch system does however provide quite flexible ways of becoming engaged in training, as traineeships for school based VET students are more common than in other countries. However, as the OECD emphasizes, more SME cooperation could lead to additional placements offered by SME in full apprenticeship programmes.

UKCES (UK Commission for Employment and Skills) sums up employer benefits as follows:

Productive contribution of apprentices and trainees, tax deductibility (€2,500 per apprentice per Year, now changed to a subsidy), Corporate Social Responsibility, higher productivity and quality of work of existing employees, management of knowledge and skills within the company, higher esteem (higher social status, subsidies by state and support of industries), impact on training contents and organisation. If an apprentice is taken on: Competence-based trained employees, selection of future employees during training period (75% of apprentices are taken on by their training company), reduced recruitment costs, integrated workers [[310]](#footnote-311).

Summarising older research from the Netherlands the authors conclude:"According to an evaluation from the year 2001, employers often prefer graduates from the BBL track as they are seen to be better skilled workers, who can solve new and unexpected problems faster, are more flexible and incorporate themselves in the company much quicker. The majority of companies also train BBL apprentices for their future needs for skilled workers. Moreover, companies already appoint apprentices in the production processes. This mainly applies to hotels and restaurants as well as to car repair shops, but applies less to company-based services. To a large extent, employers indicate that apprentices outweigh the training costs with productive working time in the company (Hövels and Roelofs, 2007)[[311]](#footnote-312)“.

## Comments on the Apprenticeship System

### Germany

In principle the apprenticeship system works very well, is well respected and regarded as one of the main factors contributing to the productivity of the German economy. The German discussion on the priorities for a further development of the system focuses three main problems to be solved:

The engagement of the enterprises in the vocational training is declining and at a level (about 21.3 percent; see above Tab. 1) that has, firstly, proven to be insufficient to place all applicants during most of the last two decades. Secondly, it is discussed, that companies who could train do not find enough applicants that are attractive for them, as they are regarded as sufficiently trainable (“Ausbildungsreife”).

The third problem discussed is that almost a quarter of trainees (24.4 percent in 2011) drop out of their training contract[[312]](#footnote-313), indicating serious mis-match problems in placing apprentices.

A measure to cope with all of these problems could be to improve the selection procedure of trainees: it should include more practical monitoring within work experience offers of the companies. The results are much more valid for the agreement of a training contract and the prospects of the expected development of the trainee.

Coping with these problems also requires that companies improve their own competencies to train young people.

Additional measures to solve the problems outlined above would be

* training assistance for companies,
* assisted vocational training for trainees and
* external management of vocational in-company training.

These measures are particularly important for small companies, which do not have an HRD department managing and administrating vocational training.

### Austria

Also in Austria in principle the apprenticeship system in Austria works very well. But there are some problems to be solved:

One of the crucial problems is a declining number of companies offering apprenticeships in recent years. This indicates a problem for the companies: they are facing increasing difficulties to acquire applicants, which are regarded as trainable by the companies.

The problem for young people looking for vocational training opportunities (especially low qualified people according to general education) could be reduced already by the training guarantee.

And there is a third problem: drop out of the training.

A measure to cope with these problems could be to improve the selection procedure of trainees: it should include more practical monitoring within work experience offers of the companies. The results are much more valid for the agreement of a training contract and the prospects of the expected development of the trainee.

But to cope with these problems also requires that companies improve their own competencies to train young people.

Additional measures to solve the problems outlined above would be training assistance for companies (for training of certain target groups already available in Austria),

assisted vocational training for trainees companies (for certain target groups already available in Austria) and external management of vocational in-company training.

These measures are particularly important for small companies, which do not have an HRD department managing and administrating vocational training.

### Switzerland

Switzerland regards its system as a benchmark best practice for training of young people “The Swiss education system features an extensive and efficient VET and PET system. It contributes substantially to the competitive strength of Switzerland, which is ranked as the most competitive and innovative European country”[[313]](#footnote-314).

Strengths highlighted include: 85% of VET students train as apprentices, efficient provision of qualified personnel to all fields of industry, market-based skills, regular adaptation of skills to needs of companies, flexibility, close involvement of the private sector, seamless transition from training to work[[314]](#footnote-315).

VET is regarded as attractive for professional organisations (companies, administrations etc.) for 3 reasons:

positive cost-benefit ratio of the apprenticeship itself. Productive contribution is higher than cost of training

apprenticeships are a screening device that allows companies to find the best and most talented employees. Costly mismatches are avoided

companies can train to their specific needs, which is very important in times of worker shortages. In many cases external hiring costs are much higher than any potential net investment in training an apprentice[[315]](#footnote-316)

In the leading OECD 2009 study, Hoeckl et al list as advantages of the system:

“Strengths: Switzerland’s highly developed VET/PET system has many strengths. In particular:

The system is strongly employer and market driven.

The partnership between confederation, cantons and professional organisations works well.

School and work-based learning are well integrated; workplace training (which Switzerland refers to as in-company training) is not too company-specific.

Switzerland’s VET/PET system is well-resourced and able to include up-to-date equipment.

Switzerland’s apprenticeship-based VET programmes pay for themselves, in the sense that benefits to most employers outweigh the costs.

Tertiary VET is strong; there is a broad spectrum of tertiary VET offerings.

Flexible pathways have been introduced to allow for mobility and avoid the risk of dead-ends.

Vocational teachers and trainers, examiners and directors are well prepared.

Quality control is ensured and national assessment procedures are in place.

Career guidance and counselling is systematic and professional.

Evidence is well developed and routinely used to support policy arguments."[[316]](#footnote-317)

Regarding points for improvement the OECD study lists a number of challenges, along with recommendations. Challenges include potential negative effects of economic downturns on the provision of apprenticeship places. Demographic changes, as in Germany lead to shrinking cohort numbers, which may sharpen the competition between academic and vocational education.

The OECD therefore recommends that Switzerland should expand its system of empirical data to allow for evidence based policy making.

Further it is recommended to ensure that dropout is minimised and that those who do drop out are supported adequately. Also it is recommended to develop a contingency plans to cope with any sharp reduction in employer willingness to provide in-company training[[317]](#footnote-318).

