



Developments in vocational education and training policy in 2015–17

ESTONIA



Cedefop monitoring and analysis of VET policies

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policy in 2015-17**

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Cedefop (2018). *Developments in vocational education and training policy in 2015-17: Estonia*. Cedefop monitoring and analysis of VET policies.
<http://www.cedefop.europa.eu/en/publications-and-resources/country-reports/vet-policy-developments-estonia-2017>

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This report was produced by Cedefop and reflects contributions from Cedefop's VET policy and systems team, and Cedefop experts working on common European tools and principles for education and training, and statistics. It is based on detailed information on VET policy implementation submitted by Cedefop's European network of expertise on VET (ReferNet) and other sources.

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Aspects of vocational education and training context in 2015

At the beginning of the reporting period, the proportion of upper secondary students enrolled in vocational education and training (VET) was low compared to the EU average: 34.4% in 2013 compared to 48.9% in the EU (European Commission, 2015, p. 7); 34.7% against 48% in the EU in 2014 (Cedefop, 2017c); 36% against 47% in the EU in 2015 (Eurostat, 2015). The proportion of upper secondary initial VET students on work-based programmes was low: 1.1% compared to 34% in the EU in 2014 (Cedefop, 2017c). However, the employment rate of recent upper secondary graduates was high (74.4% in 2014 compared to 70.8% on average in the EU (European Commission, 2015, p. 7); and when comparing VET graduates only, the rate was 83.5% in 2015, above the EU average of 73% (European Commission, 2016, p. 7). Adult participation in lifelong learning was high (11.5% in 2014 and 12.4% in 2015 (European Commission, 2016, p. 8) compared to the EU average of 10.7% (Cedefop, 2017c) in both years (Table 1).

VET-related developments in 2015 included improving the quality of work-based learning in VET and promoting apprenticeships. The target for the latter was to raise the number of initial VET students in apprenticeships. A national *Lifelong learning strategy 2020* ⁽¹⁾ was adopted in February 2014. It guides the most important developments in the area of education and sets out five strategic goals ⁽²⁾:

- (a) a new approach to learning, based on the individuality, interests, experience and potential of each student;
- (b) competent and motivated teachers and school leadership;
- (c) better alignment of education provision with labour market needs;
- (d) a digital revolution in lifelong learning;
- (e) equal opportunities and increased participation in lifelong learning.

⁽¹⁾ https://www.hm.ee/sites/default/files/estonian_lifelong_strategy.pdf

⁽²⁾ For the implementation of these strategic goals, the Ministry of Education and Research has developed nine programmes: *Programme for competent and motivated teachers and school leadership*; *Digital focus programme*; *Study and career counselling programme*; *Labour market and education cooperation programme*; *School network programme*; *General education programme*; *Vocational education programme*; *Higher education programme*; *Adult education programme*.

The *Labour market and education cooperation* programme was issued early in 2015. The programme sets out a roadmap and offers a framework for increasing the qualifications level of the labour force, decreasing the structural labour shortage and enhancing the employability of graduates by responding better to changes in labour demand. Its focus is on increasing the quality and attractiveness of VET and work-based learning, and promoting entrepreneurship. In early 2015 a new Adult Education Act was adopted, which targeted improving the quality of adult education, and a Professions Act was amended as the starting point for developing labour market monitoring and skills forecasting.

Table 1. Framework data: score on VET indicators in Estonia and in the EU: 2010, last available year and recent trend

Indicator label	2010		Last available year		Recent trend (per year)			
	EE ^f	EU ^f	Yr	EE ^f	EU ^f	Range	EE	EU
Access, attractiveness and flexibility								
IVET students as % of all upper secondary students	A	A	'14	34.7 ^b	48.0 ^b _{E1}	'13-'14	0.2	-0.9
IVET work-based students as % of all upper secondary IVET	A	A	'14	1.1 ^b	34.0 ^b _{E2}	'13-'14	0.4	0.1
IVET students with direct access to tertiary education as % of all upper secondary IVET			'14	92.9	69.2 ^{E3}	'13-'14	-0.7	-1.4
Employees participating in CVT courses (%)	31.0	38.0 ^e	'10	31.0	38.0 ^e			
Employees participating in on-the-job training (%)	14.0	20.0 ^e	'10	14.0	20.0 ^e			
Adults in lifelong learning (%)	11.0		'15	12.4	10.7 ^b	'13-'15	↘ -0.1	→ 0.0
Enterprises providing training (%)	68.0	66.0 ^e	'10	68.0	66.0 ^e			
Female IVET students as % of all female upper secondary students	A	A	'14	24.4 ^b	42.7 ^b _{E1}	'13-'14	0.7	-1.0
Employees of small firms participating in CVT courses (%)	22.0	25.0 ^e	'10	22.0	25.0 ^e			
Young VET graduates in further education and training (%)			'15	21.7 ^b	33.0 ^b	'14-'15	4.0	-0.3
Older adults in lifelong learning (%)	5.9	5.3	'15	5.4	6.9	'10-'15	↘ -0.1	↗ 0.4
Low-educated adults in lifelong learning (%)	2.0 ^u		'15	4.5 ^C	4.3 ^{bC}	'13-'15	→ 0.0	↘ -0.1
Unemployed adults in lifelong learning (%)	7.1		'15	9.9	9.5 ^b	'13-'15	↘ -1.7	↘ -0.4
Individuals who wanted to participate in training but did not (%)	15.8 ^B	9.5 ^e _B	'11	15.8	9.5 ^e			
Job-related non-formal education and training (%)	83.6 ^B	80.2 ^e _B	'11	83.6	80.2 ^e			
Skill development and labour market relevance								
IVET public expenditure (% of GDP)			'13	0.57 ^b	0.56 ^b _{E4}	'12-'13	-0.07	-0.03
IVET public expenditure per student (1000 PPS units)			'13	5.8 ^b	6.4 ^b _{E5}	'12-'13	-0.4	0.0
Enterprise expenditure on CVT courses as % of total labour cost	0.5	0.8 ^e	'10	0.5	0.8 ^e			
Average number of foreign languages learned in IVET			'14	1.2 ^b	1.0 ^b _{E6}	'13-'14	-0.3	0.0
STEM graduates from upper secondary IVET (% of total)	A	A	'14	45.4 ^b	30.0 ^b _{E7}	'13-'14	-4.6	-0.4
Short-cycle VET graduates as % of first time tertiary education graduates			'14	0.0 ^z	9.3 ^{E8}	'13-'14	0.0	0.4
Innovative enterprises with supportive training practices (%)	52.6	41.5 ^{E9}	'12	48.3	41.6 ^{E9}	'10-'12	-2.2	0.0
Employment rate for IVET graduates (20-34 year-olds)			'15	82.7 ^b	77.2 ^b	'14-'15	3.5	0.3
Employment premium for IVET graduates (over general stream)			'15	7.9 ^b	5.3 ^b	'14-'15	-0.6	-1.0
Employment premium for IVET graduates (over low-educated)			'15	20.1 ^b	23.7 ^b	'14-'15	7.1	-0.1
Workers helped to improve their work by training (%)			'15	84.6	83.7			
Workers with skills matched to their duties (%)	52.6	55.2	'15	49.9	57.3	'10-'15	-0.5	0.4

