



Department
for Education

Funding and expenditure in post- 16 education

An international review

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Executive summary

Background

In July 2016 the government announced in the *Post-16 Skills Plan* that it is committed to wide-ranging reforms of post-16 education in England based upon the recommendations of the independent panel on technical education, chaired by Lord Sainsbury (usually referred to as the Sainsbury Review).

The government has committed to an ambitious timescale to implement these reforms. Procurement for the new technical qualifications will begin in October 2018, with the first teaching on 'pathfinder' routes scheduled to start in September 2019 and the first phased teaching on other routes to begin between September 2020 and September 2022. It is therefore now timely for Government to consider what funding structures are needed to ensure technical education meets the needs of employers and this includes learning from international experience.

Research objectives

In January 2017 Professor David Greatbatch was appointed to conduct a rapid evidence review in order to get a better understanding of funding structures and expenditure arrangements in other countries. The primary aims of the project were:

- To synthesise available evidence on the funding structures and expenditure arrangements for post-16 vocational education and training (VET) in countries that have systems that will closely align with the reformed arrangements in England.
- To understand how other countries set-up their systems so that they lead to occupational competency.

Scope of the review

The countries included in the research were Denmark, France, Germany, the Netherlands and Norway. These were selected because they are geographically close to England and provide examples from a range of approaches.

The review focuses on vocational programmes that are available at the upper secondary level, which encompasses young people aged 15 years and over in France, 15/16 years and over in Germany and 16 years and over in Denmark, Norway and the Netherlands. The majority of the programmes are at levels 3 and 4 on the European Qualification Framework (EQF), which is equivalent to Regulated Qualifications Framework (RQF)

level 2 (GSCE Grades A*-C) and RQF level 3 (UK A'level) respectively. The remaining programmes are at EQF level 1 (RQF entry level 3) and EQF level 2 (RQF level 1).

Methodology

Key publications and statistical data were gathered through online searches of international online bibliographic and information data bases.

The searches were limited to publications and websites in the English language. In addition, expert opinion on where relevant data and literature might be found was sought by email.

Information concerning approaches to funding and expenditure across the selected countries was extracted using templates for each of the countries in the review, under headings that matched the key research questions.

Exchange rates were taken from oanda.com, a currency exchange converter that calculates weekly, monthly, quarterly, or yearly average exchange rates for any user-specified time horizon, which in this case was March 2016 to February 2017. GBP figures are presented in brackets after the original currency figure.

While there is a range of literature covering expenditure on post-16 vocational education in the countries included in this review, it is clear that data is not systematically collected on a comparable basis. As a result, we encountered the following issues when reviewing expenditure in the 5 countries and these should be taken into account when considering the implications of the findings:

- Much of the data was for 2013/4 or earlier due to a time lag in the publication of relevant data.
- Published data often does not distinguish between spending on apprenticeship training and alternative pathways that are offered by vocational schools.
- It was not possible to obtain directly comparable figures for each country, nor, in some cases, figures for the same year.
- OECD figures may not be directly comparable between countries. Each country reports their programme expenditure as best as will fit the OECD education levels, however the categories do not always fit the country's own system. Notably, there may be overlap between the upper and lower secondary levels.
- With the exception of Germany, there is little in the way of systematic analyses of costs and benefits to employers.

Key findings

Across the countries between 40 and 50 per cent of every youth cohort enrol on upper secondary vocational programmes. Around 90% of the students who follow the vocational tracks in Germany, Denmark and Norway have a training agreement with an employer. In contrast, in France and the Netherlands the majority of students in vocational programmes (around two-thirds) follow vocational school-based pathways.

In Norway upper secondary vocational education and training at both vocational colleges and workplaces is mainly supported by state funding. In Germany, Denmark, the Netherlands and France, the state finances training at vocational schools, whilst employers mainly finance on-the-job training. In Denmark, the Netherlands and France employers' are required to pay apprenticeship taxes/levies, regardless of whether they employ apprentices. All of the countries offer financial incentives for employers to participate in the training of pupils in vocational education and training (VET) programmes. In Norway this includes a state grant that is intended to cover all costs related to on-the job training.

The countries are investing considerable resources in post-16 VET and spend more per student following vocational tracks than for those following academic routes. Germany spends USD 4,020 (£3,038) more, Norway spends NOK 20,000 (£1,812), the Netherlands spends USD 3,139 (£2,372) more and France spends USD 852 (£644) more (a recent figure is not available in English for Denmark). Vocational costs are higher due to smaller class sizes and costs of equipment, among other things.

Core VET programmes at EQF levels 3 and 4 last between 2 and 3 years in France and Germany, 1 and 4 years in the Netherlands, 3 and 4 years in Norway and 3 and 5 years in Denmark. In all the countries students generally receive around 1000 supervised teaching hours per year

There are considerable variations in all of the countries in the amounts governments spend per student on different subjects in vocational colleges. These variations in the funding for different courses are largely based on assumed costs of programmes rather than intended as an incentive to promote different courses. Students are generally free to enrol on whatever courses they wish, although there are a few programmes where admission is limited to ensure that the number of students is in accordance with labour market needs.

It is widely recognised in all the countries that additional funding is needed for the coming years to increase the quality of upper vocational education in order to attract high performing students, improve recruitment and retention, streamline and improve the transparency of vocational pathways and ensure that upper secondary VET is continuously adapted to meet evolving skills needs and changes in the labour market. There is a particularly strong focus on the professionalisation and upskilling of VET

teachers and resources are being invested to support national professional development programmes.

Adjustments or changes to VET programmes are made on a regular basis in order to meet the demand for new skills and changes in the labour market at both regional and national levels. These are based on inputs from employers, trade unions and other social partners.

Structure of the report

The report structure is as follows:

Chapter 1: Denmark

Chapter 2: Germany

Chapter 3: Norway

Chapter 4: The Netherlands

Chapter 5: France

Chapter 6: Key findings

Chapter 7: Conclusions

Bibliography

Chapter 1 Denmark

Summary

1. In 2014 42 per cent of upper secondary students were enrolled in a VET programme, while 58 per cent were in a general programme. A declining share of these students comes directly from compulsory education. In 2015 only 18 per cent of the students in upper secondary level VET came directly from compulsory school. The Danish government is aiming to increase the number of students that enter upper secondary VET directly from compulsory school at the age of 16 to 30 per cent per annum by 2025.
2. Virtually all VET programmes involve students alternating between periods spent at a training placement, generally in an enterprise, and periods of college-based learning. Vocational programmes typically start with 40 weeks in vocational college before entering a work based training placement. Most programmes last three to four years. Students must have a certain number of teacher-supervised lessons. The minimum number of teacher-supervised lessons for the initial periods of college-based learning is 26 hours per week (1040 hours per year).
3. The State finances training at colleges and employers finance on-the-job training.
4. The operating costs of vocational colleges are financed by the state through the so-called 'taximeter' system combined with a basic grant. The taximeter system provides funding at a certain rate per student on the basis of the assumed costs of the programmes (including teaching, general expenses and buildings). Grant rates vary considerably both between and within vocational subject clusters. These variations largely derive from assumptions about the costs associated with different programmes and are not intended as incentives to promote different courses.
5. The basic grant is designed to allow a redistribution to take place to the benefit of smaller institutions as compensation for their relatively higher unit costs.
6. The total state funds available to a vocational college is provided as a block grant, which the college's management is free to use at their own discretion within the boundaries of the legislative framework and their specific institutional objectives.
7. In 2013 the Danish government spent a total of €2,748 million (£2,290 million) on the main upper secondary education pathways. 40 per cent (€1,092 million/£910 million) of this was spent on upper secondary vocational education and training, compared with 60 per cent (€1,656 million/£1,389 million) that was spent on general (academic) upper secondary education.

8. Denmark spends more per upper secondary vocational student than per student enrolled in a general programme, on average.
9. All Danish employers (both public and private) with more than one employee are obliged to contribute a fixed amount per employee to a central fund, called the Employers' Reimbursement Scheme, regardless of whether or not they provide apprenticeship placements. In 2014, employers' annual contribution amounted to DKK 3,026 (£339) per full-time employee.
10. Employers with apprentices receive funding from the scheme for: trainees' wages during the time that they attend off-the job learning; a contribution towards trainees' travelling expenses; compensation if the trainee is working abroad. In 2014 the wages paid to trainees/apprentices were between DKK 8,000 (£896) and DKK 12,000 (£1,344) a month.
11. The Employers' Reimbursement Scheme also provides incentives for private companies to offer training places. In 2013, bonuses of €9,600 (£7,910) were offered for each apprenticeship contract.
12. In 2012 public expenditure on VET in Denmark was DKK 6,266bn (£701m), which was similar to the expenditure on universities, approximately 0.3 per cent of GDP. In the same year employers paid equivalent to 85 per cent of public expenditure on VET into the Employers' Reimbursement Fund. Total expenditure on vocational college-based practical training and work-based training (apprenticeships) in Denmark was thus DKK 11.4bn (£1.28bn) or about DKK 2,000 (£224) per inhabitant (which is equivalent to 0.6 per cent of GDP).
13. Denmark is undergoing a general up skilling of VET teaching staff. By 2020, all teachers in VET institutions (approximately 8000) must have a pedagogical improvement boost. Financial funds are being set aside to enable teachers to join short occupational courses where their knowledge of the most recent developments within their subject and vocational area can be updated. The programme will continue until the year 2020 and DKK 400 million (just under £45 million) has been granted for it.
14. Danish Government statistics indicate that in 2015 the average hourly rate of vocational education teachers was DKK 312.16 (£35.96) for those on a fixed salary and DKK 314.39 (£35.21) for those who were hourly paid. This compares with an average hourly rate of DDK 349.34 (£39.13) paid to teachers in general secondary education. Other teaching professionals are paid on average between DDK 237.82 (£26.64) and DDK 299.72 (£33.57) per hour.

Overview of VET in Denmark

In Denmark, upper secondary education programmes, also referred to as youth education programmes, are divided into two tracks:

- General upper secondary education programmes, which prepare pupils for higher education and typically last three years.
- Vocational upper secondary education and training programmes, which primarily prepare trainees for a career in a specific trade or industry and typically last between 3.5 and 4.0 years.

Around 117 institutions offer VET programmes at upper secondary level under the remit of the Ministry of Education. These include business colleges, technical colleges, combined colleges with, for example, both business and technical departments, agricultural colleges, basic healthcare colleges and several specialised institutions, such as hairdressers' school.

About 56,500 students commence full-time upper secondary vocational education in Denmark every year. The VET-system has problems with falling enrolment in the vocational track relative to the academic route. Nonetheless almost half of every youth cohort start in a vocational programme, though some do so after trying out the academic route.

Sectors and occupations

As part of recent VET reform, the basic access channels to upper secondary level VET programmes have been reduced from 12 to the following four vocational main subject areas:

- Care, health and pedagogy
- Office, trade and business service
- Food, agriculture and experiences
- Technology, construction and transportation.

Routes, Courses and qualifications

Danish upper secondary vocational education programmes are divided into the following tracks:

- VET programmes and apprenticeships (EUD), which comprise the main vocational route at upper secondary school level. These programmes range from 1.5 to 6 years, with most lasting three to four years, and begin with basic programmes

taught at vocational colleges, followed by a main module. The greater part of the main module comprises periods of practical training, which are normally organized in workplaces outside the college; however, if suitable internship places are not available, equivalent training must be offered within the college. As of February 2014 a total of 82,689 students were taking a main course; 74,456 of them had a training agreement with a company, while 6,681 were undertaking college-based practical training.

- VET programmes (EUX), which combine vocational and general upper secondary education and are for highly-motivated students who wish to obtain access to higher education along with a vocational qualification.
- Basic VET (EGU) programmes which offer a practical approach to learning and a strong emphasis on WBL. The programmes cater to the young unemployed and last three to four years.
- New apprenticeship programmes which involve the entire training taking place at an enterprise instead of partly at a VET college. These programmes are aimed at students who prefer practical training to school attendance.
- Individual vocational education and training programmes which can be organised if a VET programme has not been established within a certain area of employment where a student can procure a training agreement. This option has to date been used by only a few students.

Take up and completion

In 2014, 42 per cent of upper secondary students were enrolled in a VET programme, while 58 per cent were in a general programme. A declining share of these come directly from compulsory education. In 2015 only 18 per cent of the students in VET came directly from compulsory school. One of the main objectives of a major VET reform programme that came into force in August 2015 is improving VET quality to ensure more students enter VET directly from compulsory school; the target is 30 per cent by 2025.

According to the Ministry of Education, in 2015 the proportion of young people moving directly from compulsory education to VET dropped by seven per cent compared to 2014 as a result of new passing grade requirements, which mean that learners need to achieve a passing grade (grade 2 of a seven-point scale, 'adequate performance') in Danish and mathematics to be admitted to a VET college. To assist learners who have failed to reach the required grade, the Ministry of Education piloted summer courses in 15 Danish municipalities in 2015 and 2016.

The aim of the new passing grade requirements is reduce the number of students that drop-out during basic programmes. A study by the Association of Danish Business and

Technical Colleges (Danske Erhvervsskoler) conducted among 66 vocational colleges suggest that it is having the intended effect. Overall drop-out among students admitted to a first basic VET course after the new passing grade was introduced decreased from 28 per cent in 2014 to 3.2 per cent in 2015.

The VET-system also has problems with student drop-out during main programmes.. Lack of suitable training placements in enterprises is frequently cited as a primary reason for this and 50 practical training centres were introduced in 2013 to provide new work placements in order to alleviate the problem. A key objective of the ongoing VET system reforms in Denmark is to improve completion rates from just over 52 per cent in 2012 to 67 per cent in 2025.

Approximately, 37 per cent of a youth cohort obtain a vocational education qualification. Of these, around 33 per cent normally have the vocational qualification as their highest completed education, while the remaining four per cent usually take higher education subsequently.

Funding structures and levels of expenditure

In Denmark, the State finances training at colleges and employers finance on-the-job training. The operating costs of vocational colleges are, like other educational institutions, financed by the state through the so-called 'taximeter' system combined with a basic grant. The taximeter system provides funding at a certain rate per student. As we show below, the rates vary from one educational programme to another, largely on the basis of assumed costs of the programmes. The system is said to provide an incentive for colleges to increase retention within the system. At present the basic grant has two elements: an amount that is calculated by reference to the activities undertaken by institutions and an amount that is intended to provide support for the institutional structure. The basic grant is designed to allow a redistribution to take place to the benefit of smaller institutions as compensation for their relatively higher unit costs. The total state funds available to a college is provided as a block grant, which the management at the college is free to use at their own discretion within the boundaries of the legislative framework and their specific institutional objectives.

In 2013 the Danish government spent a total of €2,748 million (£2,290 million) on the main youth education pathways. 40 per cent (€1,092 million/£910 million) of this was spent on upper secondary vocational education and training, compared with 60 per cent (€1,656 million/£1,389 million) that was spent on general (academic) upper secondary education. Expenditure on upper secondary vocational education and training comprised €963 million (£802 million) funding for basic courses and main programmes and €129 million (£107 million) funding for EGU programmes and production schools¹ (Table 1).

¹ Production schools are aimed at young people aged below 25 who have not completed upper secondary education or find it difficult to see a way forward in further education or in the labour market. The 78

These amounts represented 35 per cent and five per cent respectively of the overall expenditure on upper secondary education in 2013.

Table 1: Expenditure on main youth education pathways in Denmark, 2013

Foundation courses and main programmes	EGU and production schools	General upper secondary education
DKK 7,165 million (£802,551,650)	DKK 963 million (£ 107,865,630)	DKK 12,327 million (£1232,700,000)

Source: Cedefop RefNet (2014), VET in Europe: country report Denmark

All Danish employers (both public and private) with more than one employee contribute a fixed amount per employee to a central fund, called the Employers' Reimbursement Scheme, regardless of whether or not they provide apprenticeship placements. In 2014 employers were obliged to pay an annual contribution of DKK 3,026 (£339) per full-time employee in to the Employers' Reimbursement Scheme. Employers with apprentices receive funding from the scheme for:

- Trainees' wages during the time that they attend off-the job learning.
- A contribution towards trainees' travelling expenses (in 2012 the contribution was DKK1.07 (£0.12)/kilometre (km) after 24km per day and up to 576km per day).
- Compensation if the trainee is working abroad.

The Employers' Reimbursement System also provides incentives for employers to offer training places. In 2013 bonuses of €9,600 (£7,910) were offered for each apprenticeship contract.

In 2012 total public expenditure on VET in Denmark was DKK 6,266bn (£701m), which was similar to the expenditure on universities, approximately 0.3 per cent of GDP. In the same year employers paid equivalent to 85 per cent of public expenditure on VET into the Employers' Reimbursement Fund. Total expenditure on vocational school-based practical training and work-based training (apprenticeships) in Denmark was thus DKK 11.4bn (£1.28bn) or about DKK 2,000 (£224) per inhabitant (which is equivalent to 0.6 per cent of GDP).

Funding rates

The system of grants is somewhat complex; for example, there are 48 different grant rates for operating costs. Funding rates per student vary considerably, not only between vocational subject clusters (Table 2) but also within them (Table 3); all clusters involve students taking major subjects, for which different grant rates apply. For example, within

production schools base activities on workshops and give priority to learning through experience and practical work cooperation. Workshop subjects range from carpentry or metalwork to media or theatre.

the 'Food for People' cluster, in 2011 the grant rates varied from DKK 65,400 (£7,325) for training a waiter or receptionist up to DKK 139,900 (£15,670) for training an industrial butcher or gut-cleaner (Table 3).

Table 2: Taximeter rates in Denmark for selected occupations per fulltime-equivalent student (1 student for 40 weeks), 2013 figures

	Teaching	Administration	Building	Completion
Blacksmith	DDK 13,155 (£1,473)	DDK 1,623 (£182)	DDK 1,793 (£201)	DDK 958 (£107)
Bricklayer	DDK 11,666 1,307)	DDK 1,623 (£182)	DDK 1,549 (£173)	DDK 958 (£107)
Hairdresser	DDK 8,934 (£1,001)	DDK 1,623 (£182)	DDK 1,793 (£201)	DDK 958 (£107)
Electrician	DDK 10,580 1,185)	DDK 1,623 (£182)	DDK 1,793 (£201)	DDK 958 (£107)
Auto mechanic	DDK 10,501 (£1,176)	DDK 1,623 (£182)	DDK 2,502 (£280)	DDK 958 (£107)
Shop assistant (Radio- television and multimedia)	DDK 7,607 (£852)	DDK 972 (£109)	DDK 805 (£90)	DDK 352 (£39)

Source: Dahl Christensen, K. (2013). Apprenticeship funding in Denmark. In Report on Sub-regional Workshop on Apprenticeship Systems in Europe, 9-12 December 2013, Library of OLO, Route des Morillons 4, Geneva, Switzerland. Geneva: International Labour Organization.