The eighth national conference on apprenticeships, a meeting of all relevant actors in the Swiss VET system, among others mentioned as points for improvement:

* Fully coping with the demands of the transition towards a service economy
* Strengthening of the diversification of the economy
* Motivation of women for technical occupations
* Integration of migrants
* Strengthening of compensatory training for adults (Nachholbildung)
* Strengthening of post-secondary professional training
* Minimizing the administrative burden for host companies[[318]](#footnote-319)

From the German perspective of the authors of this "resource country" report and in view of the development since 2009, the Swiss system seems to have implemented these recommendations quite well. The reaction of companies to the crisis in 2009 ff could be felt, but was not as severe as expected. Rather the situation seems to be quite similar to Germany, where companies become ever more concerned about the demographic development, which leads to a scarcity of qualified labour, particularly of applicants for apprentices in the less attractive occupations. Therefore challenges include the acquisition of apprentices, the training of more women in technical occupations as well as the training of apprentices with lower academic attainment. Also the integration of migrants, which help to provide much needed labour, is a constant challenge.

Regarding the flexibility and permeability of the system Switzerland seems to be on the right track.

One aspect not highlighted in the OECD analysis is the consequent implementation of state of the art occupational didactics, as the occupations in Switzerland are defined along the concept of critical action-orientated competencies. In many occupations the learning is mainly based on learning- and working assignments, which help to make the learning relevant and to smoothen the integration to the regular work process after the end of the apprenticeship. This is in line with recent reforms in Germany.

### Denmark

Denmark, after problems faced in the 80s and 90s is now regarded by leading scholars as a best practice case of a robust system of collective skills formation[[319]](#footnote-320).

In particular the cooperation of social partners, which are represented equally throughout the system is regarded as an asset, as this allows for coordinated responses to new skills demands. The discipline imposed by employers’ associations as well as Unions helps to limit the problem of „poaching“ and „freeriding“[[320]](#footnote-321).

It is also mentioned that the Danish system is quite innovative in taking account of the concept of transversal and transferable competences and lifelong learning, as occupational profiles are flexible and modular elements within the system make it quite easy to shape individual learning pathways throughout the professional career, which is a deviation of the concept of one stable professional profile “Berufskonzept”(the vocational principle) followed in Germany, Switzerland and Austria[[321]](#footnote-322).

For CEDEFOP[[322]](#footnote-323), acting director C.F. Lettmayr highlights that, “Vocational education and training (VET) in Denmark is key to ensure a flexible and skilled workforce able to adapt to changes within the labour market.” As contributing factors he mentions “the traditional strong partnership with the social partners”, “responsiveness of education and training provision to the changing needs of the labour market, enabling both enterprises and individuals to adjust their skills and competences accordingly” and “recent reforms of the VET system”, which have focused on making it simpler, more transparent, more coherent, and flexible to both the needs of the labour market and social challenges. He emphasizes that the Danish VET system aims to focus both strong and weak learners in a lifelong learning perspective. All components are “streamlined to ensure coherence and transferability”, building flexible pathways and permeability between vocational and general education[[323]](#footnote-324).

Denmark has the highest participation rates in adult education and continuing training in the European Union (EU), which reflects conditions such as the national strategy “to focus on knowledge-intensive specialist sectors and lifelong learning, a large public sector, and a tradition for strong ties between enterprises, educational institutions and the social partners”[[324]](#footnote-325).

The current discussions in Denmark do not involve the development of apprenticeships as part of the higher education system. But the reform that has effect as of August 2015 introduces better opportunities for access to higher education after finishing a vocational education.[[325]](#footnote-326)

Efforts to further improve the system continue. The Minister of Education stated in 2014: “It is important that even more young people choose this path and that the quality of the programmes is improved. Therefore, we are implementing a reform of the Danish vocational education and training programmes with effect from 1 August 2015. The reform will give the vocational education and training programmes a lift, making future skilled workers even more competent.”[[326]](#footnote-327)

This reform aims to further strengthen the connection between schooling and work experience in companies or internship centres and to improve the quality of VET.

### Netherlands

The CEDEFOP Refernet report on the Dutch vocational training system identifies the needs for reform in the Dutch system to follow:

* a turn towards competence-based learning in multiple forms;
* more active forms of work, which call for greater levels of independence and self-regulation amongst participants in vocational education programmes;
* the introduction of a greater variety in practical learning with the emphasis on the practical applicability of knowledge: workplace learning; simulation companies; carrying out assignments for companies, etc.;
* the development of longitudinal learning strands that transcend the different types of vocational education;
* the introduction of different forms of supporting participants: coaching, mentoring (also peer mentoring), career guidance, etc.; and
* the introduction of more varied means of assessment, including the simulation of an aptitude test.

Schools providing vocational education make their own choices when it comes to the finer points of modernisation[[327]](#footnote-328).

The OECD highlights as strengths of the system:

* Strong and well-funded system
* Large proportion of each student cohort follow a vocational pathway
* Work-based learning forms are a large part of VET in both, school and company based learning pathways
* Good labour market outcomes with low youth unemployment rates
* Well-developed participation of social partners in policy formulation, implementation and delivery of programs
* “vibrant” private sector engaged in providing VET, allowing for flexibility and a wide range of various offers

Challenges include, according to the OECD experts:

* Demographic challenges and a trend towards academic education put pressure on work-based learning
* Companies are under economic pressure and readiness to offer work placements may suffer from changing regulations
* Keeping skills of teachers up to date. Transfer from industry to schools is not common. A wave of retirement is expected and teacher supply might be insufficient to fill the ranks
* MBO 1 entry level courses need to take even more care to address the needs of diverse learners in order to avoid early drop out or transition to the labour market without a sustainable qualification.
* The VET track of post-secondary education needs further development as additional qualification profiles are needed as well as arrangements as part-time programmes in order to meet the needs of diverse adult learners

The OECD therefore recommends to

* "Actively champion and promote apprenticeship and work-based learning throughout the Dutch VET system, including at the postsecondary level. Negotiate reform with the social partners to sustain tripartite support for the system“
* Facilitate the entry of industry practitioners into the teaching workforce
* Merge pre-vocational tracks level 1 and 2 to create better routes to upper secondary VET level 2
* Reform regulation and finance of post-secondary VET[[328]](#footnote-329)

A UKCES summary of older Dutch research reveals that employers feel that their role in VET could be even more pronounced. According to expert interviews, in practice, employers do not have a high level of influence on the supply of training courses at vocational schools. This can lead to mismatches between companies’ labour needs and the supply of workers. I addition mall firms would often like to train but do not have the resources to offer all elements of the prescribed learning programme. This problem may partly have been solved by cooperating with other firms, forming “cooperative firms”. Companies indicated the importance of good supervision which needs to be improved in vocational schools. Moreover, better cooperation between companies and schools regarding contents and structure of training, education materials, requirements for apprentices and grading was indicated by the companies [[329]](#footnote-330).

