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Commission

Education and Training **MONITOR 2018**

Country analysis



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EUROPEAN COMMISSION

Education and Training Monitor 2018

Country analysis

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Additional contextual data can be found online (ec.europa.eu/education/monitor)*

Education and Training Monitor 2018 (Country analysis)

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Introduction

Volume 2 of the Education and Training Monitor 2018 includes twenty-eight individual country reports. It builds on the most up-to-date quantitative and qualitative evidence to present and assess the main recent and ongoing policy measures in each EU Member State, with a focus on developments since mid-2017. It therefore complements other sources of information which offer descriptions of national education and training systems.

Section 1 presents a statistical overview of the main education and training indicators. Section 2 briefly identifies the main strengths and challenges of the country's education and training system. Section 3 looks at investment in education and training. Section 4 focuses on citizenship education. Section 5 deals with policies to modernise school education. Section 6 discusses measures to modernise higher education. Finally, section 7 covers vocational education and training, while section 8 covers adult learning.

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1. Key indicators

		Austria		EU average	
		2014	2017	2014	2017
Education and training 2020 benchmarks					
Early leavers from education and training (age 18-24)		7.0%	7.4%	11.2%	10.6%
Tertiary educational attainment (age 30-34)		40.0%	40.8%	37.9%	39.9%
Early childhood education and care (from age 4 to starting age of compulsory primary education)		94.0% ¹³	94.9% ¹⁶	94.2% ¹³	95.3% ¹⁶
Proportion of 15 year-olds underachieving in:	Reading	19.5% ¹²	22.5% ¹⁵	17.8% ¹²	19.7% ¹⁵
	Maths	18.7% ¹²	21.8% ¹⁵	22.1% ¹²	22.2% ¹⁵
	Science	15.8% ¹²	20.8% ¹⁵	16.6% ¹²	20.6% ¹⁵
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-8 (total)	87.2%	89.4%	76.0%	80.2%
Adult participation in learning (age 25-64)	ISCED 0-8 (total)	14.3%	15.8%	10.8%	10.9%
Learning mobility	Degree mobile graduates (ISCED 5-8)	:	4.6% ¹⁶	:	3.1% ¹⁶
	Credit mobile graduates (ISCED 5-8)	:	9.8% ¹⁶	:	7.6% ¹⁶
Other contextual indicators					
	Public expenditure on education as a percentage of GDP	4.9%	4.9% ¹⁶	4.9%	4.7% ¹⁶
Education investment	Expenditure on public ISCED 1-2	€9 637	€10 266 ¹⁵	€6 494 ^d	: ¹⁵
	and private institutions ISCED 3-4	€10 547	€11 096 ¹⁵	€7 741 ^d	: ¹⁵
	per student in € PPS ISCED 5-8	€12 433	€13 256 ¹⁵	€11 187 ^d	: ¹⁵
Early leavers from education and training (age 18-24)	Native-born	5.7%	5.3%	10.4%	9.6%
	Foreign-born	14.9%	18.4%	20.2%	19.4%
Tertiary educational attainment (age 30-34)	Native-born	41.8%	42.5%	38.6%	40.6%
	Foreign-born	35.0%	36.8%	34.3%	36.3%
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-4	86.0%	87.6%	70.7%	74.1%
	ISCED 5-8	88.5%	91.3%	80.5%	84.9%

Sources: Eurostat (see section 10 for more details); OECD (PISA).

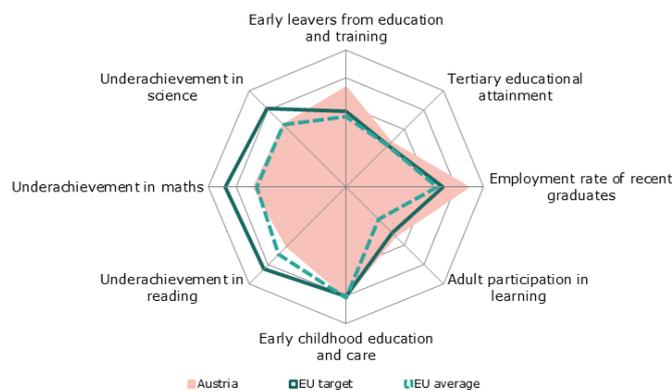
Notes: data refer to weighted EU averages, covering different numbers of Member States depending on the source;

d = definition differs, 12 = 2012, 13 = 2013, 15 = 2015, 16 = 2016.

On credit graduate mobility, the EU average is calculated by DG EAC on the available countries; on degree graduate mobility, the EU average is calculated by JRC over Eurostat and OECD data.

Further information can be found in the relevant section of Volume 1 (ec.europa.eu/education/monitor).

Figure 1. Position in relation to strongest (outer ring) and weakest performers (centre)



Source: DG Education and Culture calculations, based on data from Eurostat (LFS 2017, UOE 2016) and OECD (PISA 2015). Note: all scores are set between a maximum (the strongest performers by the outer ring) and a minimum (the weakest performers by the centre of the figure).

2. Highlights

- Austria has an ambitious new reform programme, although it does not always directly build on previous reforms.
- Austria has recently invested heavily in higher education, reforming its funding system to boost quality.
- Austria has a comprehensive approach to citizenship education and aims to promote a holistic concept of citizenship.
- While Austria continues to spend 5 % of GDP on education, the outcomes do not match the spending levels yet.
- Those from poorer socio-economic and/or migrant backgrounds continue to have weak education outcomes.

3. Investing in education and training

Austria's spending on education remains relatively stable, in line with the EU average.

The share of general government expenditure stood at 9.7 % in 2013 and 9.8 % in 2016. Between 2007 and 2016, the share of local spending increased from 1.1 % to 1.4 % of GDP, while spending by the provinces (Länder) has remained stable at 1.6 % and at national level at 3.3 %¹. The allocation of funding to different educational levels has also remained rather stable². Austria spends a much smaller share on pre-primary education than comparable countries such as Sweden or Denmark. The share of expenditure on secondary and tertiary education is about half that of the Netherlands, Denmark and Finland³. The new government's reform programme envisages reviewing the formula for distributing funds to different education levels (see Box 1). Based on Purchasing Power Parity, Austria outspends both the EU and the OECD average by about one third⁴. This is considerably more than most other EU countries, on a par with traditionally high-spending countries such as Denmark and Sweden but more than the Netherlands and Finland. However, while Austria is among the countries with the highest education expenditures, it achieves only moderate education outcomes in an international comparison of basic skills (European Commission, 2017).

Austria is expected to see both its school population and the proportion of pupils with a migrant background increase. Austria's school-age population (6-18 year-olds) is forecast to increase by 17 % between 2015 and 2040 – an increase from the 1.09 million pupils in this age category in 2017 to about 200 000 by 2040. Net migration is expected to remain high⁵; a large proportion of the increase in the school-age population will be from children with a migrant background.

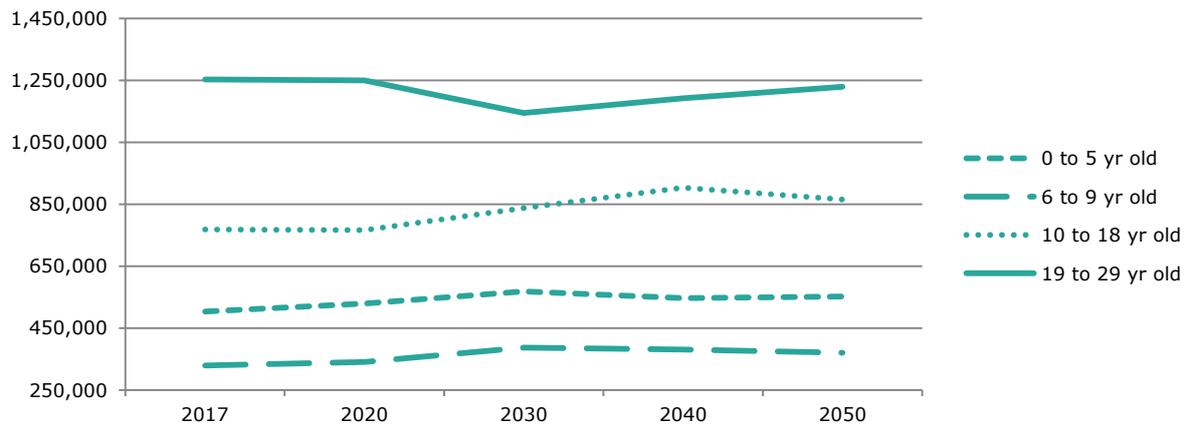
¹ General government expenditure by function (COFOG) [gov_10a_exp].

² General government expenditure by function (COFOG) [gov_10a_exp], deflated.

³ In comparison to the EU average, Austria has a higher share of the population aged 15-64 with upper secondary and post-secondary non-tertiary education, but a smaller proportion with tertiary education.

⁴ Austria USD 14 549; EU USD 10 897; OECD USD 10 759; Denmark USD 12 785; Sweden USD 13 219, Netherlands 12 495 and Finland 11 381 (OECD Education at a Glance 2017, Table B1.1).

⁵ It is expected to decrease however from about 45 000 in 2020 to 27 000 in 2040 according to Eurostat [proj_15nanmig]

Figure 1. Demographic projections of young in education age (0-29 years) 2017 – 2050


Source: DG EAC, based on data from Eurostat. Online data code [proj_15npms](#).

4. Citizenship education

Citizenship education is taught both as a separate subject and as a cross-curricular theme. Introduced as a cross-curricular principle 40 years ago⁶, citizenship education was brought more explicitly into an integrated subject known as ‘history, social sciences and citizenship education’ in 2008 following the lowering of the voting age to 16 in 2007. In the 2016 amended regulation, four out of nine compulsory modules under this subject cover citizenship fully or predominantly (Eurydice, 2017). Furthermore teaching citizenship has been advanced from eighth grade to sixth grade to ensure the timely education of young voters.

Austria delivers citizenship education in a form common to other EU countries. The 2017 Eurydice study shows that the Austrian curricula for primary, secondary and school-based vocational education and training (VET) are similar to those of most other EU countries. They cover such issues as ‘interacting effectively and constructively with others’ and ‘thinking critically’. Some issues, including ‘emotional awareness’, ‘flexibility/adaptability’ and ‘inter-cultural skills’, are treated less fully. To encourage students to act in a socially responsible manner, Austria concentrates mainly on solidarity and respect, both for human beings and for human rights and non-discrimination at all levels (ISCED 1, 2 and 3). Competences for acting democratically are comprehensively covered. Parents are fully included in school governance structures.

Based on national guidelines, testing is conducted at school level and teachers are not specifically trained for citizenship. The central authorities have issued guidelines on classroom assessment in citizenship education at primary and secondary levels. It focuses on knowledge and skills but not on attitudes. There are no national tests. As citizenship is not a stand-alone subject, the approach is to promote these competences to all teachers. In this context, the government has established a Federal Centre of Societal Learning to improve the quality of teaching and enrich research into teacher education⁷. Teachers in initial teacher training have to take citizenship, but citizenship teachers normally have bachelor or master degrees in ‘History, social studies and citizenship education’.

The last major reform of citizenship education, in 2013, aimed to promote a holistic concept of citizenship. The reform was based on the findings of an expert group representing stakeholders⁸. The new curriculum was first tested in the academic year 2015/2016 in 40 lower secondary education schools in all nine provinces with support from the Ministry of Education and

⁶ General Ordinance ‘Citizenship education as a cross-curricular educational principle’, Bundesministerium für Unterricht und Kunst 1978.

⁷ Established in 2013, the ‘Bundeszentrum für Gesellschaftliches Lernen’ has influenced initial and continued teacher training at all levels and in all school types through its didactic and basic scientific research. It is at the centre of a network including all institutions involved in teacher training, and communicates among other things through conferences with teachers and by developing competence-oriented teaching material.

⁸ These stakeholders represented central and provincial government, teachers, head teachers, the Austrian Centre for Citizenship Education in Schools, the National Youth Council and key university professors actually writing the curriculum.

the Austrian Centre for Citizenship Education in Schools ('Polis'). It was then made part of the policy mainstream with only minor amendments. Teaching of citizenship and history are closely linked, the approach to both subjects being based on shared principles (Eurydice, 2017). The current government is promoting as integration measure mandatory education in values during reception education of migrants and refugees.

5. Modernising school education

Austria's early school leaving rate fell continuously between 2007 and 2016, but increased again by 0.5 percentage point in 2017 to 7.4 %. While this remains well below the EU average and the national target for 2020 of 9.5 %, analysis of the increase shows that it has occurred particularly in towns and suburbs. While the rate among foreign-born pupils has continued to drop, in 2017 they were still more than three times more likely to leave school early than native-born pupils (18.4 % vs 5.3 %).

Participation in early childhood education and care (ECEC) has increased in Austria but quality issues remain. Attendance by 4 year-olds reached 94.9 % in 2016, close to the EU average of 95.3 %; for 5 year-olds it has already surpassed the EU average, reaching 97 %. Participation by under 3 year-olds increased between 2010 and 2016 by 8 pps. ECEC is administered at local level, but the provinces and federal governments also have responsibilities. The new government has announced a series of measures to improve both participation in ECEC and its quality. In September 2018 it intends to establish a compulsory framework through an agreement between the federal and the provincial level, and to include clear definitions of education goals. These will cover preparation for further education, standardised key competences in the German language, and a definition of common values. Learning German is central: there will be a standardised survey of each child at the age of 4, which will be followed by 2 years of compulsory German language training and further support, if required. Sanctions against parents are envisaged if compulsory measures are not complied with. The government programme also includes setting standards for infrastructure, group size, the qualification of different staff categories and initial and continued training of staff (Austrian government, 2017a).

Socio-economic status continues to have an important influence on education outcomes. Recent national and international test results, in particular from the 2016 Progress in International Reading Literacy Study (PIRLS) on the reading competences of 10 year-olds, confirm significant performance gaps. The difference in test results between those from the wealthiest and poorest socio-economic backgrounds has continuously widened since 2006 (BIFI&BMBWF, 2017). While overall test results and those of native-born pupils have improved, the results of those with a migrant background have remained static. Moreover, national testing of the 'education standards' (Bildungsstandards) continues to show that socio-economic and/or migrant backgrounds have a marked influence on education outcomes (BIFI&BMBWF, 2018)⁹. Austria received the following country-specific recommendation from the Council of the European Union in 2018: 'improve basic skills for disadvantaged young people and people with a migrant background' (Council of the European Union, 2018).

Box 1: Vienna to set up college for 1 000 young refugees

Vienna, Austria's capital, has in 2016 established a college for young refugees aged 15-21 to ease their transition into the regular education and vocational training system. The college has been co-funded by the European Social Fund (ESF).

'We don't let young people down irrespective of their origin. The Viennese Youth College is a unique education offer in Austria providing opportunities and a perspective for young people to make them independent quickly either through education or a job'. says councillor Jürgen Czernohorsky, who is in charge of integration.

⁹ Socio-economic background contributes overall about 40 % (25 percentage points) to the performance gap of migrant or non-German-speaking students (BIFI&BMBWF, 2018). According to Breit/Schneider, at 40 score points this corresponds to about one school year or grade.

The college has been designed to accommodate a total of 1 002 and offers actually 750 places. The training is a highly modular — and thus flexible — system on a monthly basis. In addition to career counselling, the syllabus includes German, English, mathematics and basic IT classes in small groups of 15 students.

The cost of the project amounted in the first year to EUR 6 million, going down to 4.8 million in the third year. The ESF co-finances 50%. Since the start around 2 000 young people were trained and more than 700 could successfully be integrated into a regular school, work place, other education or a labour market programme.

Information under <https://www.vhs.at/de/projekte/jugendcollege>

Only a small fraction of pupils aged 10-15 attend separate schools for pupils with special education needs. Numbers in segregated education at fifth grade fell from 4 600 in 1980/1981 to 1 500 in 2015/2016, or from 3.9 % of enrolments to 1.8 %. The underlying philosophy regarding education of those with special educational needs changed over this period to reflect the UN Convention on the Rights of Persons with Disabilities, which calls for fully inclusive education. Austria ratified it in 2008. However, the current government programme calls for strengthening special needs schools and reintroducing specialised training for teachers.

Digital skills in Austria have continuously improved and are above the EU average, though below the level of the Nordic countries. Austria is part of the cluster of EU countries with average performance on the adult population's digital skills (European Commission, 2018b). Even so, Eurostat's composite indicator on digital skills for 16-74 year-olds improved by 2 pps in 2018 over the previous year. Austria remained in eighth position in the EU. The digital skills of those in jobs or looking for work have not shown any progression over the last 3 years, in line with the overall EU trend. Though it has a higher proportion of people with 'above-average' basic skills (the highest category) than the rest of the EU, Austria still trails considerably behind the Nordic countries and the Netherlands.

A new Master Plan for Digitisation, announced in September 2018, builds on actions under the previous digitalisation strategy, 'School 4.0'. Under the latter various actions have already been implemented: (1) a new subject 'basic digital education' was introduced at lower secondary level this year, (2) a pilot project started in primary school providing an initial programming experience, (3) a modular teacher training on digital skills and digital didactics ('digi.folio') was set up combined with peer learning in 400 schools on the use of tablets while the school development network 'eEducation' was expanded, (4) teacher training is reinforced through the setting up of 'Education Innovation Centers' as virtual learning areas in teacher training colleges, and (5) digital text books in secondary school became e-books. The new Master Plan for Digitisation in education has three areas of intervention. Under 'Software – pedagogy, teaching and learning content' digitalisation will be introduced into all subject areas and systematically incorporated into revised curricula. Second, infrastructure and availability of mobile end devices is brought up to a unified and comparable standard allowing nationwide use in schools. And, thirdly, under 'Teachers - training and further education', e-content and innovation is systematically introduced into teacher training.¹⁰

Box 2: Education reform agenda of the new government

The government's wide-ranging reform agenda partially reverses the direction of previous reforms, placing a particular focus on standardised testing and use of tracking and changing the approach to inclusion. The government programme contains 115 measures specifically on education. Measures to strengthen ECEC are described above. Access to primary school will depend on standardised testing of school readiness, with a particular focus on German: if pupils fail, they get German lessons in separate classes before they can enter the regular school system.

¹⁰ For more information: <https://www.bmbwf.gv.at/presseunterlagen/masterplan-digitalisierung/>.

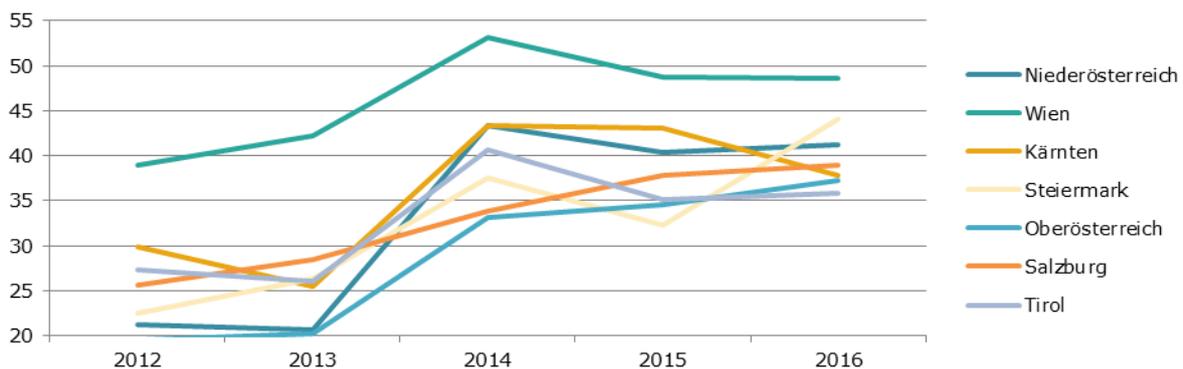
Standardised testing, previously undertaken in fourth and eighth grades, is brought forward to third and seventh grades. Such testing will determine the need for intensified support, but may also have an influence on subsequent tracking decisions. To supplement the central standardised school leaving examination (Matura), standardised regular testing based on curricula to document progress is also envisaged. The New Secondary School, the main lower secondary school leading mainly to VET education which was only recently introduced, will be reformed. The reform will reintroduce a 'performance group' approach within classes and abandon structural team teaching – a crucial element of the previous reform – in core subjects. Training of teachers for special educational needs will be strengthened, while new schools for the exceptionally gifted will be introduced.

The government programme announces a comprehensive review of all legislation and all curricula. All legislation in force should be reviewed and, as quickly as possible, all administrative acts checked to verify if they are necessary and practical. All curricula are to be reviewed and updated. A new comprehensive law for all teaching staff will be drawn up covering both federal and regional responsibilities. Common legislation and definitions should in particular be extended to staff in ECEC. Harmonised criteria and a new formula for distributing resources to different school types will be developed.

6. Modernising higher education

Austria has reached the national and EU targets for tertiary attainment but there are still wide participation gaps: between men and women, foreign- and native-born students and those from privileged and disadvantaged socio-economic backgrounds. Austria already reached the EU 2020 target of 40 % in 2014 and in 2017 its tertiary educational attainment rate was 40.6 %. While both male and female participation have improved considerably, the gender gap has widened from 0.2 pps in 2008 to 6.3 pps in 2017. Similarly, between 2010 and 2017 the gap between native- and foreign-born students increased from 1.1 pps to 5.7 pps, even though on average across the EU it narrowed considerably from 10.5 pps to 3.8 pps. Relatively few graduates come from poorer socio-economic backgrounds (European Commission/EACEA/Eurydice, 2018b). Graduation rates in Austria's provinces have converged, with Styria showing the most impressive increase, from 22.5 % in 2012 to 44.1 % in 2016¹¹ (Figure 2).

Figure 2. Tertiary attainment by NUTS 2 region in per cent



Source: DG EAC, based on data from Eurostat. Online data code: *edat_ifse_12*.
Burgenland and Vorarlberg have been excluded since no figures are available for 2012 and 2013.

¹¹ There is a big increase between 2013 and 2014 due to the reclassification of a part of upper secondary VET from ISCED 4 to ISCED 5 or short-cycle tertiary education. This explains part of the sharp overall increase between 2012 and 2016.

Austria has more graduates in business/law and social sciences and fewer in health and welfare. Austria has a larger share of graduates than the EU average at:

- bachelor level, particularly in social sciences;
- master level in social sciences, business, law, and information and communications technology (ICT); and
- doctorate level in business and law, ICT and engineering.

Compared to the EU average and some reference countries, Austria has a significantly smaller share of PhD graduates in natural sciences/mathematics.