Table 3: Grant rates in Denmark within the subject cluster 'Food for People', 2011

	Teaching grant per student year	Completion grant per student year	Common expenses grant per student year	Buildings grant per student year
Baker and confectioner	DDK 76,900 (£8,614)	DDK 6,950 (£778)	DDK 11,900 (£1,333)	DDK 17,700 (£1,983)
Retail butcher	DDK 96,500 (£10,809)	DDK 6,950 (£778)	DDK 11,900 (£1,333)	DDK 22,350 (£2,503)
Assistant nutritionist	DDK 85,400 (£9,566)	DDK 6.950 (£778)	DDK 11,900 (£1,333)	DDK 17,700 (£1,983)
Fresh-food assistant	DDK 76.900 (£8,614)	DDK 6.950 (£778)	DDK 11,900 (£1,333)	DDK 17,700 (£1,983)
Gastronome	DDK 76.900	DDK 6.950 (£778)	DDK 11,900 (£1,333)	DDK 17,700 (£1,983)

	Teaching grant per student year	Completion grant per student year	Common expenses grant per student year	Buildings grant per student year
Hotel and leisure assistant	DDK 76,900 (£8,614)	DDK 6,950 (£778)	DDK 11,900 (£1,333)	DDK 12,700 (£1,422)
Individual vocational programme, Food for people	DDK 85,400 (£9,566)	DDK 6,950 (£778)	DDK 15,950 (£1,787)	DDK 17,700 (£1,983)
Industrial butcher	DDK 139,900 (£15,670)	DDK 6,950 (£778)	DDK 18,000 (£2,016)	DDK 43,450 (£4,867)
Dairyman	DDK 76,900 (£8,614)	DDK 6,950 (£778)	DDK 11,900 (£1,333)	DDK 22,350 (£2,503)
Receptionist	DDK 65,400 (£7,325)	DDK 6,950 (£778)	DDK 11,900 (£1,333)	DDK 12,700 (£1,422)
Gut-cleaner	DDK 139,900 (£15,670)	DDK 6,950 (£778)	DDK 11,900 (£1,333)	DDK 22,350 (£2,503)
Waiter	DDK 65,400 (£7,325)	DDK 6,950 (£778)	DDK 11,900 (£1,333)	DDK 12,700 (£1,422)

Source: Danish Finance Act, 2011

The variations in funding rates for school-based education and training largely derive from assumptions about the costs associated with different programmes and are not intended to provide incentives for particular programmes. However, there are a few main programmes where admission is limited. This is to ensure that the number of students is in accordance with labour market needs. In these cases, all students are either admitted according to a quota or are required to have a training agreement with an enterprise prior to commencing the relevant basic course.

During the classroom teaching period of a vocational course, students receive a weekly allowance. The amount is higher for students who are over the age of 18. During work placements, students receive a standard trainee wage from their company. The wages are between DKK 8,000 (£896) and DKK 12,000 (£1,344) a month.

Accountability factors linked to funding

For quality assurance of vocational colleges, monitoring is conducted at two levels:

- System level. This looks at the effectiveness of the different main programmes in terms of employment frequency among graduates. The Ministry of Education then

enters into dialogue with national trade committees about any programmes which fail to reach the targets to assess their relevance in terms of labour market needs and possible steps for improvement.

- Institutional level. At this level, monitoring can be divided into content monitoring and financial monitoring. The first concerns the degree to which a vocational college provides the programmes in accordance with the legislative framework. The second monitors a college's compliance with budgetary constraints set out by the Ministry of Education. Completion/dropout rates and examination pass rates also enter into the quality appraisal of a vocational college.

Within companies, the social partners supplement ministerial monitoring via national trade committees and local training committees, appraising the quality of graduates, curricula and apprenticeships within enterprises..

Length, structure and levels of courses

Virtually all VET programmes are organised according to the dual principle where students alternate between periods spent at a training placement, generally in an enterprise, and periods of college-based learning.² Denmark has a form of dual system of vocational education that is in many ways similar to the German VET-system. However, in comparison with the German system the Danish VET system is more college based, as the vocational programmes typically start with students spending 40 weeks in vocational school before entering a work based training placement. Upper secondary level VET programmes in Denmark are expected to have the students enrolled between 1.5 and 5 years depending on the programme. Most programmes last 3 to 4 years.

The VET reform that began in 2015 changed the structure and content of the basic programmes which learners complete before progressing to main programmes. Previously, the basic programmes were organised as a 20-60 week introduction programme with a strong focus on key competences. The VET reform has now established two basic programmes of 20 weeks each: Basic Programme 1 (Grundforløb GF1) and Basic Programme 2 (Grundforløb 2 GF2). To progress from GF1 to GF2 learners have to pass an examination. Both programmes focus on key competences, but in different ways.

- GF1 is designed mainly to give a basic introduction to the vocational field, including workplace culture, processes and methods, society and health, Danish and various elective subjects. It is only for students entering VET directly from compulsory school.

² There are three exceptions where training is entirely college-based: building montage technician; health service secretary; web integrator.

- GF2 is organised as a specific training course, depending on which educational direction the student has chosen. It contains some basic subjects and some

Table 4 provides details of the length and levels of education of the alternative routes and how students' time is structured. Students on all of these programmes must have a certain amount of teacher-supervised lessons. In August 2016, the minimum number of teacher-supervised lessons for the basic programme was set at 26 hours.

Table 4: Structure of programmes in Denmark

Course	Level	Structure	Length
VET programmes, apprenticeships (EUD) – main vocational route	EQF 3-5 ISCED 353	College: 33 per cent Workplace: 67 per cent	3-5 years
VET programmes (EUX) -	EQF 4-5 ISCED 354	College: 50 per cent Workplace: 50 per cent	4-4.5 years
Basic VET (EGU) programmes	EQF 2-3 ISCED 353	College: up to 35 per cent Workplace: 75 per cent or more	3-4 years

In most VET programmes, there are one or two steps in order to increase the flexibility of the programmes. This means that a student can stop at a well-defined step that gives professional competence. The students are also allowed resume the VET programme at a later date, without prolonging the overall duration of education.

Staff used to deliver technical education

Denmark has approximately 8,000 VET teachers in around 100 VET colleges teaching both in upper secondary level VET and adult learning programmes. Denmark is undergoing a general upskilling of VET teaching staff, which involves the following elements:

- All VET teachers must have (or acquire within three years of employment) (i) “general knowledge” at secondary level in two or three general subjects and (ii) qualifications at vocational upper secondary level including two subjects at the highest level from among the subject areas Danish, foreign languages, natural sciences, social sciences, business economics, marketing and information technology.
- At the latest one year after being hired, VET teachers must begin the VET Pedagogical Diploma, and at the latest four years after being hired they must have passed a pedagogical education at bachelor level/diploma level (60

European Credit Transfer and Accumulation System (ECTS) points at EQF level 6).

- Teachers who are to teach in the general subject areas must have a minimum of 2 years of professional experience.
- Teachers who are to teach specialised subjects in VET programmes must have completed a VET programme in the relevant vocational field and normally hold further education in the same field, such as a short-cycle higher education technician's qualification. Furthermore, they must have a minimum of five years of relevant work experience.
- The individual teacher is obliged to keep his/her academic 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. On this basis and in cooperation with the teacher, the college determines the individual's professional career progression.³

By 2020, all teachers in VET institutions must have a pedagogical improvement boost and acquire occupational-pedagogical skills corresponding to 10 ECTS points, e.g. based on a pedagogical diploma programme. The evaluation of the teachers' need for skills improvement will be based on the college's existing continuing education efforts and on a mapping of the present pedagogical and vocational competency level of the teachers. Also, the government has set aside financial funds to enable VET teachers to join short occupational courses where their knowledge of the most recent vocational developments within their subject areas can be updated. The update is an on-going process until the year 2020 and DKK 400 million (just under £45 million) has been granted for it.

Apprentice tutors and practical training instructors are not included in the above mentioned CPD as there are no formal requirements of training competence for these groups. The reason for this is the divided responsibility of the Danish VET system. The Ministry of Education is responsible for the basic, college-based course and the social partners for the main course. Social partners have decided against having obligatory training of trainers, but trainers can follow public AMU-courses (labour-marked education, leading to formal qualifications at EQF levels 2-5) of 10 days to 6 weeks' duration with a content of, for example, coaching or pedagogical guidance. These AMU-courses are primarily used in the social and healthcare sector.

Danish Government statistics indicate that in 2015 the average hourly rate of vocational education teachers was DKK 312.16 (£35.96) for those on a fixed salary and DKK 314.39

³ Danish Ministry of Education [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-(vet)

(£35.21) for those who were hourly paid. This compares with average hourly rate of DDK 349.34 (£39.13) paid to teachers in general secondary education.

Other teaching professionals are paid on average between DDK 237.82 (£26.64) and DDK 299.72 (33.57) per hour.

Chapter 2 Germany

Summary

1. Germany pursues a dual VET system that involves the state providing theoretical training in state-funded vocational schools and employers providing the competence elements through work based training.
2. While participation in upper secondary education students in VET in Germany is slightly below the EU average, 47.5 per cent compared with 48.9 per cent (2013), the proportion of students in initial VET programmes enrolled in programmes combining in-company and school-based learning (dual VET) is far above the EU average (88.2 per cent compared with 27 per cent). 43 per cent of Germany's 16 – 19 year olds who entered upper secondary in 2014 graduated from a vocational programme and 48 per cent from a general programme.
3. Intermediate VET consists of three parts: apprenticeship training, which is the main source of post-compulsory education and training for the school leavers in Germany who enter vocational training; vocational training at full-time vocational schools which cater for pupils wishing to enter particular (predominantly service-sector) professions; and the transition system for those who do not fulfil the entrance requirements for full-time vocational schools or failed to obtain an apprenticeship position.
4. Apprenticeships typically last 2 – 3.5 years with trainees attending part-time vocational school on one or two days per week and spending their remaining time in both private and public enterprises. Full-time school-based vocational programmes, for which the training may include company placements, cover a period of 2 or 3 years depending on the occupation. Transitional programmes last 1 year.
5. Across upper secondary education, the number of teaching hours per year was 718 in Germany in 2012 against an OECD average of 655. The ratio of students to teaching staff was 14:1 for vocational programmes compared with 13:1 for those on general programmes in the upper secondary phase, exactly in line with the OECD average.
6. Funding is provided mainly by public sources (around four-fifths of the total), with large contributions from the employers who train apprentices (the remaining one-fifth). The state finances the vocational schools, whilst the on the job training component of apprenticeships is mainly financed by the employer. In special cases (e.g. disadvantaged individuals) employers that provide apprenticeship training receive state funding.
7. Germany spends more per upper secondary vocational student than per student enrolled in a general programme, on average. In 2014, Germany spent USD 4,489 (£3,393) more per vocational than per general upper secondary student: USD 15,343 (£11,596) per student in vocational programmes, compared with USD 10,854

(£8,203) per student in general programmes, the largest difference observed among OECD countries.

8. In 2013, total spending by all public bodies in Germany was approximately Euro 9.7 billion (£8.08 billion).
9. The largest single share of spending is on part-time vocational schools in the dual system (around Euro 2.9 billion (£2.47 billion) in 2013. Spending on individual types of school, such as full-time vocational schools or specialised upper secondary schools, is lower although these schools together actually account for approximately Euro 3.7 billion (£3.08 billion).
10. In the transitional sector, VET spending totals around Euro 1.3 billion (£1.08 billion). These costs relate to vocational orientation and preparation as well as to vocational education and training itself.
11. The living costs of those attending vocational school on a full-time basis are also funded pursuant to the Federal Education and Training Assistance Act (BAföG), approximately Euro 0.3 billion (£0.23 billion) alongside the financing of vocational schools.
12. Employers contribute approximately 21 per cent of the costs of intermediate VET. In 2012/13 the average gross cost per apprentice of apprenticeship training to employers was €17,916 (£14,930), with apprentice-related personnel/trainee costs accounting for almost two-thirds of this amount.
13. For domains of training, gross costs are highest on average in Industry and Trade and in Public Service, at over €19,500 (£16,250) in each case, and lowest in Agriculture, at around €14,000 (£11,667). When the returns to employers are taken into account, the net costs per apprentice to employers ranged from (€8,032/£6,693) in Public service to €1,293 (£1,077) in Agriculture.
14. If training also takes place in a training workshop, the net costs to employers increase distinctly. The net costs in companies with a training workshop are almost four times as high as in companies without one. This differential of around €9,500 (£7,917) arises from higher gross costs and lower returns in almost equal parts.
15. In the training year 2012/13, total costs to companies of providing company-based training were around Euro 7.7 billion (£6.42 billion). These costs exclusively relate to the dual training system.
16. Most public expenditure on education relates to the compensation of teachers; in 2013, 82 per cent of non-capital costs in the secondary phase related to the payment of teaching and other staff, higher than the OECD average of 77 per cent. Upper secondary teachers' earnings in Germany exceed similarly educated workers' earnings by 5 per cent, while across OECD countries, upper secondary teachers' salaries are 8 per cent lower than the salaries of similarly educated workers

Overview of VET in Germany

Germany pursues a dual VET system. This involves the state providing theoretical training in state-funded vocational schools (Berufsschulen) and the employer providing the competence elements through work based training. The vocational training in the dual system is undertaken by commercial companies, the government/civil service sector, 'independent' professions, associations of smaller individual companies forming training alliances, publicly promoted bodies, and private institutions.

43 per cent of Germany's 16 – 19 year olds who entered upper secondary in 2014 graduated from a vocational programme and 48 per cent from a general programme. The employment rate for individuals with upper secondary or post-secondary non-tertiary vocational qualifications (86 per cent) is almost as high for individuals with tertiary education (88 per cent). The good outcomes of Germany's vocational training system are evidenced in the low proportion of young people who are NEETs (those not in employment, education or training), which is 8.6 per cent (in 2016 the OECD average was 14.8 per cent).

Pupils who either do not choose or do not get into the German Grammar school system (Gymnasium) at age 16 enter the vocational system. There are no entry requirements to access vocational training apart from the completion of compulsory full-time education, which can be done through the transition system if a young person fails to get a place at a vocational school or on to an apprenticeship. The German apprenticeship system offers training in over 300 occupations, and full-time vocational schools provide training in predominantly service-sector industries, such as: nursing, kindergarten teachers and office clerks.

Germany's education system is decentralised, with responsibilities shared between the federal Government, the 16 Länder and local authorities. In the field of VET, the Länder are responsible for vocational training in schools, and hence also for vocational schools (including those involved in apprenticeship training). The Federal Government is responsible for in-company vocational training (apprenticeships), a responsibility which they share with the strong engagement of social partners, such as employers and Trade Unions, who are given a direct say on the content and standards of vocational programmes. Essentially, the social partners are consulted each time a change is proposed.

The Board of the Federal Institute for Vocational Education and Training (BIBB) is responsible for VET regulation and counsels the federal government on issues relating to Germany's well-established dual-system. It consists of representatives of the Länder governments, employers' associations, and trade unions. They define the length, content, and examination requirements of training provision.

The statutory instruments governing initial and further vocational training regulations are continuously reviewed and modernised and new occupational regulations developed to cover emerging roles. Over the past ten years, almost half the regulations covering the training occupations available in initial and further training have been modernised and 18 new ones created.

Sectors and occupations

There are six broad labour market (industry) sectors in Germany:

- Industry
- Skilled trades
- Health
- Agriculture
- Commerce
- Office/Administration

Within these six sectors sit around 350 training occupations that change continuously to accommodate new demands in the economy. The occupations have different degrees of specialisation offering broadly employable skills that cut across different sectors. Training is centred on vocational competence.

New training occupations and revisions of existing occupations are normally initiated by the appropriate sector employer and employee organisations in discussion with BIBB. These same employer and employee organisations must be consulted at specified stages in agreeing the content of apprenticeship occupations. They also participate in the regional education authorities' decision-making on the occupationally-relevant elements of the vocational school syllabus. Employer and employee representatives take part in the examination and assessment process together with a representative of the school authority. Apprentice matching, contracts, quality inspection and the organisation of assessment are carried out by the Chambers of Commerce and other similar bodies.

Routes, courses and qualifications

Intermediate VET consists of three parts:

- Dual apprenticeship training sits at the core of the system.
- Vocational training at full-time vocational schools caters for pupils wishing to enter particular (predominantly service-sector) professions.

- The transition system for those who do not fulfil the entrance requirements for full-time vocational schools or failed to obtain an apprenticeship position.

Apprenticeships are focused on young people and a single level of competency. Typically lasting for three years they are clearly split between the on-the-job training and vocational school-based elements. The occupational competences to be acquired in work-based training are specified in the training regulations (Ausbildungsordnungen) and included by the employer in an individual training plan. The binding requirements of the training regulations guarantee a uniform national standard. However, apprentice occupations are broadly defined to allow flexibility for specialisation within different organisational settings and to allow employers to adapt the training programme outline to their organisation. Employers wishing to offer apprenticeships must show that they have the equipment and facilities to provide this training and have a qualified person to supervise the apprentice. If firms lack some equipment/facilities, these can be supplied at a Group Training Centre financed from private and public funds.

The part-time education which is provided in vocational schools alongside the on-the-job training involves both general education and occupationally-relevant technical knowledge. For the teaching in the vocational school, a framework curriculum, harmonised with the training regulations, is drawn up for every recognised training occupation.

The work-based element of the apprenticeship training is sponsored by autonomous bodies in the relevant sectors of industry and set up in various ways: e.g. it may also consist of some modules delivered by educational institutions, partner enterprises or larger local employees. It is not unusual for several smaller firms to group together and cooperate to provide trainees with a full apprenticeship offer.

Apprentices are typically subjected to an intermediate examination after the first half of the total training duration, and a final examination (the Gesellenprüfung for crafts occupations) which, if passed, leads to the award of a certificate proving the individual's proficiency as a qualified crafts person. The final apprentice examinations comprise written examinations set by the vocational school, an oral examination and a practical test. The apprenticeship system is monitored by competent bodies such as the Chambers of Commerce or autonomous trade and industry associations.

The Länder are responsible for full-time school-based vocational programmes for which the training may include company placements, and cover a period of 2 or 3 years depending on the respective occupation. Final qualifications are awarded on passing a school examination which is supervised by the education authority and governed by the training regulations of the respective occupation. There are 3 types of providers offering full-time VET programmes:

- Full-time vocational schools (Berufsschulen), which cover the commercial, languages, craft, household, caring and artistic sectors. Completion can lead to direct labour market entry or to a technical school.
- Senior technical schools, which cover the welfare, financial and commercial, and technical sectors. Programmes often include work-based components or an internship and completion can lead to direct labour market entry or further study at a university of applied science.
- Gymnasium, German grammar schools, with a vocational bias may also provide vocational training in a school-based setting. Grammar schools cover programmes within the business, technical, nutrition, agronomy, health care and welfare, and ICT industry sectors. Courses last 3 to 4 years and lead to further study at a university of applied science.

The requirement for entrance to a full-time vocational school is normally the secondary general school certificate or the final certificate from intermediate school. The range of training provision in full-time vocational schools is extremely diverse, including household and caring occupations, healthcare occupations, kindergarten teachers, office clerks and various arts occupations. The distinction between school-based and work-based training lies in the sectoral focus of each, with apprenticeships more often being offered in manufacturing occupations, while service occupations are more likely to be found in full-time vocational schools.

When full-time vocational schools do not offer a full vocational qualification, if certain conditions are met, attendance at the school can be credited as the first year of vocational training in the dual system. Some programmes of full-time vocational schools lead to a (restricted) university entrance certificate. Such programmes last from 1 to 3 years, depending on the occupational field and the relevant aims and emphases. One out of about every 6 pupils at full-time vocational schools learns a recognised occupation requiring formal training, within the dual system. Federal ordinances have been enacted that now permit final school examinations for such cases to be harmonised with the relevant apprenticeship.

Graduates from apprenticeship training and full-time vocational schools hold a vocational certificate which is equivalent to intermediate level skills as classified at ISCED levels 3 and 4. They can also obtain further, higher-level, qualifications through further programmes and validated practical experience. The transition system provides its participants with no vocational certificate as it serves as preparation for further vocational training.