From the perspective of the authors of this report, the most remarkable characteristic of the Dutch system is its full development of two pillars of VET, one school-based and the other work based.

This balanced structure helps to address the needs of different types of learners. It also helps to overcome the limitations of systems that rely on apprenticeships offered by companies only. While we strongly believe that both students as also companies profit in many ways from training, it cannot be denied that the dependency on the business cycle is a certain limitation, although this effect is often exaggerated and the decline in placements often reflects rather structural economic developments.

International comparison shows that there might be even more room for work-based apprenticeships and the expansion of work-based learning to post-secondary and tertiary education in countries like Germany shows the potential and attractiveness of this learning while the situation of Vocational Schools and in particular the demography and training of their staff raises doubts about the innovativeness and close contact of schools to the latest technological and economic developments[[330]](#footnote-331).

The school based VET can have a buffer effect[[331]](#footnote-332). However this effect will only be beneficial if the school based track is also closely related to company needs and a smooth transition to work is organised.

In any case the recommendation of the OECD to support SME to provide genuine apprenticeships, particularly by encouraging SME cooperation, seems to be more than reasonable and backed up by evidence from Austria, Switzerland and Germany[[332]](#footnote-333).

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48. Ministry of Education, 2014 [↑](#footnote-ref-49)
49. Cedefop Refernet, Denmark VET in Europe – Country report, Draft 2014, p. 18 [↑](#footnote-ref-50)
50. Neergaard-Holmm, S., Conferation of Danish Employers, Reform of VET in Denmark.Content and Process, Presentation 19-022015 [↑](#footnote-ref-51)
51. The Danish Ministry of Education, 2014, Improving Vocational Education and Training – overview of reform of the Danish vocational education system, p. 8. URL: [www.uvm.dk/vocational](http://www.uvm.dk/vocational) [↑](#footnote-ref-52)
52. [http://eng.uvm.dk/Education/Upper-Secondary-Education/Vocational-Education-and-Training-%28vet%29](http://eng.uvm.dk/Education/Upper-Secondary-Education/Vocational-Education-and-Training-(vet)) [http://eng.uvm.dk/Education/Upper-Secondary-Education/Vocational-Education-and-Training-%28vet%29](http://eng.uvm.dk/Education/Upper-Secondary-Education/Vocational-Education-and-Training-(vet)) [↑](#footnote-ref-53)
53. Simon Rolls, ReferNet Denmark: Denmark VET in Europe – Country report, p. 22 [↑](#footnote-ref-54)
54. Roles, p. 23 [↑](#footnote-ref-55)
55. UKCES, p. 119 [↑](#footnote-ref-56)
56. CEDEFOP NL p. 12 [↑](#footnote-ref-57)
57. CEDEFOP NL p. 12 [↑](#footnote-ref-58)
58. Source: Rolles, p. 20 (cutout of originalorgiginal illustration) [↑](#footnote-ref-59)
59. CEDEFOP NL, p. 22 [↑](#footnote-ref-60)
60. UKCES, p.127 [↑](#footnote-ref-61)
61. COLO 2008 [↑](#footnote-ref-62)
62. CEDEFOP NL, p. 31 [↑](#footnote-ref-63)
63. CEDEFOP NL , p.33 [↑](#footnote-ref-64)
64. http://www.s-bb.nl/introduction.html; http://www.s-bb.nl/qualifications-and-examinations.html [↑](#footnote-ref-65)
65. OECD NL, p. 20 [↑](#footnote-ref-66)
66. CEDEFOP NL, p.18 [↑](#footnote-ref-67)
67. CEDEFOP NL, p. 28 [↑](#footnote-ref-68)
68. See „Rahmenlehrpläne für Berufsschulen“ [↑](#footnote-ref-69)
69. [↑](#footnote-ref-70)
70. Cf. Conlon et al. 2013, p. 61f. [↑](#footnote-ref-71)
71. Cf. Conlon et al. 2013, p. 63 [↑](#footnote-ref-72)
72. [↑](#footnote-ref-73)
73. https://www.ag.ch/media/kanton\_aargau/bks/dokumente\_1/berufsbildung\_\_\_mittelschulen/lehrbetriebe\_\_\_berufsbildner/BKSBM\_Empfehlung\_AIHK\_AGV\_2014.pdf [↑](#footnote-ref-74)
74. Conlon et al. 2013, p. 76 [↑](#footnote-ref-75)
75. Conlon 2013, p. 77 [↑](#footnote-ref-76)
76. https://www.ag.ch/media/kanton\_aargau/bks/dokumente\_1/berufsbildung\_\_\_mittelschulen/berufliche\_grundbildung\_lehre/BKSBM\_Empfehlung\_Lehrlingsentschaedigungen\_OdA.Pdf [↑](#footnote-ref-77)
77. Conlon 2013, p. 174 [↑](#footnote-ref-78)
78. Information obtained from Anja Trier Wang, DI, 26.10.2015 [↑](#footnote-ref-79)
79. Conlon 2013, p. 176 [↑](#footnote-ref-80)
80. Conlon 2013, p. 89 [↑](#footnote-ref-81)
81. Conlon 2013, p. 94 [↑](#footnote-ref-82)