Indicator label	2010		Last available year		Recent trend (per year)			
	EE ^f	EU ^f	Yr	EE ^f	EU ^f	Range	EE	EU
Overall transitions and labour market trends								
Early leavers from education and training (%)	11.0	13.9	'15	11.2 ^C	11.0 ^C	'10-'15	↗ 0.1	↘ -0.6
30-34 year-olds with tertiary attainment (%)	40.2	33.8	'15	45.3 ^C	38.7 ^C	'10-'15	↗ 1.1	↗ 1.0
NEET rate for 18-24 year-olds (%)	18.6	16.6	'15	13.3	15.8	'10-'15	↘ -0.8	↘ -0.1
Unemployment rate for 20-34 year-olds (%)	19.5	13.1	'15	6.8	12.9	'10-'15	↘ -2.3	↗ 0.1
Employment rate of recent graduates (%)	64.5	77.4	'15	80.6 ^C	76.9 ^C	'10-'15	↗ 2.9	↘ -0.2
Adults with lower level of educational attainment (%)	10.7	27.3	'15	8.9 ^C	23.5 ^C	'10-'15	↘ -0.5	↘ -0.8
Employment rate for 20-64 year-olds (%)	66.8	68.6	'15	76.5	70.0	'10-'15	↗ 1.7	↗ 0.3
Employment rate for 20-64 year-olds with lower level of educational attainment (%)	44.2	53.4	'15	56.8 ^C	52.6 ^C	'10-'15	↗ 2.9	↘ -0.2
Medium/high-qualified employment in 2020 (% of total)			'16	89.8 ^D	82.8 ^D			

Key:

- (A) UOE back reconstruction of 2010 values based on ISCED 2011 not yet available.
- (B) AES 2011, used as proxy for 2010 baseline
- (C) 2014 b flags in Eurostat online tables ignored on the basis of other relevant Eurostat metadata.
- (D) Forecast made in 2016.
- (E1) Based on 28 countries; partial information for NL.
- (E2) Based on 25 countries (missing: ES, PL, RO); partial information for NL.
- (E3) Based on 27 countries (missing: NL); partial information for EL, IT.
- (E4) Based on 19 countries (missing: BE, DK, IE, EL, FR, HR, IT, PT, SK).
- (E5) Based on 21 countries (missing: DK, IE, EL, FR, HR, IT, PT).
- (E6) Partial information for NL.
- (E7) Based on 25 countries (missing: IT, HR, UK).
- (E8) Based on 23 countries (missing: BE, CY, FR, IE, UK).
- (E9) Based on 22 countries (missing: DE, IE, EL, NL, SI, UK).
- (b) Break after 2010, therefore baseline data not included.
- (u) Eurostat: 'low reliability'.
- (z) Eurostat: 'not applicable'.
- (e) Eurostat: 'estimated'.

NB: Definitions in the indicators table differ from those used in national legislation.

EU refers to EU-28, unless otherwise specified. Arrows ↗ or ↘ signal a positive or negative trend based on more than two data points and of magnitude 0.1 per year or more. Trends based on more than two data points but of smaller magnitude are indicated by →; trends based on two points only are marked ▪. Trends are estimated by means of regression models.

Source: Cedefop (2017c), p. 49.

CHAPTER 1.

MTD 1 – All forms of work-based learning with special attention to apprenticeships

Initial VET in Estonia consists mainly of school-based VET and includes very limited provision for apprenticeships training. Work-based learning (in the form of practical training at school or in-company practice) accounts for 35% to 70% of school-based VET programmes in Estonia. Apprenticeships were introduced to VET, in the form of stand-alone study, in 2006. They can be offered at all VET levels (initial and continuing), and lead to qualifications at EQF levels 2 to 5. Apprenticeships follow the same curricula as school-based programmes (Cedefop, 2017d). Apprentices sign a contract with their employer and their training provider and receive at least the minimum legal wage during the time they are doing work-based training.

One of the targets of the *Labour market and education cooperation* programme, launched in 2015, is to improve the quality and attractiveness of work-based learning and to support entrepreneurship. The annual budget for the programme is around EUR 10-11 million from the EU – allocated from the European structural and investment fund (ESIF) – and from the national budget. The *PRÕM* programme – which sets the conditions for the provision of ESIF support under the *Labour market and education cooperation programme* – aims to improve the image of VET, expand apprenticeships training, and develop systemic work-based learning systems and language learning activities. *PRÕM* has a major impact on developing the quality of work-based learning and on expanding apprenticeships programmes. A working group on apprenticeship training has been established, comprising representatives of the Education Ministry, VET schools, professional associations and employer representatives. Its task is to develop apprenticeship training models and instructional materials, identify obstacles and solutions, and recommend amendments to legislation.

1.1. Strategic objectives for a work-based learning system, including apprenticeships

In the *Labour market and education cooperation* programme and the ESIF-funded *PRÕM* programme, the Ministry of Education set out objectives for a sustainable, unified and transparent work-based learning and apprenticeships

system that would involve more employers in the learning process and would meet the needs of all parties. The objectives identified include:

- (a) increasing the number of enterprises involved in apprenticeships to 330 by 2020;
- (b) increasing the number of apprenticeship participants from 583 in 2014 to 7 200 by 2020;
- (c) reducing the drop-out rate to 25%;
- (d) increasing the share of apprenticeship graduates from 50% in 2013 to 75% by 2020;
- (e) increasing the satisfaction of labour market actors with the education system.

1.2. **Implementing the *Labour market and education cooperation* programme**

In 2016, *the Labour market and education cooperation* programme became fully operational (including *PRÕM* measures). Achievements in 2016 include:

- (a) the proportion of initial VET learners participating in apprenticeships increased from 2% to 4%;
- (b) more than 330 employers participated in the apprenticeships scheme, achieving the 2020 benchmark;
- (c) 185 work practice instructors (both in school and in-company, including apprenticeships instructors) were trained;
- (d) 280 higher education and VET students in work-based practice located outside of Tallinn or Tartu were provided with transportation and accommodation support (monetary allowance).

The following actions have been taken:

- (a) apprenticeship training models were/are being piloted. Result analysis is planned to take place in 2018;
- (b) education-business coordinators were introduced into schools, tasked with finding enterprise partners and coordinating cooperation in apprenticeships training;
- (c) additional apprenticeship study places were created;
- (d) apprentices received financial support through study allowances ⁽³⁾, a school lunch support scheme and compensation for travel expenses;

⁽³⁾ Study allowances are allocated to the best performing students only (not all).