Take up and completion

As noted above, nearly one in two (47.5 per cent) of upper secondary students are enrolled in pre-vocational or vocational programmes (dual system) that combine school and work (the OECD average is 46 per cent). While participation of upper secondary education students in vocational education and training (VET) in Germany is slightly below the EU average (47.5 per cent compared with 48.9 per cent in 2013), the proportion of students enrolled in programmes combining in-company and school-based learning (dual VET) is far above the EU average (88.2 per cent compared with 27 per cent). This contributes to the high employment rate of those who have recently completed their education at ISCED levels 3-4 (87.7 per cent compared with an EU average of 70.8 per cent). Nonetheless, demographic change and the increasing attractiveness of higher education are making it increasingly difficult to recruit a sufficient number of apprentices in some regions and sectors. The increasing number of unoccupied apprenticeship places and lack of qualified personnel coincides with the high unemployment risk of early leavers, drop-outs and learners with poor performance.

Apprenticeship training is the main source of post-compulsory education and training for the 70 per cent of school leavers in Germany who enter vocational training. In 2015, of the 694,198 new entrants to the intermediate level VET system, 69 per cent started in dual training (apprenticeships), 1.3 per cent went into civil service training and the remainder entered school-based training of various sorts (the overwhelming majority of these - 23.7 per cent of total VET entrants – went into school-based vocational training in healthcare, education and social welfare). The majority of young people with a vocational certificate enter the labour market immediately after completing their training. However, they also have the option to enter higher education or advanced vocational training (Meister).

As Table 5 (compiled by the Federal Statistical Office, Destatis) shows, apprenticeships in Germany are strongly concentrated in industry and trade and, to a lesser extent, crafts.

Table 5: Apprentices in Germany by training sector, 2014 and 2015 ⁴

Training sector	2014	2015	Change in per cent
Total of which:	1,358,550	1,337,004	-1.6
Industry and trade	805,398	790,257 (59.1 per cent)	-1.9
Crafts	369,501	361,656 (27 per cent)	-2.1
Agriculture	33,441	33,510 (2.5 per cent)	-0.2
Civil service	34,713	36,087 (2.7 per cent)	4.0
Liberal professions	108,822	109,299 (8.2 per cent)	-0.4

⁴ Statistisches Bundesamt (Destatis)

<https://www.destatis.de/EN/FactsFigures/SocietyState/EducationResearchCulture/VocationalTraining/Tables/ApprenticesTrainingSector.html>

Training sector	2014	2015	Change in per cent
Home economics	6,675	6,195 (0.5 per cent)	-7.2

Source: The Federal Statistical Office (Destatis)

(NB: For reasons of data protection, all data (absolute values) have been rounded to multiples of three; consequently, the total value may differ from the sum of the individual values.)

Industry and trade was the sector with the highest number of trainees in 2015, although this was a decline of 1.9 per cent compared to the previous year. In the crafts, as well, the number decreased by 2.1 per cent to a total of 361,656 trainees. The liberal professions⁵ had 109,299 trainees in 2015, making it the third-largest sector.

Formal apprenticeship training is provided in relation to over 300 recognised occupations.^{6 7} The Federal Statistical Office (Destatis) reports that management assistant for retail services was the most frequent training occupation in 2013, accounting for 31,449 new apprenticeship contracts. It was followed by sales assistant for retail services, motor vehicle mechatronics technician, industrial clerk and office clerk. The five most common vocational training occupations, which were in the top tier for the previous nine years, accounted for just over a fifth of all newly concluded apprenticeship contracts (figures published 31 October 2014) (Table 6).⁸

Table 6: The five most common vocational training occupations in Germany

Total of 1 to 5	272,745
Management assistant for retail services	63,609
Motor vehicle mechatronics technician	60,921
Industrial clerk	53,703
Office clerk	49,104
Sales assistant for retail services	45,408

Source: The Federal Statistical Office (Destatis)

⁵ the term embraces a group of professional services) represent an important sector of German small and medium-sized firms. They are characterised by a great diversity of occupations in the services sector. Examples – Healthcare professions: doctors, dentists, veterinaries, alternative practitioners, physiotherapists; Legal, tax and economic advising professions: lawyers, patent lawyers, notaries, auditors, tax advisors, consulting economist and business administrator, certified public accountant Natural scientific and technical professions: land surveyors, engineer, architects; Linguistic and information /cultural professions: Journalists, press photo reporter, interpreter, translator

⁶ Federal Institute for Vocational Education and Training (2015) http://www.anererkennung-in-deutschland.de/media/liste_ausbildungsberufe_en.pdf

⁷ Fourteen training occupations were restructured in 2013; 12 were modernised and 2 new training occupations were created. The process of reforming an occupation starts in most cases by the trade associations, the top-level employers' organisations, the trade unions and the Federal Institute for Vocational Education and Training (BIBB).

⁸ Statistisches Bundesamt (Destatis) Press Release 383/ 2014-10-31
https://www.destatis.de/EN/PressServices/Press/pr/2014/10/PE14_383_212.html

It is becoming increasingly difficult for enterprises to find adequate apprentices and fill their training places particularly in occupational areas such as hospitality and catering, butchery, plumbing and scaffolding where unfilled training places grew between 2014 and 2015. In the crafts sector, in particular there are problems in filling all vacancies. In addition, there are matching problems, meaning that, on the one hand, there are more and more unfilled training places and, on the other hand, more and more young people unable to find a suitable training place and therefore left without an apprenticeship.

Funding structures and levels of expenditure

Funding is provided mainly by public sources (around four-fifths of the total), with large contributions from the employers who train apprentices (the remaining one-fifth). The state finances the vocational education schools, whilst the on the job training component of apprenticeships is mainly financed by the employer. In special cases (e.g. disadvantaged individuals) firms that provide apprenticeship training receive state funding. Costs of external assessment and examinations are met by the Chambers of Commerce (or similar organisation) which are funded through a membership subscriptions paid by all employers. The Federally-funded BIBB bears most of the administrative cost of updating and developing new training occupations. Enterprises bear the costs of in-company training and pay the trainee remuneration as regulated by collective agreement, which increases with every year of training, and averages about one third of the starting pay for a trained skilled worker.

Investment in educational institutions as a percentage of GDP in 2014 was 4.3 per cent (below the EU average of 5.0 per cent). General government expenditure on education as a share of GDP has remained stable since 2009. It was 4.3 per cent in 2013, below the EU28 average of 5.0 per cent. Total public and private expenditure on educational institutions of 5.1 per cent of GDP was also well below the OECD average of 6.1 per cent (OECD 2014). Public expenditure on education as a percentage of all government spending is slowly increasing. Between 2008 and 2013, Germany increased its expenditure on education from primary to post-secondary non-tertiary levels, despite falling rolls. Expenditure per student has increased at a much higher rate than the OECD average (12 per cent compared with an OECD average of 8 per cent).

Public funding for vocational education and training in the dual system in Germany is provided at both the Federal and State level. At the Federal level, the German government commits funds to support measures to promote part-time training within companies, on the job training of disadvantaged young people, 'external' apprenticeships within the dual system, and vocational training assistance contributions made by the Federal Employment Agency and the Federal Ministry of Labour and Social Affairs. The main financial responsibility of the governments of Germany's 16 States is the funding of the vocational schooling component of apprenticeships (plus contributions to funding for on the job training of disadvantaged young people within the apprenticeship system).

In Germany companies participate voluntarily in apprenticeship training: there is no statutory obligation and (with a few exceptions) there are no levies to be paid if a company refrains from providing in-house apprenticeship training. The dual system relies to a large extent on the willingness of employers to train apprentices.

In 2012 in the area of vocational training, contributions from the public sector totalled 57.2 per cent (federal: 18.5 per cent; states: 27.6 per cent; local communities: 11.2 per cent), while private entities contributed 42.8 per cent of the total.

Funding rates

In Germany, as in other countries with large enrolments in dual-system apprenticeship programmes at the upper secondary level (Austria, Finland, France, Luxembourg, the Netherlands and Switzerland), expenditure per student in vocational upper secondary programmes is much higher than expenditure per student in general programmes. While typically the average spend on general programmes is less than that spent on vocational ones in OECD countries, the difference is much greater in Germany than the average. Across all OECD countries, expenditure per pupil on general programmes is 91 per cent that of the spend on those on vocational routes, compared with 71 per cent in Germany (Table 7).

Table 7: Spend per pupil (vocational and general) in Germany

	Spend per pupil, upper secondary vocational	Spend per pupil upper secondary general	Difference between vocational/general	Spend on general education as a percentage of vocational spend per pupil
Germany	USD 15,343 (£11,596)	USD 10,854 (£8,203)	USD 4,489 (£3,393)	71 per cent
OECD average	USD 9,955 (£7,524)	USD 9,066 (£6,853)	USD 889 (£672)	91 percent

Source: OECD Education at a Glance 2016 (country report on Germany)

In the budget year 2013, total spending by all public bodies (Federal Government, federal states, Bundesagentur für Arbeit (BA) [Federal Employment Agency]) was approximately Euro 9.7 billion (£8.08 billion).

No information is available regarding the amount to which the trainees themselves participate in the financing of their training. Their contribution essentially comprises the loss of income they suffer as a result of their training compared to employment in an unskilled or semi-skilled capacity. Rough estimates made by BIBB indicate that the

financing contribution made by the trainees is considerable and is consequently underestimated.⁹

Public spending is focused on federal state-funded vocational schools. The official statistics, however, record spending only for vocational schools overall rather than separately for the individual types of school. The trade and technical schools, which primarily tend to form part of the continuing training system, are not included. The largest single share of spending is on part-time vocational schools in the dual system (around Euro 2.9 billion (£2.47 billion) in 2013). Spending on individual types of school in the school-based occupation system, such as full-time vocational schools or specialised upper secondary schools, is lower although these schools together actually account for approximately Euro 3.7 billion (£3.08 billion). Transitional provision such as the prevocational training year and the basic vocational training year make up about Euro 0.4 billion (£0.33 billion).

In the school-based occupation system, the living costs of those attending vocational school on a full-time basis are also funded pursuant to the Federal Education and Training Assistance Act (BAföG, approximately Euro 0.3 billion (£0.23 billion)) alongside the financing of vocational schools. In the transitional sector, VET spending by the BA and the Bundesministerium für Arbeit und Soziales (BMAS) [Federal Ministry of Labour and Social Affairs] together totals around Euro 1.3 billion (£1.08 billion) and constitutes a further major segment.³ These costs relate to vocational orientation and preparation as well as to vocational education and training itself. A large part of BA funding is used to support trainees who are particularly disadvantaged, specifically trainees in publicly financed company-based training. The latter could also be said to be part of the dual system because it represents a substitute for company-based training and thus supplements the dual system. The same applies with regard to the vocational education and training assistance which trainees within the dual system receive in order to secure their living costs (approximately Euro 0.4 billion (£0.33 billion)). Spending on the vocational education and training of disabled persons is not included in the figure.

Employers contribute approximately 21 per cent of the costs of intermediate VET. Jansen et al. (2015) at the Federal Institute of Vocational Education and Training (BIBB, March 2015) provide the latest analysis of the cost of apprenticeship training to employers. This is based on the BIBB Cost-benefit Survey 2012/13 (BIBB-CBS 2012/13), a representative survey on the costs and benefits of apprenticeship training, which included 3,032 companies providing apprenticeship training ('training companies') and 913 non-training companies.¹⁰ Table 8 shows that the average gross cost per apprentice of apprenticeship

⁹⁹ <https://www.bibb.de/en/41380.php>

¹⁰ The study is primarily concerned with establishing whether the decline in training participation by German companies since 2009 could be due to "a deterioration in the cost-- benefit ratio of providing initial vocational education and training?"

training to employers was €17,916 (£14,930), with apprentice-related personnel/trainee costs accounting for almost two-thirds of this amount.

Table 8: Average cost per apprentice to German employers, 2012/13

Cost categories	Average cost per apprentice	Percentage of costs
Apprentice-related personnel costs that are composed of the gross training wages of apprentices along with voluntary and statutory social benefits	€11,000 (£9,167)	62 per cent
Costs of training personnel	€4,125 (£3,437)	23 per cent
Premises and non-personnel costs, which include: procurement costs for tools and equipment for apprentices; the costs of any training workshops or in-company teaching; and the costs of consumable materials that are required for teaching purposes	€925 (£771)	5 per cent
Other costs, including, among other things, chamber fees, the costs of teaching and learning materials and of external courses, and the costs of in-company training administration	1,866 (£1,555)	10 per cent
TOTAL	€17,916 (£14,930)	100 per cent

Source: Federal Institute for Vocational education and Training (BIBB), Germany

(Note, this only relates to the direct and indirect costs for the employer; they do not include the cost of vocational schools attended part-time as these are publicly financed.)

For domains of training, gross costs are highest on average in Industry and Trade and in Public Service, at over €19,500 (£16,250) in each case, and lowest in Agriculture, at around €14,000 (£11,667). As Tables 9 and 10 show, when the returns to employers are taken into account,¹¹ the net costs per apprentice to employers ranged from (€8,032/£6,693) in Public service to €1,293 (£1,077) in Agriculture.

¹¹ High returns are generated in Industry and Trade, Agriculture and the Free Professions with close to €13,400 (£1,062) (and €12,750 (£10,625) respectively; in the Home Economics domain, returns amount to barely €9,000 (£7,500) which is one-third lower in comparison to Industry and Trade.

Table 9: Sectors with the highest net costs of apprenticeship training to German employers

Sector	Average cost per apprentice
Public Service	€8,032 (£6,693)
Home Economics	€6,385 (£5,321)
Industry and Trade	€6,146 (£5,122)

Source: Source: Federal Institute for Vocational education and Training (BIBB), Germany

Table 10: Sectors in Germany with the lowest net costs of apprenticeships training to employers

Sector	Average cost per apprentice
Skilled Crafts	(€4,390/£3,658)
Free Professions	(€3,705/£3,087).
Agriculture	€1,293 (£1,077).

Source: Source: Federal Institute for Vocational education and Training (BIBB), Germany

If training also takes place in a training workshop, the net costs increase distinctly: in part because of the direct costs of this facility and in part because more training personnel are required and the apprentices spend less time on productive work. The net costs in companies with a training workshop are almost four times as high as in companies without one. This differential of around €9,500 (£7,917) arises from higher gross costs and lower returns in almost equal parts.

In the training year 2012/13, costs to companies of providing company-based training were around Euro 7.7 billion (£6.42 billion). These costs exclusively relate to the dual training system.

Accountability factors linked to funding

The Vocational Training Act and the Trade and Crafts Code regulate in-company training. They define the overall objectives of the apprenticeship, set the frame for the in-company training and regulate the involvement of social partners. Training regulations establish the minimum standards for each occupation that have to be met by all training companies. The amended Vocational Training Act from 2005 explicitly assigns the task to work towards a continuous development of quality in vocational education and training to the Vocational Education and Training Committees of the chambers.

Each company providing training is required to:

- Prove its suitability as a training place.
- Develop a training plan for each apprentice based on the training regulations for that occupation.

- Employ an in-company trainer with the required personal and professional qualifications (the latter is proved via an examination at the responsible chamber).
- Assure that the apprentice keeps a record book.

Those requirements are controlled by the chamber in charge which also advises the companies on all training issues. The final examination is taken by an independent committee of the chamber involving the employer, employee and vocational school representatives. This external examination is an important aspect of quality assurance.

The quality assurance of vocational schools is the responsibility of the federal states. Most States have projects or initiatives aimed at improving the quality of vocational schools.

Length, structure and levels of courses

Dual system trainees attend part-time vocational school on one or two days per week, where they are mainly taught theoretical and practical knowledge related to their occupation; in addition, they attend classes on general subjects such as economic and social studies and foreign languages. Systematic teaching at vocational school is a necessary supplement to process-oriented training in the company which is rather more based on specific in-house requirements. Their remaining time is spent as trainees in both private and public enterprises.

Table 11 provides details of the length and levels of education of the alternative routes and how students' time is structured. The number of teacher-supervised hours per year vary by state and range from approximately 718 to 1160.

Table 11: Structure of programmes in Germany

Course	Level	Structure	Length
VET programmes, dual system	EQF 3 ISCED 353	College: 20 per cent - 40 per cent Workplace: 60 per cent - 80 per cent	2 years
VET programmes, dual system	EQF 4 ISCED 353	College: 20 per cent - 40 per cent Workplace: 60 per cent - 80 per cent	3-3.5 years
VET programmes vocational schools	EQF 3 and 4 ISCED 353	Varies considerably	1-3 years
Entry-level vocational qualification	EQF 2 ISCED 352	Vocational school	1 year

Vocational Training Preparation	EQF level 1 ISCED 351	School-based	1 year
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The ratio of students to teaching staff was 14:1 for vocational programmes compared with 13:1 for those on general programmes in the upper secondary phase, exactly in line with the OECD average. This suggests that the higher cost per pupil of the vocational route is not due to smaller class sizes.

Staff used to deliver technical education

Most public expenditure on education relates to the compensation of teachers; in 2013, 82 per cent of non-capital costs in the secondary phase related to the payment of teaching and other staff, higher than the OECD average of 77 per cent. On average, teachers' salaries (at primary and secondary levels) in Germany are higher than those in other OECD countries, particularly for new teachers. For example, the starting salary for a primary school teacher is USD 50,007 (£37,795) (the OECD average is USD 29,411/£24,510), while the salary at the top of the scale for a primary teacher with minimum training – which, in Germany, is usually a master's degree – is USD 66,396 (the OECD average is USD 46,909/£35,454)). In primary, lower secondary and upper secondary education, teachers' salaries at the different points of the salary scales are 40 per cent to almost 90 per cent higher than the respective OECD averages. Nevertheless, the differences between top and starting salaries are much smaller in Germany than on average across OECD countries: salaries at the top of the scale are 33 per cent higher than starting salaries at the primary level, 32 per cent higher at lower secondary level, and 37 per cent higher at the upper secondary level, whereas on average across OECD countries, salaries at the top of the scale are 61-62 per cent higher than starting salaries at each level of education. The attractiveness of the teaching profession is not only influenced by absolute salaries, but also by how those salaries compare with the salaries of other comparably educated workers. In Germany, teachers' salaries compare somewhat more favourably to the salaries of other tertiary-educated workers than they do in many other countries. Primary teachers can expect to earn 88 per cent of the salary of the average tertiary-educated worker (the OECD average is 85 per cent). A lower secondary teacher can expect to earn 97 per cent of the salary of a tertiary-educated peer (the OECD average is 88 per cent). Upper secondary teachers' earnings Germany exceed similarly educated workers' earnings by 5 per cent, while across OECD countries, upper secondary teachers' salaries are 8 per cent lower than the salaries of similarly educated workers

Chapter 3 Norway

Summary

1. In 2015, 41 per cent of upper secondary education students were enrolled in vocational study programmes and 59 per cent were enrolled in general study programmes. Upper secondary VET is conducted both in schools and in public and private enterprises, where learners undertake work-based learning. In 2013, 95 per cent (77,540) of the learners in upper secondary VET attended public vocational schools, while 4.9 per cent (3,981) attended private vocational schools. Most learners in upper secondary education are in the age group of 16-21 years.
2. The norm for the upper secondary education vocational track is two years of vocational training in a vocational school followed by one or two years of practical training in industry. Most upper secondary VET programmes follow a 2+2 model. The model entails two years of education in school, followed by two years of formalised apprenticeship training.
3. Some VET programs deviate from the 2+2 model. For instance, some programmes follow a 1+3 model or 3+1 model, which involve either one year in school followed by three years of apprenticeship training, or vice versa. Students who are unable to secure an apprenticeship placement in a training enterprise are provided with one year of practical school-based training as a substitute for an apprenticeship placement. Alongside these routes is the 'training candidate scheme', which targets learners who for various reasons struggle to meet the requirements of the mainstream programme, and an alternative to the two-year apprenticeship period that allows students to transfer to a third year of supplementary studies that qualifies them for entry to higher education.
4. The distribution of teaching hours per subject in the two years of school-based VET is set at a national level. Around 980 guided-learning hours are required for each of the college-based years. This amounts to just over 24 hours of tutor-led contact for students per week. Guided learning hours include induction and group and one-to-one tutorials.
5. VET is mainly financed by the government. The authorities at county level are responsible for dispensing VET financing provided by the state budget. Employers are responsible for paying apprentices' salaries, however there is a grant scheme for employers that is intended to cover all costs related to training an apprentice during the two-year apprenticeship period.
6. Apprentices salaries increase with the apprentice's productivity during the two-year apprenticeship period. Learners in upper secondary school-based VET (pupils and apprentices alike) can qualify for grants and subsidised loans from the State educational loan fund, following a needs-based assessment. 170,000 pupils in

upper secondary education receive grants from the Norwegian State Educational Loan Fund. They receive an average of NOK 15,900 (£1,440) each.