82. See „Rahmenlehrpläne für Berufsschulen“ [↑](#footnote-ref-83)
83. Cf. bmwfj 2009, p. 5; Tritscher-Archan et al. 2012, p. 19 [↑](#footnote-ref-84)
84. Refernet Denmark 2014, p. 35f. [↑](#footnote-ref-85)
85. COLO, p. 5 [↑](#footnote-ref-86)
86. UKCES, p.123 [↑](#footnote-ref-87)
87. See Verordnung über die Berufsbildung im Bereich der Informations- und Kommunikationstechnik; Zeugniserläuterung Fachinformatiker <http://www.bibb.de/tools/berufesuche/index.php/certificate_supplement/en/fachinformatiker_fr_systemintegration_e.pdf> [↑](#footnote-ref-88)
88. Cf. Zeugniserläuterung „Informationstechnologie – Informatik” <http://zeugnisinfo.at.penguin-cloud.at/file_upload/9_datak0003wwwsrv4vhost1phptmpphpO5DMC8.pdf>;   
    see also ibw 2013, p. 91 [↑](#footnote-ref-89)
89. <http://www.sbfi.admin.ch/bvz/grundbildung/index.html?lang=de&detail=1&typ=EFZ&item=1469> (41 page qualification plan) [↑](#footnote-ref-90)
90. Source: Certificate Supplement Europass, Description of the vocational education and training programmes [↑](#footnote-ref-91)
91. http://www.ecabo.nl/sites/default/files/English/2014/ICT-management-assistant-EQF-3.pdf [↑](#footnote-ref-92)
92. See „Verordnung über die Berufsbildung im Bereich der Informations- und Kommunikationstechnik; Zeugniserläuterung Informations- und Telekommunikationssystem-Elektroniker/in” <http://www.bibb.de/tools/berufesuche/index.php/certificate_supplement/en/informations__und_telekommunikationssystem_elektroniker_e.pdf> [↑](#footnote-ref-93)
93. Cf. Zeugniserläuterung „Elektronik - Informations- und Telekommunikationstechnik”  
    [http://zeugnisinfo.at.penguin-cloud.at/file\_upload/  
    9\_datak0003wwwsrv4vhost1phptmpphph39QYD.pdf](http://zeugnisinfo.at.penguin-cloud.at/file_upload/%0B9_datak0003wwwsrv4vhost1phptmpphph39QYD.pdf); see also . ibw 2013, p. 49f. [↑](#footnote-ref-94)
94. http://www.kenteq.nl/kenteq/Downloads/1-Ondersteuning%20mbo/2-Kwalificatiestructuur/Downloads%20kws/Quickstarts/Eerste%20monteur%20data%20elektra%2092121.pdf, transl. AK [↑](#footnote-ref-95)
95. See „Verordnung über die Erprobung abweichender Ausbildungs- und Prüfungsbestimmungen in der Berufsbildung im Einzelhandel in dem Ausbildungsberuf Kaufmann im Einzelhandel/Kauffrau im Einzelhandel; Zeugniserläuterung Kaufmann im Einzelhandel“ [http://www.bibb.de/tools/berufesuche/index.php/  
    certificate\_supplement/en/kaufmann\_im\_einzelhandel\_e.pdf](http://www.bibb.de/tools/berufesuche/index.php/%0Bcertificate_supplement/en/kaufmann_im_einzelhandel_e.pdf) [↑](#footnote-ref-96)
96. Cf. Zeugniserläuterung „Einzelhandel - Allgemeiner Einzelhandel” <http://zeugnisinfo.at.penguin-cloud.at/file_upload/9_datak0003wwwsrv4vhost1phptmpphpsJ7cIj.pdf>;   
    see also ibw 2013, p. 34 [↑](#footnote-ref-97)
97. http://www.berufsberatung.ch/dyn/1199.aspx?id=3058 [↑](#footnote-ref-98)
98. http://www.kch.nl/beroepsonderwijs/kwalificatiedossiers/~/media/Files/kwalificatiestructuur/kwalificatiedossiers-2011-2012/handel/Verkoopspecialist.ashx (transl ak) [↑](#footnote-ref-99)
99. See „Verordnung über die Berufsausbildung zum Kraftfahrzeugmechatroniker und zur Kraftfahrzeugmechatronikerin vom 14.06.2013; Zeugniserläuterung Kraftfahrzeugmechatroniker/in” [http://www.bibb.de/tools/berufesuche/index.php/certificate\_supplement/en/  
    kraftfahrzeugmechatroniker2013\_e.pdf](http://www.bibb.de/tools/berufesuche/index.php/certificate_supplement/en/%0Bkraftfahrzeugmechatroniker2013_e.pdf) [↑](#footnote-ref-100)
100. Cf. Zeugniserläuterung „Kraftfahrzeugtechnik” <http://zeugnisinfo.at.penguin-cloud.at/file_upload/9_datak0003wwwsrv4vhost1phptmpphpUYM1Oz.pdf>; see also . ibw 2013, p. 111 [↑](#footnote-ref-101)
101. http://www.berufsberatung.ch/dyn/1199.aspx?id=2971 [↑](#footnote-ref-102)
102. http://certsupp.uds.dk/ „car mechanic“ [↑](#footnote-ref-103)
103. http://www.innovam.nl/Education/Producten%20en%20Diensten/Kwalificatiedossiers.aspx [↑](#footnote-ref-104)
104. http://www.bibb.de/tools/berufesuche/index.php/certificate\_supplement/en/mechatroniker2011\_e.pdf [↑](#footnote-ref-105)
105. Cf. Zeugniserläuterung „Machatronik” <http://zeugnisinfo.at.penguin-cloud.at/file_upload/9_datak0003wwwsrv4vhost1phptmpphpqXD5Is.pdf>; see also . ibw 2013, p. 131 [↑](#footnote-ref-106)
106. <http://certsupp.uds.dk/> „Electro-mechanical technician“ [↑](#footnote-ref-107)
107. <http://www.kenteq.nl/kenteq/Downloads/1-Ondersteuning%20mbo/2-Kwalificatiestructuur/Downloads%20kws/Quickstarts/Mechatronicus%2094262%20.pdf> transl. ak [↑](#footnote-ref-108)