Austria is increasingly attractive for foreign students. Austria is becoming more attractive to study and obtain a degree in. The share of students enrolled from abroad remains stable at about 16 %, one of the highest in the EU. Those enrolled in degree programmes increased from 10.7 % in 2013 to 12.1 % in 2015. Only the UK, the Netherlands and Luxembourg showed higher shares.

More resources, better targeting of students and structural reforms including improved career opportunities for scientific university staff are meant to improve higher education.

The new government has considerably increased resources for higher education, which had remained little changed over recent years. It also introduced capacity-based financing¹² in February 2018, an initiative already prepared by the previous government. This will better match funding directly to the number of study places offered, which universities no longer have full autonomy to determine. The government programme envisages additional measures to improve study conditions, expand access to higher education for talent from all backgrounds, and introduce fees, grants and an orientation service.

7. Modernising vocational education and training

With participation in VET declining, Austria is pursuing intensive efforts to make the dual vocational pathway more attractive for both companies and young people by better aligning it with the evolving needs of the economy, notably digitalisation. Even if the proportion of upper secondary students (ISCED 3) in VET has been declining slightly in recent years (from 70.2 % in 2013 to 68.8 % in 2016), it remains high, at 20 pps above the EU average. The employment rate of recent VET graduates is among the highest in the EU (89.2 % in 2017). The Austrian Federal Economic Chamber has announced a programme of 'Digitalisation of apprenticeship training' (Wirtschaftskammer, 2018), financed by the Ministry of Digital and Economic Affairs. The programme includes measures to increase the digital skills of learners and trainers in dual VET. The necessary tools are being developed and implementation started in spring 2018. In addition, the job profiles and training regulations in dual VET are being updated and adapted to new requirements to prepare for digital change, Industry 4.0 and other developments. The 2017 apprenticeship occupation package (Lehrberufspaket) comprises eight modernised apprenticeships. By 2020, it is planned that another 50 apprenticeship occupations (one quarter of all dual VET programmes) will be adapted or newly introduced to better match apprenticeship programmes to digitalisation (Cedefop, 2018).

VET is crucial to getting people with a migrant background into work. Ongoing initiatives and programmes integrate refugees into formal VET by assessing and validating their skills and qualifications gained abroad. An essential aspect is to help young refugees gain an apprenticeship diploma and choose the appropriate occupation.

8. Promoting adult learning

In line with the Council of the EU's 2016 Recommendation on upskilling pathways, Austria is implementing its Adult Education Initiative (Initiative Erwachsenenbildung). The initiative, entering its third programming period (2018-2021), enables adults who lack basic skills or never graduated from lower secondary education to continue and finish their education free of charge. Overall participation in adult learning in Austria is above the EU average (15.8 % vs 10.9 %). In 2017, 70 % of those aged 25-64 possessed basic or above-basic overall digital skills, above the EU average of 59 %.

¹² The new funding formula is a mix of basic and competitive indicators in three categories: (1) infrastructure and strategic development (39%), (2) teaching (32%) and (3) research (29%).

To underline the importance of skills acquired in all learning contexts and to foster adult participation in learning, in November 2017 the government published its strategy for validating non-formal and informal learning. The national strategy is in line with the Council of the EU's 2012 Recommendation on this issue¹³. For the first time, it offers a strategic framework for developing and coordinating these offers and related network-building. It aims to promote quality and trust, raise awareness and increase use of validation measures. The validation strategy will be developed and implemented (Federal Ministry of Education, Science and Research, 2017b) in close coordination with the 'Strategy for lifelong learning in Austria' and the 'Federal Act on the National Qualifications Framework in Austria'. The focus in 2018 and 2019 will be on promoting, disseminating and implementing the strategy. Four thematic working groups have already been established (on quality assurance, professionalisation, development of an online portal and system synergies) that should deliver results by the end of 2018. In 2019, the results should be put into practice before new working priorities are defined.

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¹³ Council Recommendation of 20 December 2012 on the validation of non-formal and informal learning.

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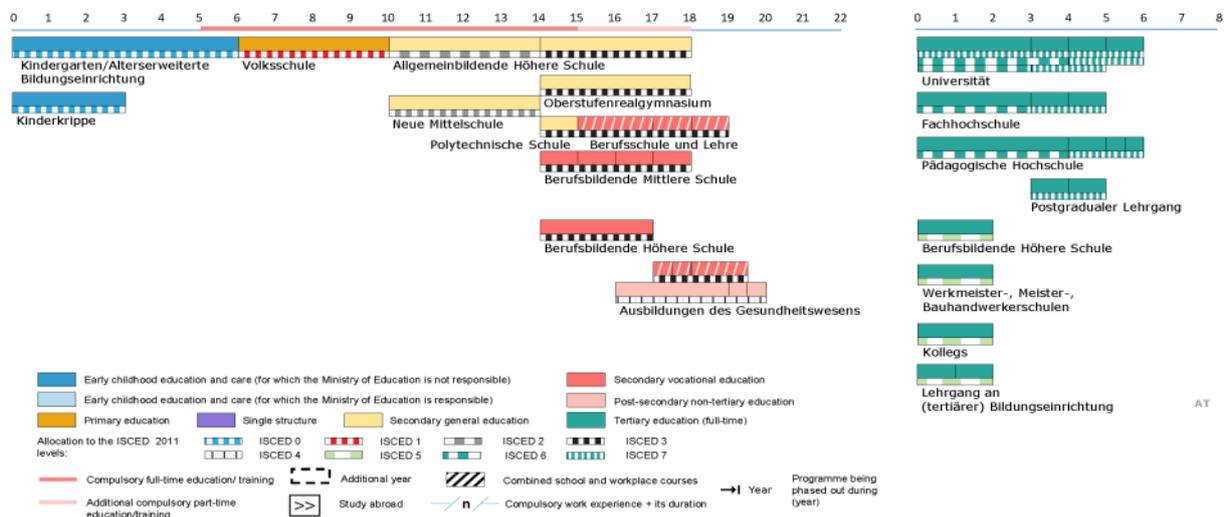
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10. Annex I: Key indicator sources

Indicator	Eurostat online data code
Early leavers from education and training	edat_lfse_14 + edat_lfse_02
Tertiary educational attainment	edat_lfse_03 + edat_lfs_9912
Early childhood education and care	educ_uoe_enra10
Underachievement in reading, maths, science	OECD (PISA)
Employment rate of recent graduates	edat_lfse_24
Adult participation in learning	trng_lfse_03
Public expenditure on education as a percentage of GDP	gov_10a_exp
Expenditure on public and private institutions per student	educ_uoe_fini04
Learning mobility: Degree mobile graduates	JRC computation based on Eurostat / UIS / OECD data
Credit mobile graduates	educ_uoe_mobc02

11. Annex II: Structure of the education system



Source: European Commission/EACEA/Eurydice, 2017. *The Structure of the European Education Systems 2017/18: Schematic Diagrams.* Eurydice Facts and Figures. Luxembourg: Publications Office of the European Union.

Comments and questions on this report are welcome and can be sent by email to:
 Klaus KOERNER
klaus.koerner@ec.europa.eu
 or
EAC-UNITE-A2@ec.europa.eu

BELGIUM



1. Key indicators

		Belgium		EU average	
		2014	2017	2014	2017
Education and training 2020 benchmarks					
Early leavers from education and training (age 18-24)		9.8%	8.9%	11.2%	10.6%
Tertiary educational attainment (age 30-34)		43.8%	45.9% ^b	37.9%	39.9%
Early childhood education and care (from age 4 to starting age of compulsory primary education)		98.4% ¹³	98.3% ¹⁶	94.2% ¹³	95.3% ¹⁶
Proportion of 15 year-olds underachieving in:	Reading	16.1% ¹²	19.5% ¹⁵	17.8% ¹²	19.7% ¹⁵
	Maths	19.0% ¹²	20.1% ¹⁵	22.1% ¹²	22.2% ¹⁵
	Science	17.7% ¹²	19.8% ¹⁵	16.6% ¹²	20.6% ¹⁵
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-8 (total)	79.0%	81.9%	76.0%	80.2%
Adult participation in learning (age 25-64)	ISCED 0-8 (total)	7.4%	8.5%	10.8%	10.9%
Learning mobility	Degree mobile graduates (ISCED 5-8)	:	2.7% ¹⁶	:	3.1% ¹⁶
	Credit mobile graduates (ISCED 5-8)	:	: ¹⁶	:	7.6% ¹⁶
Other contextual indicators					
Public expenditure on education as a percentage of GDP		6.3%	6.4% ¹⁵	4.9%	4.7% ¹⁶
Education investment	ISCED 1-2	€8 084	€8 271 ¹⁵	€6 494 ^d	: ¹⁵
	ISCED 3-4	€9 825	€10 082 ¹⁵	€7 741 ^d	: ¹⁵
	ISCED 5-8	€12 531	€13 079 ¹⁵	€11 187 ^d	: ¹⁵
Early leavers from education and training (age 18-24)	Native-born	8.7%	7.9%	10.4%	9.6%
	Foreign-born	17.5%	16.4%	20.2%	19.4%
Tertiary educational attainment (age 30-34)	Native-born	46.2%	48.8%	38.6%	40.6%
	Foreign-born	35.2%	37.6%	34.3%	36.3%
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-4	67.4%	68.7%	70.7%	74.1%
	ISCED 5-8	86.2%	89.4%	80.5%	84.9%

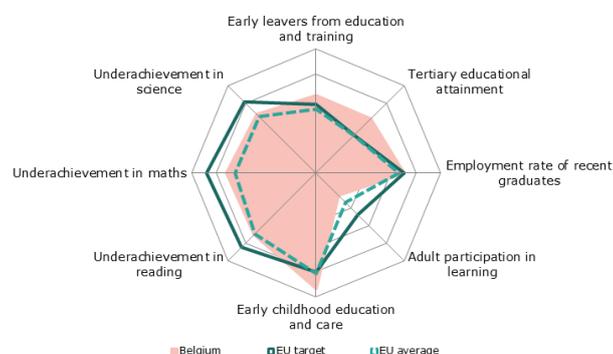
Sources: Eurostat (see section 10 for more details); OECD (PISA).

Notes: data refer to weighted EU averages, covering different numbers of Member States depending on the source; b = break in time series, d = definition differs, 12 = 2012, 13 = 2013, 15 = 2015, 16 = 2016.

On credit graduate mobility, the EU average is calculated by DG EAC on the available countries; on degree graduate mobility, the EU average is calculated by JRC over Eurostat and OECD data.

Further information can be found in the relevant section of Volume 1 (ec.europa.eu/education/monitor).

Figure 1. Position in relation to strongest (outer ring) and weakest performers (centre)



Source: DG Education and Culture calculations, based on data from Eurostat (LFS 2017, UOE 2016) and OECD (PISA 2015). Note: all scores are set between a maximum (the strongest performers represented by the outer ring) and a minimum (the weakest performers represented by the centre of the figure).

2. Highlights

- Ambitious reforms of the school system have been launched to reduce inequalities and improve outcomes. Timing and budget challenges should be overcome to successfully implement them. Successful implementation will also require stakeholders to take full 'ownership' of the reforms.
- To reduce inequality in education, teachers need more support to deal with diversity in the classroom.
- Belgium is experiencing strong growth in the school-age population. This has highlighted the need to extend and modernise education infrastructure.
- The employment premium for graduates of tertiary education is high and increasing.
- The share of science, technology and mathematics (STEM) graduates is one of the lowest in the EU.
- Authorities place strong emphasis on citizenship education.

3. Investing in education and training

In 2016, Belgian general government expenditure on education as a share of GDP was among the highest in the EU at 6.4 %. In the period 2011-2016, general government expenditure on education increased at pre-primary and primary level (+10.2 %) and secondary level (+6.4 %), but decreased at tertiary level (-1.6 %). In 2017 and 2018, spending on tertiary education increased again.

The population of Belgium is growing, and the number of 3 year-old children reached an all-time high in 2018. Growth in the numbers of young people will be fastest among disadvantaged groups, especially students from an immigrant background (OECD, 2017a). This makes it necessary to extend and modernise school infrastructure, and increase teacher support and training for those working with vulnerable groups. In the French community '*Fédération Wallonie-Bruxelles*' (BEfr), initial 2018 budget plans allocate EUR 83 million for the school reform '*Pact for excellence in education*' ('*Pacte pour un enseignement d'excellence*'), EUR 23 million of which will be used to fund 33 000 new school places between now and 2020. In 2017, the Flemish community (BEfl) launched a new infrastructure programme for a total of EUR 300 million, and a plan for a further EUR 200 million in investment between 2017 and 2019.

4. Citizenship education

Belgium places strong emphasis on citizenship education. Belgium offers the same curricula for citizenship education to students in general and school-based vocational education and training. BEfr (in schools offering a choice between different courses in religion and moral studies) is one of only two systems (together with France) where citizenship education is a compulsory separate subject for all grades of general education (Eurydice/European Commission/EACEA, 2017). It is also integrated into other subjects. BEfr recently introduced a new, compulsory course in public education on philosophy and citizenship at primary and secondary levels. In BEfl, citizenship education is incorporated into the curriculum as a cross-curricular theme. Secondary school staff are responsible for deciding how to teach its broad objectives (e.g. taking responsibility, showing respect, being critical) as well as more specific objectives. Civic education is also covered by the new learning objectives for secondary education that are being drafted. In June 2017, a new '*Action plan for the prevention of radicalisation and polarisation*' was adopted, one of the aims of which is to strengthen the capacity and resilience of pupils and teachers against radicalisation. The action plan also seeks to help pupils and teachers build inclusion and diversity in the classroom. In early 2018, education authorities launched two related calls for projects for a total of EUR 200 000. The educational authorities are being supported in this action plan by external partners such as the Educational Network of Islam Experts. Belgian education authorities have developed or supported

the creation of online platforms for educators (in BEfr and the German-speaking community, BEde). These portals provide support for citizenship education and peer-to-peer platforms where teachers can share knowledge and resources ('KlasCement' online platform in BEfl). BEde's 2016/2017 'Action plan for intercultural and religious dialogue' outlines a project-based learning approach for citizenship education. In the action plan, BEde authorities set out specific skills for citizenship education that all teachers must have.

5. Modernising school education

In 2016, Belgium reached its national Europe 2020 target to reduce the early school leaving (ESL) rate to 9.5 %. It also maintained these results in 2017 thanks to a variety of measures. The national ESL rate in 2017 was 8.9 %, below the 10.6 % EU average. BEfl reported a slight increase in the 2016 ESL rate compared to 2015. This may partly be explained by jobs growth, making the labour market more attractive for those not motivated to continue in education (Onderwijs Vlaanderen, 2017). Regional disparities in ESL rates are high. The BEfr 'Pact' aims to achieve a 50 % reduction in the ESL rate by 2030 (NRP, 2018). Pupils' guidance will be strengthened in BEfl, as will centres supporting pupils from disadvantaged backgrounds. The 'Strategy for literacy' (*Strategisch plan geletterdheid 2017-2024*) aims to significantly raise literacy levels among pupils at risk of dropping out of school. The full roll-out of dual vocational education and training from September 2018 also aims to reduce ESL rates by increasing the motivation of students (see Section 7 below). BEfr strengthened the support it gives to schools with large proportions of disadvantaged pupils to help improve pupils' outcomes and reduce ESL rates. Funding allows these schools to recruit additional staff for classroom teaching, individualised support, homework supervision, training and team teaching. From September 2018, schools must adopt targets and a monitoring plan covering priorities such as the school's strategy to fight failure, reduce ESL rates and reduce the number of pupils that repeat a grade. In BEfr, the cost for public authorities of delayed progress through school (often due to pupils having to repeat a grade) was estimated at 10 % of the education budget (Fédération Wallonie-Bruxelles, 2017)¹⁴. The Brussels region launched the 'School contract' to improve relationships between young people, schools and residential areas as well as the attractiveness of schools that have a bad reputation. It funds extra-curricular projects aimed at reducing ESL rates.

Participation in early childhood education and care (ECEC) remains very high, at 98 % in 2016. However, as the share of the population from immigrant backgrounds increases, ECEC has struggles to reach families in poverty and deal with this increasingly multi-cultural population. Enrolment gaps in ECEC between different socio-economic groups are significant at the age of 3. BEfl supports increased enrolment and attendance in ECEC for children from the age of 3, under the 2016 'Action plan for participation in pre-primary education'. The plan includes working with parents and allocating a premium of EUR 950 for each child of non-Dutch speaking parents to improve the child's language skills. Another – recently extended – project, 'Small children, big opportunities', teaches future pre-primary teachers how to deal with deprivation and diversity (NRP, 2018). Funds for reception classes for non-Dutch speaking newcomers to mainstream education were also increased. Both BEfr and BEfl are making regular attendance in ECEC for 5 year-olds a compulsory condition to access primary education. In September 2017, BEfr increased staff resources for primary and special-needs education. Authorities have also initiated a pilot project to offer free meals in disadvantaged pre-primary schools. These measures are in line with international evidence showing that extra support is most effective in early childhood. This is likely to improve the current situation where, despite having spent their entire childhood in Belgium, many native-born with foreign-born parents have limited proficiency in the language of instruction when they enter primary education (OECD, 2017b).

Educational performance varies between schools, communities, socio-economic and immigrant backgrounds, and genders (European Commission, 2017 and 2018a). School segregation tends to go hand-in-hand with unequal access to resources: Belgium is one of the few countries where school principals report fewer teacher resources in disadvantaged schools than in advantaged ones (OECD, 2018). Managing diversity in pupils calls for improvement (Onderwijsinspectie, 2018). In the 2016 Progress in International Reading Literacy Study (PIRLS),

¹⁴ In 2014/2015, about one fifth of BEfr pupils at the end of their primary education, and nearly three out of five of those ending secondary education had experienced a delay in their education.

the results of BEfr and BEfl were below the EU average. BEfr scored the lowest in the EU, and BEfl scores were much lower than in the 2011 study. The most recent OECD PISA survey showed that in BEfr the worst-performing schools concentrate 80 % of pupils with a delayed education pathway, mostly due to grade repetition. This compares with a figure of 20 % in the best-performing schools (Lafontaine, 2017). BEfr has the highest proportion of pupils with academic delay among OECD countries, strongly impacting on performance. In BEfl, the value of certificates of primary education across schools may be unequal. The long-term impact of primary education on future educational performance has been demonstrated. The 2018 European Semester country-specific recommendations to Belgium included the following: 'Pursue the education and training reforms, including by fostering equity' (Council of the European Union, 2018).

On-going school reforms aim at improving basic skills, tackling inequalities and improving efficiency and governance (European Commission, 2017 and 2018a).

The latest measures under the 'Pact' that have been taken in BEfr include strengthened central governance and increased autonomy for schools. 'Improvement objectives' for the school system were adopted, together with a framework for corresponding schools' six-years plans. These plans must cover ESL and collaborative teaching, and are being piloted from September 2018. Support measures for significantly underperforming schools are being planned, and pupils will benefit receive individualised support. The planned extension by one year — from pre-primary to the ninth grade included — of the common, multi-disciplinary curriculum for all pupils aims to strengthen basic skills and reduce inequalities and grade repetition. It responds to OECD recommendations to Belgium to delay tracking (OECD, 2017b). Guidelines for the future curriculum are being drafted while leaving some flexibility to schools. Implementation of the curriculum will require recruitment of more mathematics and science teachers, subjects where there are already teacher shortages. It will be vital that teachers get training and that schools have enough time to prepare. Stakeholders' reactions to these reforms are divided. Successful implementation will require good timing, sequencing the reform phases in the correct order, and a genuine sense of ownership of the reforms by stakeholders. School heads insist that their autonomy is necessary for the reform to be successful (La Libre, 2018). Negotiations on the 'Pact' have reduced its initial ambitions, and there is uncertainty as to its future after the 2019 general elections. A 2017 BEfr decree aims at increasing the participation of pupils with special educational needs (SEN) in mainstream education by requiring every mainstream school to ensure 'reasonable accommodation' for such pupils. For this to be effective, appropriate teacher training will be needed. BEfr has increased resources for school integration of — and language support for — newly-arrived immigrants. These resources will be used for immigrants until they are able to join mainstream compulsory education. In BEfl, the modernisation of secondary education has begun. Measures include a new, centrally validated end-of-primary-education test. This test will be part of internal quality assurance and help to guide pupils into secondary education. The legal process for the revised structure of secondary education was extended in 2018, with a planned entry into force in September 2019. The range of subjects on offer is to be reduced and transition to higher education or the labour market will be made easier. It is not clear to what extent mobility between study fields will be improved. Early tracking of pupils remains a concern. A new support model for SEN pupils with special educational needs in mainstream education was introduced in September 2017 ('M-decree') to improve guidance and support for pupils and teachers. In 2018, BEfl increased subsidies to higher education institutions whose students offer tutoring for school pupils. BEde applies a specific marking system for newly-arrived pupils with an immigrant background who have not reached a sufficient level of German. Additional funding has been granted to help these pupils.

There is a teacher shortage and limited data to help plan for teacher supply and demand in the future (European Commission/EACEA/Eurydice, 2018a).

For instance, data on teachers retiring, prospective teachers, or on the demand for teachers are not used systematically in Belgium. Considering the shortages in some subjects and geographical areas, the ageing teacher population, the high leaving rates from the profession, and the growth in the pupil population, forward planning should be more systematic. Measures to encourage the most suitable students to enter the teaching profession could help reduce the high leaving rate among newly qualified teachers. In 2016/2017, Belgium was among few EU countries without a compulsory induction programme for new teachers.

Since 2017/2018, entry examinations to initial teacher education (ITE) programmes were made compulsory in BEfl to reduce later dropout rates. From September 2019, authorities will strengthen their ITE programmes. The programmes will be exclusively offered by universities, and feature improved content on didactics, class management, multilingualism and diversity. Pathways to becoming a teacher will be extended to people already in the workforce. A new training session for teacher trainers was launched in 2018, with the participation of all institutions offering training programmes. An intensive induction period is to become compulsory. Permanent appointment will become possible after 400 instead of 600 days of work. Salary conditions have been improved. In BEfr, ITE will be extended from three to four years (five years for upper secondary teachers), possibly from September 2019. The possible impact of this on the supply of teachers and the sustainability of funding are concerns, and stakeholders have differing views on its impact. The measure is likely to increase the attractiveness of the profession and help reduce the proportion of young teachers who drop out. In December 2017, authorities increased funding for the continuing professional development of teachers. In both communities, results and follow-up to surveys on teachers' missions and workload are awaited. To improve schools with a high concentration of disadvantaged pupils, the OECD recommends that Belgium use incentive schemes to attract teachers and promote teacher training on how to teach in multi-cultural settings (OECD, 2017b). Ensuring sufficient ITE in the classroom is also essential, including to work with pupils from diverse backgrounds.