7. Norway spends over 60 per cent more on upper secondary education than the OECD average. According to the Norwegian Directorate for Education and Training, it is largely the number of teaching hours per teacher that increases the cost per pupil in Norway compared with other OECD countries.
8. County councils spend an average of NOK 155,100 (£14,051) per pupil in upper secondary school. This is just over NOK 49,000 (£4,439) more than the cost per primary and lower secondary school pupil. Upper secondary vocational study programmes are more expensive than general study programmes. A pupil enrolled in a vocational study programme costs an average of NOK 20,000 (£1,812) more than a pupil enrolled in a general study programme, largely due to smaller classes and more expensive study materials.
9. Expenditure varies significantly between the different vocational study programmes. In 2015, the average VET programme cost was just over NOK 100,000 (£9,059) per pupil. The cheapest study programme, Media and Communication cost NOK 84,444 (£7,650) per pupil, while the most expensive, the programme for Agriculture, Fishing and Forestry, cost almost NOK 172,000 (1,558) per pupil. This compares with NOK 63,576 (£5,759) for the most popular academic programme Specialisation in General Studies.
10. Each training enterprise receives a state grant for each apprentice of around 13.900 EUR (£11,583) over two years (2015). Apprentices' salaries increase from 30 per cent to 80 per cent of a skilled worker's salary during the two years of apprenticeship.
11. In 2015 county councils spent almost NOK 2.5 billion (£0.23 billion) on special needs education and specially adapted tuition. This is just over 8 per cent of their total spending on upper secondary education and training. The cost of specially adapted tuition includes introduction programmes for newly arrived language minority pupils and special Norwegian language tuition. County councils spend an average of NOK 14,000 (£1,268) per pupil on special needs education and specially adapted tuition in upper secondary education.
12. In principle, there is no difference between the qualification requirements for VET teachers and other teachers. Both groups must have two sets of formal qualifications: in the relevant subject and in teaching.
13. To achieve more practically oriented teaching of the common core subjects (e.g. Norwegian, English, Mathematics, natural sciences, social sciences and gymnastics) that are taught on VET programmes, teacher competence is being strengthened. In the autumn 2014 about 900 teachers in upper secondary VET schools received training in how to make these subjects relevant to the vocational programmes. Such teacher training continued in 2015 and 2016.

14. Teachers are paid less than their fellow citizens with tertiary education. Based on 2012 data, teachers in Norway at all levels earn, on average, significantly less than workers with a comparable level of education.

Overview of VET in Norway

In Norway, upper secondary education and training for 16-19 year-olds is non-compulsory. However, every pupil who has completed the lower secondary level is entitled to upper secondary education or training leading to university and college admissions certification or to a vocational qualification.¹² They may choose from five general study programmes (if they follow the academic track) and eight general VET programmes (if they follow the vocational track). 92 per cent of all 16 to 18-year-olds were enrolled in upper secondary education or training in autumn 2015. In 2015, 59 per cent of pupils were enrolled in general study programmes and 41 per cent were enrolled in vocational study programmes. The norm for the upper secondary education vocational track is two years of vocational training in a vocational school/college followed by one or two years of practical training in industry. Most upper secondary VET programmes lead to a trade or journeyman's certificate (fag- og svennebrev) at EQF level 4 (level 4A of the Norwegian NQF). Currently approximately 180 such certificates are available at this level of education.

Upper secondary VET is conducted both in vocational schools and in public and private enterprises, where learners undertake work-based learning (WBL). In 2013, 95 per cent (77,540) of the learners in upper secondary VET attended public vocational schools, while 4.9 (3,981) per cent attended private vocational schools. Most learners in upper secondary education are in the age group of 16-21 years.

Sectors

Upper secondary VET in Norway consists of eight general vocational programmes:

1. Building and Construction
2. Design, Arts and Crafts
3. Electrical Trades
4. Healthcare, Childhood and Youth Development
5. Agriculture, Fishing and Forestry

¹² Norwegian youth have a right to upper secondary education, which is valid for five years for pupils in three-year school-based upper secondary programmes, and six years for pupils in VET programmes with apprenticeship (Norwegian Directorate for education and Training 2016).

6. Restaurant and Food Processing Trades
7. Service and Transport
8. Technical and Industrial Production

Prior to 2016, a ninth programme, Media and Communication, was included. All the available figures up to and including 2015/2016 therefore include 9 rather than 8 general programmes.¹³

Routes, courses and qualifications

Most upper secondary VET programmes follow a 2+2 model. The model entails two years of education in school, followed by two years of formalised apprenticeship training. The apprenticeship entails training and productive work in an enterprise or public institution, known as a training enterprise. Some VET programs deviate from the 2+2 model. For instance, some programmes follow a 1+3 model or 3+1 model, which involve either one year in school followed by three years of apprenticeship training, or vice versa. Some trades such as the Electrical Trades programme follow a 2 + 2^{1/2} model which therefore involves a half year longer apprenticeship period than ordinary programmes. After two years of apprenticeship training, learners take a practical-theoretical examination and successful candidates are awarded a trade certificate (fagbrev) for industrial and service trades or a journeyman's certificate (Svennebrev) for traditional crafts. The two certificates are both at EQF level 4 and have equal status based on similar sets of theoretical knowledge and practical skills. In 2015 there were 39,000 apprentices.

There is no statutory right to an apprenticeship placement in a training enterprise. However, people have a right to upper secondary education. In 2013, 5,750 people applied but did not get apprenticeship contract in a training enterprise. The county authorities were required to provide them with one year of practical school-based training as a substitute for an apprenticeship placement. In 2013, 357 out of the 5,750 pupils nationwide attended such practical training in school. This alternative route is costly for the counties (that are responsible for funding VET) and VET schools, and 3+0 pupils (i.e. those who complete 3 years in vocational school with zero years in on-the-job training) often perform poorer in their trade and journeyman's examination than apprentices.

Alongside these routes is the 'training candidate scheme', which targets learners who for various reasons struggle to meet the requirements for the trade or journeyman's certificate. The scheme started in 2000, and in 2015 there were about 2,000 training candidates distributed across the different VET programmes. The scheme gives learners

¹³ This programme attracted small number of students at upper secondary education level (174 in 2013, which represented 0.5 per cent of students enrolled on VET).

the possibility of achieving a specially adapted qualification of a lower degree than a trade or journeyman's certificate. The training candidate signs a training contract with a training enterprise, and has to pass a competence exam (kompetanseprøve) at the end of training. While apprentices must fulfil all the objectives set in the curriculum, a training candidate receives adapted training targeted towards a limited number of the objectives in the curriculum. A training candidate therefore has a less comprehensive exam that leads to a vocational training certificate (kompetansebevis) at EQF level 3 when completed. A training candidate may convert the training contract to an ordinary apprenticeship contract while in training, should the candidate aim towards trade or journeyman's certificate. Training contracts may also be an option for VET learners who struggle to get ordinary apprenticeship contracts. Out of the 5,750 that applied but did not get an apprenticeship contract in 2013, about 540 signed training contracts with training enterprises.

A final option open to students who enroll on a VET programme arises after two years in a VET programme. This involves them transferring to a third year of supplementary studies that qualifies them for entry to higher education. It leads to a qualification at EQF level 4 (level 4b on the Norwegian NQF). The path replaces the two-year apprenticeship period, and the learners will thus not receive a trade or journeyman's certificate. In 2013 about 14,000 pupils (27 per cent) selected this option after their second year of VET and an additional 4,725 pupils took the supplementary course after their apprenticeship training, and trade or journeyman's certificate examination. The third year is a packaged course in the six key academic subjects: Norwegian, English, mathematics, natural sciences, social sciences, and history) so that those who succeed satisfy the general admission requirements to higher education (on par with those taking general study programmes). However, about 40 per cent of the VET learners who embark on this path fail in one or more of the subjects.

Each of the upper secondary VET programmes are closely monitored by trade-specific vocational training councils. Based on input from the social partners (employers, trade unions and others), adjustments or changes are made annually in order to meet the demand for new skills and changes in the labour market. Since 2012 the vocational training councils have had to supply the national authorities every second year with a statement about the situation - and the potential need for changes in their respective VET programmes.

It has been suggested that the high employment rate for people with trade or journeyman's certificates indicate that they have competence and skills demanded in the labour market. However, there are differences between the qualifications in the eight VET programmes offered in Norwegian upper secondary education. In some sectors, VET qualifications enjoy strong links to the labour market, and enterprises participate actively in the training through the apprenticeship scheme. In sectors, such as traditional crafts and industrial trades, holders of trade or journeyman's certificates tend to enjoy high

status. Moreover, they are often preferred over unskilled labour, and enterprises often hire apprentices after the trade or journeyman's examination. For other VET sectors, such as the health and service sectors, the upper secondary VET qualifications have a slightly weaker link to the labour market. A VET qualification in these sectors is not the only qualification needed for employment. To a larger extent, these sectors recruit people from upper secondary general education without occupational qualifications.

Take-up and completion

191,100 pupils were enrolled in upper secondary education and training in autumn 2015. As noted above, 59 per cent of pupils are enrolled in general study programmes and 41 per cent are enrolled in vocational study programmes. There were 39,000 registered apprentices as of 1 October 2015, that is 600 more than in 2014. 71 per cent of apprentices are male. In addition to the apprentices, there were 2,000 training candidates and more than 1,000 pupils receiving in-school vocational training.

9,800 apprenticeship contracts were taken up in 2015 – an increase of 8 per cent since 2011 (Table 12).

Table 12: New apprenticeship contracts in Norway by study programme

	2011	2012	2013	2014	2015
Building and Construction	3,746	3,702	3,667	3,760	3,820
Design, Arts and Crafts	1,319	1,116	1,127	1,095	1,069
Electrical Trades	2,997	3,230	3,165	3,132	3,125
Health and Social Care	2,661	2,872	2,988	3,201	3,657
Media and Communication	111	111	70	80	92
Agriculture, Fishing and Forestry	436	417	433	500	532
Restaurant and Food Processing Trades	1,213	1,135	1,123	1,114	1,145
Service and Transport	1,827	1,841	1,960	2,091	2,318
Technical and Industrial Production	3,973	4,049	4,146	4,280	4,071
Total	18,283	18,523	18,679	19,253	19,829

Source: Directorate for Education and Training , Norway

Healthcare, Childhood and Youth Development is the most popular vocational study programme, attracting almost a quarter of all vocational pupils in autumn 2015. This is also where we find the greatest relative increase in pupils at almost eight per cent on the previous year. Technical and industrial production and Electrical and Electronic Engineering are the second and third most popular programmes.

There are significant differences between boys and girls in terms of the study programmes they choose. Girls make up 87 per cent of all pupils on Design, Arts and Crafts and 85 per cent on Healthcare, Childhood and Youth Development. 96 per cent of pupils following the Building and Construction programme are boys, and boys make up 94 per cent of pupils on the Electrical and Electronic Engineering programme. The gender differences are slightly less conspicuous on the general study programmes, although girls are in a significant majority on the Music, Dance and Drama programme.

With regard to completion rates, these are higher on general study programmes than on vocational study programmes. Only about 60 per cent of VET learners complete their upper secondary education successfully within five years. In 2013, fifty-eight per cent of the VET learners completed their upper secondary training successfully within 5 years. The corresponding figure for learners in the three general study programmes was 86 per cent.

Many of those who complete a vocational study programme spend longer than the stipulated time frame completing their training period and obtaining their trade or journeyman's certificate. Half of all apprentices in the 2010 cohort had completed their apprenticeship or journeyman's examination within two years. After three years, the figure rises to 75 per cent before levelling off. 81 per cent had obtained a trade or journeyman's certificate after five years.

There are noticeable differences between different study programmes in terms of how many pupils obtain trade certificates – and how quickly they obtain them. On the Electrical and Electronic Engineering programme, 91 per cent of pupils pass their trade or journeyman's examination within five years, while in Design Arts and Crafts the figure is 65 per cent.

Drop-out is of great concern, with many pupils on vocational study programmes dropping out when transferring to apprenticeships, and measures have been implemented to tackle this issue.

Studies have identified factors that influence study progression, success rate and dropout. Two such factors are social background and learning achievements in primary and lower secondary. Another factor is the lack of apprenticeship placements for VET learners in the transition from school-based training to the apprenticeship training. As of 1st of November 2014, 26,000 pupils applied for an apprenticeship contract, and about 16,800 (65 per cent of them) received an apprenticeship placement.

Funding structures and levels of expenditure

Norway spends considerable resources on its education system, including technical and vocational education and training, relative to many other countries. In 2008, the country spent 5 per cent of its GDP on primary and secondary education and training as a whole, whereas the OECD countries spent only 3.8 per cent on average. Norway spends over 60 per cent more on upper secondary education than the OECD average. According to the Norwegian Directorate for Education and Training, it is largely the number of teaching hours per teacher that increases the cost per pupil in Norway compared with other OECD countries.

The authorities at county level are responsible for dispensing the VET financing provided by the state budget (including apprenticeships), as well as for providing apprenticeships and for supervision. The main sources of revenue for counties are local taxes, general grants, earmarked grants, charges and fees. The General Grant is a lump sum transfer to every unit of local government and is administered by the Ministry of Local Government and Modernisation. Local taxes accounted for 40 per cent of total revenue in 2016, followed by general grants at 34 per cent, fees and charges at 14 per cent and earmarked grants at 5 per cent.

County councils spent a total of NOK 27.3 billion (£2.47 billion) on upper secondary education institutions in 2015. The figure includes the cost of teaching, premises, specially adapted tuition, the Follow-up Service (Oppfølgingstjenesten), and the educational psychology service (PPT). This figure does not distinguish between academic and vocational routes.

County councils also provide training enterprises that offer apprenticeships with a grant that is intended to cover all costs related to training an apprentice (or training candidate) during the two-year apprenticeship period. They also provide additional grants to enterprises either offering apprenticeships in small trades in need of protection or for taking on apprentices with special needs. In 2015 county councils spent NOK 2.9 billion (£0.26 billion) on vocational training at workplaces – an increase of more than 7 per cent from 2014. The increase was due to a rise in the number of apprentices and training candidates and to higher grants per apprentice.

In 2015 county councils spent almost NOK 2.5 billion (£0.23 billion) on special needs education and specially adapted tuition. This is just over 8 per cent of their total spending on upper secondary education and training. The cost of specially adapted tuition includes introduction programmes for newly arrived language minority pupils and special Norwegian language tuition. County councils spend an average of NOK 14,000 (£1,268) per pupil on special needs education and specially adapted tuition in upper secondary education.

VET is cost-free for pupils and students in public education and training institutions. Learners in upper secondary school-based VET (pupils and apprentices alike, as well as pupils attending private colleges) can qualify for grants and subsidised loans from the State educational loan fund, following a needs-based assessment. They may receive:

- Relocation grants if they have to move away from home to attend school or enterprise-based training and are also entitled to support from the State Education Loan Fund. This is also available for adult learners.
- An additional subsistence grant to cover expenses if they live away from home.
- Grants for purchasing compulsory equipment, which varies according to study programmes.
- Financial support if they are attending private VET schools have to pay tuition fees.

170,000 pupils in upper secondary education receive grants from the Norwegian State Educational Loan Fund. They receive an average of NOK 15,900 (£1,440) each.

Funding rates

County councils spend an average of NOK 155,100 (£14,051) per pupil in upper secondary school. This is just over NOK 49,000 (£4,439) more than the cost per primary and lower secondary school pupil.

Vocational study programmes are more expensive than general study programmes. A pupil enrolled in a vocational study programme costs an average of NOK 20,000 (£1,812) more than a pupil enrolled in a general study programme, largely due to smaller classes and more expensive study materials.

Expenditure also varies significantly between the different study programmes. In 2015, the average VET programme cost was just over NOK 100,000 (£9,059) per pupil. The cheapest study programme, Media and Communication cost NOK 84,444 (£7,650) per pupil, while the most expensive, the programme for Agriculture, Fishing and Forestry, cost almost NOK 172,000 (1,558) per pupil (Table 13). This compares with NOK 63,576 (£5,759) for the most popular academic programme Specialisation in General Studies (Table 14).

Table 13: Direct operating cost per upper secondary pupil by vocational programme in Norway

Programme	2015
Building and Construction	NOK 103,392 (£9,366)
Design, Arts and Crafts	NOK 105,891 (£9,593)

Programme	2015
Electrical Trades	NOK 93,758 (£8,493)
Health and Social Care	NOK 86,538 (£7,839)
Media and Communication	NOK 84,444 (£7,650)
Agriculture, Fishing and Forestry	NOK 171,924 (£15,575)
Restaurant and Food Processing Trades	NOK 112,258 (£10,169)
Service and Transport	NOK 94,100 (£8,525)
Technical and Industrial Production	NOK 97,571 (£8,839)

Source: Directorate for Education and Training, Norway

Table 14 Direct operating cost per upper secondary pupil by general education programme in Norway

Programme	2015
Specialisation in General Studies	NOK 63,576 (£5,759)
Sports and Physical Education	NOK 74,349 (£6,735)
Music, Dance and Drama	NOK 114.888 (£10,408)

Source: Directorate for Education and Training, Norway

As of 2014, the grant given to training enterprises to cover the costs associated with training an apprentice during the two-year apprenticeship period was approximately EURO 15,000 (£12,500) per apprentice for the entire training period.

Employers pay apprentices a salary that typically increases from 30 per cent to 80 per cent of a skilled worker's salary during the two years of apprenticeship.

Accountability factors linked to funding

Quality assurance for VET providers are set in the education act and regulations. The legislation sets standards for the content of the training (the curricula), examinations, the trade or journeyman's certification, approval of apprenticeship training enterprises and

teacher competences. The education act also regulates the county governors' responsibility to provide guidance to school.

Length, structure and levels of courses

Table 15 provides details of the length and levels of education of the alternative routes and how students' time is structured. The distribution of teaching hours per subject in the two years of school-based VET is set at a national level. Around 980 guided-learning hours are required for each of the college-based years. This amounts to just over 24 hours of tutor-led contact for students per week. Guided learning hours include induction and group and one-to-one tutorials.