108. See Federal Ministry of Education and Research 2005 [↑](#footnote-ref-109)
109. Cf. BAG 1969 [↑](#footnote-ref-110)
110. Cf. SchOG 1962 [↑](#footnote-ref-111)
111. Tritscher-Archan and Nowak 2010, p. 20, 41 [↑](#footnote-ref-112)
112. http://www.news.admin.ch/NSBSubscriber/message/attachments/20586.pdf [↑](#footnote-ref-113)
113. See CEDEFOP/EC 2013, p. 83 and Nelson, p. 1919 for a full discussion oft he framework [↑](#footnote-ref-114)
114. CEDEFOP NL, p. 14 [↑](#footnote-ref-115)
115. CEDEFOP NL, p. 16 [↑](#footnote-ref-116)
116. Cf. Tritscher-Archan and Nowak 2010, p. 37; Tritscher-Archan et al. 2012, p. 20 [↑](#footnote-ref-117)
117. CEDEFOP NL, p.18 [↑](#footnote-ref-118)
118. [↑](#footnote-ref-119)
119. [↑](#footnote-ref-120)
120. http://www.kch.nl/en/vet-netherlands [↑](#footnote-ref-121)
121. OECD NL, p. 25 [↑](#footnote-ref-122)
122. BDA, response to BUSINESSEUROPE Questionnaire, Feb 2015 [↑](#footnote-ref-123)
123. Cf. Tritscher-Archan and Nowak 2010, p.76ff.; Conlon et al. 2013, p. 59 [↑](#footnote-ref-124)
124. Cf. Conlon et al. 2013, p. 59f.; Tritscher-Archan and Nowak 2010, p. 77 [↑](#footnote-ref-125)
125. Cf. Tritscher-Archan and Nowak 2010, p. 77; bmwfj 2009, p. 15 [↑](#footnote-ref-126)
126. Cf. Tritscher-Archan and Nowak 2010, p. 27 and 76 [↑](#footnote-ref-127)
127. Cf. Conlon et al. 2013, p. 58f. [↑](#footnote-ref-128)
128. Cf. Statistik Austria 2015: Table “Staatliche Bildungsausgaben 2010 - 2012 nach Ausgabenarten und Bildungseinrichtungen, österreichische Systematik” [↑](#footnote-ref-129)
129. Source: Conlon et al. 2013, Fig. 26, p. 59 [↑](#footnote-ref-130)
130. European Centre for the Development of Vocational Training (Cedefop) 2013: Spotlight on VET Denmark, p. 4. [↑](#footnote-ref-131)
131. Information obtained from Anja Trier Wang DI, 26.10.2015 [↑](#footnote-ref-132)
132. Undervisningsministeriet: “Initial Vocational education and training programmes” , p.4 [↑](#footnote-ref-133)
133. CEDEFOP NL, p. 36, numbers for 2006 [↑](#footnote-ref-134)
134. EC 2013, p. 92 [↑](#footnote-ref-135)
135. OECD NL, p. 25 [↑](#footnote-ref-136)
136. See Bundesinstitut für Berufsbildung 2014a, p. 191 [↑](#footnote-ref-137)
137. Data from Bundesinstitut für Berufsbildung 2014b, Tabelle A4.10.1-1 to A4.10.1-3, A4.10.1-12 Internet [↑](#footnote-ref-138)
138. Statistische Ämter des Bundes und der Länder   
     <http://www.statistik-portal.de/Statistik-Portal/en/en_jb04_jahrtab49.asp> [↑](#footnote-ref-139)
139. See Bundesinstitut für Berufsbildung 2014a, Tabelle A4.5-5, p. 145; also see Statistisches Bundesamt 2013, p. 38; data are only available for the age group from 19 to 27 years. [↑](#footnote-ref-140)
140. Cf. WKO <http://wko.at/statistik/wgraf/2014_01_Lehrlinge_2013.pdf> [↑](#footnote-ref-141)
141. Data from Dornmayr und Nowak 2014b, Tabelle 8a: Lehrlingsquoten nach Sparten und Betriebsgröße, Dezember 2013, S. 122 [↑](#footnote-ref-142)
142. [↑](#footnote-ref-143)
143. [↑](#footnote-ref-144)
144. [↑](#footnote-ref-145)
145. <http://www.bfs.admin.ch/bfs/portal/de/index/themen/15/17/blank/01.indicator.403302.4033.html?open=401,1#1> <http://www.bfs.admin.ch/bfs/portal/de/index/themen/15/17/blank/01.indicator.403302.4033.html?open=401,1#1> [↑](#footnote-ref-146)
146. [↑](#footnote-ref-147)
147. [↑](#footnote-ref-148)
148. [↑](#footnote-ref-149)
149. EC 2013, p. 92 [↑](#footnote-ref-150)
150. See GPC <http://www.good-practice.de/> [↑](#footnote-ref-151)
151. <http://www.foraus.de/html/index.php> [↑](#footnote-ref-152)
152. See also Euler 2013 [↑](#footnote-ref-153)
153. See „Handbuch Ausbildungsorientiertes Betriebspraktikum” (Handbook „Training oriented Internship“)  
     <http://www.good-practice.de/materialien/index.php?action=mat_detail&id_material=1199>; http://sowibefo-regensburg.de/index.php/en/projects/projects-in-germany/34-bevoplus-en [↑](#footnote-ref-154)
154. http://www.isob-regensburg.net/joomla3/index.php/en/projects/national/50-komplan [↑](#footnote-ref-155)
155. See <http://www.isob-regensburg.net/joomla3/index.php/en/projects/national/55-quam> [↑](#footnote-ref-156)
156. Cf. <http://www.qualitaet-lehre.at/> [↑](#footnote-ref-157)
157. Cf. ibw 2014 [↑](#footnote-ref-158)
158. Cf. bmwfj 2009, p. 35; see also WKO: <https://www.wko.at/Content.Node/Service/Bildung-und-Lehre/Lehre/Ausbildungsqualitaet/Staatliche_Auszeichnung_LB.html> [↑](#footnote-ref-159)
159. Waardenburg, p. 4 [↑](#footnote-ref-160)
160. cf. Waardenburg, p.3. For further information see [www.lehrbetriebsverbund.ch](http://www.lehrbetriebsverbund.ch/) [www.login.org](http://www.login.org/) ( [↑](#footnote-ref-161)