In 2017, the proportion of young Belgians aged 16-24 with basic or above basic digital skills levels (78.8 %) was lower than the EU average (81.9 %). This contrasts with the skill levels of people aged 25-64, where Belgians score better than the EU average (see section 8 below).

A new teacher training programme on digital education has been initiated in BEfr. 'Digital Wallonia' and 'Ecole Numérique – virtual school' joined 'Class code', an online training module. BEfr is planning to integrate digital skills in the extended common curriculum (see above). Further investment is needed to improve the use of digital tools in teaching (NRP, 2018). In BEfl, the renewed STEM (science, technology, engineering and mathematics) action plan 2020-2030 will strengthen the use of digital media tools and the 'Strategy for literacy 2017-2024' strongly focuses on digital literacy for all.

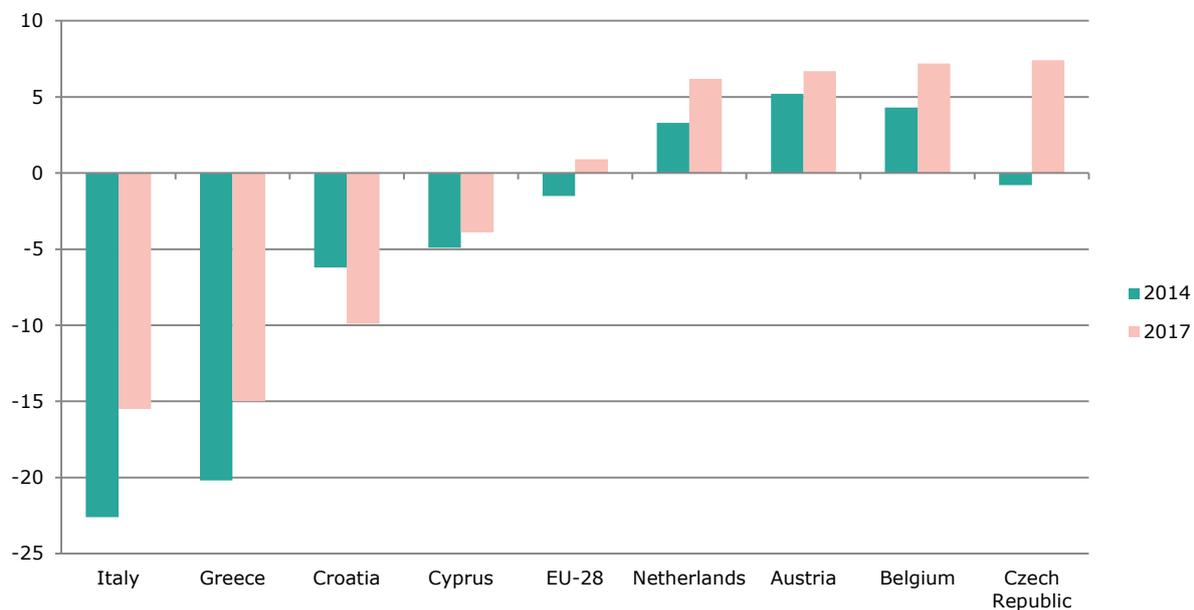
6. Modernising higher education

Tertiary educational attainment is high but there are wide disparities among socio-economic groups. In 2017, the tertiary educational attainment rate slightly increased to 45.9 %. Belgium is on track to reach its national target of 47 % by 2020. There are wide disparities related to socio-economic and immigrant background, which are partly linked with grade repetition at school. While 48.8 % of the native-born population aged 30-34 have attained tertiary education, 37.6 % of the foreign-born population have done so¹⁵. BEfr is among the few tertiary systems in the EU where neither completion nor dropout rates are measured systematically (European Commission/EACEA/Eurydice, 2018b).

The employment premium for holding a tertiary education degree is comparatively high in Belgium (see Figure 2 below). The 81.9 % employment rate of recent graduates aged 20-34 in 2017 was above the EU average (80.2 %) for this cohort. The share of workers whose qualification is above the level required for their job is comparatively low, suggesting that there remains room to increase educational attainment (OECD, 2017b). This positive employment situation suggests that measures to increase tertiary attainment for people with an immigrant background (outlined below) are likely to promote social mobility.

¹⁵ Source Eurostat. Online data code: [edat_ifs_9912](#).

Figure 2. Employment premium for tertiary education graduates (ISCED 5-8) (2014, 2017)



Source: EU LFS, Eurostat. Online data codes: [edat_lfse_24](#) and [lfsa_ergaed](#).

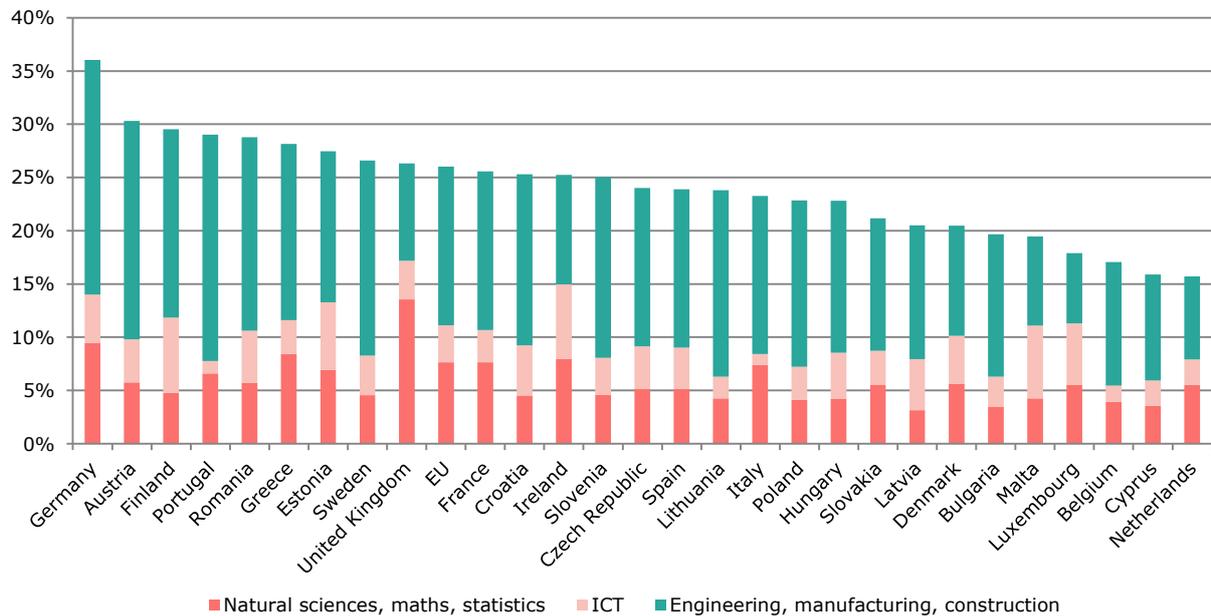
Note: employment premium (positive or negative) is the comparison of the employment rate of recent graduates aged 20-34 having completed education 1-3 years before the survey with a high-level qualification diploma (ISCED levels 5-8) and who are currently not enrolled in any further formal or non-formal education or training with the employment rate of the 'working age' reference population —adults aged 15-64 holding a high-level qualification diploma (ISCED levels 5-8). A positive premium indicates that employment rate of recent graduates is higher, while a negative rate indicates that employment rate of recent graduates is lower, than in the reference population.

In response to the surge in migration in 2015, higher education institutions in BEfr adopted measures to improve the integration of refugees, including language classes, special programmes and funding for immigrant researchers. In 2017, BEfr revised its study allowances system for secondary and higher education students, to improve social fairness and better align the allowances with current costs of education. Students benefiting from a needs-based grant will no longer automatically lose their entitlement to a grant if they fail their course.

The share of STEM graduates is one of the lowest in the EU (see Figure 3 below). The 2018 European Semester country-specific recommendations to Belgium included the following: 'Pursue the education and training reforms, including by [...] increasing the proportion of graduates in science, technology, engineering and mathematics.' (Council of the European Union, 2018). In 2018, Belgium ranked 23rd in the EU (European Commission, 2018b) for STEM education. Authorities are developing plans to increase the share of STEM graduates and to develop digital skills. These plans include the BEfl 'STEM action plan', which authorities aim to renew for 2020-2030, and the 'Digital school plan' (2014-2020) in BEfr.

The proportion of female graduates in IT (information technology) is among the lowest in international comparison (OECD, 2017b). Shortages in these fields could become a barrier to growth and innovation (European Commission, 2018a). Providing girls and boys with objective and reliable career information about science-related careers could help improve the situation.

Quality assurance is being improved in BEfl. A new system is planned for 2019-2020, created in cooperation with stakeholders and the Accreditation Organisation of the Netherlands and Flanders. Guidance tests have been introduced at the end of secondary education in BEfl ('Columbus test'). As an alternative to admission tests, they help students make informed choices about higher education.

Figure 3. Graduates in STEM as a share of total graduates (2016)


Source: Eurostat, 2016. Online data code: [educ_uae_grad02](#).

7. Modernising vocational education and training

The share of upper secondary students in initial vocational education and training (VET) shows a slow but steady downward trend over time. In 2016, the share of ISCED 3 students in VET was 59.2 %, still about 10 percentage points above the EU average. In 2017, 63 % of people aged 25-64 possessed basic or above-basic overall digital skills (against the 59 % EU average).

Belgium continues to modernise the VET system by further implementing the dual VET pathway, expanding higher-level VET, and increasing its labour market relevance, but employment rates for VET graduates have declined. Employment rates of recent VET graduates declined in 2017 to 72.2 % from a 2016 rate of 73.1 % (EU average for 2017: 76.6 %). With the support of the European Social Fund (ESF), the piloting of dual learning continued in 2017 in BEfl. Its extension to more schools and fields of study is now planned, and it will be fully rolled out from September 2019 (Vlaanderen Onderwijs). BEfl is also developing higher-level VET to attract students who do not opt for tertiary education. BEfr also continues to develop its dual learning system: a common dual learning contract has been introduced. A new agency was created to steer implementation of dual learning and promote it (*'Office francophone de la formation en alternance'*). In addition, the Brussels Training and Employment Observatory was created to monitor the transition to employment and analyse training needs.

Box 2: Dual learning in BEfl

The ESF has provided significant support for the roll-out of dual learning in Flanders. It supports innovative projects, stimulates knowledge-building and increases the institutional capacity of dual learning. In total, the ESF has co-financed more than 60 projects in BEfl, accounting for a total budget of more than EUR 10 million, of which almost EUR 5 million came from the ESF.

8. Promoting adult learning

In 2017, participation in adult learning reached its highest level in 10 years (8.5 %). Nevertheless, it remains below the EU average (10.9 %). In 2015, 83.9 % of Belgian companies (compared to the EU average of 72.6 %) provided training to their employees, 53.9 % of whom participated (EU average participation rate: 40.8 %).

Adult learning is being strengthened in line with the 2016 Council Recommendation on Upskilling Pathways. BEfr has adopted a decree setting out new procedures for admission to adult education and new financial incentives for employers to train employees. It authorises Education Councils to take into account the applicants' working experience or training. BEfl is increasing the capacity of adult education training centres. Funding rules aim to support the use of output indicators and to give support to the most vulnerable groups. In 2017, the Brussels region introduced a new training bonus which encourages employers to train recently recruited low-qualified employees.

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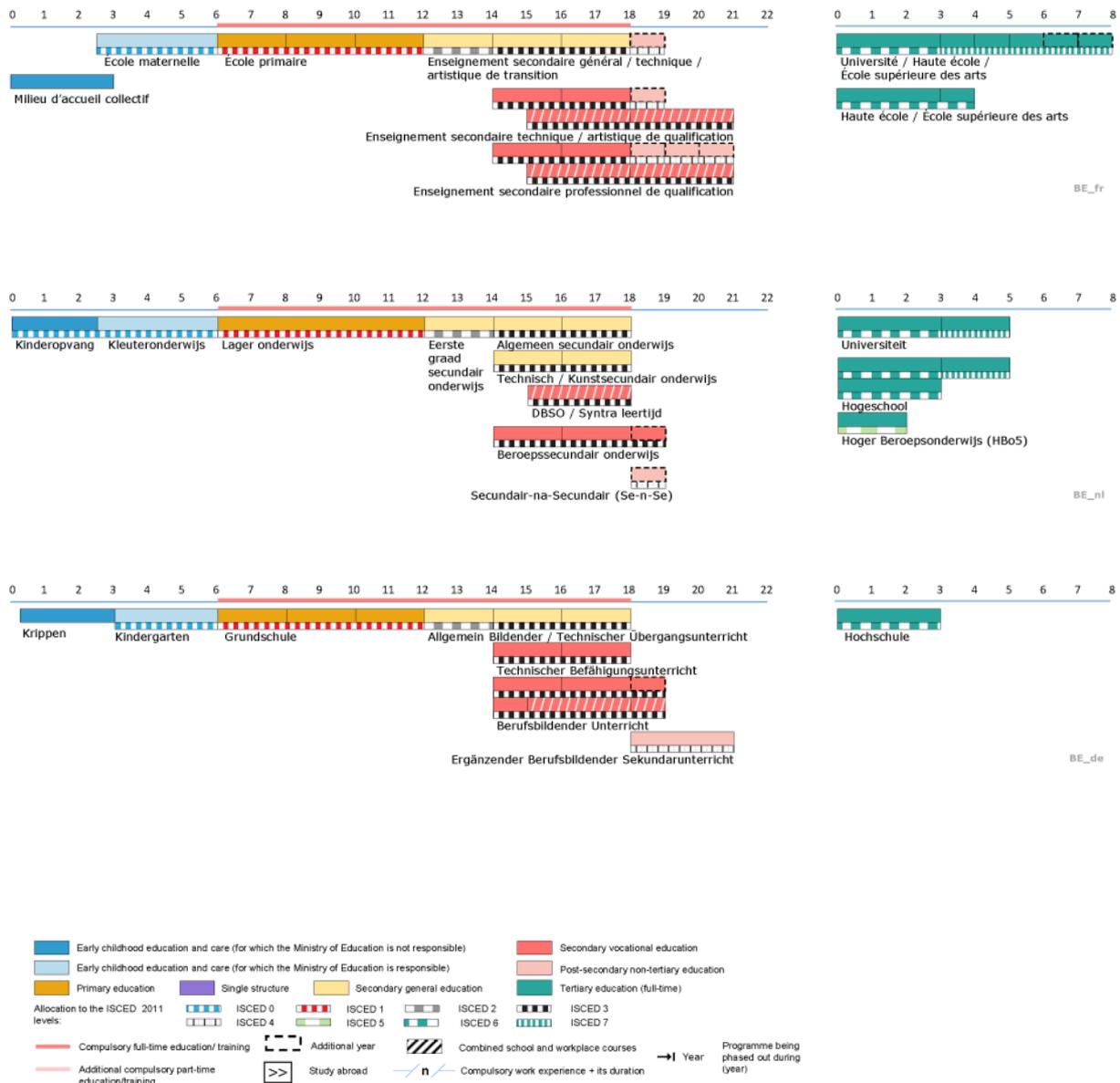
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10. Annex I: Key indicator sources

Indicator	Eurostat online data code
Early leavers from education and training	edat_lfse_14 + edat_lfse_02
Tertiary educational attainment	edat_lfse_03 + edat_lfs_9912
Early childhood education and care	educ_uoe_enra10
Underachievement in reading, maths, science	OECD (PISA)
Employment rate of recent graduates	edat_lfse_24
Adult participation in learning	trng_lfse_03
Public expenditure on education as a percentage of GDP	gov_10a_exp
Expenditure on public and private institutions per student	educ_uoe_fini04
Learning mobility: Degree mobile graduates	JRC computation based on Eurostat / UIS / OECD data
Credit mobile graduates	educ_uoe_mobc02

11. Annex II: Structure of the education system



Source: European Commission/EACEA/Eurydice, 2017. *The Structure of the European Education Systems 2017/18: Schematic Diagrams*. Eurydice Facts and Figures. Luxembourg: Publications Office of the European Union.

Comments and questions on this report are welcome and can be sent by email to:
 Christèle DUVIEUSART
christele.duvieusart@ec.europa.eu
 or
EAC-UNITE-A2@ec.europa.eu

BULGARIA



1. Key indicators

		Bulgaria		EU average		
		2014	2017	2014	2017	
Education and training 2020 benchmarks						
Early leavers from education and training (age 18-24)		12.9%	12.7%	11.2%	10.6%	
Tertiary educational attainment (age 30-34)		30.9%	32.8%	37.9%	39.9%	
Early childhood education and care (from age 4 to starting age of compulsory primary education)		89.3% ¹³	86.5% ¹⁶	94.2% ¹³	95.3% ¹⁶	
Proportion of 15 year-olds underachieving in:	Reading	39.4% ¹²	41.5% ¹⁵	17.8% ¹²	19.7% ¹⁵	
	Maths	43.8% ¹²	42.1% ¹⁵	22.1% ¹²	22.2% ¹⁵	
	Science	36.9% ¹²	37.9% ¹⁵	16.6% ¹²	20.6% ¹⁵	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-8 (total)	65.4%	77.7%	76.0%	80.2%	
Adult participation in learning (age 25-64)	ISCED 0-8 (total)	2.1%	2.3%	10.8%	10.9%	
Learning mobility	Degree mobile graduates (ISCED 5-8)	:	7.4% ¹⁶	:	3.1% ¹⁶	
	Credit mobile graduates (ISCED 5-8)	:	1.5% ¹⁶	:	7.6% ¹⁶	
Other contextual indicators						
Education investment	Public expenditure on education as a percentage of GDP	4.1%	3.4% ¹⁶	4.9%	4.7% ¹⁶	
	Expenditure on public and private institutions per student in € PPS	ISCED 1-2	€2 379	€2 388 ¹⁵	€6 494 ^d	: ¹⁵
		ISCED 3-4	€2 477	€2 483 ¹⁵	€7 741 ^d	: ¹⁵
ISCED 5-8		€4 814	€5 050 ¹⁵	€11 187 ^d	: ¹⁵	
Early leavers from education and training (age 18-24)	Native-born	12.9%	12.8%	10.4%	9.6%	
	Foreign-born	:	:	20.2%	19.4%	
Tertiary educational attainment (age 30-34)	Native-born	30.9%	32.6%	38.6%	40.6%	
	Foreign-born	:	:	34.3%	36.3%	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-4	52.6%	61.0%	70.7%	74.1%	
	ISCED 5-8	74.5%	86.5%	80.5%	84.9%	

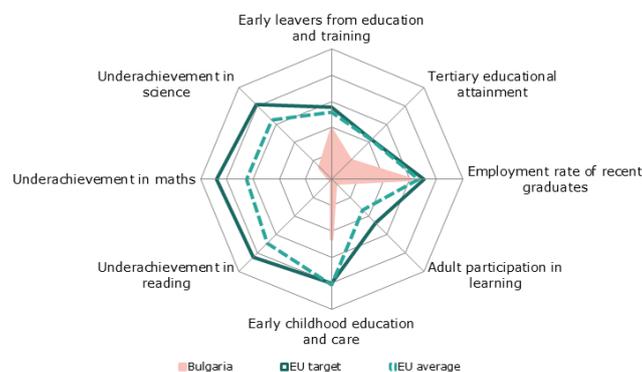
Sources: Eurostat (see section 10 for more details); OECD (PISA).

Notes: data refer to weighted EU averages, covering different numbers of Member States depending on the source; d = definition differs, 12 = 2012, 13 = 2013, 15 = 2015, 16 = 2016.

On credit graduate mobility, the EU average is calculated by DG EAC on the available countries; on degree graduate mobility, the EU average is calculated by JRC over Eurostat and OECD data.

Further information can be found in the relevant section of Volume 1 (ec.europa.eu/education/monitor).

Figure 1. Position in relation to strongest (outer ring) and weakest performers (centre)



Source: DG Education and Culture calculations, based on data from Eurostat (LFS 2017, UOE 2016) and OECD (PISA 2015). Note: all scores are set between a maximum (the strongest performers represented by the outer ring) and a minimum (the weakest performers represented by the centre of the figure).

2. Highlights

- Bulgaria is implementing reforms at all levels of education as this is a political priority. Although measures do not yet match the magnitude of the challenges, there is an increased focus on reducing early school leaving, increasing teacher salaries, introducing dual learning, improving digital skills and strengthening inclusive education.
- Bulgaria typically invests little in pre-primary and primary education, areas which are key for an equal start in life and for preventing income inequalities later in life. The funding model for schools was revised to allocate additional resources to disadvantaged schools.
- Bulgarian students' civic knowledge has increased. Recent measures seek to expand the provision of citizenship education.
- The challenge of Roma inclusion in education remains significant.
- The skills of graduates in higher education and vocational education and training insufficiently match the labour market needs. Participation in adult learning remains very low.

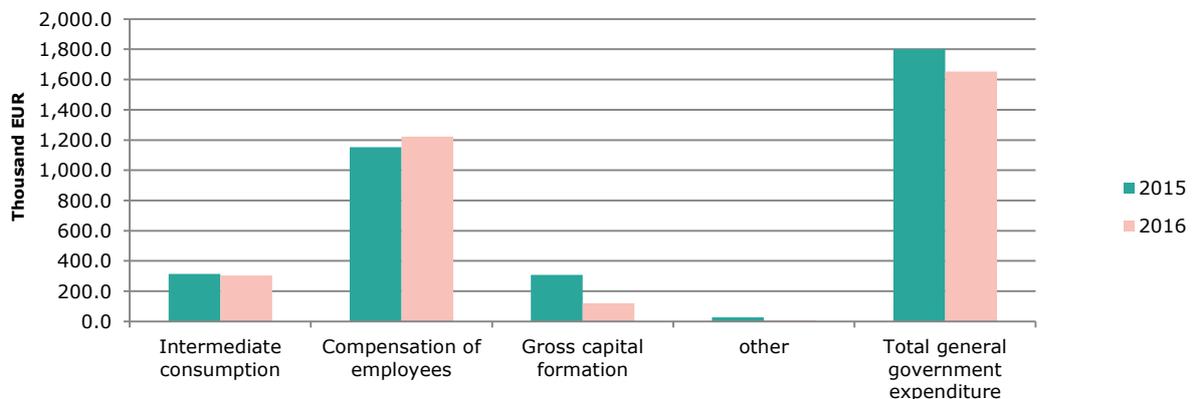
3. Investing in education and training

Spending on education was low in 2016 and impacted by the cycle of absorption of EU funds. In 2016 general government expenditure on education fell in real terms by 9.1 %, the steepest percentage decrease in the EU. As a result, spending on education dropped to 3.4 % of GDP from 4 % in 2015, significantly below the EU average of 4.7 %. Education as a share of total government spending remained at the same level of 9.8 %, below the EU average (10.2 %). These trends are explained by the sharp decrease in 'gross capital formation' (see Figure 2), which covers investment in educational infrastructure (e.g. buildings, computers, IT infrastructure). This was in part due to the closure of the EU's 2007-2013 multiannual financial framework in 2015 and the slow start of spending under the 2014-2020 programming period. This highlights the extent to which such spending in Bulgaria is dependent on EU funds. A commitment to double the salaries of teachers in pre-school and school education by 2021 (see Section 5) can be expected to drive major rises in the 'compensation of employees' category. The total cost for doubling teachers' wages over the period 2017-2021 is estimated at BGN 1.4 billion (EUR 715 million), equivalent to 1.4 % of Bulgaria's GDP in 2017 (IMF, 2018a).