- (e) in 2016-17, templates for work practice and apprenticeship agreements were designed through cooperation between the Ministry of Education, employer representatives and the Innove Foundation. The templates were published and disseminated for use in work-based learning and apprenticeships;
- (f) in 2016-17, the Ministry of Education and Research, the Innove Foundation, universities and social partners including the Estonian Employers' Confederation, started a preliminary analysis of possibilities to extend the apprenticeship scheme to higher education. The pilot starts in September 2017;
- (g) 22 VET schools received support to strengthen cooperation between employers and education institutions for developing work-based learning. Cooperation activities supported under the projects include: training company instructors; preparing, rolling-out and evaluating work-based learning activities; piloting and developing new forms/models of work-based learning; introducing short-term internships for VET teachers in enterprises; and involving representatives of business in teaching.

1.3. Promoting work-based learning, apprenticeship, craftsmanship education, and entrepreneurship

The nation-wide campaign *Praktik cum laude* (Excellence in practical learning) was organised in 2016, aiming to promote work-based learning. A quality award for enterprises engaged in work-based learning was introduced and information on opportunities for work-based learning was disseminated. The campaign was jointly organised by the Estonian Employers' Confederation, five sectoral employers' associations and the Estonian Ministry of Education and Research.

To promote apprenticeships among employers more widely, and to motivate them to offer training places, practical guides for implementing apprenticeships were also published and disseminated in 2016. A conference on apprenticeships as an opportunity for employers was organised, in cooperation with the German-Baltic Chamber of Commerce.

2017 has been declared the *Year of skills*, aiming to promote craftsmanship and skills in society and in the labour market. Each month, at least one national event and, in parallel, several regional and local events are being organised, including skills competitions, open days, seminars and workshops, fairs and campaigns ⁽⁴⁾.

⁽⁴⁾ <https://oskusteaasta.ee/year-of-skills/>

Estonia's first mobile workshops were introduced in spring 2017. The mobile workshops, which are equipped with modern technology and tools, are aimed at young people aged from 10 to 15, offering them fascinating activities and directing them towards more informed career choices. The focus of the first mobile workshops is on the professions in the metal and timber industry sectors and the main idea is to give a hands-on experience of state-of-the-art technologies. A health care workshop is under preparation. Local timber and metal industry entrepreneurs will be involved to showcase the career possibilities in their sectors and to present success stories.

In 2017, all Estonian VET schools will launch virtual tours of their facilities. All potential learners can take a peek at what goes on in different workshops, labs and classrooms and see what processes, tools and technologies are available at VET schools.

Special attention has been given to the need to develop entrepreneurial competences at all education levels. A new programme – *Systematic development of entrepreneurship education at all educational levels* – was launched by the Ministry of Education and Research in 2015 for this purpose. The main aims include: developing a competence framework, methodology, teaching tools and modules and training programmes for teachers; supporting student enterprises and entrepreneurial schools; conducting research and sharing experiences in the field; and rewarding best practice. Within the timescale of the programme (2015-17), a new framework of entrepreneurship competences was developed by experts representing all educational levels, and new modules to support the development of entrepreneurship skills were also developed at all vocational levels (EQF levels 2-5). During the study year 2017/18, 14 vocational education institutions will pilot those new study modules at levels 4 and 5. The results will be drawn by the end of 2018, followed by the analyses.

CHAPTER 2.

MTD 2 – Quality assurance mechanisms in line with EQAVET and continuous information and feedback loops to IVET and CVET ⁽⁵⁾

A national approach to quality assurance has been devised and developed independently of the European quality assurance in vocational education and training (EQAVET). However, it is aligned to EQAVET quality cycle, indicative descriptors and indicators and applies to initial and continuous VET offered by VET institutions. Curriculum groups in VET institutions and institutions of professional higher education have to be accredited. Accreditation results are taken into account for making funding decisions. Accreditation is valid for three or six years. IVET providers must have their own quality assurance models and methods.

The new Adult Education Act (AEA) came into force in 2015. It defined the organisation of studies in adult education institutions and presented the requirements for the quality of education. The Act stipulates the right of every person to constantly develop their knowledge and skills, the obligations of the state and local governments for coordinating adult training, and the obligation of employers to grant study leave to learners engaged in distance learning, evening courses, external study or part-time study. According to AEA, an in-service

⁽⁵⁾ Sources:

European Centre for the Development of Vocational Training (Cedefop):
<http://www.cedefop.europa.eu/en>

ReferNet: <http://www.cedefop.europa.eu/en/events-and-projects/networks/refernet>

Priorities reported by directors general for vocational training (DGVT) for the 2016-20 period;

EQAVET (2016 Secretariat survey, website, newsletters): <http://www.eqavet.eu>

2016 Compendium of EQAVET NRP *Erasmus+* funding:

http://www.eqavet.eu/Libraries/Annual_Network_Meeting_2016/Compendium_EQAVET_2016.sflb.ashx

Council recommendations on the 2016 national reform programmes:

<http://www.consilium.europa.eu/en/policies/european-semester/2016/#>

Education and training monitor 2016 country reports:

http://ec.europa.eu/education/policy/strategic-framework/et-monitor_en

training institution is required to ensure the quality of continuing in-service training by establishing a quality assurance system. Licensing by the Ministry of Education and Research (MoER) is needed in four areas ⁽⁶⁾. Authorisation (licence) is granted for an unlimited period.

In all other areas, the training institution must create a quality assurance system but has the opportunity to choose which quality model or methodology it uses to ensure its quality (such as internal evaluation, the European common assessment framework (CAF) evaluation model, ISO standards or anything else). The school must indicate in its quality assurance document how the quality of the training, the trainers and the learning team is guaranteed; the information has to be disclosed on its website.

The AEA also provides for supervision of continuing education institutions, which submit economic activity reports to the EHIS (Estonian educational information database).

Statistics are collected by the Ministry of Education and Research ⁽⁷⁾. VET institutions also collect information about their graduates' entry into the labour market six months after completion of studies. The Ministry of Economic Affairs and Communications is responsible for the identification of skills and human resources needed in the labour market. The annual forecasts produced by the Ministry for each sector are one of the components considered by the MoER in determining the number and type of state-funded study places in VET.