Table 15 Structure of programmes in Norway

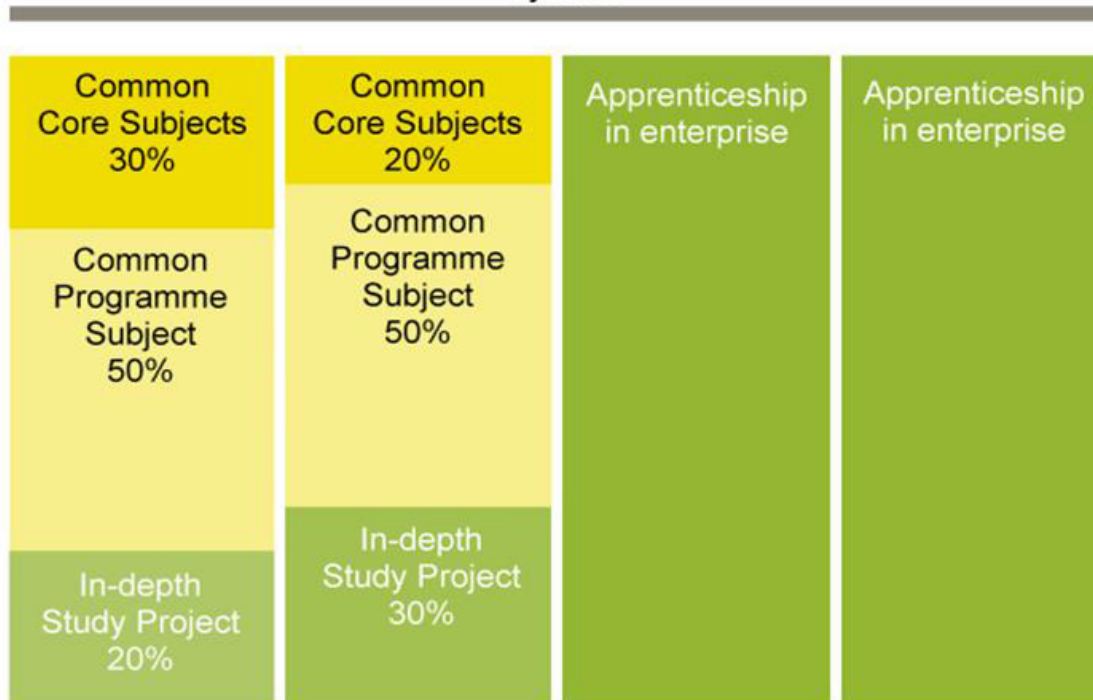
Course	Level	Structure	Length
2+2 vocational programme (with apprenticeship training)	EQF level 4 ISCED 3C	College: 2 years Workplace/apprenticeship placement: 2 years	4 years
3+1 vocational programme (with apprenticeship training)	EQF level 4 ISCED 3C	College: 3 years Workplace/apprenticeship placement: 1 year	4 years
1+3 vocational programme (with apprenticeship training)	EQF level 4 ISCED 3C	College: 1 years Workplace/apprenticeship placement: 3 year	4 years
3+0 vocational programme (No apprenticeship)	EQF level 4 ISCED 3C	College: 2 years Practical college-based training: 1 year	3 years
Training candidates scheme	EQF level 3	Varies	3 years
supplementary studies (academic - to qualify for higher education)	EQF level 4 ISCED 3A	College academic: 1 year	1 years

First two years of education and training

The curricula and the number of teaching hours per subject in the two years of school-based VET are laid down in national regulations and illustrated in Figure 1. The VET schools are required to comply with these regulations.

Figure 1: The 2+2 model in Norway

Upper Secondary Education and Training
4 years



Source CEDEFOP ReferNet (2012). Norway VET in Europe – Country Report.

As shown in Figure 1, in the first two years the subjects of school-based VET are divided into three main categories:

- Common Core Subjects (fellesfag) (Norwegian, English, Mathematics, gymnastics, natural sciences and social sciences) are the same for all nine VET programmes. These subjects are the same for all pupils in the nine VET programmes. The curricula are broad and give VET schools and teachers an opportunity to make these common core subjects relevant to VET.
- Common Programme Subject (programfag) is trade specific theory and practice. The first year (upper secondary level 1) this subject consists of a general introduction to the vocational field. The second year (upper secondary level 2) this subject becomes more trade specific as the learner chooses a trade of interest this year.
- An in-depth study project, which usually includes hands-on training in workshops at schools and short work placements in enterprises. The project aims to give pupils an opportunity to try out one or more aspects of relevant trades within the VET programme. The pupils gain experience of the content, tasks and working methods that characterise the different professions within the programme. The

alternation between school-based and work-based training gives the learners valuable experience at an early stage. Learners often sign apprenticeship contracts with the enterprise where they had short placements

The two-year apprenticeship

After two years in school, most VET pupils follow two-year apprenticeship training in a training enterprise. This period equals to 1 year of work-based training, and 1 year of work in the training enterprise. The apprentice signs a legally binding apprenticeship contract with the training enterprise and a representative from the county authorities.

Staff used to deliver technical education

There are two main groups of VET teachers and trainers at the upper secondary level:

- VET teachers who provide formal school-based education and training.
- Trainers (instruktører), training supervisors (faglige ledere) and others employed in in enterprises.

VET teachers

The formal qualification requirements for VET teachers are specified in national regulations. In principle, there is no difference between teachers in VET and other teachers. Both groups must have two sets of formal qualifications: in the relevant subject and in teaching. VET teacher education programmes follow the general degree system, with a three-year Bachelor's degree and a two-year Master's degree. To become a qualified VET teacher, one must either complete vocational practical-pedagogical education or vocational teacher education. Vocational practical-pedagogical education (consecutive model) is a 1-year programme (2 years for part-time study) for students who already possess a vocational/professional degree or some other qualification. The main fields of study are pedagogical theory, vocational didactics and supervised teaching and training practice. Admission requirements are: a professionally oriented bachelor's or master's degree plus a minimum two years of professional experience; or a qualification as a skilled craftsperson/worker and two years of occupational experience; or two years of further studies (technical, professional, managerial) and general matriculation qualifications or recognition of informal and non-formal qualifications.

Norway has ten national centres which have a key role in developing the quality of the education and training provision in priority areas. These areas are mostly related to basic skills, such as reading, numeracy and writing. Since 2012, these centres have worked with making the common core subjects (e.g. Norwegian, English, Mathematics, natural sciences, social sciences and gymnastics) more relevant to the VET programmes

learners are attending, and better adapted to the needs of the less motivated learners in VET programmes.

To achieve more practically oriented teaching of the common core subjects, teacher competence is being strengthened. In the autumn 2014 about 900 teachers in upper secondary VET schools received training in how to make these subjects relevant to the vocational programmes. Such teacher training continued in 2015 and 2016.

Teachers are paid less than their fellow citizens with tertiary education. Based on 2012 data, teachers in Norway at all levels earn, on average, significantly less than workers with a comparable level of education. For instance, at the lower secondary level, teachers' statutory salaries average 71 per cent of full-time, full-year earnings for 25-64 year-olds with a tertiary education, compared with an OECD average of 88 per cent. At the pre-primary level, this percentage falls to 63 per cent compared with 80 per cent on average for OECD countries. Teachers' salary structures in Norway are comparatively flat. The salary at the top of the scale for lower secondary education, which is reached after an average of 16 years of teaching, is only 26 per cent higher than starting salaries, whereas the OECD average is 61 per cent, reached after 24 years. For pre-primary teachers, the top salary is only 16 per cent higher than the starting one, compared with 58 per cent on average for OECD countries.

Trainers, training supervisors and others employed in enterprises

A training enterprise taking an apprentice must appoint a qualified training supervisor and one or more trainers. Training supervisors (faglige ledere) in enterprises or other workplaces with apprentices must ensure that the training meets the requirements set by the Education Act. They must have one of the following qualifications: trade or journeyman's certificate in the relevant trade or craft; master craftsman's certificate in the relevant craft; relevant higher education in the trade or craft; adequate educational background in the parts of the trade which, according to the curriculum, will be taught in the enterprise; six years of experience in the trade or craft.

Trainers (instruktører) in enterprises are vocationally skilled, often with a formal vocational qualification, but are not required to have a teaching certificate. Formal regulations in the Education Act simply state that the management of the training enterprise must ensure that trainers have "the necessary qualifications".

How the training is conducted varies between enterprises and other employees in the enterprise are often involved in the training. The training enterprise must be able to document how the training is planned, organised and assessed, to ensure that apprentices can develop the necessary skills and competences. These skills are not assessed by tests or grades, but through continuous evaluation by the enterprise and two meetings a year between the trainer and the apprentice.

Chapter 4 The Netherlands

Summary

1. In 2014 44 per cent of upper secondary students¹⁴ were enrolled in vocational programmes and 56 per cent were in general programmes.
2. The upper secondary level of vocational education within the Dutch system (MBO) is divided into two main learning pathways, involving different levels of practical within-company training and learning at school but which lead to the same diplomas and qualification levels:
 - The beroepsopleidende leerweg (BOL) constitutes a full-time or part-time school-based vocational programme involving comparatively short intermittent practical periods of learning within enterprises. In this learning pathway, practical training periods within firms comprise between 20 per cent and a maximum of 60 per cent of participants' study time.
 - The beroepsbegeleidende leerweg (BBL), the Dutch apprenticeship system, comprises a dual programme of vocational education which combines theoretical learning in vocational schools with practical on-the-job training which takes-up up at least 60 per cent of participants' study time. A contract (an employment contract in most cases) with a firm is mandatory to enrol in the dual/apprenticeship track. There is no such obligation for the school-based track.
3. Around two-thirds of participants in MBO follow the school-based pathway, which also appears to be gaining popularity. The share of learners in apprenticeship is decreasing. Most programmes last for between 2 and 3 years.
4. Full-time provision in the Netherlands comprises 40 hours per week, 40 weeks per year. There are a compulsory number of student contact hours, which ROCs/colleges have to adhere. For example, direct teaching hours for the college-based option is 1000 hours per year (25 hours per week).
5. The Dutch upper secondary VET system is mainly funded by the government and employers who train apprentices and interns (those undertaking the work-based component of the school based (BOL) training pathway). Students/ trainees aged 18 or higher have to pay a variable course fee, subject to the level of study.
6. The funding arrangements for upper secondary VET are based on the principle of block grant funding based partly on number of students per course/learning path and partly on number of certificates awarded per institution. School management is

¹⁴ In the case of the Netherlands "upper secondary education" is often referred to as "senior secondary education".

responsible for deciding how to allocate the annual lump sum grant from the ministry to personnel costs, materials, housing and reservations for future investments.

7. In 2014 'cascade funding' was introduced: schools receive money for each student for a maximum of six years with extra funding for the first year. This is to encourage schools to place students directly in the right track and prevent learners following different tracks consecutively. Recently a new type of performance-based funding was also introduced; this involves quality agreements rewarding individual schools for good performance,.
8. The government also funds a subsidy scheme for employers to cover costs they incur in offering work-based learning. Apart from government funding, many sector-based collective labour agreements include a levy system to finance training and development funds, governed by the sectors' social partners. All companies are required to contribute to these funds. Some of these funds have specific budgets for companies offering apprenticeship places. In most cases the fund covers a part of the training costs and of the wages of student-employees. Employers participating in the dual apprenticeship system are eligible to receive up to a maximum of €2,700 (£2,250) per school year per student.
9. Government expenditure on the vocational school-based learning (BOL) and the work-based apprenticeship (BBL) tracks of intermediate VET in 2012 was €1,803,000 (£1,502,494). Apprentices comprised approximately one-third of the learners/trainees (165,000 in 2011/12, 153,000 in 2012/13).
10. Apprentices have a formal contract covering employment conditions like the duration of the contract and wage levels (most likely the legal minimum wage). In some cases, the tuition fee to be paid to the VET school for a student over 18 is also paid by the company. In 2011/12 the course fee for individuals participating in Level 1 or Level 2 apprenticeships was set at €226 (£188); in comparison, individuals on Level 3 or 4 programmes paid €549 (£457).
11. In 2009 government, employers and individuals spent a total of €5.6bn on intermediate VET (government €3.4 bn, employers €1.9 bn, individuals €0.3 bn), which was equivalent to one per cent of GDP.
12. In 2010, slightly more than half of the total sum (54 per cent) was spent on school-based vocational training (BOL) and the other half on work-based training (BBL). This equates to €9,000 (£7,500) per BOL student and €14,600 (£12,167) per BBL student a year. Over the whole training period around €32,700 was spent in total per BOL student and €38,600 (£27,250) per BBL student.
13. On average the Netherlands spends USD 3,139 (£2,372) more per vocational student than per general upper secondary student per year.
14. The average net costs to employers per student are: €770 (£642) per school-based (BOL) student per year; €9,360 (£7,800) per BBL/Apprenticeship student per year.

15. There is considerable variation in the funding for different vocational courses. For example, in 2012/13 average spending on work-based learning in the Engineering and Technology sector is estimated as having been €8,800 (£7,333) per year for apprentices and €4,000 (£3,333) per year for trainees, whereas the average cost of work-based learning in the economics/services sector was €5,700 (£4,750) for apprentices and €2,200 (£1,833) for trainees. These figures do not distinguish the relative contributions of government and employers.
16. More than 60 per cent of upper secondary VET teachers are educated at higher professional education (bachelor) level while 25 per cent are university-trained, according to a 2015 survey. Professionalisation of teachers is high on the policy agenda and substantial resources have been invested in raising standards.

Overview of VET in the Netherlands

All young people up to the age of 18 in the Netherlands must attend school until they attain a basic qualification. A basic qualification is a HAVO (general secondary education), VWO (pre-university education) or MBO (upper secondary vocational education).

The MBO sector consists of 65 colleges comprising multidisciplinary VET colleges (ROCs in Dutch), agricultural VET colleges (AOCs in Dutch) and specialised vocational colleges. All VET colleges have a strong regional orientation and function.

Sectors

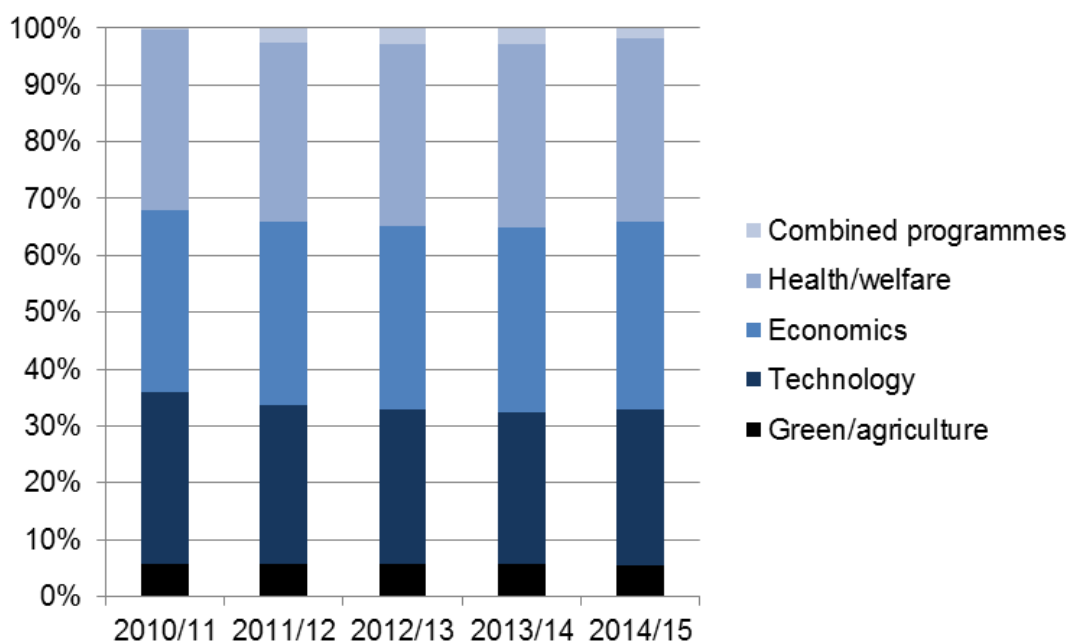
The upper secondary level of vocational education within the Dutch system (MBO) offers programmes in four different industry/business sectors:

- Personal and social services and health care
- Engineering and technology
- Business (economics/services)
- Agriculture and the natural environment

There are also programmes that combine several study areas (combination programmes).

Most students are in economic or health/welfare programmes (Figure 2 and Table 16).

Figure 2: Participation in upper secondary VET in the Netherlands by area of study



Source: Cedefop (2016). Vocational education and training in the Netherlands: short description. Luxembourg: Publications Office. Cedefop information series.

Table 16: Fields and levels of study in upper secondary vocational education programmes in the Netherlands, Numbers of students enrolled, 2013

Field of study	Level 1	Level 2	Level 3	Level 4	Total
Economy	2,642	44,519	47,870	82,473	117,504
Technology	3,233	41,587	28,566	69,444	142,830
Care and welfare	1,294	25,756	58,461	88,845	174,356
Agriculture/green	3,100	6,014	8,172	12,238	29,524
Combination	10,706	230	16	2,522	13,474
Total	20,975	118,106	143,085	255,522	537,688

Source: DUO (2013), "Aantal onderwijsdeelnemers in het MBO" [Number of students in MBO]

Routes, courses and qualifications

The upper secondary level of vocational education within the Dutch system (MBO) is divided into two main learning pathways, involving different levels of practical within-company training and learning at vocational school but which lead to the same diplomas and qualification levels:

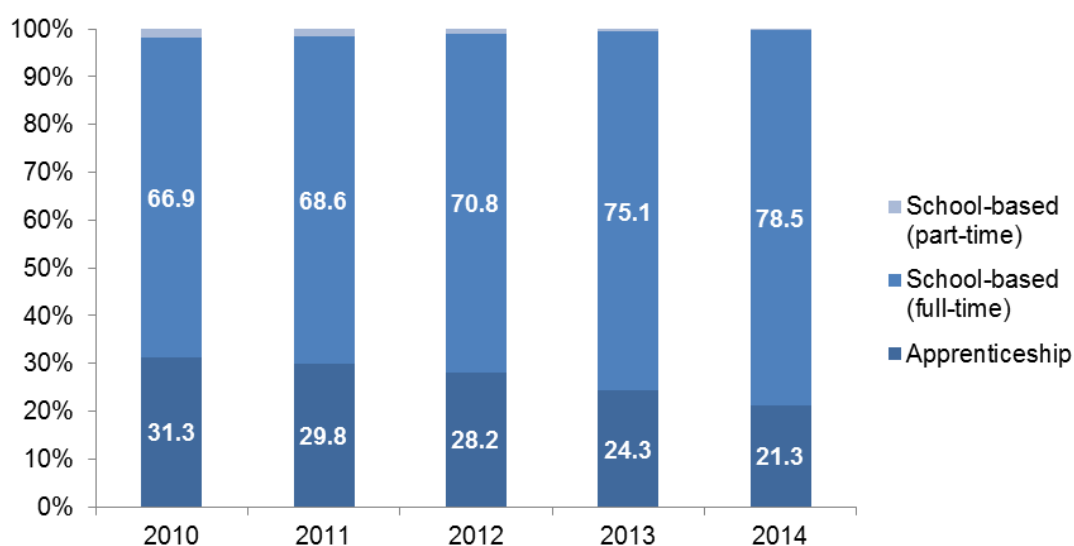
- The beroepsopleidende leerweg (BOL) constitutes a full-time or part-time school-based vocational programme involving comparatively short intermittent practical periods of learning within enterprises. In this learning pathway, practical training

periods within firms comprise between 20 per cent and a maximum of 60 per cent of participants' study time.

- The beroepsbegeleidende leerweg (BBL), the Dutch apprenticeship system, comprises a dual programme of vocational education which combines theoretical learning in vocational schools with practical on-the-job training which takes-up up at least 60 per cent of participants' study time. A contract (an employment contract in most cases) with a firm is mandatory to enrol in the dual/apprenticeship track. There is no such obligation for the school-based track.

Around two-thirds of participants in MBO follow the school-based pathway, which also appears to be gaining popularity. The share of learners in apprenticeship is decreasing (Figure 3).

Figure 3: Participation in upper secondary VET in the Netherlands by pathway



Source: Cedefop (2016). Vocational education and training in the Netherlands: short description. Luxembourg: Publications Office. Cedefop information series.