Bulgaria typically invests little in pre-primary and primary education, areas which are key for an equal start in life. In 2016, spending on this level of education was equal to 0.7 % of Bulgaria's GDP, less than half the average of 1.5 % across the EU. It represented 23.1 % of total general government spending on education, compared to 31.7 % on average in the EU. Recent evidence shows that a large part of today's income inequalities in the EU are explained by inequalities of opportunity, which are, in turn, strongly associated with how much countries spend at pre-primary level (Checchi et al., 2015). Income inequalities in Bulgaria are among the biggest in the EU and the impact of parents' socio-economic status on students' educational attainment is strong. Evidence shows that the relationship between inequality and economic growth is largely negative through the negative impact that unequal opportunities have on human capital (WB, 2018). When measured as a percentage of GDP, Bulgaria's spending on secondary (1.7 %) and higher education (0.7 %) is more similar to the EU average (1.9 % and 0.7 %, respectively).

Bulgaria revised its funding model for school education to improve equity. Although the scope for making Bulgaria's public spending more efficient is wide, this is less the case for education, suggesting that more resources and better access to education could improve educational outcomes (IMF, 2018b). Since it introduced delegated budgets in 2007, Bulgaria has managed to improve the cost efficiency of its education spending (EC, 2017) by optimising the school network. However, the process did not cover higher education (see Section 6). In 2018, Bulgaria revised the school funding model to allocate more funding to disadvantaged schools, including those in rural areas, smaller schools and those with a concentration of disadvantaged students.

Figure 2. General government spending (COFOG) on education in Bulgaria



Source: DG EAC, based on Eurostat data and the Classification of the functions of government (COFOG). Online data code: gov_10a_exp.

4. Citizenship education

Bulgarian students' civic knowledge has increased. The International Civic and Citizenship Education Study (ICCS¹⁶) shows that in 2016 Bulgarian teenagers scored 485 points on average, 19 more than in 2009. However, this level is still below the average of 20 countries surveyed (517 points). 27 % of Bulgarian eighth graders have a very high level of civic knowledge (compared with the ICCS average of 35 %), while 22 % scored very low (ICCS: 13 %). Girls continue to outperform boys. Like other international surveys, ICCS confirms the strong impact of parents' socio-economic status on students' performance. In answering questions on values and attitudes, Bulgarian students showed less support for equal opportunities for women and men and for equal rights for ethnic minorities compared to the average among the 20 countries surveyed (MES, 2017). 84 % of teenagers in Bulgaria reported that they would vote in local elections in the near future, 79% would vote in national elections and 65 % in European elections. A higher than average proportion of Bulgarian students considers that working hard is important for good citizenship (53 % vs 42 %), but only 42 % consider that always respecting the law was very important (average: 59 %). The percentage of students who voted for class or school parliament was 56 % (survey average: 77 %).

Recent measures seek to provide more citizenship education. In Bulgaria citizenship education is integrated into social sciences in primary and secondary education (grades 3-7 and 11-12). It is also taught as a compulsory subject in upper secondary (grade 11-12) and as an optional subject in initial vocational education and training. 'Consumer rights and behaviour' is included in the curriculum (Eurydice, 2017). Bulgaria provides continuing professional development for school heads on citizenship education. The revised Education Act, in force since August 2016, extended the recommendations on student councils to primary schools and introduced the right of student representatives to participate, without voting rights, in school boards. Each year class teachers prepare students' personal profiles which include an assessment of their participation in out-of-school civic activities. There are plans to introduce European citizenship and knowledge of European institutions in citizenship education in upper secondary.

5. Modernising school education

Reducing early school leaving is a priority. In 2017 the percentage of early leavers from education and training among those aged 18-24 decreased for the first time since 2011. The rate was 12.7 %, 1.1 percentage points (pps) lower than in 2016. However, it remains above the EU average of 10.6 % and the national Europe 2020 target of 11 %. Early school leaving is particularly

¹⁶ In 2016, 14 EU Member States participated in ICCS: Belgium-Flanders, Bulgaria, Croatia, Denmark, Estonia, Finland, Germany (North Rhine-Westphalia), Italy, Latvia, Lithuania, Malta, the Netherlands, Slovenia and Sweden.

high in rural areas (27.9 %) and among Roma (67 %¹⁷, (FRA, 2016)). To tackle early school leaving Bulgaria has launched multidisciplinary teams (see Box 1) and is taking measures to support students to stay in school. Although not reflected automatically in the rate of early school leaving, data suggests that almost half of the students who dropped out of primary and lower secondary education in 2016/2017 have in fact emigrated, respectively one quarter of dropouts in upper secondary. However, the data collection and monitoring system is insufficiently developed.

Box 1: The multidisciplinary teams

In 2017 Bulgaria introduced a mechanism for interinstitutional cooperation to identify out-of-school children and return them to education. More than 1 100 multidisciplinary teams, comprising teachers, social workers, Roma mediators and other experts, were formed. They visited around 209 000 homes of children who had dropped out or never gone to school, emigrated or had changed school, but were not being tracked. Almost 22 000 children aged 5-18 were brought back to school.

For comparison, in 2016, 20 000 students from grades 1-12 abandoned school, of which more than 40 % are believed to have emigrated. Of the students re-enrolled, 1 200 (or 5 %) had dropped out by the end of the first school term, along with 4 500 other students not in the scheme. These figures point to the importance of complementing return-to-school efforts with retention measures. Legislation is being prepared to make the teams' mandate permanent.

Box 2: 'Your class'

'Your class' is a project financed by the European Social Fund to reduce school drop-out and improve school retention. The project is open to all schools, but funding is differentiated based on the concentration of students at risk of drop-out, including Roma, those from socio-economically disadvantaged backgrounds and those with special educational needs or health problems.

The project funds additional pedagogical support such as language training for students whose mother tongue is not Bulgarian and additional classes to overcome learning gaps. Extra-curricular activities aim to increase students' motivation. These include theatre classes, painting and photography workshops, robotics, coding clubs, civic education projects and health-related activities. 'Your class' supports parental involvement and school partnerships with NGOs and municipalities. Phase I of the project has a budget of EUR 54 million and is running between September 2016 and 2018. Phase II will run until 2022 at the latest.

The need to improve access to quality early childhood education and care is very important in Bulgaria, but remains a challenge. Participation in early childhood education and care (ECEC) by children aged between 4 and the compulsory school age (7) fell in 2016 to 86.5 % (-2.7 pps). This is significantly below the EU average (95.3 %) and the EU's 'Education and Training 2020' benchmark of 95 %. Enrolment rates are particularly low for children aged 4 (75.4 %). The rate is higher for 5 and 6 year-olds (89.4 % and 94.4 %, respectively), for whom pre-school attendance is compulsory. Authorities plan to extend the compulsory programme to age 4. Participation by Roma children in ECEC is particularly low at 66 % (FRA, 2016). Kindergarten fees are seen as the main barrier to attendance. Municipalities have the right to charge fees for care-related activities and the vast majority do so. Data available for 205 of Bulgaria's 264 municipalities (Amalipe, 2018) shows that only 9 % do not charge fees for the compulsory pre-school programme; only 5 % do not collect fees throughout the entire provision of kindergarten. Monthly fees range from EUR 5 to 35, with some municipalities charging reduced fees for the

¹⁷ The indicators used in the 2016 FRA survey closely resemble those applied in standard European surveys (EU-SILC, EU LFS) but full comparability was not intended. For more details see FRA 2016.

compulsory programme. For comparison, the level of the minimum guaranteed monthly income under social assistance is EUR 38 (BGN 75). A large-scale experiment in disadvantaged, mostly ethnically segregated communities showed that offering free access is the most cost-efficient strategy to get children to attend kindergarten (WB, 2017). Recent measures to invest in pre-primary education include the project 'Active inclusion in the pre-school education system' co-financed by the European Social Fund. The project was approved in 2018 and has a budget of EUR 41.2 million. Additional training for children whose mother tongue is not Bulgarian is also being provided.

Roma inclusion in education remains a major challenge. Roma are at a higher risk of dropping out of school and fewer Roma children go to kindergarten. Segregation in education remains a problem, with an estimated 60 % of Roma students (FRA, 2016) studying in educational settings where all or most other students are Roma. In many cases in rural areas this is due to demographics: there are few or no ethnic Bulgarian children and most schools in rural areas are attended only by ethnic Roma, Turkish or Muslim Bulgarians (Amalipe, 2018). In urban areas, this is linked to residential segregation or secondary school segregation — the 'white flight' phenomenon. Segregation into separate classes or buildings is prohibited by law, but monitoring and enforcement are faced with challenges. In addition, almost all Roma-majority schools were classified as 'most-troubled schools' (ibid.). Notwithstanding efforts to increase participation rates and reduce dropping out, significant challenges remain in promoting ethnically-mixed schools and desegregation measures.

There is an increased focus on teachers. Bulgaria has one of the fastest-ageing teaching staff in the EU. In 2016, 49 % of school teachers were aged over 50 and 30 % were 55+. This means Bulgaria will see about half of its teachers retiring in the next 10 years. To make the profession more attractive, in May 2017 the government committed to doubling teacher salaries by 2021. Last year salaries increased twice: by 10 % in January and by 15 % in September. An additional differentiated pay rise is expected in January 2019. Initial teacher education was recently strengthened with the introduction of courses on early identification of educational difficulties and an increase in the number of hours of practical training, but difficulties remain. Mentoring training has been prioritised in continuing professional development programmes for teachers. Since January 2018, teachers' costs for commuting and for accommodation in remote and mountainous areas are eligible for reimbursement.

Improving equity in education and educational outcomes remain key challenges. About 40 % of Bulgarian 15 year-olds (twice the EU average) do not have a minimum level of basic skills in science, reading or mathematics, according to the 2015 PISA survey. Only 54 % of Bulgarians aged 16-24 have a basic or above basic level of digital skills, well below the EU average of 81.9 %). Moreover, the impact of socio-economic background on students' performance is significant. Social segregation — measured as the clustering of disadvantaged students in lower-quality schools — is high in Bulgaria and has been shown to be a major driver of the skills divide (WB, 2018). A new school curriculum is being implemented and innovative teaching at school level is being supported. In information and communication technologies (ICT), the number of classes has been increased, training of teachers in digital skills prioritised and coding clubs funded by the European Social Fund (ESF). While welcome, recent measures do not yet match up to the magnitude of the challenges and the need to ensure that education becomes a force for higher skills and inclusive growth. In this context, the Council of the European Union addressed a country-specific recommendation to Bulgaria in 2018 calling on it to 'improve the provision of quality inclusive mainstream education, particularly for Roma and disadvantaged students' (Council of the European Union, 2018).

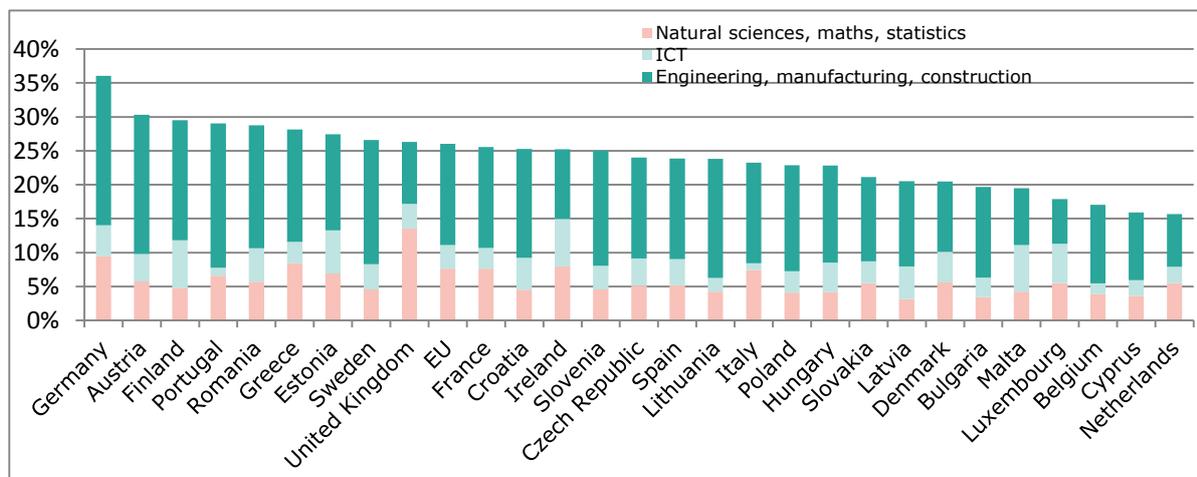
6. Modernising higher education

The skills of higher education graduates do not sufficiently match the needs of the jobs market. In 2017, tertiary educational attainment among Bulgarians aged 30-34 decreased slightly to 32.8 %, still well below the EU average (39.9 %) and the national Europe 2020 target of 36 %. The employment rate of recent tertiary graduates increased by 8 pps to 86.5 %, and is now above the EU average (84.9 %). However, skills shortages, particularly in the manufacturing, construction and digital sectors, and skills mismatches persist (EC, 2018a). Employers often identify knowledge and skills deficiencies, in particular related to the lack of soft skills among fresh graduates (Cedefop, 2018a). There are only 13.9 graduates in science, technology, engineering and

mathematics (STEM) for every 1 000 inhabitants in the 20-29 age group, well below the EU average of 19.1, and the proportion of students graduating in these subjects is rather low (see Figure 3). One in two students in Bulgaria graduates in social sciences, business administration or law, compared to one in three in the EU. Bulgaria is currently implementing a higher education reform focusing on STEM and performance-based funding: 60 % of funding is set to be performance-related by 2020. State-funded study places in certain professional fields, including economics, business administration and tourism, are being reduced or cut completely in universities with low rankings in these subjects under the Bulgaria University Ranking System (BURS).

The decline in student numbers is accelerating. From 2012 to 2017 the number of students in higher education declined by 17 %. This is due to a combination of demographic factors and a preference for studying abroad (in 2016 the number of Bulgarians studying abroad was the equivalent of 9 % of students at home, whereas the proportion of international students was only 3 %). These trends raise concerns over the efficiency of the fragmented network of higher education institutions, of which 37 are publicly funded and 14 are private. Bulgaria has one of the EU's highest numbers of public higher education institutions compared to its population (EC, 2018b). A 2018 independent experts' review of the Bulgarian research system (ibid)¹⁸ recommends radically reducing the system's fragmentation through mergers – it proposes a new landscape of 5-6 new research universities and 5-6 new entrepreneurial universities, while the remainder would focus on teaching. Through its European Semester country reports, the European Commission will follow the development and/or implementation of the recommendations of the independent review.

Figure 3. Distribution of tertiary graduates by STEM fields in 2016, as a proportion of total graduates



Source: DG EAC based on Eurostat data. Online data code: *educ_uae_grad02*.

7. Modernising vocational education and training

The quality and relevance of vocational education and training (VET) are still faced with challenges, but some steps have been taken to improve the situation. The employment rate of Bulgarian VET graduates is low: 59.1 % of recent graduates were in employment in 2017, well below the EU average of 76.6 %. A plan for the development of VET was approved following extensive consultations. All learning plans and programmes are being updated in cooperation with business representatives. Dual VET was introduced in Bulgaria in 2016, confirming apprenticeship as a form of practical training. Pilot projects are being implemented in cooperation with Switzerland, Germany and Austria. In 2017, a total of 1 742 students (1 % of students in vocational 'gymnasiums'¹⁹ were in dual VET programmes. The highest demand was for technicians

¹⁸ Requested by the Bulgarian authorities and financed by the European Commission.

¹⁹ Which provide third and second level of professional qualification.

for computerised numerical control machines, electronic engineering, transport equipment, electro, gas, wood-processing, and milk and dairy production. Roll-out of the dual education system is to be supported by the ESF. Performance-based funding will be introduced in VET to direct learners to vocational programmes, targeting professions that are in short supply on the labour market. Financial incentives will be offered to VET schools offering these professions.

8. Promoting adult learning

Participation in adult learning remains very low. Bulgaria has one of the lowest adult participation rates in learning in the EU (2.3 % in 2017 vs 10.9 % EU average), according to the EU Labour Force Survey (LFS). 26.5 % of employees participated in continuing vocational training, well below the EU average of 40.8 %, according to the Continuing Vocational Training Survey (CVTS) from 2015. Participation by adults in education and training was 24.6 % in 2016 (also well below the EU average of 45.1 %), according to the Adult Education Survey (AES). These differences can be explained by the narrow spectrum of adult learning activities captured by the LFS and the difference in reference periods (4 weeks compared to 1 year for AES and CVTS). Bulgaria's overall level of digital skills is among the lowest in the EU (31 % in 2017 vs 59 % EU average) and closely linked to socio-economic status. The Bulgarian Digital National Alliance²⁰ continues to carry out activities to increase digital skills among different segments of the population. With funding from the ESF and national funds, the National Employment Agency helps employed and unemployed people with at most secondary education to acquire a professional qualification and learn digital skills and foreign languages.

Several measures seek to increase the flexibility and responsiveness of the education and training system. The implementation of the National Qualifications Framework is being supported by the European Commission's Structural Reform Support Service (SRSS) with the aim of adjusting the national list of professions to the requirements of the economy. While anticipating and matching skills is at an early stage in Bulgaria, cooperation with the European Centre for the Development of Vocational Training (Cedefop) started in 2017 to create the model and tools to connect the supply of and demand for skills and qualifications. Initial findings (Cedefop, 2018a) show that while steps have been taken in the right direction, effective coordination mechanisms at national, regional and local level to help stakeholders find work are still missing. The link between skills forecasting and education is weak. The scope of current occasional foresight activities, usually carried out for specific occupations, needs to be broadened. In addition, the dependence on EU funding encourages a project-based approach. In parallel, the 2016 ESF project 'Development of National Competences Assessment System — My competence' is analysing the skills needs in 20 economic sectors. It aims to develop sectoral competence models, e-training programmes and modules to assess employees' training needs.

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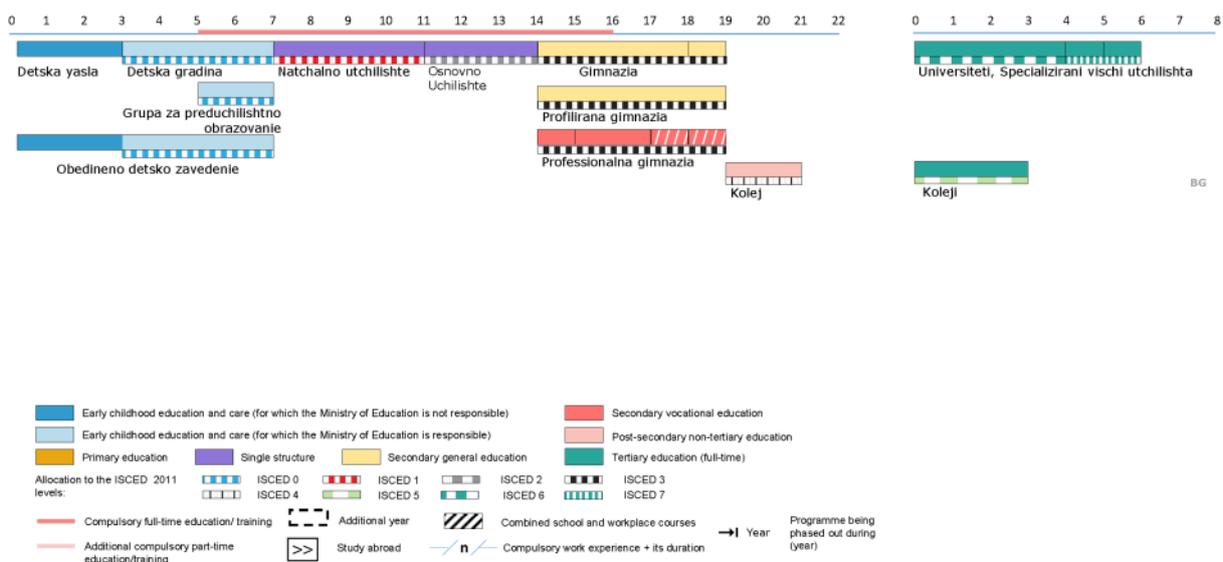
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Tertiary educational attainment	edat_lfse_03 + edat_lfs_9912
Early childhood education and care	educ_uae_enra10
Underachievement in reading, maths, science	OECD (PISA)
Employment rate of recent graduates	edat_lfse_24
Adult participation in learning	trng_lfse_03
Public expenditure on education as a percentage of GDP	gov_10a_exp
Expenditure on public and private institutions per student	educ_uae_fini04
Learning mobility: Degree mobile graduates	JRC computation based on Eurostat / UIS / OECD data
Credit mobile graduates	educ_uae_mobc02

11. Annex II: Structure of the education system



Source: European Commission/EACEA/Eurydice, 2017. *The Structure of the European Education Systems 2017/18: Schematic Diagrams*. Eurydice Facts and Figures. Luxembourg: Publications Office of the European Union.