161. cf. Waardenburgp. 3 [↑](#footnote-ref-162)
162. https://www.ag.ch/de/bks/berufsbildung\_mittelschulen/lehre\_1/betriebliche\_bildung/coaching/cobe.jsp [↑](#footnote-ref-163)
163. Additional information: [www.sbbk.ch](http://www.sbbk.ch/) http://www.iex.formationprof.ch/dyn/20850.aspx?lang=EN&action=detail&value=213&lex=0 [↑](#footnote-ref-164)
164. Eurochambers 2014/Eurostat, data from 2010 [↑](#footnote-ref-165)
165. For details – also of the following information – see Federal Institute for Vocational Education and Training 2011, p. 14-16 [↑](#footnote-ref-166)
166. See Vocational Training Act 2005, section 77-80 [↑](#footnote-ref-167)
167. See Vocational Training Act 2005, section 40 [↑](#footnote-ref-168)
168. http://www.jobstarter.de/ [↑](#footnote-ref-169)
169. The following explanations on national, regional, and local level are based on Tritscher-Archan and Nowak 2010, p. 27; Tritscher-Archan 2010; bmwfj 2009, p. 18f. [↑](#footnote-ref-170)
170. Cf. bmwfj 2009, p. 18; bmwfj 2012a, S. 10f.; BAG §19; Tritscher-Archan 2010, slide 7 [↑](#footnote-ref-171)
171. Busemeyer/Trampusch, p. 12 [↑](#footnote-ref-172)
172. Busemeyer/Trampusch, p. 14 [↑](#footnote-ref-173)
173. CEDEFOP/EC 2013, p,49 [↑](#footnote-ref-174)
174. CEDEFOP/EC 2013, p,49 [↑](#footnote-ref-175)
175. http://duo.nl [↑](#footnote-ref-176)
176. http://www.s-bb.nl/introduction.html [↑](#footnote-ref-177)
177. See Euler 2013, p. 9, 61 [↑](#footnote-ref-178)
178. http://www.hochschulkompass.de/en/degree-programmes/all-about-studying-in-germany/forms-of-study/dual-work-study-programmes.html [↑](#footnote-ref-179)
179. Tritscher-Archan and Nowak 2010, p. 70 [↑](#footnote-ref-180)
180. <https://www.wko.at/Content.Node/Service/Bildung-und-Lehre/Lehre/Lehrlingsausbildung-in-Oesterreich/Die_Lehre_BMWFJ.html> [↑](#footnote-ref-181)
181. Cf. Tritscher-Archan and Nowak 2010, p. 70; see <http://www.ams.at/lehrstellen> [↑](#footnote-ref-182)
182. Cf. Tritscher-Archan et al. 2012, p. 15f. [↑](#footnote-ref-183)
183. Cf. Tritscher-Archan et al. 2012, p. 20 [↑](#footnote-ref-184)
184. Cf. bmwfj 2009, p. 1 [↑](#footnote-ref-185)
185. http://www.sbfi.admin.ch/org/01645/index.html?lang=en [↑](#footnote-ref-186)
186. See Institut für Arbeitsmarkt- und Berufsforschung 2013, p. 2f, 6, tab. [↑](#footnote-ref-187)
187. See Institut für Arbeitsmarkt- und Berufsforschung 2013, p. 13, tab. [↑](#footnote-ref-188)
188. See Institut für Arbeitsmarkt- und Berufsforschung 2014, p. 6f. [↑](#footnote-ref-189)
189. Source: Institut für Arbeitsmarkt- und Berufsforschung 2014, p. 6, fig.7 [↑](#footnote-ref-190)
190. Cf. Tritscher-Archan et al. 2012, p. 20 [↑](#footnote-ref-191)
191. Cf. Dornmayr und Nowak 2014b, S. 90f. [↑](#footnote-ref-192)
192. Source: Tritscher-Archan et al. 2012, p. 10 [↑](#footnote-ref-193)
193. Cf. Dornmayr und Nowak 2014b, S. 92f. [↑](#footnote-ref-194)
194. Cf. bmwfj 2009, p. 7 [↑](#footnote-ref-195)
195. Berufseinsteiger-Barometer 2010 Report im Auftrag des Bundesamts für Berufsbildung und Technologie (BBT) Ausführliche Version vom Februar 2011 Stellenmarkt-Monitor Schweiz, p.17 http://www.sbfi.admin.ch/berufsbildung/01587/01588/01609/index.html?lang=de [↑](#footnote-ref-196)
196. Berufseinsteiger-Barometer 2010 Report im Auftrag des Bundesamts für Berufsbildung und Technologie (BBT) Ausführliche Version vom Februar 2011 Stellenmarkt-Monitor Schweiz, p.17 http://www.sbfi.admin.ch/berufsbildung/01587/01588/01609/index.html?lang=de [↑](#footnote-ref-197)
197. Berufseinsteiger-Barometer 2012 Report im Auftrag des Bundesamts für Berufsbildung und Technologie (BBT) Ausführliche Version vom Februar 2011 Stellenmarkt-Monitor Schweiz, p. 4 http://www.sbfi.admin.ch/berufsbildung/01587/01588/01609/index.html?lang=de [↑](#footnote-ref-198)
198. EC, p. 48 [↑](#footnote-ref-199)
199. EC 2013, p. 48f. [↑](#footnote-ref-200)
200. EC 2013, p. 92 [↑](#footnote-ref-201)
201. OECD NL, p. 18 [↑](#footnote-ref-202)
202. OECD NL, p. 48 [↑](#footnote-ref-203)
203. OECD NL, p. 48 [↑](#footnote-ref-204)
204. www.eenee.de/dms/EENEE/.../EENEE\_AR16.pdf [↑](#footnote-ref-205)
205. See Hoeckel 2008, p. 8 [↑](#footnote-ref-206)
206. See Pfeifer et al. 2009, p. 8f; Jansen et al. 2015b, p. 2f. [↑](#footnote-ref-207)
207. See Jansen et al. 2015b, p. 5 [↑](#footnote-ref-208)
208. See Wenzelmann, F., et al. 2009, p. 9f., 10, fig. 6 [↑](#footnote-ref-209)
209. See Jansen et al. 2015b, p. 8, p. 8 fig. 6 [↑](#footnote-ref-210)