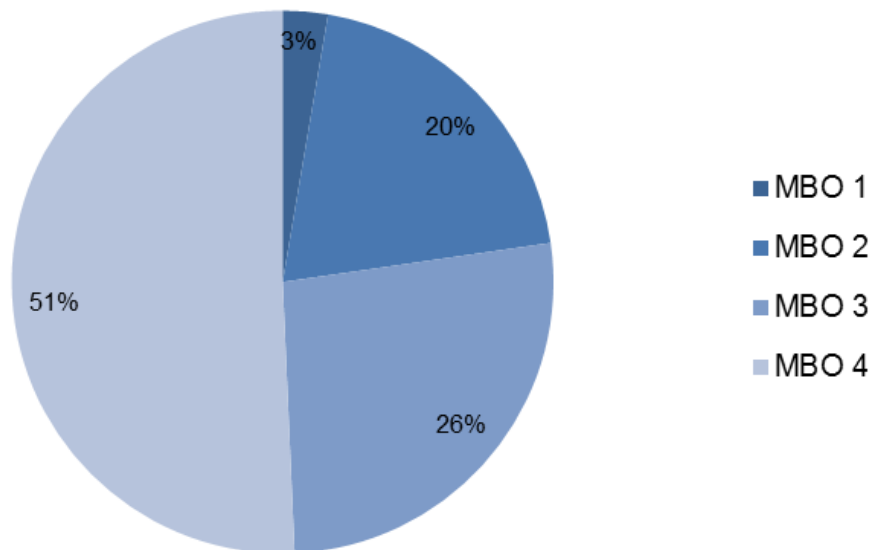
MBO training offers intermediate vocational training at four different qualification levels:

- Level 1 – Entry level programmes, duration 1-1.5 years.
- Level 2 – Basic vocational programmes, duration 2 years.
- Level 3 – Professional education programmes, duration 3 years (2 if a student has completed MBO Level 2).
- Level 4(a) Middle-management training programmes, duration 3-4 years).

These provide their graduates with intermediate level skills equivalent to EQF 1-4 and ISCED levels 2 to 4. The lowest qualification level serves as entrance to VET for those

without a school-leaving certificate, and the highest level qualifies its graduates for higher vocational training (HBO). Of the 453,800 learners in upper secondary VET programmes in 2014, most were in MBO 4 programmes (Figure 4) in a school-based track. Apprentices were predominantly found at levels 2 and 3. Only a few upper secondary VET learners were in an entry-level programme.

Figure 4: Participation in upper secondary VET by level in the Netherlands, 2010-14

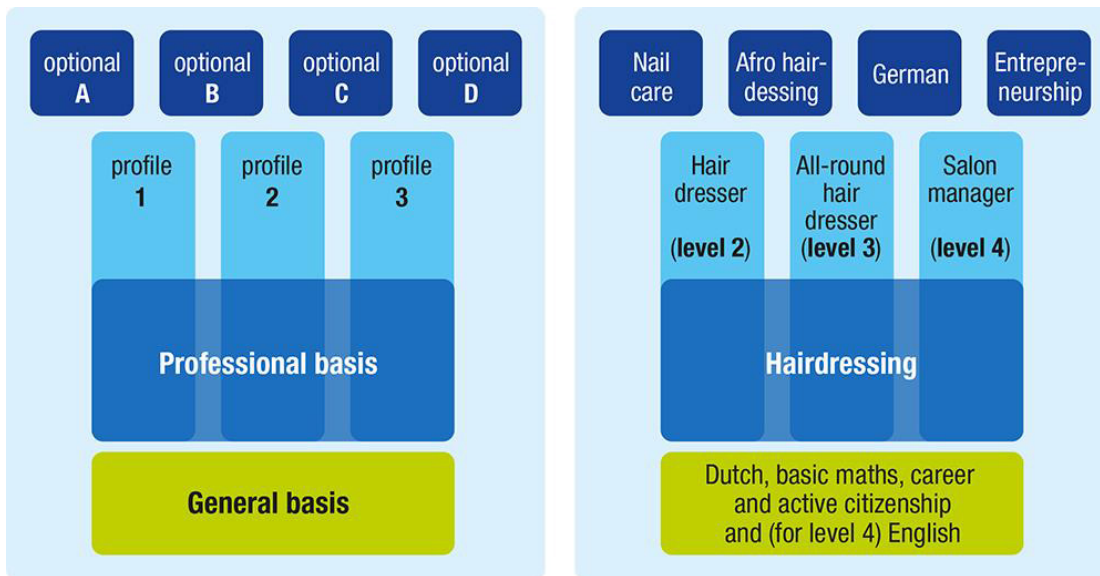


Source: Cedefop (2016). Vocational education and training in the Netherlands: short description. Luxembourg: Publications Office. Cedefop information series.

Like Germany, the Netherlands has a curricula-oriented vocational training system, which prescribes the content and length of apprenticeship training courses, but with a high degree of flexibility. It is relatively straightforward for students to switch to a different occupation as training modules are valid for different tracks.

In 2016 the number of qualifications was reduced by almost 25 per cent, leaving 176 qualifications and 489 profile modules. It is expected that broader definitions of qualifications will give VET colleges more leeway to adapt curricula to labour market needs. The reform has also involved a move to ensure the labour market relevance of curricula. This has included the introduction of optional modules that are relevant for several qualifications (Figure 5). Companies and education institutions jointly develop them to respond quickly to innovations or emerging needs within their region. The modules can be defined every three months and then immediately offered to students. Regions have been afforded some leeway to draft optional modules to be able to respond to regional needs and/or to help learners progress through the education and training system. The options will also allow them to provide coursework in German or include commercial skills in their programmes.

Figure 5: Example of new qualification structure in the Netherlands – hairdressing



Source: Cooperation organisation for vocational education, training and the labour market (SBB)
<http://www.s-bb.nl>

NB: The new qualification structure has been obligatory since August 2016.

Sector chambers that are responsible for VET qualifications include social partners and the VET sector. These chambers are the link between sectoral education and labour market stakeholders but they also contribute to general qualification policies. As well as being responsible for keeping the qualification system up to date, the chambers promote quality of learning in enterprises and interpret and validate information on VET and the labour market. Each sectoral chamber is supported by representatives of the different labour market segments that form part of the sector.

Take up and completion

In 2014 44 per cent of upper secondary students were enrolled in vocational programmes and 56 per cent were in general programmes.

Completion rates for MBO training in general are high and were 93 per cent or more between 2011/12 and 2014/15. However, there are substantial variations across the four MBO levels. In 2010/11, for example, the drop-out rates were 36.6% at MBO level 1, 13.1% at MBO level 2 and around 4% at levels 3 and 4.

Funding structures

The Dutch intermediate VET system is mainly funded by the government and employers who train apprentices and interns (those undertaking the work-based component of the school based (BOL) training pathway). However, training participants are also involved in

the funding, as individuals aged 18 or higher have to pay a variable course fee, subject to the level of study.

The funding arrangements for upper secondary VET (MBO) are based on the principle of block grant funding based partly on number of students per course/learning path and partly on number of certificates awarded per institution. In 2014 'cascade funding' was introduced: schools receive money for each student for a maximum of six years with extra funding for the first year. This is to encourage schools to place students directly in the right track and prevent learners following different tracks consecutively. Recently a new type of performance-based funding was also introduced; this involves quality agreements rewarding individual schools for good performance (performance-based funding is discussed in more detail below).

MBO colleges also have other funding sources, such as contracted activities for companies and individuals (and for municipalities in civic integration training or adult education) and course fees paid by students. There is a subsidy scheme for companies to cover costs of offering learning places in dual tracks (BBL). School management is also responsible for deciding how to allocate the annual lump sum grant from the ministry to personnel costs, materials, housing and reservations for future investments. Yearly auditing reports provide insight into how the grant is spent.

Vocational colleges, which are referred to as Regional Education and Training Centres (ROCs), receive funding directly from government for providing MBO training. This is based on a 'T minus 2' model. Each college receives base funding, determined by how many students it had two years ago. This 'smoothing mechanism' provides stability in financial planning. A college will receive 80 per cent on a student's enrolment for MBO training and a bonus payment of 20 per cent, per student, successfully completing their course. Colleges also receive around 10 per cent of their total student budget for infrastructure (buildings etc.). In 2013, colleges received around €5,000 (£4,167) for a student on the BOL pathway.¹⁵

Government expenditure on the vocational school-based learning (BOL) and the work-based apprenticeship (BBL) tracks of intermediate VET in 2012 was €1,803,000 (£1,502,494). Apprentices comprised approximately one-third of the learners/trainees (165,000 in 2011/12, 153,000 in 2012/13). In 2012 total expenditure by employers on apprenticeship training programmes in the Netherlands was €2.5 billion (£2.08 billion). Employers participating in the dual apprenticeship system are eligible to receive up to a maximum of €2,700 (£2,250) per school year per student.

According to figures released by Statistics Netherlands in November 2014, nearly 18,000 fewer apprenticeship places were available in 2013 than in 2012 in the Netherlands.

¹⁵ Whilst the majority of a ROC's income will be derived from MBO training provision, it will also have income streams, to varying degrees, from adult education and continuing VET.

students in the apprenticeship-based track (BBL) of senior secondary vocational education (MBO); a drop of nearly ten per cent (which is attributed to the economic situation in). Private sector companies spent €122 million (£102 million) less on supervising MBO students in work-based learning. Moreover, companies that did take on apprentices offered more short-term contracts. The number of teaching hours per MBO student also fell, except in the care sector.

In contrast, the number of traineeships for MBO students in the school-based track (BOL) of MBO rose in 2013, by nearly 8,000. Although the number of hours per trainee fell in all sectors except care, spending by companies on the supervision of MBO students in the school-based track (BOL) rose by €25 million (£20.83 million) to €785 million (£654 million) due in part to the increase in the number of trainees in the school-based track and higher wage costs for supervisors.

Apart from government funding, the most important funding arrangements for VET, are non-governmental. Many sector-based collective labour agreements include a levy system to finance training and development funds, governed by the sectors' social partners. All companies are required to contribute to these funds. Some of these funds have specific budgets for companies offering apprenticeship places. In most cases the fund covers a part of the training costs and of the wages of student-employees. Apparently, the system has some rigid features as some funds restrict their funding to students in dual tracks at level 2 only, sometimes forcing students with a higher qualification in prevocational education (VMBO) to accept a training place at this level and not at a higher level.

As noted above, apprentices have a formal contract covering employment conditions like the duration of the contract (fixed-term or permanent/full or part time) and wage levels (most likely the legal minimum wage). In some cases, the tuition fee to be paid to the VET school for a student over 18 is also paid by the company. In 2011/12 the course fee for individuals participating in Level 1 or Level 2 apprenticeships was set at €226 (£188); in comparison, attendants of Level 3 or 4 programmes paid €549 (£457).

The social partners play a key role in the determination of apprenticeship wages. Although there is no legal requirement for training firms to compensate apprentices for their productive efforts, apprentice salaries are typically settled in the context of collective labour agreements. Collective bargaining takes place at both the industry level (between employers' organisations and trade unions) and the company level. As a result, apprentice wages are set within a considerable number of collective bargaining contracts operating within the Netherlands, depending on the particular economic sector, occupation, and company.

Funding rates

In 2009 government, employers and individuals spent a total of €5.6bn on upper secondary level VET, which was equivalent to one per cent of GDP (Table 17).

Table 17: Expenditure on intermediate VET in the Netherlands, 2009

	Expenditure
Government	€3.4 bn (£2.87 bn)
Employers	€1.9 bn (£1.58 bn)
Individuals	€0.3 bn (£0.25 bn)
Total	€5.6 bn (£4.7bn)

Slightly more than half of the total sum (54 per cent) was spent on school-based vocational training (BOL) and the other half on work-based training (BBL). This equates to €9,000 per BOL student and €14,600 per BBL student a year. Over the whole training period around €32,700 was spent in total per BOL student and €38,600 per BBL student.¹⁶

The average net costs to employers per student per year for BOL and BBL students are shown in Table 18.

Table 18: Average cost per apprentice and intern to Dutch employers in 2011

	Average cost per BOL student/intern per year	Average cost per BBL/Apprenticeship student per year
Average net costs	€770 (£642) per school-based (BOL) student per year	€9,360 (£7,800)

Source: Statistics Netherlands

There is considerable variation in the funding for different courses. For example, in 2012/13 average spending on work-based learning in the Engineering and Technology sector is estimated as having been €8,800 (£7,333) per year for apprentices and €4,000 (£3,333) per year for trainees, whereas the average cost of work-based learning in the economics/services sector was €5,700 (£4,750) for apprentices and €2,200 (£1,833) for

¹⁶ Vogler-Ludwig (2012)

trainees. These figures do not distinguish the relative contributions of government and employers.

Spending on work-based learning was relatively the highest for students in technology disciplines: €874 million (£728m), 11 per cent less than in 2010. However, in the technology sector, the number of MBO students in apprenticeships and traineeships fell by 17,000 in the period 2010-2013, to 116,000. In economics disciplines spending on supervision was €5,700 (£4,750) for apprentices and €2,200 (£1,833) for trainees. This sector had the most students in work-based tracks. The care sector spent more on practical supervision of students in the period 2010-2013, while the economics sector spent 1.2 per cent less. As a result, spending by the care sector nearly equalled that of the economics sector: they both accounted for 29 per cent of total spending on student supervision. When the survey of spending on work-based learning started, in 1995, the economics sector accounted for 27 per cent and care for 18 per cent.

Accountability factors linked to funding

Quality agreements concluded between all MBO colleges and the Ministry of Education in 2015 aim to support rapid and comprehensive implementation of measures and encourage colleges to increase their performance in terms of early school leaving, completion rates, quality of workplace learning and the professionalisation of teachers. In return, schools receive additional (partly performance-based) funding for four years (2015-18). The budget for performance-based funding will increase over time (up to EUR 210 million (£175 billion) in 2018). The money will only be available to colleges which have been successful in reducing early school leaving, increasing programme completion rates and raising the quality of (guidance of) workplace learning. Account managers (ministry officials) are responsible for monitoring progress based on information already available from various sources in the student population, the programmes and their outcomes, and institution finances.

There is evidence that this principle of incentive-led policy has already proved successful in reducing early school leaving in VET, when additional funding was made available to MBO colleges on condition of reducing the number of early school leavers. Within 10 years the number of new school drop-outs in VET fell from 71,000 in 2002 to less than 28,000 in 2012.

The consensus is that while upper secondary VET is of good basic quality, there is a need to be more ambitious. Extra (partly performance based) funding is foreseen for the coming years to increase quality; the responsible minister has concluded quality agreements with all VET institutions, which makes them responsible and accountable for their performance. The quality agreements are the basis for quality plans for 2015-18 drafted by VET providers themselves. The plans focus on intensifying language and

basic maths instruction, professional staff development, and preventing early leaving from education and training; they include concrete targets wherever possible.¹⁷

Length, structure and levels of courses

Full-time provision in the Netherlands comprises 40 hours per week, 40 weeks per year. As noted above, both learning pathways differ in their shares of practical and theoretical training. In the school-based pathway, the practical content comprises between 20 and 60 per cent of training time, while in the work-based pathway it accounts for at least 60 per cent of training time. The on-the-job component of apprenticeship training is undertaken within specifically qualified training firms, or in the context of training alliances, which comprise groups of companies that are unable to independently provide their apprentices with the training required for a given qualification.

Tables 19 and 20 list the different VET programmes available in the Netherlands, along with their duration and classification according to EQF and ISCED. There are a compulsory number of student contact hours, which ROCs/colleges have to adhere. For example, direct teaching hours for the college-based option is 1000 hours per year (25 hours per week).

Table 19: Levels and duration of programmes in the Netherlands

Dutch level	ISCED level	NLQF/EQF	Nominal duration in years
MBO 1	254	1 and 2	1-1.5
MBO 2	353	2	2
MBO 3	353	3	3
MBO 4	354	4	3-4
MBO 4 /specialist	453	4	1-2

Source: Centre for expertise in vocational education and training in the Netherlands (ECBO)

Table 20: Structure of programmes in the Netherlands

Course	Level	Structure	Length
College-based VET programmes	EQF 1-4 MBO 1-4	College: Typically 3-4 days per week Workplace:	Level 1: 1-1.5 years Level 2: 2 years

¹⁷ Cedefop 2016

		At least 20 per cent Typically 1-2 days per week	Level 3: 3 years (2 years if a student has completed MBO Level 2) Level 4: 3-4 years
Apprenticeships	MBO 1-4 EQF 1-4	College: Typically 1 day per week Workplace: At least 60 per cent Typically 4 days per week	As above

The school-based component of apprenticeship programmes is offered by three types of institutions, depending on the particular industry or sector of focus:

- 43 multi-sectoral regional centres (ROCs), in the Health and social care, Economics, and Technology sectors.
- 12 centres (AOCs) in the Agricultural sector.
- 12 specialised trade schools in other specific industry branches or trades.

Staff used to deliver technical education

VET teachers

More than 60 per cent of upper secondary VET teachers are educated at higher professional education (bachelor) level while 25 per cent are university-trained, according to a 2015 survey. Professionalisation of teachers is high on the policy agenda and substantial resources have been invested in raising standards. The policy measures in the action plan 'Teachers 2020: a strong profession' respond to several challenges, including:

- An expected shortage of teachers, especially in secondary education.
- Several indicators pointing to declining student achievement.
- General concerns about teacher quality.

An agreement between social partners in upper secondary education was reached in 2009 on the introduction of a professional statute for teachers, with teachers and their team having a say on pedagogical and quality issues in their institution. In combination with the Teacher 2020 action plan and various collective bargaining agreements in VET

education, these developments aim to modernize the human resources management policy for VET staff. The 'Teacher agenda 2013-20' follows up on the action plan with concrete proposals developed after consultation involving students, teachers, school management and teacher trainers. The proposals cover a range of issues including teacher training, pathways to becoming a teacher, professional development and HR policies in schools.

In upper secondary vocational education (MBO), more than half the teachers are over 50 years of age. This is a challenge because highly experienced teachers will be lost and replacing them with good recruits will be difficult. Consequently, a great deal of effort has been expended to make the teaching profession more attractive. Despite the large number of retirements in MBO, however, large shortages are not expected as it is anticipated that sufficient numbers of teachers can also be recruited from working life.

Trainers

In work placements, each student has a designated work supervisor, who is a member of staff of the host employer. They provide on-the-job guidance and help set and oversee learning outcomes in conjunction with the trainee's ROC supervisor. As well as providing supervision, the ROC supervisors also organise the BOL work placement for the student. Throughout the student's training, it is expected that a triangle of communication is established and maintained.

Trainers responsible for work-based learning in companies of upper secondary VET students (both in apprenticeship and the school-based track) must be qualified at least to the same level for which he/she is supervising work-based learning. Trainers must also be able to share their expertise with students and are required to have pedagogical skills (validated by diplomas/certificates). The quality of the trainers is one of the criteria for accreditation of companies providing work-based learning. Accreditation is one of the legal tasks of the cooperation organisation for vocational education, training and the labour market (SBB). Private providers offer training for trainers.

Chapter 5 France

Summary

1. 43 per cent of students in upper secondary education are in vocational training. Vocational qualifications are achieved either through programmes in vocational high schools (lycée professionnels/LPs) or an apprenticeship. According to provisional figures released by the French government, in the academic year 2014 – 2015, 2,437,600 students were in the upper secondary stage of whom 663,000 (27.2 per cent) in vocational lycées and 275,700 (11.3 per cent) were training as apprentices or pre-apprentices. These figures do not include any young people of upper secondary age following other
2. Students in France in upper secondary (vocational and general) receive 1,036 hours a year of compulsory instruction time and 108 hours of non-compulsory instruction time. Teachers in upper secondary in 2012 provided 648 hours of statutory contact time, just below the OECD average of 655. Teaching time is not related to subject/vocational area but is linked to the phase and route being followed. The pupil: teacher ratio in upper secondary vocational programmes in France is 13.0. This compares with the UK figure of 21.4. Average class size in upper secondary vocational routes is around 19 compared with around 29 in the general route.
3. Those pursuing their studies through an apprenticeship spend 60 per cent to 75 per cent of their time in a company. The period of classroom based training in an apprenticeship centre is at least 800 hours for the two-year CAP (professional aptitude certificate, which over a period of two-years prepares students for a definite career path such as hairdresser, baker, plumber etc.) and at least 1850 hours for the three-year vocational baccalaureate (professional baccalaureate), which offers a professional training in a definite field, larger than in the case of CAP, for example: carpentry, agriculture and building. This training takes place over 3 years.
4. An alternative qualification is the professional qualification certificates (CQP) developed by sector bodies (rather than the state), which allow official recognition of expertise in an occupational role. CQPs are comprehensive work-study programs of 94 to 330 hours and, unlike the state qualifications, do not include elements of general education.
5. Provisional figures for 2014 released by the French Government¹⁸ show that a total of EURO 30,170.4m (£25,141.9m) was spent on the upper secondary phase.