2.1. Quality assurance mechanisms in line with the EQAVET recommendation

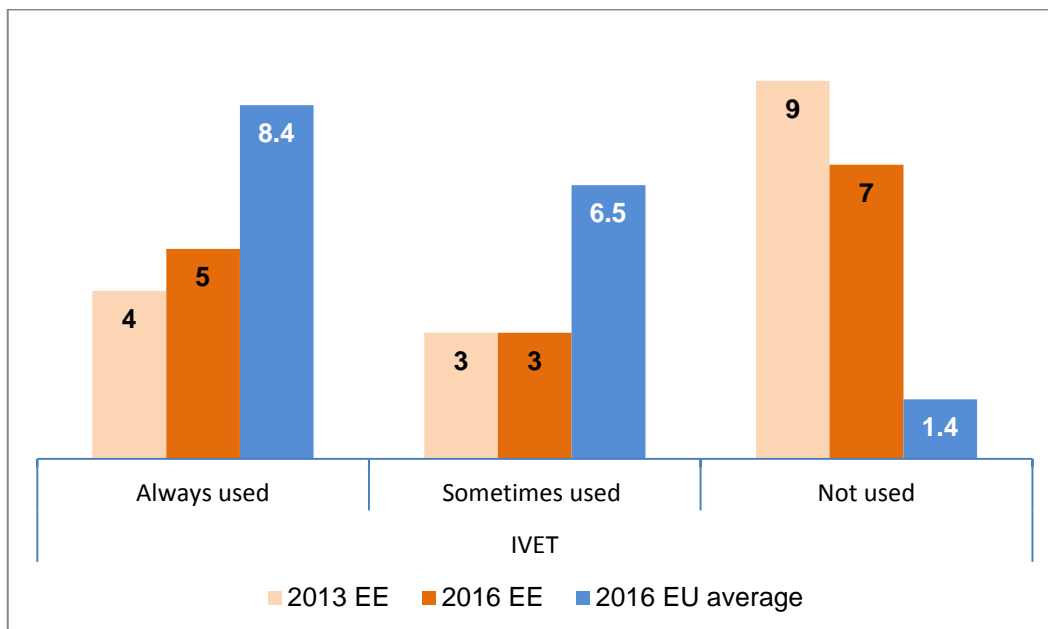
In the reporting period, a working group was set up to review the national approach to quality assurance. The group is composed of representatives of the Education Ministry, employer and employee organisations, VET schools and the Estonian Qualifications Authority (*Kutsekoda*). The group is expected to present proposals in 2017 about the criteria to be used for the accreditation of VET curricula groups.

⁽⁶⁾ Training for drivers, training of security staff, training for train drivers and for Estonian language training courses, which are aimed at acquiring an official certificate on knowing the language.

⁽⁷⁾ Estonian education database (EHIS): <http://www.ehis.ee/>

Estonia is below the EU average in its use of indicators in monitoring the IVET system. However, the use of indicators slightly improved between 2013 and 2016.

Figure 1. Use of EQAVET indicators



Key: Of the 17 indicators suggested by the 2009 EQAVET recommendation, four were 'always used' in IVET in 2013 in Estonia, compared to five in 2016 and the EU average of 8.4 in 2016.

NB: No information was provided for the use of EQAVET indicators in CVET. In 2013, there was no reply for the use of one indicator and in 2016 for two. The EU average was based on the available information for 31 out of 35 VET systems.

Source: Cedefop calculations based on EQAVET Secretariat surveys, data for 2013 and 2016.

2.2. Continuous information and feedback loops in initial VET

The vocational education programme run by the Ministry of Education and Research aims to inform strategic planning, VET school management and renewal of curricula and learning methods. As part of this programme, training, counselling and advice is available to VET schools to design new curricula. A student and graduate satisfaction survey is expected to be carried out in 2017-18. A survey on the transition of VET and higher education graduates to the labour market (graduate tracking) is also carried out annually under the labour market programme. In 2016, this survey analysed the employability and incomes of the 2011-14 VET and higher education graduates. The results are published in

the form of a short report and are made available via a statistical database (*HaridusSilm*). VET schools and VET stakeholders can easily access data on the average income of VET graduates by school and by field of studies.

The *Labour market and education cooperation* programme sets the framework for ensuring that lifelong learning opportunities are relevant and respond to labour market needs. Within this programme, the Ministry of Education and Research, the Ministry of Economic Affairs and Communications, and the Ministry of Social Affairs in cooperation with employers and representatives from other ministries launched a regular and well-ordered system called OSKA ⁽⁸⁾ for the forecasting, monitoring, and feedback of labour market needs. The OSKA framework analyses the developmental potential and labour requirements of different economic sectors in Estonia. OSKA surveys on sectoral needs for labour and skills use a combination of qualitative and quantitative research methods and analyse professional qualifications across all levels of education. For this purpose, both statistical data and information collected from personal interviews with sectoral experts and from group discussions are used. Five economic sectors are examined per year. Each sector is reanalysed every six years on average. In the intervening years, the relevant sectoral expert panels keep an eye on the implementation of the recommendations made on the basis of the conclusions of the survey. The results and projections of this analysis form the basis for establishing qualifications, career guidance, curriculum development in education institutions, and for the work of the various authorities that finance learning activities. The prerequisite for this approach is the active and content-driven participation of employers in the lifelong learning system.

The first OSKA reports on ICT, accounting, the forestry and timber industry, metal products, machinery, social work, healthcare, the production of chemicals, rubber, plastic and construction materials, energy and mining were published in 2016-17, alongside a general overview of global and domestic trends influencing the supply and demand of labour in Estonia. The first labour market overview and the most important conclusions and recommendations drawn from the surveys were presented to the Estonian Government in March 2017. The government will subsequently receive a summary of OSKA results every year.

⁽⁸⁾ <http://oska.kutsekoda.ee/en/>

2.3. Continuous information and feedback loops in continuing VET

A study was carried out in 2016, based on foreign experience (Denmark, Latvia, Lithuania, Finland and Sweden), about the organisation of second-chance formal education for adults with lower levels of educational attainment. The report was made available in 2017, presenting recommendations on how to improve continuing VET (CVET) provision ⁽⁹⁾.

⁽⁹⁾ https://www.hm.ee/sites/default/files/raport_2017.pdf (in Estonian).

CHAPTER 3.

MTD 3 – Access to VET and qualifications for all through more flexible/permeable systems, guidance and validation of non-formal and informal learning

One of the aims of the *Lifelong learning strategy* ⁽¹⁰⁾ is to ensure equal opportunities and to raise participation in lifelong learning. In particular, the intention is to guarantee access to quality VET relevant to the labour market, and to reduce the share of adults (25+) without professional or VET qualifications from around 29% in 2015 to less than 25% by 2020. The following targets are closely linked to this aim:

- (a) reduce the dropout rate in VET from 24.7% in 2015 to less than 20% in 2020;
- (b) reduce the share of early leavers from education and training from 12.2% in 2015 to less than 9% in 2020 ⁽¹¹⁾;
- (c) raise progression from basic (compulsory) education to VET from 26.6% in 2015 to 35% in 2020;
- (d) raise the share of adults in VET from around 32% in 2015 to 33% in 2020;
- (e) increase the share of adults with lower levels of education in lifelong learning from 4% in 2015 to 6.5% in 2020.

3.1. Promoting equal opportunity

The new Adult Education Act ⁽¹²⁾, which came into force in 2015, stipulates learners' right to study leave. The Income Tax Act stipulates that a learner has the right to deduct training expenses from the income which the person receives during the period of taxation.

⁽¹⁰⁾ <https://www.hm.ee/en/estonian-lifelong-learning-strategy-2020>

⁽¹¹⁾ In 2013, the share was below 10% but then increased again to 11.6% in 2014:
https://www.hm.ee/sites/default/files/annual_analysis_by_the_ministry_of_education_and_research_2015.pdf

⁽¹²⁾ <https://www.riigiteataja.ee/en/eli/ee/Riigikogu/act/529062015007/consolide>

3.2. Permeability and flexibility

Actions were taken to improve access to VET and/or qualifications by introducing greater flexibility and permeability:

- (a) guidelines have been developed for counsellors and relevant officials responsible for promoting the recognition of prior learning and work experience. The main focus is on adult learners without basic education and new immigrants from third countries;
- (b) the principle of an orientation year in the process of transition from general education to VET has been piloted;
- (c) steps were taken to smooth the progression of students with special educational needs (SEN students) from general education to VET and from VET to the labour market. On the initiative of the Ministry of Social Affairs, a working group was set up from September 2015 to June 2016 to propose solutions for alleviating this transition for SEN students. A joint action plan was agreed and is now being carried out by both ministries. In July 2016, the terms of graduation in VET were also amended ⁽¹³⁾ to allow for more flexibility for SEN students. The amendments allow students in upper secondary VET the choice of graduating with a school examination instead of a professional examination.