210. Source: Federal Ministry of Education and Research [2012], p. 22 [↑](#footnote-ref-211)
211. See Pfeifer et al.2009, p. 10 [↑](#footnote-ref-212)
212. See Jansen et al. 2015b, p. 2 [↑](#footnote-ref-213)
213. Source: Jansen et al. 2015a, S. 6, Tab. 1; Jansen et al. 2015b, p. 4, tab. 1 [↑](#footnote-ref-214)
214. See Federal Ministry of Education and Research 2012, p. 30f. [↑](#footnote-ref-215)
215. See Euler 2013, p. 61-63 [↑](#footnote-ref-216)
216. See Jansen et al. 2015b, p. 3 [↑](#footnote-ref-217)
217. See Jansen et al. 2015b, p. 6, and table 5 [↑](#footnote-ref-218)
218. See Pfeifer et al. 2009, p. 16f [↑](#footnote-ref-219)
219. See Jansen et al. 2015b, p. 6; in the 2007 survey the proportions amounted to 48% unskilled work and 51% skilled work (see Wenzelmann et al. 2009, p. 5.; Pfeifer et al. 2009, p. 13f) [↑](#footnote-ref-220)
220. Cf. bmwfj 2009, p. 7 [↑](#footnote-ref-221)
221. Cf. CEDEFOP 2014, p. 4, Box 4 [↑](#footnote-ref-222)
222. Cf. Hoeckel 2008, p. 10 [↑](#footnote-ref-223)
223. Cf. Hoeckel 2008, p. 11; Tritscher-Archan and Nowak 2010, p. 38 [↑](#footnote-ref-224)
224. Cf. bmwfj 2009, p. 15 [↑](#footnote-ref-225)
225. Cf. Hoeckel 2010, p. 35f. [↑](#footnote-ref-226)
226. Tritscher-Archan and Nowak 2010, p. 38f. [↑](#footnote-ref-227)
227. Cf. bmwfj 2009, p. 7 [↑](#footnote-ref-228)
228. Strupler/Wolter , p.30 [↑](#footnote-ref-229)
229. Strupler/Wolter, p. 39 [↑](#footnote-ref-230)
230. [↑](#footnote-ref-231)
231. [↑](#footnote-ref-232)
232. [↑](#footnote-ref-233)
233. [↑](#footnote-ref-234)
234. Strupler/Wolter, p. 49 [↑](#footnote-ref-235)
235. Strupler/Wolter, p. 49 [↑](#footnote-ref-236)
236. Strupler/Wolter, p. 51 [↑](#footnote-ref-237)
237. Strupler/Wolter, p. 52 f [↑](#footnote-ref-238)
238. Strupler/Wolter,p. 57 [↑](#footnote-ref-239)
239. Strupler/Wolter, p. 69 [↑](#footnote-ref-240)
240. Strupler/Wolter, p. 91 [↑](#footnote-ref-241)
241. Strupler/Wolter, p. 10 [↑](#footnote-ref-242)
242. Strupler/Wolter, p. 11 [↑](#footnote-ref-243)
243. Strupler/Wolter, p.16 [↑](#footnote-ref-244)
244. Beicht, Walden 2002, Walden, Herget 2002 [↑](#footnote-ref-245)
245. Strupler/Wolter, p. 18 [↑](#footnote-ref-246)
246. Strupler/Wolter, p. 19 [↑](#footnote-ref-247)
247. Strupler/Wolter, p. 19 [↑](#footnote-ref-248)
248. Strupler/Wolter , p. 20 [↑](#footnote-ref-249)
249. Strupler/Wolter , p. 26 [↑](#footnote-ref-250)
250. EC 2013, p. 48 [↑](#footnote-ref-251)
251. EC 2013, p. 48 [↑](#footnote-ref-252)
252. EC 2013, p. 92 [↑](#footnote-ref-253)
253. OECD NL, p. 41 [↑](#footnote-ref-254)
254. OECD NL, p. 42 [↑](#footnote-ref-255)
255. OECD NL, 43 [↑](#footnote-ref-256)
256. OECD NL , p. 43 [↑](#footnote-ref-257)
257. See bmbf: The Training Pact <http://www.bmbf.de/en/2295.php> [↑](#footnote-ref-258)
258. See bmbf: The Alliance for vocational education and training <http://www.bmbf.de/de/2295.php> [↑](#footnote-ref-259)
259. Cf. bmwfj 2009, p. 27; Tritscher-Archan and Nowak 2010, p. 41 [↑](#footnote-ref-260)
260. Cf. bmwfj 2012a, p. 33; Wirtschaftskammer Österreich (WKO: <http://wko.at/statistik/jahrbuch/LL_IBA.xlsx> [↑](#footnote-ref-261)
261. Cf. Tritscher-Archan and Nowak 2010, p. 41; bmwfj 2012a, p. 31 [↑](#footnote-ref-262)
262. CEDEFOP, Spotlight DK, p. 4 [↑](#footnote-ref-263)
263. See Hensen and Hippach-Schneider 2012, p. 11f. [↑](#footnote-ref-264)
264. See Vocational Training Act 2005, section 92; Hensen and Hippach-Schneider 2012, p. 26f. [↑](#footnote-ref-265)
265. See Vocational Training Act 2005, section 82, 83 [↑](#footnote-ref-266)
266. See Vocational Training Act 2005, section 77-80; see also explanations in section 3.4 of this paper [↑](#footnote-ref-267)
267. See Vocational Training Act 2005, section 40 [↑](#footnote-ref-268)
268. OECD 2009, p. 17 [↑](#footnote-ref-269)
269. OECD 2009, p. 17 [↑](#footnote-ref-270)
270. OECD 2009, p.17 [↑](#footnote-ref-271)
271. Gonon/Maurer, p. 126 [↑](#footnote-ref-272)
272. CEDEFOP NL, p. 31 [↑](#footnote-ref-273)
273. OECD NL, p. 20 [↑](#footnote-ref-274)
274. For a full discussion cf. EC/CEDEFOP 2013, p. 47 ff. [↑](#footnote-ref-275)
275. Vocational Training Act 2005, see also explanations in section 2.3 of this paper [↑](#footnote-ref-276)
276. Source: Federal Ministry of Education and Research [2012], p. 24 [↑](#footnote-ref-277)
277. Vocational Training Act 1969, see also explanations in section 2.3 of this paper [↑](#footnote-ref-278)
278. FZ, p. 7 [↑](#footnote-ref-279)
279. See Vocational Training Act 2005, section 84-88 [↑](#footnote-ref-280)