¹⁸ http://cache.media.education.gouv.fr/file/206/59/2/DEPP-dossier-2016-206_567592.pdf

Of this, €9,326.7m (£7,772.2m) (31 per cent) was spent on LPs and €2,086m (£1,738.3m) (seven per cent) on apprenticeships.

6. Expenditure per student for 2013 was USD 13,120 (£9,916) for those on general programmes in upper secondary and USD 14,504 (£10,962) for those on vocational programmes.
7. The French Government's recently published statistics for 2014 on expenditure in schools continue to demonstrate that expenditure per pupil is higher for those students in vocational upper schools than for those following academic routes. Teaching costs, accommodation and supplies and equipment are all higher per pupil in the lycée professionnels.
8. Funding for upper secondary vocational schools comes predominantly from the state. The apprenticeship route is largely funded through an apprenticeship tax, supplanted by a balancing subsidy paid by the Regions.
9. All companies pay the apprenticeship tax, the standard rate of which is 0.68 per cent of the gross wages bill. In addition, there is a variable supplementary tax (set by the regions) for enterprises with 250 or more employees where their annual average number of young people under 26 years, under contract or under professional apprenticeship, does not reach a certain threshold. The training costs of any apprenticeship can be paid directly to an approved apprenticeship centre of the employer's choice using a proportion of their apprenticeship tax, or through central funds from the tax administered regionally.
10. Education institutions receive funding for apprentices from the apprenticeship levy funds through the apprenticeship centres to which they are attached according to calculations for teachers' salaries, allocated classrooms etc. Each centre agrees a list of training costs by institution, subject and qualification which are agreed by the Regions and which vary between centres and regions depending on local conditions.
11. Teachers are paid centrally by the Ministry for Education based on national pay scales. When all the bonuses and allowances paid to teachers are factored in however, French teachers at secondary schools are paid close to the OECD average (average pay is 2 per cent below the OECD average in both upper and lower secondary). However, average pay in France includes that paid to teachers holding the country's highest teaching degree (agrégation) at the end of their careers whose additional pay increases the average.

Overview of VET in France

At upper secondary level, when students leave the junior high school at age 15 (unless they repeated a year, which 28 per cent of students do), they either attend: a general education and technological high school, a lycée d'enseignement général et technologique (LEGT), or a lycée professionnel (LP), a vocational high school. There are around 1,600 LPs in France and approximately 2,700 other types of lycée.

The general academic stream culminates in the diplôme du baccalauréat général. The technology-based stream earns students the diplôme du baccalauréat technologique and the vocational stream leads to the baccalauréat professionnel (BAC Pro). All three types of baccalauréat grant students access to university studies. Students who fail the baccalauréat examination are issued the certificat de fin d'études secondaires. Students who are enrolled in vocational programs may also earn the Certificat d'Aptitude Professionnelle (CAP) and the Brevet d'Etudes Professionnelles (BEP), both of which are qualifications intended to give the students access to jobs in their chosen industry or act as a foundation for additional study and training.

According to provisional figures released by the French government, in the academic year 2014 – 2015, 2,437,600 students were in the upper secondary stage of whom 1,498,900 (61.5 per cent) were in the general and technical lycées; 663,000 (27.2 per cent) in vocational lycées; and 275,700 (11.3 per cent) were training as apprentices or pre-apprentices. These figures do not include any young people of upper secondary age following other vocational courses, perhaps through training contracts other than apprenticeships or other programmes.

Routes, courses and qualifications

Vocational qualifications are achieved either through programmes in vocational high schools (lycée professionnels) or an apprenticeship. Within the vocational high schools there are two main pathways:

- The first one is CAP (professional aptitude certificate). This prepares students for a definite career path such as hairdresser, baker, plumber etc. This Diploma is prepared over a 2-year period. More than 50 per cent of the training is related to professional skills. The other part covers core subjects such as maths, French, history and geography, English, etc. After completing the CAP, students can move into employment or further training.
- The second option is BAC Pro (professional baccalaureate). This offers a professional training in a definite field, larger than in the case of CAP, for example: carpentry, agriculture and building. This training takes place over 3 years. At the end of the second year, students can pass a first certificate, the BEP (or,

sometimes, the CAP). During the last year of training, students take exams in every subject as well as in their professional skills. Some of the subjects are also evaluated by continual assessment.

The lycée professionnel provides a combination of general education and vocational skills and knowledge, including a work placement. The CAP is more vocationally focused and develops practical skills, whereas the BEP is more theoretical with a greater component of general education, intended primarily for those wanting to continue their studies to achieve the BAC Pro. There are over 200 CAP courses that can be followed and around 40 BEP programmes. Both are at EQF level 3.

After the BEP, students may follow a two-year program in order to obtain a Baccalauréate Professionnel, (the Bac Pro), leading to direct employment or to further study. Alternatively, they can enrol directly on a Bac Pro on a three-year programme. The BEP is gradually being phased out in favour of achieving the Bac Pro in three rather than four years. The vocational baccalaureate offers 70 specialisms in a wide variety of sectors (retail and wholesale trade, services, catering, maintenance, administration, accounting, construction, agriculture etc.), and in highly specialised sectors (watchmaking, jewellery, fashion). Schools will not offer the full range of options and some will specialise in a particular occupational area.¹⁹

The main purpose of the vocational baccalaureate is entry to the job market. However, it also enables students to move on to higher education, particularly at University Technical Colleges. The taught curriculum includes knowledge and techniques related to the vocational area and general studies such as French, history, geography, moral and civic education, mathematics, applied arts, a foreign living language, physical and sports education, environmental health, sciences, economics and law. The subjects studied depend on the vocational area in which the student is specialising. The same qualifications can be achieved through an apprenticeship in a Centre de Formation pour Apprentis (CFA). Apprenticeship gives access to all levels of state recognised vocational qualifications, from secondary to higher education, by means of successive contracts or via bridges with school-based education courses. The target vocational certification must lead to a professional diploma or title included in the Répertoire National des Certifications Professionnelles (RNCP), typically the BAC Pro, BEP, CAP, Higher Technical Diploma (BTS), or University Technological Diploma (DUT).

Apprenticeships are available in the following sectors:

- Agriculture and fishing industry

¹⁹ In 2014, 191,200 CAP qualifications were awarded; 148,000 BEPs and 190,800 bac pros (81,500 in manufacturing and craft areas and 109,300 in services). 305,700 general bacs were awarded in the same year, along with 129,200 technology bacs.

- Building, Construction, Crafts
- Retail, Distribution, Hospitality
- Transport, Handling, Logistics
- Tourism
- Banking, Finance, Insurance, Accounting, Real Estate
- IT, multimedia
- Education, Training
- Health, Social Work
- Human Resources
- Arts, Entertainment
- Information, Communication, Administration, Management
- Safety
- Environment

With 56 per cent of all trainees, the service sector is the main user of apprenticeship contracts. It includes the hotel and restaurant sectors (12 per cent of contracts), the business services sector (seven per cent of contracts) and hairdressing and beauty care (six per cent of the contracts). Retail and car and motorcycle repair together account for 19 per cent of contracts and industry 21 per cent. Construction accounts for 20 per cent of the contracts.

37 per cent of young people entering apprenticeships are qualified at baccalaureate level, while 63 per cent (2011) had no more than CAP-BEP (pre-baccalaureate secondary education). 52.3 per cent of apprenticeships undertaken in 2011 led to qualifications at baccalaureate level or above.

Laws governing apprenticeship are framed and passed at national level; regional authorities are responsible for their implementation and, within the framework of the law have wide discretion over training activities including apprenticeship. Employers and employees are represented at national and regional level and additionally on sector-based bodies which determine training content. Sector-based bodies (Commissions Consultatives) operate at national level and are consulted on decisions about introducing/closing down apprenticeship programmes and on training content for apprenticeship and also for full-time vocational courses taught in schools.

Most nationally recognised qualifications are developed by committees which include employers, unions, teachers, trainers, and training provider managers. Examination boards are made up of a mix of professionals (employers and employees) and teachers/trainers at the training provider.

In addition to the state qualifications, since the mid-1980s employer organisations and unions have been developing and promoting competence-based Certificats de Qualification Professionnelle (CQP). CQPs are occupational qualifications based on standards set by the relevant sector and can be taken following training or through the demonstration of skills; they are much narrower in focus than other vocational qualifications and in some instances, can be regarded as a license to practice. They are particularly prevalent in certain sectors, for example construction and automotive repairs. In some sectors, these are used as an alternative to the state system, in others as a way of complementing the formal system to develop the specialist skills needed for particular jobs.

CQPs are often completed under Contrats de Professionalisation (training contracts) which can be regarded as a form of apprenticeship programme; the occupational sectors that have prioritised CQPs over qualifications within the state system tend to provide very limited opportunities for standard apprenticeships. The contract alternates periods of general and technological education with training providers, and periods working in an activity related to the qualification.

Organisations that can provide training for them include les groupements d'établissements de l'Éducation nationale (Greta). The Gretas are formed by state schools: collèges, lycées technologiques and lycées professionnels which pool their skills and are grouped together depending on their geographical proximity. Present in all regions, 211 Gretas located in 6,500 sites train some 450,000 young people and adults every year.

Take-up and completion

A very high proportion (more than 90 per cent) of young people stays on in full-time education or in apprenticeship after the end of compulsory schooling at age 16. At age 18 just under 80 per cent are still in full-time education or in apprenticeship²⁰. 8.5 per cent of pupils were classed as early leavers in 2014 (that is they did not achieve an upper secondary level qualification) compared with 11.1 per cent in the EU as a whole.

In France, 43 per cent of students in upper secondary education are in vocational training. In one-third of OECD countries, this figure is over 50 per cent, and in Austria, the Czech Republic and Finland it is equal to or greater than 70 per cent. In 2014, 42.7 per cent (Male 47.4 per cent, Female 37.8 per cent) of students were in vocational programmes in the upper secondary phase in France, the same proportion as in the UK (although in the UK, there is less disparity between the sexes: Male 42.3 per cent,

²⁰ In the 2010/11 academic year 16-18 year olds made up 45 per cent of all apprentices in France. In 2011 77 per cent of apprentices were employed by companies with fewer than 50 employees, with those with fewer than five employees employing 39.7 per cent.

Female 43 per cent). Both are lower than the average for the current EU member states which stands at 47.4 per cent (Male 52.6 per cent, Female 42 per cent).²¹

According to the OECD:

‘Secondary vocational education and apprenticeship training still suffer from a serious image problem in the minds of French families, even though the latter have a good track record. The government has succeeded in ensuring that the number of apprenticeships is growing, but that is mostly due to those studying at the tertiary level or at least for a higher secondary diploma. The labour market outcomes of those with only shorter vocational qualifications are not good, and quality in that stream needs to improve. To do so better teachers and workplace trainers need to be attracted to the field, especially individuals who can better link practical experience and theoretical concepts.’ (OECD Economic Surveys: France 2015: 63. <http://www.oecd.org/eco/surveys/France-2015-overview.pdf>)

Between 2011-2013, 28 per cent of young people exited the education system with a BAC as their highest qualification, 13 per cent a CAP or BEP, seven per cent a Brevet (DNB), 29 per cent a degree or higher, 15 per cent other HE qualifications (BTS, DUT), eight per cent some other qualification. 32 per cent of young people between one and four years of leaving education without a qualification are unemployed and 24 per cent of those with a CAP or BEP as their highest level of qualification are unemployed.

Funding structures and levels of expenditure

There is a free public education system, and a private education system largely made up of establishments that have signed a contract with the State, under which the latter is responsible for paying the teachers. 87 per cent of primary pupils and 78.7 per cent of secondary pupils are educated in state schools. The proportion of pupils taught in the private sector has remained stable over several years (1 student in 6).

The government finances and manages the lycées professionnels. The sources of public funding in France are more centralised compared to the average in the OECD and the European Union, with 71 per cent of initial public funding for primary and secondary teaching coming from the central executive compared to 57 per cent in the OECD and 61 per cent in the EU22. In France, 12 per cent of public funding is provided by local executive bodies, compared to 22 per cent in the OECD and 21 per cent in the EU22. The rest is the responsibility of the regional executive authorities.

Funding for apprenticeship comes essentially from:

²¹ Source Eurostat [http://ec.europa.eu/eurostat/statistics-explained/index.php/File:Share_of_students_in_vocational_programmes,_2014_\(per_cent25\).png](http://ec.europa.eu/eurostat/statistics-explained/index.php/File:Share_of_students_in_vocational_programmes,_2014_(per_cent25).png)

- Companies, which in addition to the salary they pay the apprentice, participate directly (by paying the apprenticeship tax; see below) or indirectly (by paying various contributions to the Regions or consular chambers) in the funding of the approved Centre de Formation d'Apprentis (CFAs).
- The Regions, which are required to provide funding for the CFAs, on top of the apprenticeship tax they collect, by paying a balancing subsidy.

In 2013, the proportion of French GDP allocated to public expenditure on educational institutions (all levels except for pre-primary) was slightly above the OECD average, at 4.7 per cent of GDP versus 4.5 per cent. However, private expenditure on educational institutions (as a percentage of GDP) was below this average, at 0.5 per cent of GDP versus 0.7 per cent. In terms of total spending (public and private), France is in line with the OECD average, at 5.3 per cent of GDP. Between 2008 and 2013, public expenditure on education in France increased at a slower rate than total public spending (2 per cent versus 10 per cent).

The OECD also provides figures for the breakdown between current and capital expenditure although the percentages are for upper secondary as a whole and is not broken down further. In France, 91 per cent of expenditure is current and 9 per cent capital spending (2013); with higher than the OECD average of 7 per cent given to capital costs.

Funding rates

Provisional figures for 2014 released by the French Government²² show that a total of EURO 30,170.4m (£25,141.9m) was spent on the upper secondary phase. Of this, EURO 9,326.7m (£7,772.2m) was spent on LPs and EURO 2,086m (£1,738.3m) (seven per cent) on apprenticeships. Table 21 sets out the source of funding.

Table 21 Sources of funding for upper secondary education in France

	Source of funding	Lycees professionnels	Apprenticeships
State	Ministry of Education	€5,936.5 million (£4,947 million)	€14.8million (£12 million)
	Ministry of Agriculture	€609.8 million (£508 million)	€100.2 million (£83 million)
	Other ministries	€45.7 million (£38 million)	€9.9 million (£8 million)
Total State		€6,592 (£5,493)	€124.9 (£104)

²² http://cache.media.education.gouv.fr/file/206/59/2/DEPP-dossier-2016-206_567592.pdf

	Source of funding	Lycees professionnels	Apprenticeships
Local government	Communes	€15.4 (£12.8)	0
	Departments	€225.5 (£188)	€1.2 (£1)
	Regions	€1,546.9	€957.2 (£798)
Total local government		€1,787.9 (£1,490)	€958.3 (£799)
	Other public funding	€174.0 (£145)	€91.5 (£76)
	Businesses	€130.5 (£109)	€679.3 (£566)
	Households	€582.8 (£486)	€161.1 (£134)
	Other	€59.7 (£50)	€60.9 (£51)

Source: Le Compte de l'éducation Principes, méthodes et résultats pour les années 2006 à 2014. DEPP 2016

For LPs, just under 71 per cent of funding was derived from central government and 19 per cent from local government. For apprentices aged 16 – 19, the picture is very different with the State contributing just 6 per cent of funding, local government 46 per cent and around a third of funding coming direct from businesses.

Annual expenditure per student for 2013 was USD 13,120 (£9,916) for those on general programmes in upper secondary and USD 14,504 for those on vocational programmes. The French Government recently published the statistics in Table 22 on expenditure in schools:

Table 22: Expenditure on Upper Secondary programmes in France 2014

Programme	Lycée général et technologique		Lycée professionnel		Apprentices ²³	
	Total spend €m	Spend per student €m	Total spend €m	Spend per student €m	Total spend €m	Spend per student €m
Teaching²⁴	13,967.2 (£11,639)	9,105 (£7,587)	7 711.2 (£6,426)	9,984 (£8,320)	1,777.5 (£1,481)	5,809 (£4,841)

²³ Apprentices who are of upper secondary age

²⁴ Includes teaching support staff

Programme	Lycée général et technologique		Lycée professionnel		Apprentices ²³	
Accommodation and catering ²⁵	1194.7 (£996)	778/£648)	645.4 /£538)	835 (£696)	99.8/£83	333 (£277)
Health ²⁶	97 (£81)	119 (£99)	43.1 (£36)	111 (£92)	Not available	Not available
Information, guidance and counselling ²⁷	83.6 (£70)	(Health and Info. combined)	42 (£35)			
Admin. costs ²⁸	547.7 (£456)	343 (£286)	262.3 (£219)	325 (£271)	59.7 (£50)	168 (£140)
Transport	619.2 (£516)	403 (£336)	41.7 (£35)	(134/£112)	Not available	Not available
Books, supplies and equipment ²⁹	288 (240)	194 (£162)	218.6 (£182)	(291/£242)	63.2 (£53)	209 (£174)
One-to-one support ³⁰	112.4 (£94)	110 (£92)	4.9 (£4)	101 (£84)	11.4 (£9)	145 (£121)
Other costs ³¹	54.3 (£45)		71.3 (£59)		32.7 (£27)	
Scholarships and ARS ³²	590.2 (£492)		421.7 (£351)		20.3 (£17)	

²⁵ Includes running and capital costs and staffing costs not recorded elsewhere

²⁶ School doctors and nurses

²⁷ Includes career guidance, education psychologists and school counsellors

²⁸ includes regulation, research and school improvement activities by national, regional or local administrations

²⁹ Includes public expenditure and money spent by households

³⁰ Cost of intervention programmes, including staffing

³¹ Expenditure on clothing e.g. gym clothes, work overalls and miscellaneous spending such as stationery and insurance.

³² Allocation Rentrée Scolaire (ARS) is a means tested benefit to help families with school costs

Programme	Lycée général et technologique		Lycée professionnel		Apprentices ²³	
Other money paid ³³	194.4 (162)		108.8 (£91)		45 (£37)	
Money received ³⁴	-784.7 (-£654)		-530.5 (-£442)		-65.3 (-£54)	
Total	16,964.1 (£14,131)	11,052 (£9,206)	9,326.7 (£7,769)	12,069 (£10,017)	2,086 (£1,731.4)	6,798 (£5,6623)

Source: DEPP (provisional figures)

These latest figures continue to demonstrate that expenditure per pupil is higher for those students in vocational upper schools than for those following academic routes. Teaching costs, accommodation and supplies and equipment are all higher per pupil in the lycée professionnels.