3.3. Transparency, recognition, validation

3.3.1. National qualifications framework ⁽¹⁴⁾

A comprehensive national qualifications framework (NQF), the Estonian qualifications framework (EstQF), was established in 2008 through the Professions Act ⁽¹⁵⁾, and key responsibilities and roles of different stakeholders have been agreed. The EstQF was linked to the EQF and the Qualifications framework in the European higher education area (QF-EHEA) in 2011. The framework brings together four sub-frameworks: higher education; vocational education and training; general education; and professional qualifications awarded outside formal education and training ⁽¹⁶⁾. The framework has eight

⁽¹³⁾ Government Decree No 80: <https://www.riigiteataja.ee/akt/116072016005>

⁽¹⁴⁾ Source: Cedefop (2017a).

⁽¹⁵⁾ The Professions Act, came into force on 1 September 2008:
<https://www.riigiteataja.ee/en/eli/ee/Riigikogu/act/501072015005/consolide>

⁽¹⁶⁾ Professional qualifications are those associated with a trade, occupation or profession, usually resulting from work-based learning, in-service training, and adult

qualification levels; its descriptors are identical to EQF level descriptors. All types of state recognised qualifications are included. The aim of the EstQF is twofold: (a) to be a tool for transparency and communication; and (b) to support lifelong learning. EstQF and EQF levels have been indicated on higher education and professional qualifications since 2012, and on general education and VET qualifications since 2013. The levels are also indicated in the VET curricula database and the register of professional standards.

The referencing report of the EstQF was revised and updated in 2016 to include recent developments in the education system. Discussions on whether to include EstQF and EQF levels into the proposed new version of the Estonian education database (EHIS 2) are continuing.

3.3.2. Validation ⁽¹⁷⁾

The *Lifelong learning strategy* includes the recognition of prior learning and the validation of work experience as a major principle. Recognition of prior/non-formal learning is used for initial VET, higher education and continuing VET; general education is not yet recognised, although the inclusion of compulsory validation of non-formal and informal learning to the regulations is envisaged and drafted into the amended Basic schools and upper secondary schools act. Validation allows for access and exemption of parts of the programme in higher education and initial VET, but in both cases a final examination needs to be taken. In continuing VET, some qualifications can be fully obtained through validation.

Since 2015, the Ministry of Education and Research has been preparing initiatives to widen access to education: validation of previous experience; insertion of recognition-related data into the education database; and more precise regulation for validating non-formal and informal learning in general education.

education. Professional qualifications have been placed into the EstQF and referenced to the EQF from the beginning.

⁽¹⁷⁾ Source: Cedefop (2017a); Cedefop et al. (2017).

3.4. Training, reskilling and upskilling vulnerable groups, jobseekers and employees

3.4.1. Youth programme

The *Youth* programme supports the implementation of the *Youth field development plan 2014-20*, which outlines the strategic objectives for young people. The overall goal of the plan is to establish a coherent and creative society by providing young people with ample opportunities for self-development and self-realisation. For this, it is important that young people have more choices to discover their own creative and developmental potential. They must have a lower risk of exclusion and they must be able to participate in decision-making. In the *Youth* programme, measures and activities to achieve the above-mentioned goals are stipulated. For example, in the period from 2015 to 2018, it offers services to (re)integrate young people not in employment, education or training (NEETs) into education, and to improve their employability. For this, youth workers locate NEETs (e.g., through mobile youth work, networking, etc.), motivate them and provide them with individualised support. Since 2015, 3 321 young people have benefited from this service. EUR 3.1 million has been allocated from the EU (ESIF) and the state budget for 2015-18 to put this measure into effect.

Other programmes have provided young people with competences and experiences that increase their competitiveness in the labour market and help them to make good and informed decisions about their future. For example:

- (a) a programme where young people are given the opportunity to gain practical work experience during the summer. In addition to earning a small salary, young people become familiar with different types of work, receive career guidance and acquaint themselves with labour market legislation.
- (b) a community practice programme, which enables young people to gain experiences that will enhance their employability and increase their active participation in society. In this programme, young people carry out community practice in a local NGO.

3.4.2. Employment programme 2017-2020

The *Employment* programme for 2017-20⁽¹⁸⁾ was revised by the government in autumn 2016. It stipulates a package of new measures for workers at risk of unemployment. The goal of the additional measures is to prevent unemployment

⁽¹⁸⁾ <https://www.riigiteataja.ee/akt/122112016006> (in Estonian).

through continuous training and retraining, thus enabling workers to retain their jobs or move to jobs that create more added value. The main target groups are: workers with no professional or vocational education; those whose skills are outdated; workers whose knowledge of Estonian is poor; those who are older than 50 years of age; and workers who cannot continue their present work due to health issues. Implementation of the programme started in May 2017. The VET and training-related measures include: a study allowance scheme to support participating in VET and higher education; people at risk of unemployment will be given access to labour market training with a training voucher; employers will be compensated by payment of between 50% and 100% of their training costs; employers can also apply for a training grant to support their workers in adapting to changes in business processes, technology, or formal qualification requirements.

3.4.3. Adult education programme

The *Adult education* programme was introduced in 2015 with the aim of providing training courses to adults without secondary education and/or professional training, or with outdated skills. The target for 2020 is to have 66 500 adults participating in flexible training courses for the low qualified, less competitive or other disadvantaged groups; and 53 500 of them completing successfully. EUR 22.4 million from the EU (ESIF) and the state budget has been allocated for the period 2015-18 (to cover the budget of the whole programme, including other relevant measures).

3.5. Promoting VET participation through increased attractiveness

3.5.1. Improving the image of VET

The *Labour market and education cooperation* programme includes measures to make VET more attractive by providing information about VET opportunities, including apprenticeships, and awareness raising activities such as media campaigns and national skills competitions. EUR 2.14 million has been allocated from the EU (ESIF) and the state budget for 2015-18 to improve the image of VET. VET schools can obtain assistance for setting up communication plans and for providing in-service training for their communication and marketing specialists. In 2015, a network of marketing specialists was set up. In 2016-17, communication and marketing strategies (for 10 schools) and virtual tours (for eight schools) were commissioned. A working group on the image of VET was

established involving VET schools, employers, employees' representatives, and experts from the Ministry of Education and Research.

3.5.2. Increased financial support to learners

In 2015, the study allowance for VET students was increased to prevent drop out for economic reasons. Terms and conditions for travel allowances were changed to remedy previous unequal access to this benefit. In 2016, accommodation allowances (up to EUR 50 per month) were introduced, in particular for VET learners in schools with no dormitory facilities, and for special education needs learners.