280. BDA, response to Busineseurope Feb 2015 [↑](#footnote-ref-281)
281. Cf. bmwfj 2009, p. 21f. [↑](#footnote-ref-282)
282. Cf. bmwfj 2009, p. 23; European Commission 2012, p. 39 [↑](#footnote-ref-283)
283. Cf. bmwfj 2009, p. 23f. [↑](#footnote-ref-284)
284. The Danish Ministry of Education (2014): Improving Vocational Education and Training – overview of reform of the Danish vocational vocational education system, p. 8. URL: [www.uvm.dk/vocational](http://www.uvm.dk/vocational) [↑](#footnote-ref-285)
285. European Centre for the Development of Vocational Training (Cedefop) 2013: Spotlight on VET Denmark, p. 4. [↑](#footnote-ref-286)
286. Danish Government 2014. Denmark. National Reform Programme, p. 45.http://ec.europa.eu/europe2020/pdf/csr2014/nrp2014\_denmark\_en.pdf [↑](#footnote-ref-287)
287. See more at: <http://insideurope.eu/node/410#sthash.N4foiadf.dpuf> [↑](#footnote-ref-288)
288. DFSME Feb 2015 [↑](#footnote-ref-289)
289. Clearing the way for workmanship 2014 http://www.government.nl/documents-and-publications/parliamentary-documents/2014/08/27/clearing-the-way-for-workmanship-future-oriented-vocational-education.html [↑](#footnote-ref-290)
290. Cf. European Commission 2012, p. 124f.: [↑](#footnote-ref-291)
291. Cf. European Commission 2013, p. 24 [↑](#footnote-ref-292)
292. Source: European Commission 2013, Fig. 3.1 Checklist of Key Success Factors, p. 13f. [↑](#footnote-ref-293)
293. Apprenticeship and Traineeship Schemes in EU27: Key Success Factors. A Guidebook for Policy Planners and Practitioners, ed.:European Commission, DG for Employment, Social Affairs and Inclusion, 2013, p. 63) [↑](#footnote-ref-294)
294. Cf. Bliem, Petanovitsch, Schmid 2014 [↑](#footnote-ref-295)
295. Cf. Bliem, Schmid, Petanovitsch 2014 [↑](#footnote-ref-296)
296. Cf. Bliem, Schmid, Petanovitsch 2014 [↑](#footnote-ref-297)
297. Strupler/Wolter, p. 160 [↑](#footnote-ref-298)
298. Strupler/Wolter use a multi-factorial regression analysis [↑](#footnote-ref-299)
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300. Strupler/Wolter , p.163 [↑](#footnote-ref-301)
301. Strupler/Wolter , p. 168 [↑](#footnote-ref-302)
302. [↑](#footnote-ref-303)
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309. Apprenticeship and Traineeship Schemes in EU27: Key Success Factors. A Guidebook for Policy Planners and Practitioners, ed. by the European Commission, DG for Employment, Social Affairs and Inclusion, 2013, p.25-32. [↑](#footnote-ref-310)
310. UKCES: International approaches to the development of intermediate level skills and apprenticeships Case Study Report 2012, p. 127 [↑](#footnote-ref-311)
311. UKCES, p. 147 [↑](#footnote-ref-312)
312. Beicht und Walden 2013, p. 4 [↑](#footnote-ref-313)
313. ACVT,Waardenburg, p. 1 [↑](#footnote-ref-314)
314. ACVT,Waardenburg, p. 1 [↑](#footnote-ref-315)
315. EENEE Policy Brief 3/2012 “Apprenticeship Training…” by Stefan C. Wolter, cit n. ACVT, Waardenburg, p.2 [↑](#footnote-ref-316)
316. OECD Hoeckl, 2009, p.6 [↑](#footnote-ref-317)
317. OECD 2009 Hoeckl et al, p. 6 [↑](#footnote-ref-318)
318. http://www.sbfi.admin.ch/aktuell/medien/00483/00594/index.html?lang=de&msg-id=46836 [↑](#footnote-ref-319)
319. However, according to some observers problems of demographic change, skills mismatch and low attractiveness of some vocational programmes are also remarkable (communication by Anne Trier-Wang DI) [↑](#footnote-ref-320)
320. Nelson, p. 180 [↑](#footnote-ref-321)
321. Nelson, p. 181 [↑](#footnote-ref-322)
322. C.F. Lettmayr [↑](#footnote-ref-323)
323. According to information obtained by Anja Trier Wang, DI (26.10. 2015) the reform of 2014 put stronger focus on securing quality and high standards in VET rather than tackling social challenges, as social problems should be tackled by social institutions, not educational institutions [↑](#footnote-ref-324)
324. CEDEFOP/EC: Denmark 2013, p.1 [↑](#footnote-ref-325)
325. [↑](#footnote-ref-326)
326. Christine Antorini Minister of Education 2014: Vocational education and training for the future. In: Improving Vocational Education and Training – overview of reform of the Danish vocational education system, p. 3. [↑](#footnote-ref-327)
327. CEDEFOP NL, p. 33 [↑](#footnote-ref-328)
328. OECD NL, p. 9ff. Cf. the full OECD report for a in-depth discussion of all of the points mentioned [↑](#footnote-ref-329)
329. UKCES, p. 162 [↑](#footnote-ref-330)
330. OECD NL, p. 45 [↑](#footnote-ref-331)
331. OECD NL, p. 40 [↑](#footnote-ref-332)
332. OECD NL, p 48 [↑](#footnote-ref-333)