While funding for secondary schools comes predominantly from the state, the apprenticeship route is largely funded through the apprenticeship tax. All companies pay an apprenticeship tax, the standard rate of which is 0.68 per cent of the gross wages bill. In addition, there is a variable supplementary tax (set by the regions) for enterprises with 250 or more employees where the annual average number of young people under 26 years, under contract or under professional apprenticeship, does not reach a certain threshold. The training costs of any apprenticeship can be paid directly to an approved CFA of the employer's choice (which can include lycées and IUTs) using a proportion of their apprenticeship tax, or through central funds from the tax administered regionally. Central funding for CFAs is provided by the Ministry of Education.

The majority of training is delivered in apprenticeship training centres that are jointly funded by the regions and business contributions from the apprenticeship tax funnelled through the state. The state employs most teachers in the education sector, including teachers at apprenticeship training centres. Each centre agrees a list of training costs by institution, subject and qualification which are agreed by the Regions and which vary between centres and regions depending on local conditions. Education institutions receive funding for apprentices from the apprenticeship levy funds through the CFA to which they are attached according to calculations for teachers' salaries, allocated classrooms etc. Research in France into the cost of apprenticeships noted the wide variation in charges by CFAs for the same training, not only between regions but within the same regions. It cited examples taken from 2011 – 2012 lowest/highest:

- Bac Pro Bakery/pâtisserie: €3,378 (£2,815) / €9,891 (£8,242)

³³ Represents money transferred between the State, regional administrations and European Union.

³⁴ As above.

- Bac Pro décolletage (small parts manufacturing): 4,153 € (£3,461)/ 23,600 € (£19,667)
- Bac Pro maintenance of motor vehicles (passenger cars): 1,087 € (£906)/14,000 € (£11,667)
- CAP Delicatessen: 2,244 € (£1,870) / 10,935 € (£9,112)

Other research found that many establishments were unable to work out their costs in relation to training apprentices with any precision because of funding allocated centrally which is distributed according to the institution's priorities. A recent report recommended that a system should be introduced to enable the costs of apprentice training to be calculated more robustly to enable a better assessment of value for money.³⁵ One issue that it highlighted was that the current model is a 'deficit' one, with institutions seeking to plug funding gaps through taking on apprentices rather than operating an accounting model which represents the true cost of their training. It also pointed to some wider issues in the current model, in particular the quota system which places caps on the number of apprentices at different levels and the problem that smaller organisations do not contribute to the levy despite having apprentices.

LPs can charge CFAs to provide education for apprentices and the charges will vary by route and between organisations. For school students, funding is not determined by course although one assumes that local government funding will take account of the relative costs of different subject areas when allocating funding and that funding will reflect regional priorities and skills shortages. LPs usually specialise in a small number of vocational areas (construction trades are very common) and again this will reflect local needs and demand.

Accountability factors linked to funding

The Ministry of Education in France has the responsibility for Quality Assurance in Vocational Education and Training in France, defining strategies, policies, framework and learning and teaching programs and ensuring staff recruitment. At secondary level this includes setting and overseeing a national curriculum, exams and diplomas.

In recent years, France has instigated many initiatives to introduce quality criteria for its VET system. At national level, the Outline Financial Legislation Act (LOLF) of 1 August 2001 introduced 'a culture of results, of spending more wisely and making public action more effective'. At regional level, the regional councils, which are now in charge of apprenticeships and vocational training for young people and adults, have adopted 'quality charters'. These documents are co-signed by vocational bodies representing

³⁵ L'apprentissage dans l'enseignement supérieur: Aujourd'hui et demain?

Rapport élaboré par le Ministère de l'éducation nationale de l'enseignement supérieur et de la recherche et le Conseil national de la formation professionnelle tout au long de la vie. Juin 2014

particular sectors, or by training organisations that enter into contractual agreements with the region. They cover various aspects of training, such as:

- Improving provision for apprentices, placing workers in jobs, and qualifications in specific sectors.
- Enhancing the quality of services offered by training bodies, including the way trainees are treated on work placement, as well as training methods, follow-up and help with job finding.

At training provider level, a number of quality labels were introduced in France in the early 1990s, with a view to certifying the quality of training organisations and trainers. The training of vocational education tutors, teaching methods and the range of courses available have all been overhauled and modernised, notably with the development of block-release training and new information and communication technologies.³⁶

Length, structure and levels of courses

Table 23 lists the different upper secondary VET programmes available in the France, along with their duration and classification according to ISCED and EQF.

Table 23: Structure of programmes in France

Course	Level	Structure	Length
VET programmes, apprenticeships CAP/BEP Bac Pro	CAP/BEP EQF 3 Bac Pro EQF 4 CAP/BEP ISCED 353 Bac Pro ISCED 354	College: 25 per cent - 40 per cent Workplace: 60 per cent - 75 per cent	CAP/BEP 2 years Bac Pro 3-4 years
VET programmes (lycée professional) CAP/BEP Bac Pro	CAP/BEP EQF 3 Bac Pro EQF 4 CAP/BEP ISCED 353 Bac Pro ISCED 354	CAP/BEP College: 75 per cent to 88 per cent Workplace: 18 per cent - 25 per cent Bac Pro College: 78 per cent Workplace: 22 per cent	CAP/BEP 2 years Bac Pro 3-4 years

³⁶ Some of the lycées have been renamed Lycée de Metiers to reflect their increased status, the desire of the government for greater fluidity in the lycée system, and to make greater provision for training and re-training of the adult population.

The CAP comprises 2,300 hours of learning over two years, of which 420 to 560 hours (12 to 16 weeks) are spent in work placements. The Bac Pro consists of 3400 to 3500 hours over three years, of which 770 hours (22 weeks) are spent in work experience.

With regard to the number of teacher-supervised hours, according to the OECD (Education at a Glance 2014) students in France in upper secondary (vocational and general) receive 1,036 hours a year of compulsory instruction time and 108 hours of non-compulsory instruction time. Teachers in upper secondary in 2012 provided 648 hours of statutory contact time, just below the OECD average of 655. Teaching time is not related to subject/vocational area but is linked to the phase and route being followed (i.e. all students on a Bac Pro course in a LP will received the same amount of teaching time regardless of specialism). The pupil: teacher ratio in upper secondary vocational programmes in France is 13.0. This compares with the UK figure of 21.4.³⁷ Average class size in upper secondary vocational routes is around 19 compared with around 29 in the general route.

Those pursuing their studies through an apprenticeship centre will spend a large part of their time in industry and will be paid a wage, linked to the national wage. Some LPs are also CFAs or deliver classroom based training under contract to a CFA. The apprentice spends 60 per cent to 75 per cent of his or her time in a company. The period of classroom based training in a CFA is at least 800 hours for the two-year CAP and at least 1850 hours for the three-year vocational baccalaureate. The curriculum is organised by the CFAs and around two thirds of the course focuses on general and technical training with the remaining third set aside for practical education.

The professional qualification certificates (CQP) allow official recognition of expertise in an occupational role. CQPs are comprehensive work-study programs of 94 to 330 hours and, unlike the state qualifications, do not include elements of general education. Occupational sectors such as vehicle maintenance and repair, for example have particularly invested in the establishment of CQPs as an alternative to traditional apprenticeships. The training element is often provided by in-house trainers at the employer, so costs are difficult to ascertain.

Staff used to deliver technical education

All French teachers are paid directly by the Ministry of Education; payment for non-teaching and administrative staff involves transferring funds from the Ministry to

³⁷ http://ec.europa.eu/eurostat/statistics-explained/images/6/64/Pupil-teacher_ratio_in_vocational_programmes_per_cent2C_2014_per_cent28_per_cent25_per_cent29.png

regionalised education offices. The Ministry also transfer funds to the regions to pay for technical staff. The regions and departments also have a role in funding goods and services such as materials, utilities and small-scale maintenance using a block grant provided by central government. School funding allocations also take account of other factors such as socio-economic characteristics and special educational needs. This contributes to higher per pupil funding in vocational schools where pupils tend to be lower achievers and come from more deprived backgrounds than those in the academic route.

Teachers are paid centrally by the Ministry for Education based on national pay scales. Statutory salaries for teachers across all phases in France are below the OECD average, both for starting teachers and for those with ten or fifteen years' professional experience. Across OECD countries in 2013, statutory salaries (i.e. excluding bonuses and overtime) for teachers in upper secondary education with at least fifteen years' experience averaged USD 44,600 (£37,168) whereas in France the average pay for teachers with this level of experience was USD 36,897 (£30,747). When all the bonuses and allowances paid to teachers are factored in however, French teachers at secondary schools are paid close to the OECD average (average pay is 2 per cent below the OECD average in both upper and lower secondary). However, average pay in France includes that paid to teachers holding the country's highest teaching degree (agrégation) at the end of their careers whose additional pay increases the average.

Chapter 6 Key findings

Between 40 and 50 per cent of every youth cohort enrol on upper secondary vocational programmes in the five countries (Table 24).

Table 24: Proportion of young people that take the vocational and academic routes

Denmark	Germany	Norway	The Netherlands	France
In 2014 42 per cent enrolled in vocational programmes and 58 per cent were in general programmes	In 2013 nearly one in two (47.5 per cent) enrolled in pre-vocational or vocational programmes and 52.5 per cent were in general programmes.	In 2015 41 per cent enrolled in vocational programmes and 59 per cent were in general programmes.	In 2014 44 per cent enrolled in vocational programmes and 56 per cent were in general programmes.	In 2014/2015 43 per cent enrolled in vocational programmes and 57 per cent were in general programmes.

Not all students enrol directly on vocational programmes after the completion of compulsory education. In Denmark, for example, a substantial number of people do so after trying an academic route. . In 2014 approximately 25% of the students in upper secondary VET in Denmark came directly from compulsory school. In 2015 this figure fell to just 18%, due to the introduction of more challenging entry requirements designed to reduce the drop out rate from VET programmes. The Danish Government has set a target of 30 per cent entering VET directly from compulsory school by 2025.

Around 90% of the students who follow the vocational tracks in Germany, Denmark and Norway have a training agreement with an employer. In contrast, in France and the Netherlands the majority of students in vocational programmes (around two-thirds) follow vocational school-based pathways.

All the countries are facing challenges in relation to the work-based elements of vocational programmes. In Denmark, for example, a lack of suitable training placements in enterprises is frequently cited as a primary reason for student dropout and in Germany demographic change and the increasing attractiveness of higher education are making it increasingly difficult for companies to find adequate apprentices and fill their training places. In addition, there are matching problems, meaning that, on the one hand, there are more and more unfilled training places and, on the other hand, more and more young

people unable to find a suitable training place and therefore left without an apprenticeship. These issues are also evident in France, Norway and the Netherlands.

In Norway upper secondary vocational education and training at both vocational colleges and workplaces is mainly supported by state funding. In Germany, Denmark, the Netherlands and France, the State finances training at vocational colleges/schools, whilst employers mainly finance on-the-job training. In Denmark, the Netherlands and France the employers' are required to pay apprenticeship taxes/levies, regardless of whether they employ apprentices. In Germany there are no central or sector-based levies to be paid if a company refrains from participating in apprenticeship training and companies with apprentices are therefore responsible for covering wages and other costs.

While employers in Germany and France are largely responsible for funding on the job training, in both these countries the state provides additional funding. In Germany in special cases (e.g. disadvantaged individuals) firms that provide apprenticeship training receive state funding. In France the state (at regional level) provides funding for apprenticeship training on top of the contributions made by employers through the apprenticeship tax and supplementary tax by paying a balancing subsidy. All of the countries offer financial incentives for employers to participate in the training of VET pupils. In the case of Norway, this includes a state grant scheme for employers that is intended to cover all costs associated with on-the job training.

All of the countries are investing considerable resources in post-16 VET and spend more per student following vocational tracks than for those following academic routes. Germany spends USD 4,020 (£3,038) more, Norway spends NOK 20,000 (£1,812), the Netherlands spends USD 3,139 (£2,372) more and France spends USD 852 (£644) more (Table 25). Vocational costs are higher due to smaller class sizes and costs of equipment, among other things.

Table 25: Spending on vocational and academic routes

Denmark	Germany	Norway	The Netherlands	France
Spends more per upper secondary vocational student than per student enrolled in a general programme, on average.	In 2014, a student enrolled in a vocational programme cost USD 4,489 (£3,393) than a pupil enrolled in general upper	A pupil enrolled in a vocational study programme costs an average of NOK 20,000 (£1,812) more than a pupil enrolled in a general	The Netherlands spends USD 3,139 (£2,372) more per year per vocational student than per general upper	In 2014, a student enrolled in a vocational programme cost USD 852 (£644) than a pupil enrolled in general upper secondary education. Annual expenditure per student for 2013

Denmark	Germany	Norway	The Netherlands	France
	secondary education. Annual expenditure per student for 2014 was USD 15,343 (£11,596) per student in vocational programmes and USD 10,854 (£11,596) per student in general programmes. ³⁸	study programme. ³⁹	secondary student	was USD 13,120 (£9,916) for those on general programmes in upper secondary and USD 14,504 (£10,962) for those on vocational

There are considerable variations in all of the countries in the amounts spent by governments per student on different vocational courses. For example, in 2015, the average VET programme in Norway cost was just over NOK 100,000 (£9,059) per pupil. The cheapest study programme, Media and Communication cost NOK 84,444 (£7,650) per pupil, while the most expensive, the programme for Agriculture, Fishing and Forestry, cost almost NOK 172,000 (1,558) per pupil. This compares with NOK 63,576 (£5,759) for the most popular academic programme Specialisation in General Studies. In 2012/13 average spending on work-based learning in the Engineering and Technology sector in Germany is estimated as having been €8,800 (£7,333) per year for apprentices and €4,000 (£3,333) per year for trainees, whereas the average cost of work-based learning in the economics/services sector was €5,700 (£4,750) for apprentices and €2,200 (£1,833) for trainees.⁴⁰

The variation in the funding for different courses is largely based on assumed costs of programmes rather than intended as an incentive to promote different courses. Student are generally free to enrol of whatever courses they wish, although there are a few

³⁸ This was the largest difference observed among OECD countries.

³⁹ Danish county councils spend an average of NOK 155,100 (£14,051) per pupil in upper secondary school. This is just over NOK 49,000 (£4,439) more than the cost per primary and lower secondary school pupil.

⁴⁰ These figures do not distinguish the relative contributions of government and employers.

programmes where admission is limited to ensure that the number of students is in accordance with labour market needs.

Core VET programmes at EQF levels 3 and 4 last between 2 and 3 years in France and Germany, 1 and 4 years in the Netherlands, 3 and 4 years in Norway and 3 and 5 years in Denmark (Table 26).

Table 26: Structure of programmes in the five countries

DENMARK			
Course	Level	Structure	Length
VET programmes, apprenticeships (EUD) – main vocational route	EQF 3-5 ISCED 353	College: 33 per cent Workplace: 67 per cent	3-5 years
VET programmes (EUX) -	EQF 4-5 ISCED 354	College: 50 per cent Workplace: 50 per cent	4-4.5 years
Basic VET (EGU) programmes	EQF 2-3 ISCED 353	College: up to 35 per cent Workplace: 75 per cent or more	3-4 years
GERMANY			
Course	Level	Structure	Length
VET programmes, dual system	EQF 3 ISCED 353	College: 20 per cent - 40 per cent Workplace: 60 per cent - 80 per cent	2 years
VET programmes, dual system	EQF 4 ISCED 353	College: 20 per cent - 40 per cent Workplace: 60 per cent - 80 per cent	3-3.5 years
VET programmes vocational schools	EQF 3 and 4 ISCED 353	College/workplace varies considerably between courses	1-3 years
Entry-level vocational qualification	EQF 2 ISCED 352	Vocational school	1 year
Vocational Training Preparation	EQF level 1 ISCED 351	School-based	1 year
NORWAY			
Course	Level	Structure	Length
2+2 vocational programme	EQF level 4 ISCED 3C	College: 2 years	4 years

DENMARK			
(with apprenticeship training)		Workplace/apprenticeship placement: 2 years	
3+1 vocational programme (with apprenticeship training)	EQF level 4 ISCED 3C	College: 3 years Workplace/apprenticeship placement: 1 year	4 years
1+3 vocational programme (with apprenticeship training)	EQF level 4 ISCED 3C	College: 1 years Workplace/apprenticeship placement: 3 year	4 years
3+0 vocational programme (without apprenticeship training)	EQF level 4 ISCED 3C	College: 2 years Practical college-based training: 1 year	3 years
Training candidates	EQF level 3	Varies	3 years
supplementary studies (academic - to qualify for higher education)	EQF level 4 ISCED 3A	College academic: 1 year	1 years
THE NETHERLANDS			
Course	Level	Structure	Length
College-based VET programmes	EQF 1-4 MBO 1-4	College: Typically 3-4 days per week Workplace: At least 20 per cent Typically 1-2 days per week	Level 1: 6-12 months Level 2: 2-3 years Level 3: 3-4 years (2 if a student has completed MBO Level 2) Level 4(a): 2-4 years
Apprenticeships	MBO 1-4 EQF 1-4	College: Typically 1 day per week Workplace: At least 60 per cent Typically 4 days per week	As above

DENMARK			
FRANCE			
Course	Level	Structure	Length
VET programmes, apprenticeships			
CAP/BEP	EQF 3 ISCED 353	College: 25 per cent - 40 per cent Workplace: 60 per cent - 75 per cent	CAP/BEP 2 years
Bac Pro	EQF 4 ISCED 354	College: 25 per cent - 40 per cent Workplace: 60 per cent - 75 per cent	Bac Pro 3-4 years
VET programmes (lycée professional)		CAP/BEP	
CAP/BEP	EQF 3 ISCED 353	College: 75 per cent to 88% Workplace: 18 per cent - 25 per cent	2 years
Bac Pro	EQF 4 ISCED 354	College: 78 per cent Workplace: 22 per cent	3-4 years

In all the countries students generally receive around 1000 supervised teaching hours per year (Table 27).

Table 27: Teacher-supervised hours per year in vocational colleges

Denmark	Germany	Norway	Netherlands	France
1040	718 -1160	980	1000	1036

There is a strong focus on the professionalization and upskilling of VET teachers and resources are being invested to support national professional development programmes. For example, in Denmark all teachers in VET institutions (approximately 8000) must have a pedagogical improvement boost by 2020 and DKK 400 million (just under £45 million) has been set aside to enable teachers to join short occupational courses where their

knowledge of the most recent developments within their subject and occupational area can be updated.

Adjustments or changes to VET programmes are made on a regular basis in order to meet the demand for new skills and changes in the labour market at both regional and national level. These are based on inputs from employers, trade unions and other social partners. A key objective is to involve the business community in decisions on the content of the curricula to ensure and develop future competence by offering the learners practical training in the workplace. The pace of change is rapid, for example in Norway adjustments are made annually, while in the Netherlands companies and education institutions jointly develop modules to respond quickly to innovations or emerging needs within their region. These can be defined every three months and then immediately offered to students.

Chapter 7 Conclusions

A major issue when comparing levels of expenditure in different countries is that that data is not systematically collected on a comparable basis. It is therefore necessary to exercise caution when making direct comparisons between levels of expenditure in different countries. It is clear, however, that all the countries included in this review are investing substantial resources into post-16 VET.

It is widely recognised across these countries that additional funding will be needed for the coming years to increase the quality of upper vocational education in order to: attract high performing students; improve recruitment and retention; streamline and improve the transparency of vocational pathways; and ensure that upper secondary VET is continuously adapted to meet evolving skills needs and changes in the labour market.

Upper secondary vocational education is high on the policy agendas of the countries and major reforms are currently underway, especially in Denmark, Norway and the Netherlands. These include: raising the standards of entry to VET programmes; using preparation and transition programmes to prepare students for the challenges they will face on vocational programmes; opening government-funded training centres to provide work placements; ensuring that employers and other social partners are extensively involved in the VET systems; and professionalising and up skilling VET teachers. It will be instructive to monitor these initiatives in order to ascertain what works well or not so well and to identify lessons that can be learned from them.

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