3.6. Creating new qualification opportunities

A national VET curriculum on business services was adopted in 2015, creating a new qualification opportunity at upper secondary level, as only post-secondary programmes were available in the office services curricula group until then.

CHAPTER 4.

MTD 4 – Key competences in both IVET and CVET

Compared with general education graduates, those who completed VET programmes feel they have stronger (ranged by priority):

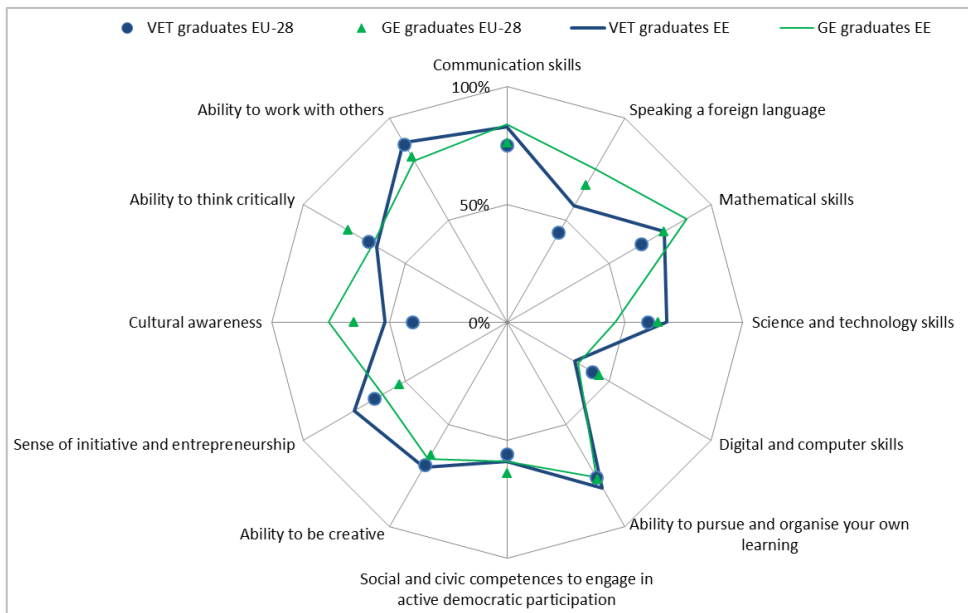
- (a) science and technology skills;
- (b) sense of initiative and entrepreneurship;
- (c) ability to work with others;

and weaker:

- (d) cultural awareness;
- (e) foreign language skills;
- (f) mathematical skills (Figure 2).

This is not a standard pattern compared to other countries. Even the levels of the least strong competences (e.g. mathematical skills) are above the EU average.

Figure 2. **Self-evaluation of acquired skills in general education and VET**



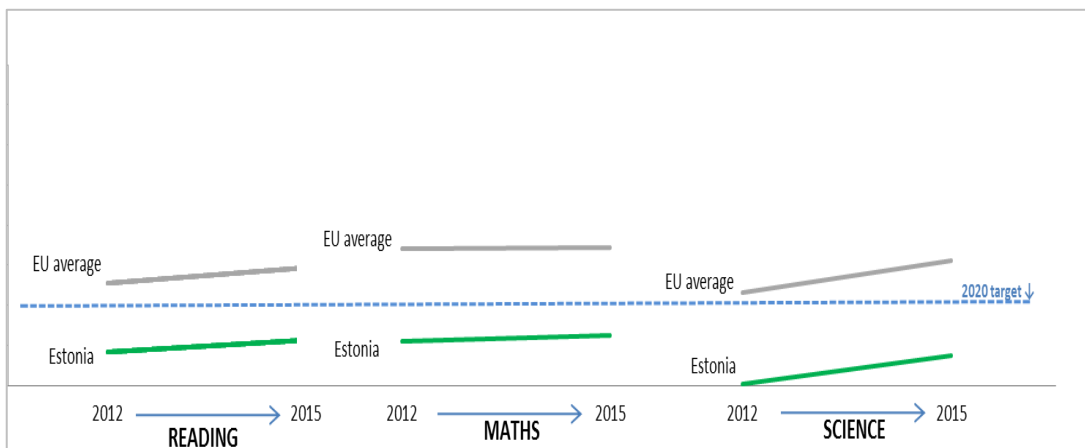
NB: GE stands for general education.

Respondents who attended upper secondary education. Interviewees were asked in summer 2016 about their overall experience in upper secondary education. Aggregated data do not take account of different types and sectors of VET and age groups of respondents.

Source: Cedefop (2017c).

The context of key competences in 2015 was mainly characterised by an increasing share of young low achievers in reading, maths and science compared with 2012 (Figure 3). However, the share of low achievers in Estonia is much smaller than in the EU on average, making the country a top performer.

Figure 3. **Share of 15-year-olds with low achievement in reading, maths and science**



NB: Low achievement means failing Level 2 on the PISA scale.

Source: OECD (PISA 2012 and 2015).

Since 36% of all upper secondary learners in the country are enrolled in VET⁽¹⁹⁾; this trend probably reflects the focus given to key competences in VET programmes. Key competences are represented in all national and school curricula but their volume varies by programme. They are on a fifty-fifty basis offered as stand-alone modules and integrated in curricula⁽²⁰⁾.

4.1. Key competences in initial VET

Within the overall framework of the *Lifelong learning strategy*, four programmes have a more specific focus on key competences⁽²¹⁾.

⁽¹⁹⁾ Calculated from Eurostat; 2015 data. According to national data the figure is 31%, but this takes into account only those programmes that give direct access to tertiary education. The immediate enrolment rate in VET after completing basic education was 26.2% in 2016.

⁽²⁰⁾ For more information on key competences in VET see Taimsoo, R. (2016).

⁽²¹⁾ The programmes were launched in 2015 but they are regularly updated. The most recent edition is 2017.

The *Vocational education* programme (Section 2.2) was amended in 2016 to improve key competences in VET. It now offers analyses on how to improve the quality and efficiency of teaching the Estonian language, mathematics and foreign languages, to prepare for upper secondary exams, and to support progression of upper-secondary VET graduates to tertiary education. Schools can obtain advice on how to successfully integrate key competences in the curriculum. By June 2017, 21 national VET curricula, adopted in accordance with the 2013 VET Institutions Act, were promoting key competences.

In the *Labour market and education cooperation* programme, EUR 6 million has been devoted to supporting the development of entrepreneurship competence at all levels and in all types of education (including teacher training) for the period 2015-18. An entrepreneurial competence model and entrepreneurial study modules were prepared and pilots started in 14 VET schools. EUR 1.7 million has also been allocated to supporting language teaching. Estonian as a second language and as a foreign language, is promoted in VET and higher education to ensure better career opportunities and mobility. Since 2016/17, all VET schools may apply for additional support to provide their students with opportunities for learning Estonian as a second language and as a foreign language. Innovative approaches combining formal and non-formal learning methods (language camps, site visits, student exchange programmes, and intensive language courses) are encouraged. At the beginning of 2017, about half of VET schools had already launched language training projects.