Comments and questions on this report are welcome and can be sent by email to:
 Alexandra TAMASAN
Alexandra.TAMASAN@ec.europa.eu
 or
EAC-UNITE-A2@ec.europa.eu

CROATIA



1. Key indicators

		Croatia		EU average	
		2014	2017	2014	2017
Education and training 2020 benchmarks					
Early leavers from education and training (age 18-24)		2.8% ^u	3.1%	11.2%	10.6%
Tertiary educational attainment (age 30-34)		32.1%	28.7%	37.9%	39.9%
Early childhood education and care (from age 4 to starting age of compulsory primary education)		72.4% ¹³	75.1% ¹⁶	94.2% ¹³	95.3% ¹⁶
Proportion of 15 year-olds underachieving in:	Reading	18.7% ¹²	19.9% ¹⁵	17.8% ¹²	19.7% ¹⁵
	Maths	29.9% ¹²	32.0% ¹⁵	22.1% ¹²	22.2% ¹⁵
	Science	17.3% ¹²	24.6% ¹⁵	16.6% ¹²	20.6% ¹⁵
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-8 (total)	62.0%	65.9%	76.0%	80.2%
Adult participation in learning (age 25-64)	ISCED 0-8 (total)	2.8%	2.3%	10.8%	10.9%
Learning mobility	Degree mobile graduates (ISCED 5-8)	:	2.4% ¹⁶	:	3.1% ¹⁶
	Credit mobile graduates (ISCED 5-8)	:	4.4% ¹⁶	:	7.6% ¹⁶
Other contextual indicators					
	Public expenditure on education as a percentage of GDP	4.8%	4.8% ¹⁶	4.9%	4.7% ¹⁶
Education investment	Expenditure on public and private institutions per student in € PPS	ISCED 1-2	€3 496	:	€6 494 ^d
		ISCED 3-4	€3 342	:	€7 741 ^d
		ISCED 5-8	€7 999	:	€11 187 ^d
Early leavers from education and training (age 18-24)	Native-born	2.8% ^u	3.1% ^u	10.4%	9.6%
	Foreign-born	:	:	20.2%	19.4%
Tertiary educational attainment (age 30-34)	Native-born	33.3%	29.5%	38.6%	40.6%
	Foreign-born	19.6% ^u	21.5% ^u	34.3%	36.3%
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-4	47.3%	59.1%	70.7%	74.1%
	ISCED 5-8	72.2%	71.6%	80.5%	84.9%

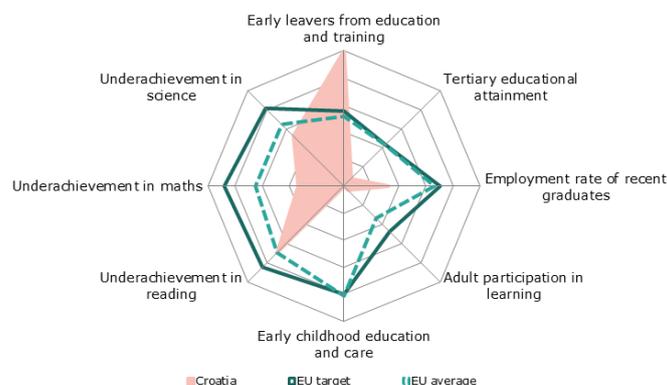
Sources: Eurostat (see section 10 for more details); OECD (PISA).

Notes: data refer to weighted EU averages, covering different numbers of Member States depending on the source; d = definition differs, u = unreliable, 12 = 2012, 13 = 2013, 15 = 2015, 16 = 2016.

On credit graduate mobility, the EU average is calculated by DG EAC on the available countries; on degree graduate mobility, the EU average is calculated by JRC over Eurostat and OECD data.

Further information can be found in the relevant section of Volume 1 (ec.europa.eu/education/monitor).

Figure 1. Position in relation to strongest (outer ring) and weakest performers (centre)



Source: DG Education and Culture calculations, based on data from Eurostat (LFS 2017, UOE 2016) and OECD (PISA 2015). Note: all scores are set between a maximum (the strongest performers represented by the outer ring) and a minimum (the weakest performers represented by the centre of the figure).

2. Highlights

- Ambitious reforms in education and training have been launched, after a period when progress was stalled by political disagreement.
- Curricular reform has been introduced as a pilot project in 2018/2019 to address concerns about the quality and relevance of primary and secondary education.
- Despite the low level of time devoted to civic education and teacher preparation, Croatia's pupils show a solid level of civic competences.
- New legislation on vocational education and training is paving the way for reforms in a sector whose relevance to the labour market and whose quality has been challenged.
- Participation in early childhood education and care remains a significant challenge, but a comprehensive new study lays out evidence to support reforms.
- Amid challenges in tertiary education efficiency, Croatia reports a significant jump in equity of access for disadvantaged students.

3. Investing in education and training

Croatia's spending on education and training remains at the EU average, with a strong focus on primary and tertiary education. The percentage of GDP spent on education and training in 2016 increased slightly by 0.1 percentage points to 4.8 % (EU average 4.7 %) and stands just above the pre-crisis high in 2008²¹. This level of investment was not, however, reflected in the annual expenditure on educational institutions per pupil or student. In 2014, Croatia invested among the smallest amounts in the EU, at purchasing power standard, into pre-tertiary education. The investment was fourth-lowest at ISCED levels 1 and 2, and third-lowest at levels 3-4 (the respective figures were 3 496 and 3 342 in Croatia, compared to the EU average of 6 494 and 7 741²²).

Education spending other than salaries has not yet returned to pre-crisis levels. As Croatia adjusted to the 2009 financial crisis, cuts to the education budget primarily targeted investments, equipment and infrastructure. As a result, the proportion of funding for teacher salaries rose from 63.4 % to 72.35 % between 2010 and 2016²³ (Figure 2). Yet, gross salaries across the education sector have only increased mildly in real terms between 2010 and 2017 (by 2.75 %²⁴). The immediate challenge is to restore spending on items that are important for the quality of education while also addressing the attractiveness of the teaching profession²⁵.

²¹ Eurostat. Online data codes: gov_10a_exp, nama_10_gdp.

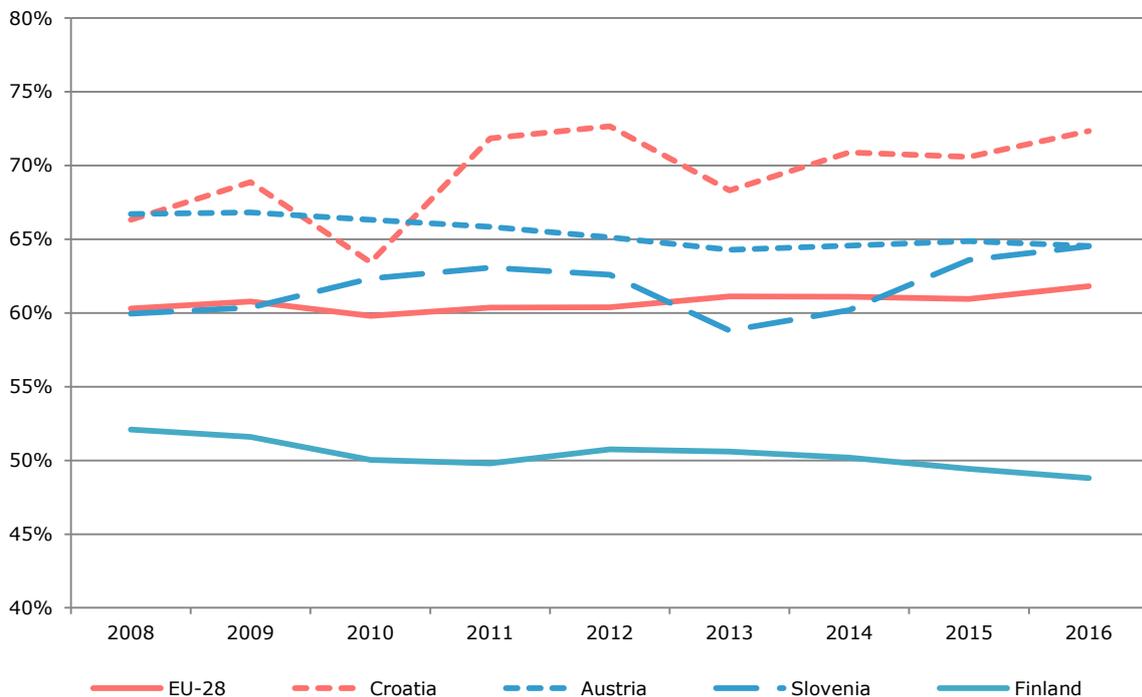
²² Eurostat. Online data code: educ_uoe_fini04. The definition of EU data differs.

²³ Eurostat. Online data code: gov_10a_exp. Additionally, teachers in Croatia at ISCED levels 1-3 do not receive a higher salary than teachers in neighbouring countries (EURYDICE 2016).

²⁴ Salary data: Croatian Bureau of Statistics. Consumer price index data: Eurostat, online data code prc_hicp_aind.

²⁵ In the 2013 Teaching and Learning International Survey (TALIS, OECD 2014), only 9.6 % of Croatian teachers thought that the teaching profession was valued in society, among the lowest in the survey (the average was 30.9 %)

Figure 2. Teacher salaries as a % of general government expenditure on education and training, 2008-2016



Source: Eurostat. Online data code: [gov_10a_exp](#).

There is potentially room to increase the efficiency of Croatia's spending on education and training, but a lack of capacity and tradition of evidence-based policy making affects reforms. Evidence suggests that Croatia could make more efficient investments in education and training: it ranks among the three EU Member States with the highest number of tertiary education institutions per citizen (European Commission/EACEA/Eurydice, 2018); and it has around 25 % fewer pupils per teacher than the EU average (11.0 HR vs 13.9 EU) and a declining pupil population²⁶. Yet, decisions on teaching staff need to take into account Croatia's numerous mountain and island municipalities which are facing problems attracting teachers. They would similarly need to consider recent emigration rates²⁷ which are affecting regional teaching workforce needs²⁸. While Croatia has been developing a growing evidence base²⁹, comprehensive studies bringing together different evidence streams — such as the recent early childhood education and care (ECEC) study outlined below (Dobrotic, Matkovic, Menger, 2018) — are rare.

Croatia has begun implementing some of the reforms of its strategy on education, research and technology. The Ministry of Education launched some of the reforms outlined in the strategy and its linked documents, such as the curricular reform, vocational education and training (VET) reform, higher education funding agreements and some aspects of the Croatian Qualifications Framework. However, the strategy's full implementation has been the subject of political disagreements, and the government has yet to adopt the national action plan for the specific activities.

²⁶ Eurostat. Online data code: [educ_uoe_perp04](#).

²⁷ Croatian Bureau of Statistics (CBS), Migration of population of Republic of Croatia 2016.

²⁸ The wide differences in emigration rates between regions further complicate decisions in this area.

²⁹ The 2018 studies include, among others, the Eurostudent report, register- and survey-based graduate tracking and the NEET tracking.

4. Citizenship education

Croatian pupils demonstrate an above-average knowledge of civic competences. In the part of the IEA study examining students' civic knowledge, 40 % of Croatian students reached level B, above the average of the countries taking part in the study. Nevertheless, in areas such as community volunteering or campaigning for a goal, Croatian pupils scored below the ICCS average. Furthermore, students from Croatia showed a lower level of trust in public institutions, the government, parliament and political parties and the media in comparison to other countries (IEA, 2017, Table 4.13). This lack of trust increased as citizenship knowledge increased (JRC, 2018).

The level of time devoted to civic education is low and teacher preparation is weak. Croatia delivers citizenship education primarily as a compulsory cross-curricular theme, with the addition at the secondary level of a one-year compulsory separate subject. Croatia and Portugal provide the fewest hours of citizenship education – either as compulsory separate subjects or integrated into other compulsory subjects – in the EU (Eurydice, 2017). As in most other EU countries, there are no specialist or semi-specialist teachers of citizenship education, and in addition there are no national regulations on the pedagogical competences in initial teacher education (ibid.). Croatian teachers also have significantly fewer opportunities to participate in citizenship education trainings, either in initial or ongoing training, as measured in the 2016 International Civic and Citizenship Education Study³⁰ (ICCS) (IEA, 2017, table 2.11).

Expanding citizenship education in Croatia depends on municipal-level initiatives. In 2017, the city of Rijeka experimented with introducing civic education in primary schools as an extra-curricular activity. Following a positive external evaluation, the experimental implementation expanded to 11 other municipalities and now includes the third- and fourth-largest cities in the country.

5. Modernising school education

Croatian schools have a high student completion rate, and reforms have been launched to address challenges in other areas. Croatia remains the EU leader in preventing early leaving from education and training, with a rate of 3.1 % leavers in the 18-24 age group compared to the EU level of 10.6 %³¹. Croatian pupils, however, score below-average in international competence surveys such as the OECD's Programme for International Skills Assessment (PISA) survey, which points to a need to reconsider the quality of the education provided. Croatia has initiated a number of reforms to improve quality. In addition to the curricular reform (see box 1), a proposed reform of the general education law plans several changes. While stopping short of licensing principals, which had been envisioned in the education strategy, anyone applying for the position will be obliged, if the law is adopted, to propose a work programme as supporting documentation. The law also proposes that teachers working on EU-funded projects be rewarded with a 30 % increase in their salary. Separately, the Ministry proposed an updated ordinance on teachers' advancement and reward, which has not been revised in over a decade. This may help increase the prestige of the teaching profession in Croatia, assessed as low by 63.9 % of pupils in a recent survey supported by the European Social Fund (IDIZ 2018).

Building on the success of the e-Schools project, Croatia moves to introduce mandatory computer courses in primary and general secondary schools. The e-Schools project to increase the digital maturity of 15 % of Croatian schools, supported by the European Social Fund (ESF) and the European Regional Development Fund (ERDF), was voted among the world's top 12 ICT education projects in a UNESCO contest. Building on the project's success and a general public interest in improving digital skills, the Ministry of Education published in February 2018 the decision to introduce IT in primary and general secondary schools starting in 2018/2019. VET schools rollout is expected in the next phase of the reform.

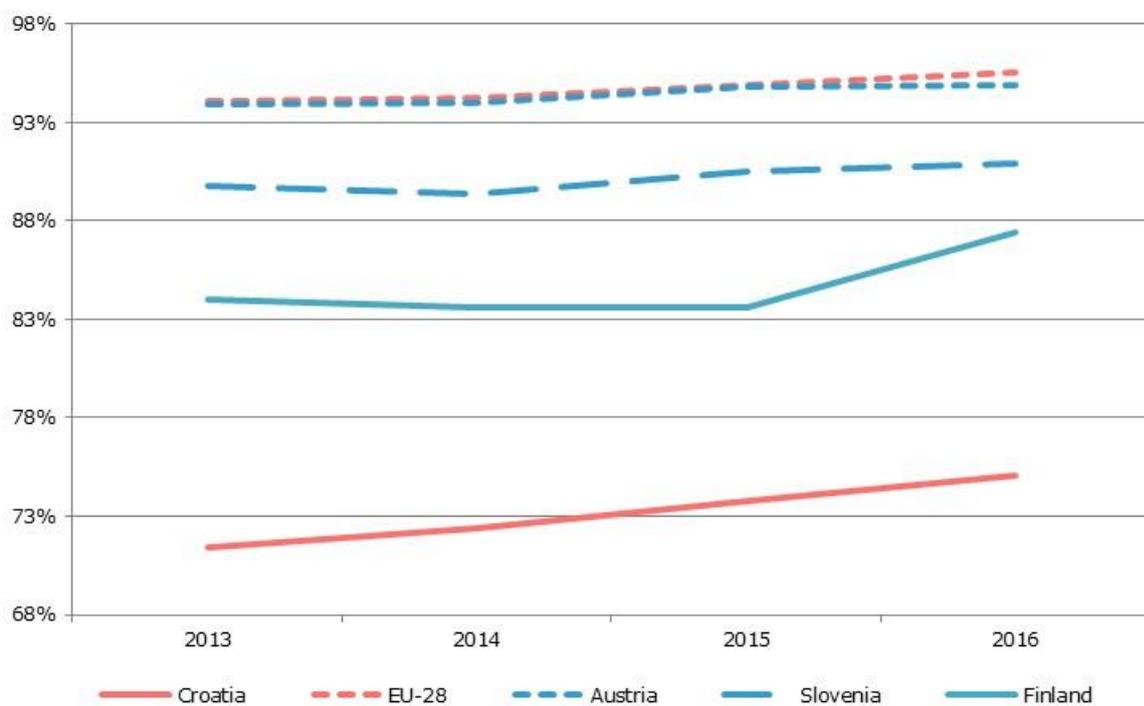
Croatia is facing significant difficulties in increasing ECEC participation, primarily due to the funding model. At 75.1 %, Croatia has the lowest rate of ECEC participation in the EU,

³⁰ ICCS investigates the ways in which young people are prepared to undertake their roles as citizens. 14 EU Member States participated in ICCS: Belgium-Flanders, Bulgaria, Croatia, Denmark, Estonia, Finland, Germany (North Rhine-Westphalia), Italy, Latvia, Lithuania, Malta, the Netherlands, Slovenia and Sweden.

³¹ Eurostat. Online data code: edat_lfse_14.

compared to the average rate of 95.3 % in the EU in 2016³² (Figure 3). This leaves a substantial number of children in Croatia, mostly in poorer regions³³ (Dobrotic, Matkovic, Menger, 2018), at risk of lower performance later in their schooling³⁴. The primary barrier to wider coverage is the decentralisation of 99 % of ECEC costs to the municipalities. This policy — only found in two other Member States for children ages 4-6 (Poland and Denmark, Eurydice, 2014³⁵), has created a strong tie between regional budgets and ECEC participation. Given significant differences in regional development — the GDP per capita of Brod-Posavina county is only 32 % of that of the City of Zagreb — higher participation is unlikely without targeted support to fiscally poorer regions. To improve quality, access and infrastructure, Croatia has earmarked investments worth EUR 40 million from the ESF, EUR 70 million from the European Agricultural Fund for Rural Development and a further EUR 9 million from the national funds. Nevertheless, in the absence of a review of the ECEC funding model, and given the trends since 2009, Croatia is likely to remain below the 95 % Education and Training 2020 benchmark.

Figure 3. ECEC participation from 4 years of age to the start of compulsory education 2013-2016 (%)



Source: Eurostat. Online data code: *educ_uoe_enra10*.

Box 1: School for Life initiative kicks off the curricular reform with a pilot year in 2018/2019

After a period of uncertainty in 2016 and 2017, the experimental implementation of the curricular reform was formally launched in March 2018 with the selection of 74 pilot implementation schools (around 6 % of all schools in Croatia). Despite criticism from some stakeholders, the reform helps to address the country-specific recommendation to *'deliver on the reform of the education and training system to improve its quality and labour market relevance*

³² Eurostat. Online data code: *educ_uoe_enra10*.

³³ Only 22 % of children in Brod-Posavina county participated in ECEC in 2014.

³⁴ The OECD (2016) found that pupils who had not attended pre-primary education had three times the chance of being low performers in PISA than those who did attend for more than one year.

³⁵ The report uses data from 2012/2013, but remains relevant for Croatia, which has not undertaken ECEC funding reforms since then.

for both young people and adults', issued to Croatia in 2018 (Council of the European Union, 2018).

During the pilot period, Croatia will invest around EUR 25 million in school equipment upgrades, part of which will come from EU funds, and the reform rollout will include new textbooks to be delivered in both paper and digital format. The pilot reform is supported by the European Commission's Structural Reform Support Service, bringing together experts from across Europe to train the trainers and facilitate the introduction phase.

The new curricula, developed in a comprehensive drafting and assessment process, adopt the learning outcomes approach, which shifts the classroom focus to the pupils' experience. The rollout will be staggered so that the pilot covers grades one, five and seven (covering Biology, Chemistry and Physics) of primary school and the first grade of secondary school.

The pilot will include:

- Curricula and pupil assessment based on the learning outcomes approach
- Teacher training for new curricula and teaching and assessment methods
- Training of school principals
- Framework for teaching pupils with disabilities
- Framework for teaching gifted pupils
- Introduction of cross-subject teaching of key competences.

6. Modernising higher education

While there has been success in increasing equity in tertiary education, attainment rates continue to decline, likely as a result of emigration of recent graduates. The proportion of people in Croatia ages 30-34 with tertiary education declined for a third year in a row and stood at 28.7 % in 2017 (EU average 39.9 %). An analysis of graduation rates in the relevant age cohorts³⁶ together with the relevant migration rates suggests that the decline is likely influenced by increasing rates of emigration³⁷. In terms of equity, access to tertiary education for students with lower socio-economic status appears to be improving, with an increase of 8 percentage points between 2010 and 2016³⁸, among the highest of the countries taking part in the Eurostudent VI survey (Hauschildt, Vögtle, Gwosc, 2018). This could in part be the result of series of reforms, started in 2010, which covered tuition fees, food subsidies, student financial support and accommodation.

Croatia's system of admission into tertiary education is leading to labour market issues and inefficiencies. Universities in Croatia are autonomous in determining their enrolment quotas and academic programmes, with the role of national authorities limited to setting rules covering tuition fee subsidies (EUA, 2017). This lowers the labour market relevance of tertiary education, including in the areas of strategic importance. For example, to meet the existing labour market needs for ECEC teachers, Croatia would need to double the admission quotas in corresponding programmes (Dobrotic, Matkovic, Menger, 2018). The actual increase of just 12 % between 2009 and 2017 (ibid.) therefore creates the risk of a shortage, limiting Croatia's ability to meet its ECEC quality and participation ambitions. At the same time, programmes with weak labour market prospects, as defined by the Croatian Employment Service, have seen only small changes in admissions numbers³⁹. Croatia has been trying to encourage enrolment in priority subjects through performance funding agreements, but the impact on admissions numbers has been limited. The introduction of Science, Technology, Engineering and Mathematics (STEM) scholarships supported by the ESF aims to create an incentive for students. But without a review of the current admissions

³⁶ On average, it takes an estimated 3.5 to 5 years to finish a first cycle tertiary education degree in Croatia, which implies a graduation age of 22-24 years. To analyse the education makeup of people ages 30-34, the relevant graduation years are therefore 2009-2011.

³⁷ It is worth noting that no data exists on the education profile of people ages 30-34 who are part of outgoing migration.

³⁸ From 50 % to 58 %.

³⁹ The Croatian Employment Service (CES) has been issuing annual guidelines on the need for qualification profiles. Reductions have been recommended for programmes in economics and business administration (CES 2012-2018), yet the number of first-year enrolments in these programmes remained the same, relative to the total number of first-year students, between 2012 and 2016 (source: CBS).

policy, Croatia's ability to strategically guide the tertiary education skills landscape will remain limited.

Croatia is launching a new round of performance-based funding agreements. After two cycles of performance-based funding agreements with relatively limited impact and many lessons learned on both sides of the negotiation table, the national authorities and higher education institutions are aiming to strengthen the link between funding and the achievement of agreed objectives. For the first time, research funding is an integral part of the funding agreements.

Box 2: EU funds help increase equity in tertiary education

The improved access to higher education for students with low socio-economic status in Croatia, visible from the Eurostudent VI study, was supported in part by two actions from the ESF and the ERDF:

- The ERDF action Modernisation, improvement and expansion of accommodation infrastructure in higher education to improve access and completion for disadvantaged students aims to provide 2 270 additional students with improved access to dormitories by renovating or building 5 000 new beds across Croatia, thus helping to reduce the cost of student accommodation. The action supported improvements in 14 towns and cities in Croatia for a total amount of EUR 160 million.
- The ESF action Provision of scholarships to students from lower socio-economic background will grant 22 000 scholarships over 5 years with a total budget of EUR 36 million, of which 85 % is EU funds. The scholarships help students pay on average a third of their expenses in an academic year (Hauschildt, Vögtle, Gwosc, 2018).