For 2015-18, the *Competent and motivated teachers and school leadership* programme is devoting resources to teacher training, including digital competences and innovative approaches in VET.

The *Digital focus* programme is devoted to developing digital skills, digital learning resources and e-assessment. VET curricula have been updated to meet the digital skills requirements added to professional standards (see also section 4.2.1 below). The *Mentoring technology-enhanced pedagogy* project (MENTEP), developed by the Information Technology Foundation for Education (HITSA), addresses teacher needs for using ICT innovatively. The project investigates the potential of an online self-assessment tool to empower teachers to develop their technology-enhanced teaching competence at their own pace.

4.2. Key competences in continuing VET

4.2.1. A new standard for continuing education

The Adult Education Act (2015) regulates the provision of non-formal learning opportunities ⁽²²⁾. It sets out the requirements for the provision of continuing education and stipulates the right of every person to constantly develop their knowledge and skills. The Ministry of Education and Research has developed a new continuing education standard (2015). It specifies the requirements and quality criteria for adult education curricula based on learning outcomes.

4.2.2. Update of professional standards in relation to digital skills

In 2016, the *Adult education* programme (Section 3.4.3) was amended and a measure (sub-action) added, stipulating an update of professional standards ⁽²³⁾ to promote digital skills. These changes will influence the respective initial and continuing VET curricula that include sector-specific digital competences.

4.2.3. Adult education projects to develop key competences

The government aims to reduce the share of adults aged 25 to 64 without any professional or vocational education from 28.5% in 2016 to less than 25% by 2020, and to increase their participation in lifelong learning. Barriers to achieving this goal are low motivation and a lack of key competences. Nine projects to provide adults with social and learning skills, entrepreneurship competence, and skills in foreign languages and Estonian for non-native speakers have therefore been set up. The projects offer support and follow-up activities that increase the sustainability of learning outcomes and bridge the development of key competences and motivation for the continuation of studies in formal and non-formal education. Starting in 2017, courses will be available in regions for adults without professional or vocational education, or with disabilities, or with poor knowledge of Estonian. A special training package aimed at improving the digital competences of medical staff (accessible also through VET) is being prepared. The overall budget is EUR 2.1 million in total.

⁽²²⁾ VET institutions offer formal initial and continuing programmes. Initial VET is offered at the second, third, fourth and fifth levels of the Estonian qualifications framework (and the EQF). Continuing VET is offered at EQF levels 4 and 5. To enrol, learners need to have a VET qualification or relevant competences in addition to having completed upper secondary education. Non-formal continuing VET is part of adult learning, regulated by the Adult Education Act. Its forms, duration and content vary. Training can be provided by VET institutions appointed via public procurement.

⁽²³⁾ Ten professional standards will be updated in 2017.

CHAPTER 5.

MTD 5 – Systematic initial and continuous professional development of VET teachers, trainers and mentors

In the 2013 VET Institutions Act, the term ‘teacher’ is used for both teachers and work practice instructors in VET. Qualification requirements are based on the professional standard adopted in 2004, which sets out the required skills and competences and defines three levels: EQF levels 5, 6 and 7. Qualification requirements for VET theory and practice staff differ from, and are more flexible than, those for general education subjects to attract people from business and industry to teaching. The government approves framework requirements for teacher training which are set out in a regulation adopted in 2000:

- (a) general education subject teachers need to hold a master degree equal to 300 ECTS credits;
- (b) vocational subject teachers (speciality subjects) responsible for theory and practice need to have attained higher or upper secondary vocational education and to have relevant work experience. Training in pedagogy is recommended. Vocational teachers at EstQF level 5 mainly provide practical training. Those with a bachelor degree (i.e. EstQF level 6) in vocational pedagogy (180 ECTS) or vocational teacher training (180 ECTS) are responsible for developing learning environments and methodology in their organisation. Holders of a master degree (EstQF level 7) in vocational teacher training (120 ECTS), and who have the relevant work experience, are responsible for developing methodology in their own, and external, organisations and for supporting other teachers. Common requirements for all levels include: foreign language skills at CEFR level B2 ⁽²⁴⁾; competence in Estonian at the level defined in the 2011 Language Act; and the ability to develop educational technology skills in line with teacher standards of the International Society for Technology in Education. Teacher training includes a minimum ten-week teaching practice. During the induction year, teachers

⁽²⁴⁾ Common European framework of references for languages:
<https://www.coe.int/en/web/common-european-framework-reference-languages/home>

are accompanied by mentors. These need to have at least three years' teaching experience and specific training.

The 2013 Vocational Education Institutions Act made assessing qualifications more flexible, focusing on content/competences rather than on formal education and certificates. Schools can hire people from business and industry provided they have the competences required by the standards and meet the school's needs. Employing staff is within the remit of school heads, who assess candidates' competences. However, staff with the lowest level of qualification may not exceed 20% of the total staff employed. To attract more people, it has been made possible to work as a teacher for three years even without meeting the qualification requirements at the outset, provided they are fulfilled within this period.

Continuing professional development (CPD) is mandatory for VET teachers and free of charge. Until 2015, legislation set the number of hours/the period of time that staff were required to attend CPD:

- (a) 160 academic hours over five years for general subject teachers;
- (b) two months over three years for those teaching vocational subject areas.

Since 2013, CPD can also take the form of internships/practical work at an enterprise or organisation for a minimum duration of two months – consecutively or accumulated – within five years. During this period, staff are released from teaching. The school sets its own procedures and requirements. International mobility activities can be recognised as CPD on the basis of recognition of prior learning and work experience.

5.1. Initial training for teaching/training staff in VET schools

In 2015, the regulation on the framework requirements for teacher training was amended. The amendment stipulates that lecturers at higher education institutes who train VET teachers must also teach for at least 100 hours over a three year period in VET schools.

Within the *Competent and motivated teachers and school leadership* programme, the teacher education competence centres at the Universities of Tallinn and Tartu are required to help put in place new learning approaches in cooperation with VET providers and employers.

As Estonia is expanding work-based learning in VET and higher education, work practice in enterprises is being developed not only for learners but also in

initial teacher training. This is one of the goals of the *Labour market and education cooperation* programme.

5.2. Continuing professional development for teaching/training staff in VET schools

5.2.1. Framework and targets for systematic continuing professional development

The fixed number of hours and the distinction between vocational teachers and teachers of general subjects were abandoned in 2015 and replaced by a needs-based approach. The approach had been developed in the preceding year in cooperation with teachers, education institutions and social partners. The regulation of the teacher training framework requirements was amended accordingly. The goal is to ensure that CPD is planned and enacted systematically and is based on: the competences defined in professional standards; teachers' self-assessment, which has replaced previous teacher attestation, and feedback on their work; VET teachers' and providers' needs; and national priorities. It is the task of school leaders to offer CPD and support individual development based on these criteria.

One of the aims of the *Competent and motivated teachers and school leadership* programme (Section 5.1) is to establish a multi-level CPD scheme for teachers and school leaders. At the time of reporting, work was still continuing with VET schools, teachers, employers and other stakeholders to design such a CPD training model and to decide on priorities. This work was to be completed in 2017 and is expected to:

- (a) take account of VET's specific features, help schools improve the integration of general and vocational learning and reinforce support for promoting key competences;
- (b) increase the share of teachers with practical experience and labour market qualifications;
- (c) help staff improve how they address the needs of adult learners;
- (d) help VET teachers develop their digital competences, which is also supported by the *Digital focus* programme;
- (e) provide tuition in Estonian to VET teachers with insufficient language skills.

The training of school teams is meant to focus on innovative teaching and learning methods, inclusive education and education policy priorities. Involving local community members, universities, learning communities and other stakeholders is encouraged.

Other examples of planned measures include:

- (a) providing methodological guidance and support by the teacher training competence centres of Tallinn and Tartu universities;
- (b) developing a self-reflection platform for teachers to test their skills in relation to the competences outlined in their professional standards;
- (c) developing competence requirements and training for VET school leaders.

350 VET teachers, i.e. 15% of the total number of teachers, are expected to have completed a CPD activity by 2018.

5.2.2. Ensuring the competences of school leaders

A training programme for future school leaders, and for school leaders already in post who would like to work at VET schools, was launched in 2015.

5.2.3. Supporting teachers to help learners develop entrepreneurial skills

In its 2016 country report ⁽²⁵⁾, the European Commission pointed to challenges in developing entrepreneurial skills. The country's action plan refers to a planned entrepreneurial competence model and study modules for all education levels and areas. This also entails supplementary teacher training. Since the end of 2016, 14 VET schools have taken part in the programme together with general and higher education establishments. The following quantitative targets set for these measures cover all VET schools and their staff, although they do not specifically target VET teachers and trainers:

- (a) 800 teachers and business and industry specialists involved in teaching are expected to have attended in-service training in entrepreneurship education by 2020;
- (b) 75 cooperation projects to promote mutual learning between teachers, employers, learners, parents and other institutions are to be launched.

EUR 6 million from the EU (ESIF) and the national budget have been allocated within this period for entrepreneurship education at all education levels, including EUR 0.5 million for the in-service training of teaching staff.

⁽²⁵⁾ European Commission (2016). Commission staff working document: country report on Estonia, including an in-depth review on the prevention and correction of macroeconomic imbalances. SWD(2016) 76 final:

https://ec.europa.eu/info/sites/info/files/cr_estonia_2016_en.pdf

5.3. Initial and continuing training of trainers and mentors in enterprises

Measures within the labour market and education cooperation programme primarily target not only company staff who want to become work practice instructors but also those who already train/support young people during their work practice periods or apprenticeships.

Training programmes may include: preparing and organising learning; didactics/teaching methods; assessment criteria and practices; and working with learners who have special education needs etc. Training is to be coordinated by schools; they either provide it themselves or outsource it.

The programme also supports the expansion of work-based learning. It primarily addresses the needs of trainers involved in internships and apprenticeships. Tasks include training company staff who already work with interns and apprentices and those who intend to become instructors (Introduction to Section 5). By the end of 2016, 185 trainers had received training.

Conclusion

Since 2015, Estonia has developed a range of initiatives targeted at improving quality, labour market relevance, equity and key competences in VET. Steps have been taken to develop work-based learning and apprenticeship, promote entrepreneurship, update quality assurance mechanisms, enhance information and feedback loops, and increase the attractiveness of VET. Ensuring access for all to VET and VET-related qualifications was addressed through measures for improving permeability and flexibility, reinforcing validation, and providing in-need groups with training opportunities. The framework for the initial and continuing training of VET teachers and trainers was updated.

The actions carried out show that the main lines of the Riga Conclusions and the country's policy priorities for 2016-20 are being addressed. However, information currently available to Cedefop suggests that some issues could deserve further consideration, such as concerns about further developing the use of EQAVET indicators to monitor initial and continuing VET; enhancing guidance; and further experimenting/piloting the European credit system for VET. Setting out policy priorities with respect to the Riga medium-term deliverables could also be considered.

List of abbreviations

AEA	Adult Education Act
CAF	European common assessment framework
CEFR	common European framework of references for languages
CPD	continuing professional development
CVET	continuing vocational education and training
CVT	continuing vocational training
DGVT	directors general for vocational education and training
EHIS	Estonian educational information database
EstQF	Estonian qualifications framework
EQAVET	European quality assurance in vocational education and training
EQF	European qualifications framework
ESIF	European structural and investment fund
Eurostat	Statistical Office of the European Union
HITSA	Information Technology Foundation for Education
ICT	information and communications technology
IVET	initial vocational education and training
MENTEP	Mentoring technology-enhanced pedagogy project
MoER	Ministry of Education and Research
NEET	not in employment, education, or training
OECD	Organisation for Economic Cooperation and Development
QF-EHEA	qualifications frameworks in the European higher education area
VET	vocational education and training

References

[URLs accessed 30.11.2017]

- Cedefop (2017a) *European inventory of national qualifications frameworks 2016: Estonia*. <http://www.cedefop.europa.eu/en/publications-and-resources/country-reports/estonia-european-inventory-nqf-2016>
- Cedefop (2017b). *European public opinion survey on vocational education and training*. Luxembourg: Publications Office. <http://www.cedefop.europa.eu/el/publications-and-resources/publications/5562>
- Cedefop (2017c). *On the way to 2020: data for vocational education and training policies: country statistical overviews: 2016 update*. Luxembourg: Publications Office. <http://www.cedefop.europa.eu/en/publications-and-resources/publications/5561>
- Cedefop (2017d). *Vocational education and training in Estonia: short description*. Luxembourg: Publications Office. <http://dx.doi.org/10.2801/15844>
- Cedefop; European Commission; ICF (2017). *2016 update to the European inventory on validation of non-formal and informal learning: country report: Estonia*. https://cumulus.cedefop.europa.eu/files/vetelib/2016/2016_validate_EE.pdf
- European Commission (2015). *Education and training monitor 2015: Estonia*
- European Commission (2016). *Education and training monitor 2016: Estonia*. https://ec.europa.eu/education/sites/education/files/monitor2016-ee_en.pdf
- Eurostat. *Pupils enrolled in upper secondary education by programme orientation, sex, type of institution and intensity of participation* [database]. http://appsso.eurostat.ec.europa.eu/nui/show.do?wai=true&dataset=educ_uoe_enrs04
- OECD (2014). *PISA 2012 results in focus: what 15-year-olds know and what they can do with what they know*. <https://www.oecd.org/pisa/keyfindings/pisa-2012-results-overview.pdf>
- OECD (2016). *PISA 2015: PISA results in focus*. <https://www.oecd.org/pisa/pisa-2015-results-in-focus.pdf>
- Taimsoo, R. (2016). *Key competences in vocational education and training – Estonia*. Cedefop ReferNet thematic perspectives series. http://libserver.cedefop.europa.eu/vetelib/2016/ReferNet_EE_KC.pdf