The actions show how using evidence-based planning of policy interventions can be beneficial. When Croatia first joined the Eurostudent survey in 2008, it only had access to limited data on the socio-economic makeup of the student population. After the results pointed to insufficient levels of direct student support and high accommodation costs, Croatia was able to target the ESF and ERDF support for 2014-2020.

7. Modernising vocational education and training

Croatia is progressively implementing a comprehensive curricular reform in VET. The share of VET students at upper secondary level remained stable at 70 % in 2016, among the five highest in the EU. However, the employment rate of recent VET graduates decreased from 70.3 % in 2016 to 59.4 % in 2017, pointing to the urgency of modernising the sector. Amendments to Vocational Education and Training Act were adopted in March 2018 allowing the introduction, in July 2018, of the new national VET framework curriculum, the development of modular, outcome-based sectorial curricula and greater autonomy of VET schools in the design school-level curricula. Further, at the end of 2017, the Agency for Vocational Education and Training and Adult Education (AVETA) launched an ESF-funded project to develop sectorial curricula in VET and to better enable VET schools to introduce and implement new curricula. Particular focus is on work-based learning and the learning-outcomes approach and on updating and redesigning teaching materials.

Regional centres of competences in VET and a pilot of dual VET education complement VET reforms. In May 2018, Croatia adopted the national network of regional centres of competences in VET whose purpose is to designate, with ESF and ERDF support, places of excellence that will implement programmes of regular vocational education and training, lifelong learning and other forms of formal and informal education. In July 2018 25 VET schools were appointed to the Regional Centres of Competences in VET in the sectors / sub-sectors Tourism and Hospitality, Mechanical Engineering, Electrical Engineering and Computing, Agriculture and Health, the aim being to achieve a balance between regional presence and high levels of quality. In addition, the Ministry presented a model of Croatian dual education and experimental programme "Dual Education in VET" for 4 qualifications in June 2018. The programme is to be delivered in 11 VET schools in Croatia and address challenges with inadequate practical training and insufficient attention to entrepreneurial competences. It is based in part on cooperation between the Ministry

of Education and the Swiss Federal Institute for VET, the German-Croatian Industrial and Trade Chamber and the Austrian Embassy. VET graduate tracking is not covered by the VET Act, and data is collected by schools on a voluntary basis. The recent programme for the development of the VET system refers to the importance of tracking students after they finish secondary education. Through this programme, the Agency for VET plans to implement a tracking model as part of a wider project. A separate inter-institutional project aims to establish a system of monitoring persons not in employment, education or training.

8. Promoting adult learning

An upcoming law on adult education aims to address Croatia's persistent challenge in this field. The adoption of the new Adult Education Act in 2018 has the potential to address one of the lowest rates of adult participation in learning in the EU, which further dropped from 3 % in 2016 to 2.3 % in 2017. In 2015, according to the Continuing Vocational Training Survey, 55.4 % of Croatian companies (compared to an EU-28 average of 72.6 %) provided vocational training to their employees and 28.7 % of employees participated in this training (EU-28 average, 40.8 %). In 2015, the majority of Croatian enterprises indicated that team working skills and technical, practical and job-specific skills were the main skills needed to develop a business. The changes in the Adult Education Act include measures for self-assessment, external evaluation of adult education institutions and a professional licensing system for teaching staff. Implementation should help increase quality and access to education, provide support to upskill and reskill workers and ultimately lead to increased employment rates for vulnerable groups, in line with the objectives of the EU Council Recommendation on upskilling pathways. The new Act also envisages the development of adult education programmes in line with the Croatian Qualifications Framework Act. In 2016, 55 % of the population had at least basic digital skills, close to the EU average of 56 %.

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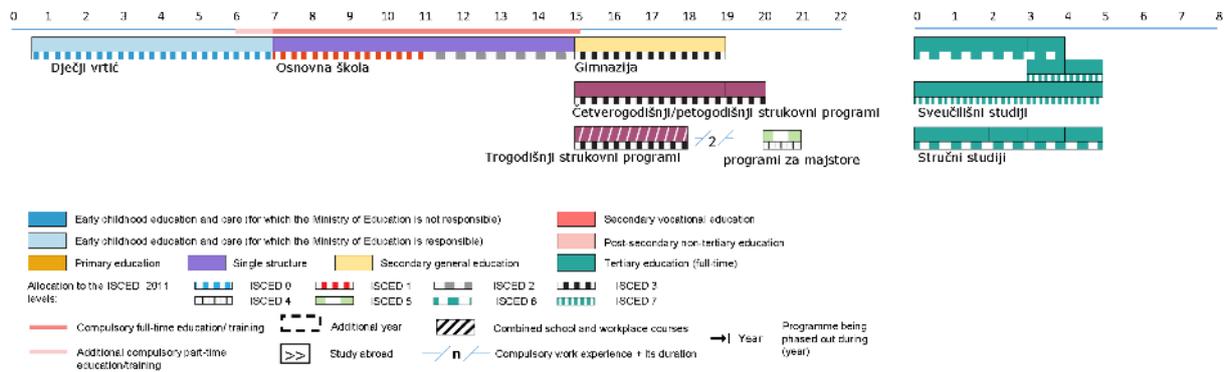
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10. Annex I: Key indicator sources

Indicator	Eurostat online data code
Early leavers from education and training	edat_lfse_14 + edat_lfse_02
Tertiary educational attainment	edat_lfse_03 + edat_lfs_9912
Early childhood education and care	educ_uoe_enra10
Underachievement in reading, maths, science	OECD (PISA)
Employment rate of recent graduates	edat_lfse_24
Adult participation in learning	trng_lfse_03
Public expenditure on education as a percentage of GDP	gov_10a_exp
Expenditure on public and private institutions per student	educ_uoe_fini04
Learning mobility: Degree mobile graduates	JRC computation based on Eurostat / UIS / OECD data
Credit mobile graduates	educ_uoe_mobc02

11. Annex II: Structure of the education system



Source: European Commission/EACEA/Eurydice, 2017. *The Structure of the European Education Systems 2017/18: Schematic Diagrams*. Eurydice Facts and Figures. Luxembourg: Publications Office of the European Union.

Comments and questions on this report are welcome and can be sent by email to:

EAC-UNITE-A2@ec.europa.eu

CYPRUS



1. Key indicators

		Cyprus		EU average		
		2014	2017	2014	2017	
Education and training 2020 benchmarks						
Early leavers from education and training (age 18-24)		6.8%	8.6%	11.2%	10.6%	
Tertiary educational attainment (age 30-34)		52.5%	55.8%	37.9%	39.9%	
Early childhood education and care (from age 4 to starting age of compulsory primary education)		82.6% ¹³	89.7% ¹⁶	94.2% ¹³	95.3% ¹⁶	
Proportion of 15 year-olds underachieving in:	Reading	32.8% ¹²	35.6% ¹⁵	17.8% ¹²	19.7% ¹⁵	
	Maths	42.0% ¹²	42.6% ¹⁵	22.1% ¹²	22.2% ¹⁵	
	Science	38.0% ¹²	42.1% ¹⁵	16.6% ¹²	20.6% ¹⁵	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-8 (total)	68.7%	71.5%	76.0%	80.2%	
Adult participation in learning (age 25-64)	ISCED 0-8 (total)	7.1%	6.9%	10.8%	10.9%	
Learning mobility	Degree mobile graduates (ISCED 5-8)	:	13.3% ¹⁶	:	3.1% ¹⁶	
	Credit mobile graduates (ISCED 5-8)	:	2.5% ¹⁶	:	7.6% ¹⁶	
Other contextual indicators						
Education investment	Public expenditure on education as a percentage of GDP	6.0%	6.0% ¹⁶	4.9%	4.7% ¹⁶	
	Expenditure on public and private institutions per student in € PPS	ISCED 1-2	€8 324	€8 868 ¹⁵	€6 494 ^d	: ¹⁵
		ISCED 3-4	€9 942	€10 749 ¹⁵	€7 741 ^d	: ¹⁵
		ISCED 5-8	€9 474	€9 731 ¹⁵	€11 187 ^d	: ¹⁵
Early leavers from education and training (age 18-24)	Native-born	4.6%	5.7%	10.4%	9.6%	
	Foreign-born	19.5%	18.1%	20.2%	19.4%	
Tertiary educational attainment (age 30-34)	Native-born	58.3%	64.3%	38.6%	40.6%	
	Foreign-born	39.4%	40.5%	34.3%	36.3%	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-4	54.6%	54.6%	70.7%	74.1%	
	ISCED 5-8	72.4%	75.2%	80.5%	84.9%	

Sources: Eurostat (see section 10 for more details); OECD (PISA).

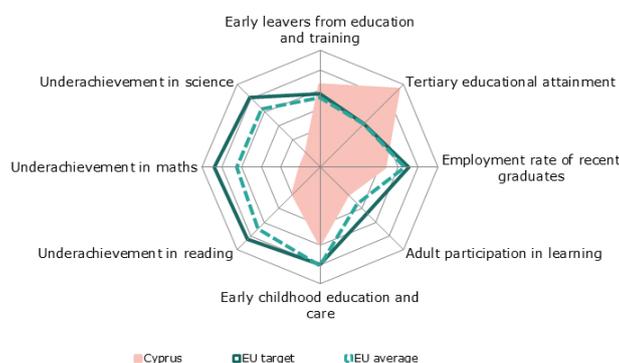
Notes: data refer to weighted EU averages, covering different numbers of Member States depending on the source;

d = definition differs, 12 = 2012, 13 = 2013, 15 = 2015, 16 = 2016.

On credit graduate mobility, the EU average is calculated by DG EAC on the available countries; on degree graduate mobility, the EU average is calculated by JRC over Eurostat and OECD data.

Further information can be found in the relevant section of Volume 1 (ec.europa.eu/education/monitor).

Figure 1. Position in relation to strongest (outer ring) and weakest performers (centre)



Source: DG Education and Culture calculations, based on data from Eurostat (LFS 2017, UOE 2016) and OECD (PISA 2015). Note: all scores are set between a maximum (the strongest performers represented by the outer ring) and a minimum (the weakest performers represented by the centre of the figure).

2. Highlights

- Public spending on education remains high, but the low effectiveness and efficiency of the education system continue to be a major challenge.
- Citizenship education is integrated in general education and also present in digital education. The modernisation of school education has progressed further on teacher appointments, implementation of new curricula and school regulations and continuing professional development.
- Tertiary attainment is very high overall, but overqualification remains an issue and graduates in science, technology, engineering and mathematics (STEM) are underrepresented.
- Vocational education and training (VET) was strengthened, yet participation levels and VET graduate employability remain low.
- Efforts were made to improve adult learning, but the very low share of low-skilled participants remains a concern, especially given the shrinking and ageing population.

3. Investing in education and training

Public spending on education remains high. At 6 % of GDP in 2016, public spending on education remains well above the EU average of 4.7 %. Measured as a share of total government expenditure, Cyprus spent 15.6 % on education in 2016, more than any other EU country. Change in real terms was 2.7 percentage points up from 2015. As with most countries, teachers' salaries (73 %) are the biggest expenditure. Cyprus has an education system with low effectiveness, since spending is high but educational outcomes (i.e. the knowledge, skills and abilities students attain as measured by the OECD Programme for International Student Assessment (PISA), are low. The resulting low spending efficiency (Agasisti et al, 2016) could be improved. Better educational outcomes will benefit society at large given the positive effect of education on growth, productivity and income equality (OECD, 2016).

4. Citizenship education

Citizenship is taught across several subjects. The separate 'civics' subject at upper secondary level was replaced in 2017/2018 by a cross-subject approach applied mainly in history and Greek lessons. Other subjects integrating citizenship education at both primary and secondary level include social sciences, ethics/religious education, health education, physical education and STEM (European Commission, 2018a). In addition, schools can join in various programmes programs that promote lifelong civic participation (e.g. UNESCO schools, Young Volunteers, MEDIMUN). The Cyprus Pedagogical Institute provides tailored training to teachers in citizenship education, covering areas such as racism prevention, stereotypes, empathy and practices for teaching controversial issues (European Commission, 2018b).

Citizenship education is a point of focus in digital education. As part of the national digital strategy, each year 15-20 schools participate in a number of programmes with a specific citizenship focus. For example: (i) the EU-funded 'EduWeb-programme' where children educate digitally illiterate adults on safe and creative internet use; (ii) 'eSafe Schools' which helps schools develop strategies for safe and creative internet use; and (iii) 'Young Coaches for the Internet' which trains students to develop and apply an annual action plan and educate their peers on creative and safe internet use (NRP, 2018).

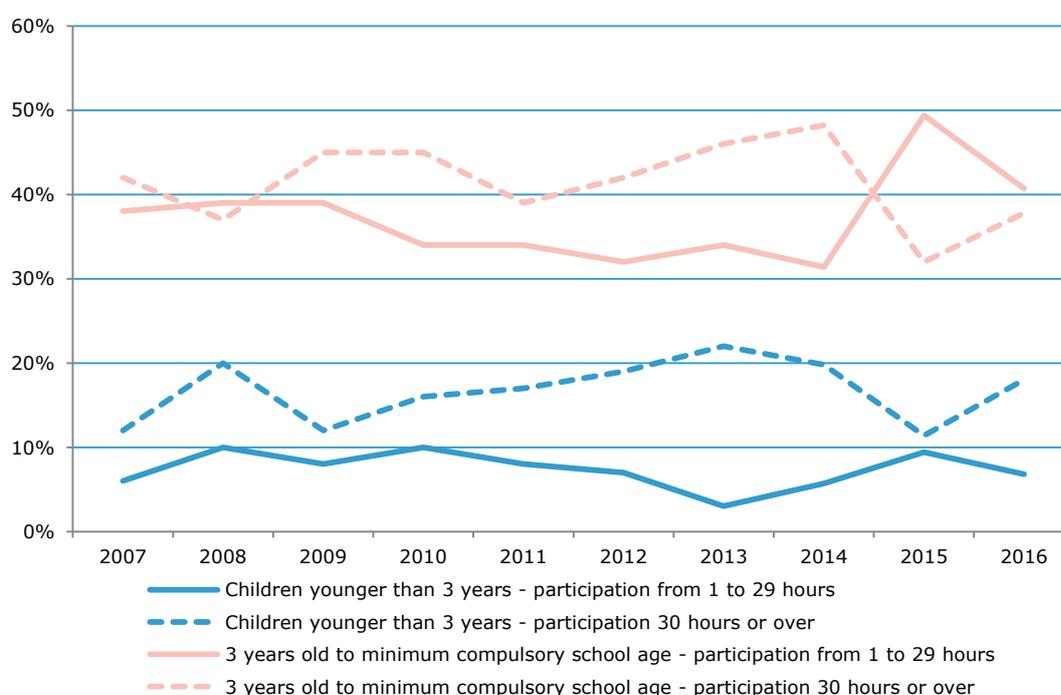
5. Modernising school education

Early school leaving (ESL) rose in 2017. At 8.6 %, the share of early leavers from education and training aged 18-24 went up by 1 percentage point between 2016 and 2017. However,

national data show that actual dropout rates remained low at 0.3 % in lower secondary and 0.2 %⁴⁰ in upper secondary education (Government of Cyprus, 2018). Despite the increase, Cyprus remains below the EU average (10.6 %) and the Europe 2020 national target of 10 %. The gender gap narrowed considerably, with ESL among boys decreasing by 2 percentage points to 9.4 %, while among girls it increased from a very low base of 4.3 % in 2016 to 7.8 % in 2017. The ESL share of foreign-born students remained stable at 18.1 % in 2017, while for native-born students it increased to 5.7 % from 4.6 % in 2016. Considering the booming tourism sector, causes such as the increased take up of seasonal work (European Commission, 2014) need to be explored.

Participation in early childhood education and care (ECEC) is stable. At 89.7 % in 2016, participation of 4-6 year-olds in ECEC is unchanged from 2015. In contrast, more children under 3 years-old were in formal childcare in 2016 than in 2015 (24.8 % vs 20.8 %). However, this is still far below the EU average of 32.9 % for this age group. For many years, the transition from ECEC to primary education has been challenging. To reduce the gap between the two education levels, the Ministry of Education and Culture⁴¹ has started to upgrade the pre-school curriculum using success and adequacy indicators. Exchange visits between public pre-primary and primary education schools continued and further expanded in the 2017-2018 school year.

Figure 2. Children in formal childcare or education



Source: Eurostat, EU-SILC survey. Online data code: ilc_caindformal.

The entry ages for ECEC and primary education are set to increase. As of the 2020/2021 school year, the entry age into primary education will be gradually raised from 5 years 8 months to 6 years. The Ministry of Education considers older children to be better prepared for school emotionally and therefore expects the measure to improve school success in the long term. The compulsory ECEC admission age remains at 4 years and 8 months, therefore extending the period of compulsory pre-primary education.

The share of teachers aged 50+ has been constantly growing. The ratio increased from 29 % in 2013 to almost 40 % in 2016 at ISCED level 3, mainly due to the increased retirement age

⁴⁰ 2016 data.

⁴¹ Henceforth the Ministry of Education.

of teachers from 60 to 65 years old. One aim of the reform of the teacher appointment system is to lower the age of first-time teachers by basing entry into the profession primarily on merit as opposed to waiting time.

The rollout of the new teacher appointment system has begun but progress in teacher evaluation is slow. Following the first entry exams in November 2017, the pool of successful candidates is large enough to fill positions planned for the next 2 years. The authorities considered the comparatively low overall success rate as proof of the credibility of the process, while disappointed candidates and other stakeholders expressed the opposite view. Of the 5 020 exam participants only 1 869 succeeded. The lowest success rate (6.9 %) was in the Greek language specialisation. No policy measures were taken to reform teacher evaluation⁴²; stakeholder discussions — including with teachers' unions have yet to commence.

Steps have been taken for more school autonomy. From the 2017/2018 school year, all schools are asked to develop action plans based on their specific needs and the strategic goals laid down by the Ministry of Education. An online tool was developed for this purpose. However, there is currently no adequate monitoring or support system to strengthen implementation. Overall, school autonomy remains limited, as school principals have no discretion over budgetary issues or appointment of teachers, both of which are organised centrally (World Bank, 2014).

Continuing professional development for teachers has become school-based. In line with the individual school action plans, continuing professional development for teachers has become school-centred rather than provided by general conferences, summits or centralised training as previously (Hatzitheodoulou, 2017). After piloting the new 'professional learning' framework in 2015/2016, this new approach has gradually extended to all schools. In addition, teachers of all levels can benefit from various other forms of professional learning (school based or central) throughout the year.

Digital skills are improving but STEM graduates remain rare. Half of the population reported to have at least basic digital skills vs 43 % in 2016. However, Cyprus' share of STEM graduates (9.8 %⁴³) remains the lowest in the EU (European Commission, 2018c). To boost digital skills, the National Coalition for Digital Jobs has introduced cost-free digital certification for students and school competitions in fields such as coding and robotics. Furthermore, computer science is taught in all-day primary schools and secondary schools.

Cyprus is reforming special needs education to make the education system more inclusive. In 2014/2015, 5 559 students, i.e. around 7 % of all primary and secondary students, were officially recognised as requiring special needs education⁴⁴. Most were integrated in the general classes of mainstream schools, 583 were schooled in separate classes within mainstream schools and another 373, i.e. those with severe physical, mental or emotional needs, were placed in special needs schools. Despite most children with special needs being schooled in mainstream education, in its 2017 report the UN Committee on the Rights of Persons with Disabilities criticised the 'absence of a clear and implemented concept of inclusive education in mainstream schools in national legislation' (UN, 2017). According to the UN, segregated approaches remain common in teachers' and other professionals' attitudes. To address the problem, Cyprus is currently reviewing its policy.

Box 1: Schooling of recently arrived migrant children

The number of migrants and in particular asylum-seekers in Cyprus has grown sharply in recent years. From 2002 to 2017, 59 099 asylum applications were received, of which 8 968 asylum-seekers were granted protection (UNHCR, 2017b). Asylum applications increased by 36 % between 2015 and 2016. 221 unaccompanied minors, coming from Syria, Somalia, the Democratic Republic of the Congo and other countries, applied for asylum in 2016 and another

⁴² In 2017 Cyprus received a country-specific recommendation to 'Complete the reform of the education and training system, including teacher evaluation and actions to increase the capacity of vocational education and training.' (Council of the European Union, 2018).

⁴³ Per 1 000 individuals aged 20-29

⁴⁴ According to 2014/2015 data from the European Agency for Special Needs and Inclusive Education (EASIE).

109 in 2017. The country's only accommodation and reception centre in Kofinou has a capacity of 400 people.

According to the Refugee Law of Cyprus of 2000, asylum-seeking children's school enrolment should start no later than 3 months from the date of their asylum application. In 2016, an action plan based on recommendations by the EU's SIRIUS network for the education of children with a migrant background, was developed to coordinate individual actions by schools and create a single educational policy on integrating migrant (including refugee) children.

Five priorities guide actions and programs in this field:

1. learning the Greek language
2. reception of newly arrived children with a migrant background
3. teacher education and continuing professional development
4. collection and analysis of data on the needs of pupils with migrant background
5. intercultural approach through the new curricula.

Most refugee children follow general education. Support for their educational integration has come in particular from the DRASE programme (Actions for School and Social Integration), which supports disadvantaged students at all education levels.

However, difficulties remain. A recent study by the University of Nicosia on living conditions of asylum seekers in Cyprus reports that participation in and effectiveness of refugee education is limited so far. According to the report, the state's role in enrolment of refugee children has not been clarified. In addition, in secondary education the language barrier prevents refugee children from being active participants in class. Therefore, challenges to be tackled include enforcing school access and attendance including for children aged 16+, language learning, cooperation between schools and the local community and conflict resolution (University of Nicosia, 2018).

Assessing educational level and matching needs with offers can be problematic (UNHCR, 2017a). In addition, there is a need to ensure continuity of migrant-specific competences in schools when teachers leave⁴⁵ and to appoint teachers with intercultural competences.

6. Modernising higher education

Higher education (HE) attendance further increased but many graduates struggle to find adequate jobs. Tertiary educational attainment has risen by 2.4 pps since 2016 to reach 55.8 % — a record high. Cyprus is far above the EU average (39.9 %) and second only to Lithuania. At 40.5 %, foreign-born students are notably less likely to obtain tertiary degrees than native-born students (64.3 %). While still below the EU average of 84.9 %, at 75.2 % in 2017 the employment level of recent HE graduates is still markedly higher than that of people with lower qualifications (ISCED 3-4: 54.6 %). However, a very high proportion (41.2 %⁴⁶) of HE graduates work in jobs that require lower skills (Cedefop, 2018).

The high number of social science graduates and comparatively few STEM graduates creates an imbalance. One third (33 %) of bachelor's students graduate with a degree in business, administration and law. This is higher than any other field of study in Cyprus⁴⁷ and the highest in the EU. The majority of bachelor's graduates continue to master's level, thus contributing to a participation rate at that level of almost 35 % of all enrolled students⁴⁸ (European Commission 2018). Again, business, administration and law are the most attractive subjects at master's level, chosen by 38.2 % (2016) of all graduates. A large share of master's students also graduate in education studies (30.8 %) irrespective of their bachelor's degree subject — an indication of the attractiveness of the teaching profession. At the other end of the spectrum, subjects critical to innovation are underrepresented. At 2.4 %, the share of students obtaining a master's in natural sciences, mathematics and statistics is the lowest in the EU. At 1.5 %, ICT is

⁴⁵ Teachers are required to change schools every 6 years.

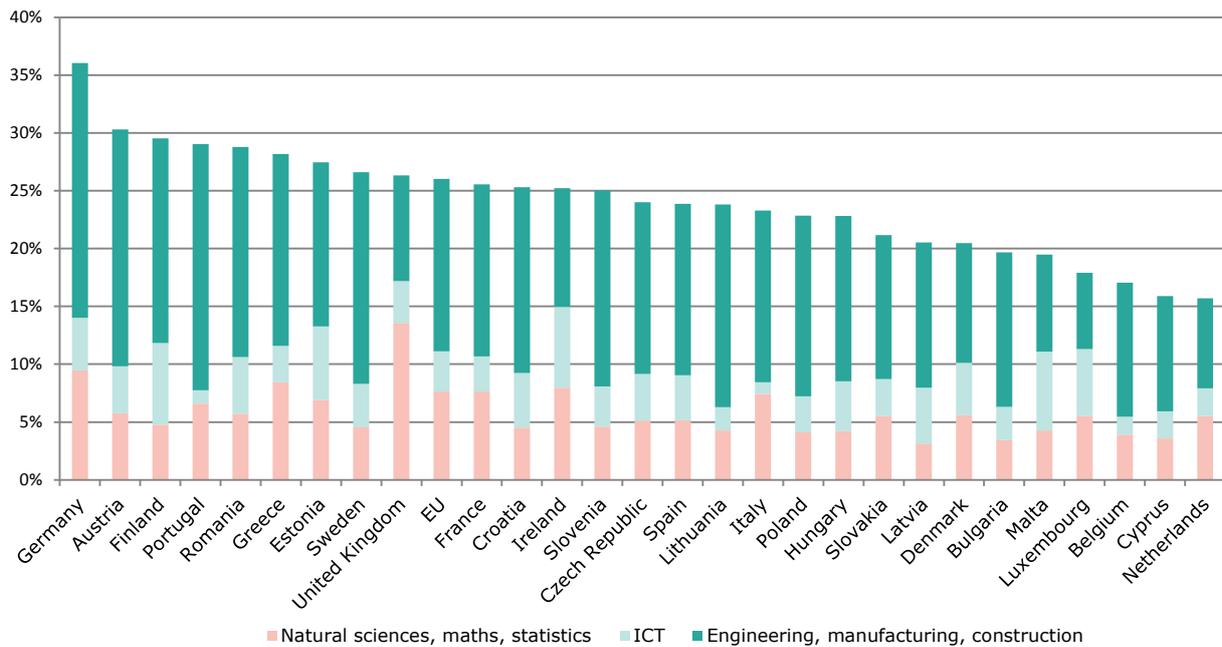
⁴⁶ Only Greece has a higher share.

⁴⁷ Engineering, manufacturing and construction in second place gathers 13 % based on 2016 Eurostat data.

⁴⁸ 2014/2015 data.

also among the lowest in the EU. However, at PhD level this trend is reversed, with the highest share of graduates having studied natural sciences, mathematics and statistics (26.7 %) followed by engineering, manufacturing and construction (18.9 %⁴⁹). While this data is positive, only 3 % of all students were enrolled in PhD programmes in 2014/2015 (European Commission, 2018d) so STEM is a very small part of overall degrees. There is therefore clearly a need to increase the attractiveness of science and technology subjects (HRDA, 2017).

Figure 3. Distribution of tertiary STEM graduates in the EU (2016)



Source: Eurostat. Online data codes: [educ_uoe_grad02](#)

Demand for education professionals is growing. Cyprus' Human Resource Development Authority expects the highest labour market growth to be among mid-level jobs that require secondary education. These will account for almost half of the available positions until 2027, as opposed to 1 in 3 people being in jobs requiring tertiary education. The high and increasing choice in tertiary education pathways might exacerbate the existing overqualification challenge. The biggest employment sector in 2027 will be car trade and repairs, followed by tourism, while the highest increase (45.6 %) in occupation needs will be for technical and scientific profiles. Jobs in education, expected to increase by 22.9 % and to account for around 8 % of those employed in 2027, also show a significant upward trend.

Cyprus has a very mobile student population. Inward degree mobility (i.e. students from other countries coming to study and obtain a degree in Cyprus) as a percentage of the total enrolled student population was the third highest in the EU in 2014/2015 after Luxembourg and the UK (European Commission, 2018d). Whereas well over 90 % of EU international students come from Greece, the shares of non-EU students are more equally distributed with the top three countries of origin being Bangladesh, Nigeria and Pakistan⁵⁰ (Ministry of Education, 2016). National data shows that Cyprus hosted more than 21 000 students from abroad during the 2016/2017 academic year vs 8 300 in 2012/2013. Outward degree mobility is even higher, with more than half of the country's graduates having received their degree abroad in 2014/2015⁵¹. Cyprus is one of the few EU countries with unrestricted portability of public grants and loans for studying abroad, both for full degrees and shorter-term exchange programmes (European Commission, 2018d).

⁴⁹ 2016 data.

⁵⁰ In 2014/2015.

⁵¹ Only Luxembourg has a higher share at 77.5 %.

Attracting international students remains essential. Cyprus is continuing its efforts to become a regional hub for HE and research. Franchise agreements with British and other European universities help support the high rate of inward degree mobile students (European Commission, 2017). To attract foreign students, Cyprus' universities focus on improving infrastructure, offering a higher number and more attractive study programmes and allowing for instruction in English. Further bilateral agreements on cooperation in HE were concluded with a number of countries in 2018, including China and Germany.

An Academy of Sciences, Letters and Arts has been established. The Academy, established in 2017, serves as the country's highest-level institution devoted to cultivating and advancing the sciences and humanities, literature and art. Its objectives include promoting research by Cypriot scientists internationally, providing scientific advice and facilitating cooperation between local industry, universities and research centres.

7. Modernising vocational education and training

Further progress was made in reforming secondary technical and vocational education, but participation in VET is still far below the EU average. Only 17 % of upper secondary students participated in VET in 2016 (EU average: 49 %). The employment rate of VET graduates was the lowest in the EU in 2017 (52 % vs 76.6 %). Efforts have been made to increase participation levels and the capacity of VET schools and to update the curricula in cooperation with industry. A comprehensive analysis of the national apprenticeship system was completed in June 2018 in cooperation with Cedefop. It will help national stakeholders to build their capacity to further develop the national apprenticeship scheme.

Several recent measures are expected to strengthen the VET sector. For example: (i) the accreditation of post-secondary institutes of VET (PSIVET) in April 2017; (ii) the reform of the teacher appointment system (see Section 2), which extends to VET teachers who obtain the qualification 'Vocational Trainer – Level 5' as part of the Cyprus Qualifications Framework (CyQF); and (iii) stepping up VET teachers' training as part of the new training policy (see Section 2).

Steps have been taken to tackle skills mismatches in the VET sector, but challenges remain. Tracking of graduates is implemented and information campaigns to reduce skills mismatches are planned. However, these measures are insufficient given the scale of the challenge. According to the 2015 Continuing Vocational Training Survey (CVTS), most Cypriot companies need customer service and teamwork skills.

Box 1: Liaison offices to improve universities' labour market links

Liaison offices have been created in all Cypriot universities to improve the relevance of education to the labour market and facilitate students' transition to work, e.g. through: (i) student placement in companies (already in place in some universities); (ii) developing methodological tools; (iii) anticipating needs for certain skills; and (iv) developing work-based learning systems, including dual learning⁵² and apprenticeships. Furthermore, an online platform will be established to match students with businesses and track placements and the project in general.

<http://www.liaisonoffices.ac.cy>

8. Promoting adult learning

Adult learning is slow to respond to the low share of low-skilled people in learning and the shrinking and ageing population in Cyprus. Adult participation in learning remains below the EU average (6.9 % vs 10.9 %) and critically low (1.0 %) among low-skilled adults. According to the CVTS, 69.5 % of Cypriot companies (EU average: 72.6 %) provided vocational training to their employees in 2015 and only 33.2 % of employees participated in this training (EU average: 40.8 %). Furthermore, 50 % of adults aged 25-64 reported to have basic or above basic digital skills – 10 percentage points lower than the EU average.

⁵² Integrated courses of learning at both companies and schools.

Remedial actions have been taken to ensure that low-qualified people upgrade their skills and acquire new ones. In line with the Council of the EU's Recommendation on upskilling pathways, measures to strengthen the adult learning system include: (i) initiating a validation system for informal and non-formal learning; (ii) developing additional professional standards; and (iii) strengthening the capacity of PSIVET schools and second-chance schools. The National Qualifications Authority, established in May 2017, has the responsibility to further strengthen the legal aspects of the CyQF by: (i) developing a registry; (ii) integrating the validation of non-formal and informal learning; and (iii) monitoring the CyQF/European Qualifications Framework levels of certificates, diplomas and Europass documents⁵³. Several ongoing programmes are helping to integrate unemployed and inactive people into employment and promote learning opportunities for workers.

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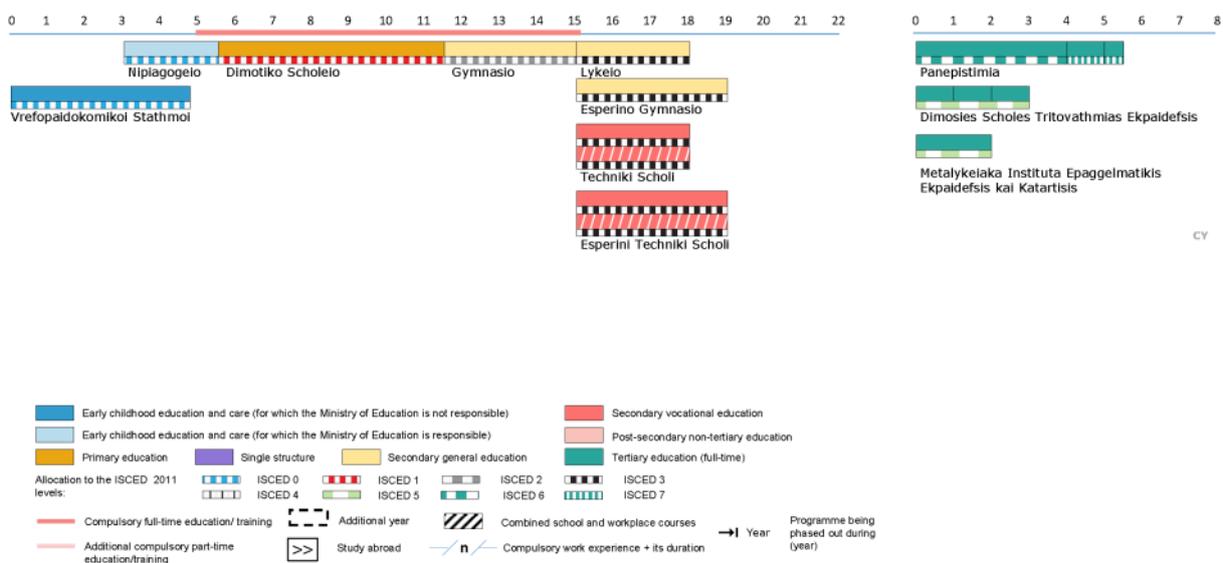
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10. Annex I: Key indicator sources

Indicator	Eurostat online data code
Early leavers from education and training	edat_lfse_14 + edat_lfse_02
Tertiary educational attainment	edat_lfse_03 + edat_lfs_9912
Early childhood education and care	educ_uae_enra10
Underachievement in reading, maths, science	OECD (PISA)
Employment rate of recent graduates	edat_lfse_24
Adult participation in learning	trng_lfse_03
Public expenditure on education as a percentage of GDP	gov_10a_exp
Expenditure on public and private institutions per student	educ_uae_fini04
Learning mobility: Degree mobile graduates	JRC computation based on Eurostat / UIS / OECD data
Credit mobile graduates	educ_uae_mobc02

11. Annex II: Structure of the education system



Source: European Commission/EACEA/Eurydice, 2017. *The Structure of the European Education Systems 2017/18: Schematic Diagrams*. Eurydice Facts and Figures. Luxembourg: Publications Office of the European Union.

Comments and questions on this report are welcome and can be sent by email to:
 Ulrike PISIOTIS
Ulrike.Pisiotis@ec.europa.eu
 or
EAC-UNITE-A2@ec.europa.eu

CZECH REPUBLIC



1. Key indicators

		Czech Republic		EU average		
		2014	2017	2014	2017	
Education and training 2020 benchmarks						
Early leavers from education and training (age 18-24)		5.5%	6.7%	11.2%	10.6%	
Tertiary educational attainment (age 30-34)		28.2%	34.2%	37.9%	39.9%	
Early childhood education and care (from age 4 to starting age of compulsory primary education)		86.4% ¹³	90.7% ¹⁶	94.2% ¹³	95.3% ¹⁶	
Proportion of 15 year-olds underachieving in:	Reading	16.9% ¹²	22.0% ¹⁵	17.8% ¹²	19.7% ¹⁵	
	Maths	21.0% ¹²	21.7% ¹⁵	22.1% ¹²	22.2% ¹⁵	
	Science	13.8% ¹²	20.7% ¹⁵	16.6% ¹²	20.6% ¹⁵	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-8 (total)	81.3%	89.9%	76.0%	80.2%	
Adult participation in learning (age 25-64)	ISCED 0-8 (total)	9.6%	9.8%	10.8%	10.9%	
Learning mobility	Degree mobile graduates (ISCED 5-8)	:	1.7% ¹⁶	:	3.1% ¹⁶	
	Credit mobile graduates (ISCED 5-8)	:	6.5% ¹⁶	:	7.6% ¹⁶	
Other contextual indicators						
Education investment	Public expenditure on education as a percentage of GDP	5.1%	4.5% ¹⁶	4.9%	4.7% ¹⁶	
	Expenditure on public and private institutions per student in € PPS	ISCED 1-2	€4 783	:	€6 494 ^d	:
		ISCED 3-4	€5 683 ^d	:	€7 741 ^d	:
		ISCED 5-8	€7 725 ^d	:	€11 187 ^d	:
Early leavers from education and training (age 18-24)	Native-born	5.4%	6.7%	10.4%	9.6%	
	Foreign-born	9.9% ^u	9.5% ^u	20.2%	19.4%	
Tertiary educational attainment (age 30-34)	Native-born	27.9%	33.9%	38.6%	40.6%	
	Foreign-born	34.0%	39.1%	34.3%	36.3%	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-4	81.2%	87.5%	70.7%	74.1%	
	ISCED 5-8	81.4%	91.6%	80.5%	84.9%	

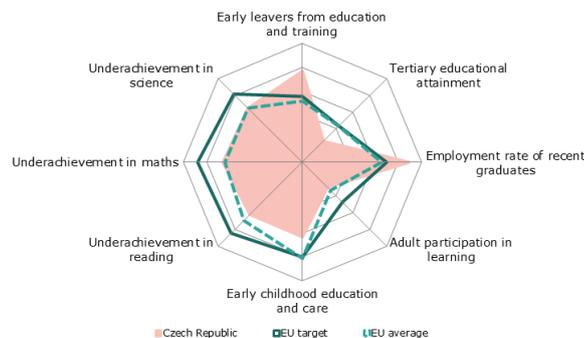
Sources: Eurostat (see section 10 for more details); OECD (PISA).

Notes: data refer to weighted EU averages, covering different numbers of Member States depending on the source; d = definition differs, u = unreliable, 12 = 2012, 13 = 2013, 15 = 2015, 16 = 2016.

On credit graduate mobility, the EU average is calculated by DG EAC on the available countries; on degree graduate mobility, the EU average is calculated by JRC over Eurostat and OECD data.

Further information can be found in the relevant section of Volume 1 (ec.europa.eu/education/monitor).

Figure 1. Position in relation to strongest (outer ring) and weakest performers (centre)



Source: DG Education and Culture calculations, based on data from Eurostat (LFS 2017, UOE 2016) and OECD (PISA 2015). Note: all scores are set between a maximum (the strongest performers represented by the outer ring) and a minimum (the weakest performers represented by the centre of the figure).

2. Highlights

- Better supporting teachers, reducing inequalities and improving governance are the three priorities of the Czech strategy for education policy until 2020. A recent evaluation shows they remain valid.
- It remains a challenge to make the teaching profession attractive. In 2018 the Council of the EU addressed a country-specific recommendation to the Czech Republic on this issue.
- Implementation of the inclusive education reform needs to be closely monitored if the desired impact on pupils with special needs and those from a disadvantaged background, particularly Roma, is to be achieved.
- Against a background of skills shortages, the importance of continuing vocational education and training is growing.
- Strengthening citizenship education is important given the country's low rate of social participation.

3. Investing in education and training

General government expenditure on education as a share of GDP decreased between 2015 and 2016 to 4.5 %, below the EU 4.7 % average. Expenditure per student remains lower in the Czech Republic than on average across the EU, mainly due to considerably lower teacher salaries (OECD, 2017). Overall annual expenditure on educational institutions per pupil/student for all ISCED 2011 levels (excluding early childhood education and care) was the third lowest in the EU in 2015⁵⁴.

The 2018 education budget is 13.5 % higher than in 2017. Teachers' salaries were increased by 15 % from November 2017 in reaction to a strike warning. The increase in funding for higher education benefits the salaries of academic staff, among other things. This is needed, given the low level of spending on higher education by international standards: in 2015 it was 0.77 % of GDP, among the lowest in the EU⁵⁵.

Despite increases in recent years, teachers' salaries remain comparatively very low at all school levels (see Box 1). Furthermore, the salary progression is among the least rewarding (OECD, 2017).

From January 2019, the funding system for regional education will be revised, shifting from funding per pupil to funding linked to pedagogical work or hours taught. The new system aims to reduce differences in funding levels for comparable schools in different regions. It will allow specific regional characteristics to be taken into account. These include the size of schools, the structure of secondary and tertiary vocational education and training, and differences in student populations with special needs.

4. Citizenship education

In the Czech Republic citizenship education is embedded in the broader youth strategy for 2014-2020 and taught at all school levels. It is taught as a cross-curricular theme that is integrated into other compulsory subjects. Teachers are trained to become semi-specialists in teaching citizenship education, together with two or three other subjects (European Commission/EACEA/Eurydice, 2017a). Cross-curricular themes covered include personal and social

⁵⁴ Source: Eurostat, table educ_uoe_fine06.

⁵⁵ Same as above

education, thinking within the European and global context, multicultural education, and environmental and media education. As in a number of countries, it is less present in initial vocational education and training (IVET). Still, the IVET curriculum covers democratic citizenship, environmental education and the basics of civic education/social sciences. The methodological portal for teachers includes guidance and resources for citizenship education. The National Programme for Environment supports a network of centres organising curricular and extra-curricular programmes in cooperation with schools and providing guidance for teachers.

5. Modernising school education

The conclusions of the 2017 external evaluation of the strategy for education policy 2020 confirm the relevance of its priorities. These are: (i) supporting high-quality teachers and teaching; (ii) reducing inequalities; and (iii) improving the governance of the education system. Experts consider that most of the measures proposed are relevant but that implementation has not yet been a complete success. They recommend substantially improving the quality of administration and making communication between all involved parties more effective (Eurydice, 2018).

While still below the 10.6 % EU average, the 6.7 % early school leaving rate in 2017 continued the increase seen since 2010, when it was at 4.9 %. The rate now exceeds the 5.5 % national target for 2020. This trend contrasts with the steadily decreasing EU average. Wide regional disparities and a high proportion of early leavers among Roma — estimated at 72 % (FRA, 2016) — call for strengthened analysis of the situation and targeted measures (European Commission, 2018). In the Czech Republic the relationship between socio-economic background and grade repetition — often an early indication of early school leaving — is among the strongest in the EU.

Participation in early childhood education and care (ECEC) continues to catch up with other Member States. Participation by children aged 4-6 reached 90.7 % in 2016, narrowing the gap with the 95.3 % EU average rate.

Since September 2017, participation in ECEC is compulsory for 5 year-olds. The law also entitles 4 year-olds to a place and the same will apply progressively for younger children (European Commission, 2017). This measure is likely to help reduce inequalities and promote inclusion, especially if schools and classes are mixed socially and if there are no (hidden) costs for families. Local authorities may have to strengthen their efforts to inform families and ensure that all children concerned participate.

A number of indicators point to a relatively difficult situation for teachers on many fronts (European Commission, 2017 and 2018). This includes low prestige, demographic challenges, low salaries, insufficient continuing professional development (CPD) and weaknesses in education governance (see box below).

Box 1: The teaching profession: challenges and reforms

The 'Strategy for education policy 2020' identified support for teachers as a pre-requisite for high-quality education. It proposed implementing a new career system and improving future teachers' education and training.

The profession is still facing a number of challenges that indicate a need for further reforms to ensure there will be enough teachers, and of sufficient quality.

The proportion of school teachers younger than 40 is especially low and the share of women among lower secondary education teachers is one of the largest among OECD countries (OECD, 2017). The Czech Republic is among the EU members with the highest and fastest-growing proportion of teachers aged 50 or over in ISCED 3 and 4. At the same time, the numbers of children entering primary education are rising. A number of students opt for initial teacher education as a second choice rather than a first choice, raising questions about their motivation.

The 2013 OECD Teaching and Learning International Survey survey found that the proportion of Czech teachers reporting that their profession is valued in society and that they are satisfied with the job is below the OECD average.

Teachers' salaries have historically been low, both internationally and compared to those of people with similar qualifications. The career structure is flat: teachers cannot move to higher career levels (European Commission, 2018 and European Commission/EACEA/Eurydice, 2018b). Salary increases over the past decade have somewhat improved the situation but as these have often also gone to all public employees, the relative attractiveness of teacher salaries has not always improved.

There are shortages of qualified teachers in some subjects and geographical areas. The situation calls for active planning of the number of teachers needed in future. In this respect, however, the central governance of the system is less developed than in most Member States: there was no central forward planning in 2016/2017. About one third of European education systems offer alternative pathways to a teaching qualification besides the mainstream programmes, often in systems suffering from teacher shortages. No such pathways have been developed in the Czech Republic.

In 2016/2017, the country remained among the few without a regulated induction programme for teachers or appraisal for new teachers. In countries where such appraisal exists, it is intended to ensure that new teachers have acquired the necessary practical skills to work independently. It is therefore likely to contribute to the quality of teaching and to identifying teachers' possible needs. Low participation in CPD is reportedly linked to a lack of incentives, conflicts with work schedules and the absence of compensation for replacement teachers.

The OECD has recommended several measures to make teaching more attractive. These are:

- further increasing salaries;
- developing new entry pathways;
- adopting measures to make teachers' everyday work less isolated and more motivating;
- strengthening the link to practical experience in initial teacher education; and
- raising the quality of course provision (Shewbridge, C., et al., 2016).

Social partners advocate for public campaigns to improve the image of the profession.

Despite a lengthy process, the planned new career system for teachers was not adopted in 2017 (European Commission, 2017). It had been proposed to combine performance assessment, career advancement based on standards, strengthened CPD and improved pay. The failure to adopt it was partly due to protests by a new grouping of teachers who feared, among other things, that funding would not be sufficient to bring a real improvement in conditions.

Following the non-adoption, the Education Ministry launched EU-supported projects to improve support to beginning teachers and strengthen the CPD of teachers and school heads (Government Office, 2018). It also finalised standards for university programmes preparing future teachers. In November 2017, it awarded teachers a 15 % pay rise.

The 2018 European Semester country-specific recommendations to the Czech Republic included a recommendation to 'Strengthen the capacity of the education system to deliver quality inclusive education, including by promoting the teaching profession.' (Council of the European Union, 2018).

Inequalities in educational outcomes based on socio-economic background have risen over recent years (European Commission, 2017 and 2018). Differences between schools' educational attainment, as measured by the OECD Programme for International Student Assessment (PISA) and the Progress in International Reading Literacy Study (PIRLS), are among the widest in the EU. Inequalities are particularly concentrated among Roma children.

The 2016 reform for inclusive education represented a major concerted effort by the authorities, with the support of the European Social Fund (ESF). The reform was generally welcomed by NGOs and experts, although less by teachers and the general public. The evaluation

carried out by the Czech School Inspectorate in 2017 indicates the reform has improved support for pupils with special needs in mainstream education. The heavy administrative burden on schools was identified as a drawback and the funding requested by schools for support measures was higher than expected. Furthermore, on top of support measures teachers will need to be equipped with the right skills, training tools and teaching materials to meet the ambitions of the reform. So far the impact on the education of Roma pupils in mainstream education remains limited (Center for Policy Studies Central European University, 2018). This is partly due to its very rapid implementation without piloting. Full implementation and possible adjustments are awaited. The future scope of the reform is somewhat uncertain, in particular due to the uncertainty over sufficient funding. A 2018 amendment of the implementing decree may put the spirit of the law at risk by enabling special schools to open classes for children without mental disabilities but with behavioural/learning difficulties. This could create new forms of social segregation. It calls for close monitoring.

Monitoring of the national Roma integration strategy has identified both positive developments and obstacles. The Roma civil monitor pilot project has reported on implementation of the national Roma integration strategies (Center for Policy Studies Central European University, 2018). It pointed to the Czech School Inspectorate's recent good practice of collecting data on Roma pupils which allows analysis of the correlation between schools' achievements and the proportion of Roma pupils enrolled. It also identified obstacles and measures needed to improve educational outcomes. They include: (i) an insufficient number of places in ECEC facilities, (ii) early tracking and (iii) individual financial support. This last is considered crucial for Roma upper secondary students. It needs to include good facilities and dormitories for students from rural areas.

To promote equal opportunities, in 2018 the Ministry of Education also approved a methodology on equal opportunities in education. This was done under the operational programme on research, development and education funded by the ESF. It focuses on ways schools and school founders can promote access to high-quality pre-school and school education for children from disadvantaged backgrounds.

On inequalities more generally, the OECD has noted that the uneven distribution of teachers across schools is a real concern in the Czech Republic (Shewbridge, C., et al., 2016). Disadvantaged schools are more likely than privileged ones to report shortages of qualified staff even though it is in these schools that the best teachers are needed most. Targeted measures to attract and retain teachers to work in remote or regional areas, or schools with more challenging populations, are lacking.

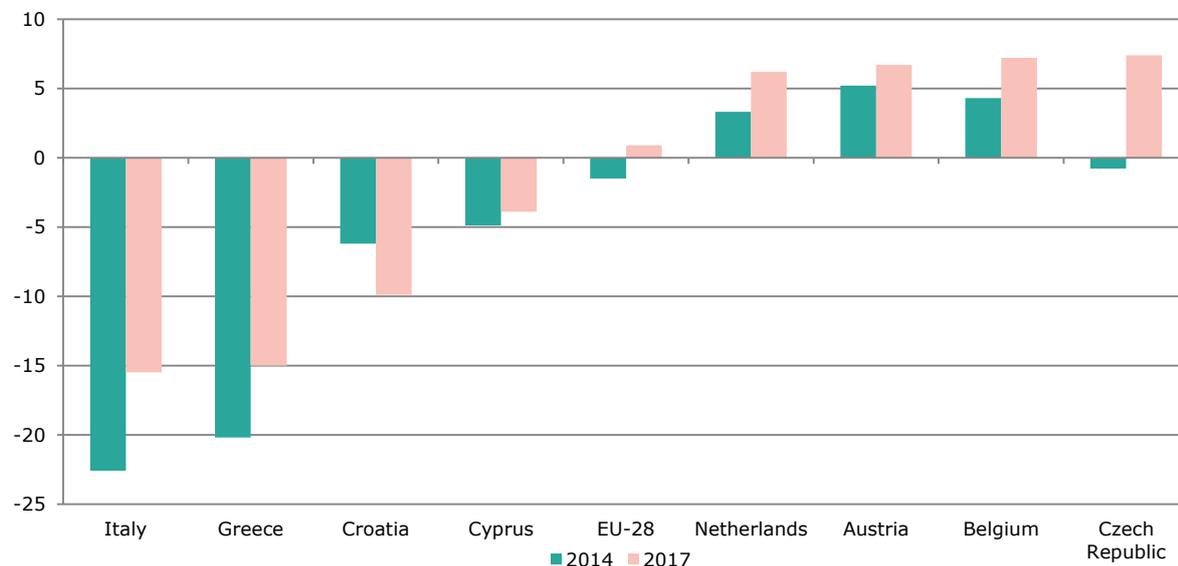
A 2017 report by the Czech School Inspectorate points to delays in implementing the 2015-2020 strategy for digital literacy. It finds that every second school has an information and communications technology (ICT) teacher without relevant qualifications and that the ICT equipment is outdated. EU-supported projects aim to bring ICT teaching into the mainstream and equip schools.

6. Modernising higher education

The 34.2 % of young people aged 30-34 with a tertiary education degree in 2017 is very close to the revised national target of 35 % for 2020. The recent increase in tertiary attainment has been among the fastest in the EU. The Czech Republic has one of the lowest percentages of young people graduating via short tertiary education programmes. At the same time, in a generally very good employment situation, the unemployment rate of Czech graduates holding a bachelor degree is comparatively low, at 3.5 % in 2016 against 7.1 % across the European Higher Education Area (European Commission/EACEA/Eurydice, 2018a). For graduates with a master's degree, the Czech unemployment rate is 3.4 %. The employment premium of a tertiary education degree is high (see Figure 3 below) and tertiary graduates as a whole earn nearly twice as much as those with only an upper secondary qualification — 50 % more for those with a bachelor degree (OECD, 2017). Nevertheless, completion rates for bachelor or equivalent programmes are low, at 37 %. The difference in tertiary educational attainment between women and men is larger than the EU average, and the gender employment and pay gaps are wide

(European Commission, 2018). Only about 1% of students receive a 'social scholarship' (European Commission/EACEA/Eurydice, 2017b).

Figure 3. Employment premium of tertiary graduates (ISCED 5-8), 2014, 2017



Source: EU Labour Force Survey, Eurostat. Online data codes: *edat_lfse_24* and *lfsa_ergaed*.

Note: employment premium (positive or negative) is the comparison of the employment rate of recent graduates aged 20-34 having completed education 1-3 years before the survey with a high-level qualification diploma (ISCED levels 5-8) and who are currently not enrolled in any further formal or non-formal education or training with the employment rate of the 'working age' reference population —adults aged 15-64 holding a high-level qualification diploma (ISCED levels 5-8). A positive premium indicates that employment rate of recent graduates is higher, while a negative rate indicates that employment rate of recent graduates is lower, than in the reference population.

Achieving upward educational mobility remains difficult in the Czech Republic: adults without tertiary-educated parents are less likely to obtain tertiary education themselves than on average in OECD countries (OECD, 2017).

Quality assurance in higher education is being strengthened. Following the 2016 reform, internal quality assurance is being upgraded in a number of institutions and the first requests for institutional accreditation have been submitted to the national accreditation authority (European Commission, 2017 and Government Office, 2018). The Ministry is carrying out surveys and studies on different topics in order to better steer future policy-making on higher education (European Commission/Eurydice, 2018a). The Czech Republic will be one of the countries piloting the European graduate survey in autumn 2018. The survey will be conducted among bachelor, master and tertiary short-cycle graduates 1 and 5 years after graduation. It will assess their integration into the world of work, perceived skills, career paths, working conditions and the effect of other contextual factors on them.

To improve quality, the diversification of institutions and programmes, and completion rates, in 2018 the Ministry revised the system for allocating funding to institutions. This decision built partly on recommendations from a peer counselling activity held in 2015 with the support of the European Commission. Funding is made up of a fixed part to ensure stability and predictability, and a variable part based on quality and performance criteria. These criteria now include course completion rates. For performance-based funding allocation, institutions have been grouped into four categories to ensure diversification of profiles and courses. The funding is first distributed to each category, so that institutions only compete within their category with similar types of institutions and according to indicators and weights that are specific to that category. The system reflects the different needs of different types of institutions.

The country is dynamically digitising higher education and adapting programmes for digitisation (European Commission/EACEA/Eurydice, 2018a). New resources are being invested in digital infrastructure as well as in developing related skills for academic staff and learners.

7. Modernising vocational education and training

The Czech Republic continues to improve the quality of vocational education and training (VET) and its relevance to labour market needs. The outcomes of secondary VET continue improving, with the graduate employment rate reaching 87.5 % in 2017 — well above the 76.6 % EU average. IVET is largely school-based, with mandatory practical training and work placement. There is scope to increase work-based learning as a proportion of VET, particularly through greater involvement of small businesses. The main policy development is a three-year ESF-supported project launched by the Ministry of Education, Youth and Sports in May 2017 on 'Modernisation of VET'. The aim is to ensure the quality of IVET and make secondary VET graduates more employable. It focuses on modernising the general and vocational parts of the upper secondary VET curriculum (school curricula) in order to further develop students' key competences for employability and lifelong learning (Cedefop ReferNet, 2018).

Box 2: The Creative Partnership for Inclusive School project

The Creative Partnership for Inclusive School project was launched in 2016 by the partnership of the Society for Creativity in Education and the Palacký University in Olomouc. It aims to:

- develop pupils' key competences, functional literacy and motivation to learn;
- improve the social climate in class; and
- support pupils from socially disadvantaged or culturally different backgrounds.

The concept is based on structured cooperation between artists and educators, teaching creative methods and arts in relation to all school subjects, and focusing on individual support of pupils. In addition to being introduced at several primary schools across the country, the programme is being piloted in vocational schools without a school-leaving examination. Implementation runs from October 2016 to September 2019. In total, 14 elementary and secondary schools are involved. Around 1 000 pupils will be supported, of whom at least 290 will come from socially disadvantaged or culturally diverse settings.

8. Promoting adult learning

Against a background of skills shortages and mismatches, attention to the importance of continuing VET (CVET) and of realising greater synergies between CVET and IVET continues to grow. According to the Continuing Vocational Training Survey, 90.6 % of Czech companies (well above the EU average of 72.6 %) provided vocational training to their employees in 2015, and 83.7 % of employees participated (the highest rate in the EU). The majority of Czech businesses indicated that the main skills they need in order to develop are customer handling skills and technical, practical and job-specific skills. Through the above-mentioned project 'Modernisation of VET', the link of IVET to the National Register of Qualifications (the reference point for accrediting continuing VET programmes) will be piloted under an EU-supported project. Principles of the European Credit system for VET will be used to ensure better communication between IVET and CVET programmes and a more transparent description of practical training taking place in companies. Cooperation with employers is key to the project's successful implementation. As part of the project, working groups were set up involving representatives from 77 upper secondary schools (representing 42 % of the school cohort), the Ministry of Education, Youth and Sport and employers to develop innovative educational modules. A key development in adult learning took place under the national 'digital literacy strategy for 2015-20'. Another EU-supported project, involving 2 000 companies and 2 500 job seekers, aims to increase employability through in-company training. More than 50 % of job seekers were offered a job at the end of their traineeship. A project called DigiKatalog was launched in October 2017 to enable users to assess their transferable digital skills and identify further education programmes. It will create an online tool called 'Smart Online System (SOS)' that will contain a catalogue of transferable digital skills for 500 key occupations.

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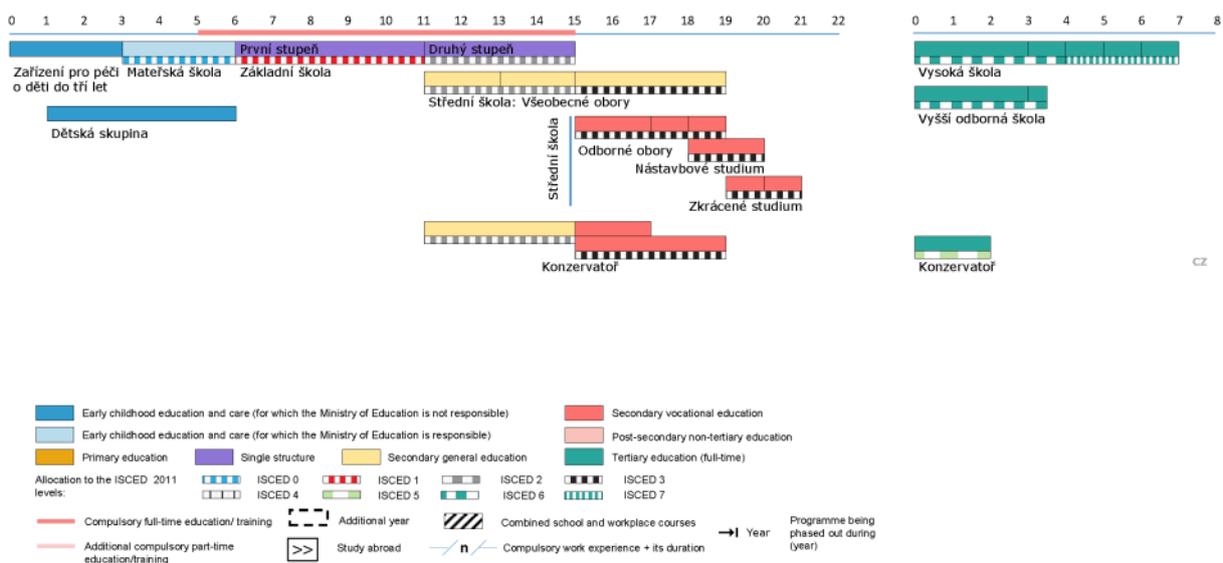
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10. Annex I: Key indicator sources

Indicator	Eurostat online data code
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Tertiary educational attainment	edat_lfse_03 + edat_lfs_9912
Early childhood education and care	educ_uae_enra10
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Employment rate of recent graduates	edat_lfse_24
Adult participation in learning	trng_lfse_03
Public expenditure on education as a percentage of GDP	gov_10a_exp
Expenditure on public and private institutions per student	educ_uae_fini04
Learning mobility: Degree mobile graduates	JRC computation based on Eurostat / UIS / OECD data
Credit mobile graduates	educ_uae_mobc02

11. Annex II: Structure of the education system



Source: European Commission/EACEA/Eurydice, 2017. *The Structure of the European Education Systems 2017/18: Schematic Diagrams*. Eurydice Facts and Figures. Luxembourg: Publications Office of the European Union.

Comments and questions on this report are welcome and can be sent by email to:
 Christèle DUVIEUSART
Christele.Duvieusart@ec.europa.eu
 or
EAC-UNITE-A2@ec.europa.eu

DENMARK



1. Key indicators

		Denmark		EU average		
		2014	2017	2014	2017	
Education and training 2020 benchmarks						
Early leavers from education and training (age 18-24)		7.8%	8.8%	11.2%	10.6%	
Tertiary educational attainment (age 30-34)		44.9%	48.8%	37.9%	39.9%	
Early childhood education and care (from age 4 to starting age of compulsory primary education)		98.1% ¹³	98.1% ¹⁶	94.2% ¹³	95.3% ¹⁶	
Proportion of 15 year-olds underachieving in:	Reading	14.6% ¹²	15.0% ¹⁵	17.8% ¹²	19.7% ¹⁵	
	Maths	16.8% ¹²	13.6% ¹⁵	22.1% ¹²	22.2% ¹⁵	
	Science	16.7% ¹²	15.9% ¹⁵	16.6% ¹²	20.6% ¹⁵	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-8 (total)	83.7%	82.9%	76.0%	80.2%	
Adult participation in learning (age 25-64)	ISCED 0-8 (total)	31.9%	26.8%	10.8%	10.9%	
Learning mobility	Degree mobile graduates (ISCED 5-8)	:	1.4% ¹⁶	:	3.1% ¹⁶	
	Credit mobile graduates (ISCED 5-8)	:	8.4% ¹⁶	:	7.6% ¹⁶	
Other contextual indicators						
Education investment	Public expenditure on education as a percentage of GDP	7.1%	6.9% ¹⁶	4.9%	4.7% ¹⁶	
	Expenditure on public and private institutions per student in € PPS	ISCED 1-2	€8 587	:	€6 494 ^d	:
		ISCED 3-4	€7 730	:	€7 741 ^d	:
		ISCED 5-8	:	:	€11 187 ^d	:
Early leavers from education and training (age 18-24)	Native-born	7.8%	8.8%	10.4%	9.6%	
	Foreign-born	8.4% ^u	9.3% ^u	20.2%	19.4%	
Tertiary educational attainment (age 30-34)	Native-born	44.6%	46.6%	38.6%	40.6%	
	Foreign-born	46.0%	58.1%	34.3%	36.3%	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-4	81.3%	81.7%	70.7%	74.1%	
	ISCED 5-8	85.9%	83.8%	80.5%	84.9%	

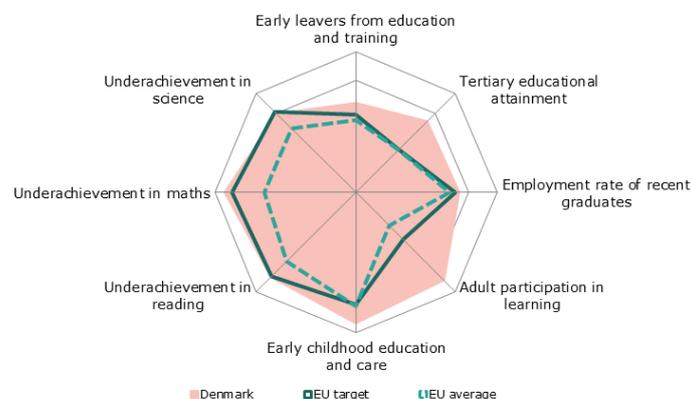
Sources: Eurostat (see section 10 for more details); OECD (PISA).

Notes: data refer to weighted EU averages, covering different numbers of Member States depending on the source; d = definition differs, u = unreliable, 12 = 2012, 13 = 2013, 15 = 2015, 16 = 2016.

On credit graduate mobility, the EU average is calculated by DG EAC on the available countries; on degree graduate mobility, the EU average is calculated by JRC over Eurostat and OECD data.

Further information can be found in the relevant section of Volume 1 (ec.europa.eu/education/monitor).

Figure 1. Position in relation to strongest (outer ring) and weakest performers (centre)



Source: DG Education and Culture calculations, based on data from Eurostat (LFS 2017, UOE 2016) and OECD (PISA 2015). Note: all scores are set between a maximum (the strongest performers represented by the outer ring) and a minimum (the weakest performers represented by the centre of the figure).

2. Highlights

- Danish education combines high achievement with a focus on student well-being.
- Despite the strong participation in early childhood education and focus on inclusion throughout the system, the impact of socio-economic status on education outcomes persists and those with an immigrant background still lag seriously behind.
- Citizenship education is a cross curricula topic in Denmark and the differentiation of competences is less developed than in other Nordic countries.
- Education has seen many reforms leading to 'reform fatigue'. Teachers' participation in continuing professional development is low.
- Public budgets have been reduced, but Denmark remains one of the biggest spenders on education in the EU, operating very generous grant systems.

3. Investing in education and training

Denmark continues to belong to the group of countries with the highest education spending in the EU, despite recent reductions. Public spending as a percentage of GDP has remained practically the same, at 6.9 % in 2016 (Eurostat COFOG). General government expenditure on education also remained broadly unchanged at EUR 19 billion. Cuts were made to expenditure at local level, with a particular impact on early childhood education and care (ECEC). The quality of the services delivered, as measured by child/teacher ratios and the qualification levels of ECEC staff, varies considerably between municipalities. The impact of budget savings was also visible in tertiary education, where for instance the University of Copenhagen announced in 2016 that more than 500 teachers, researchers and staff providing services risk losing their job. This equates to 7 % of staff.

Denmark spends a higher share than comparable countries at early stages of education⁵⁶ and offers generous grants. Over 90 % of spending on primary education is dispensed by local authorities. Denmark spends 1.3 % of GDP on ECEC; this is 0.5 percentage points more than the EU average, but still below the 2 % spent by Sweden. Overall a significant part of spending compared to other Nordic countries is related to the generous student grant system at tertiary level. Compared to teachers in other EU countries Danish teachers are well paid, earning about 90 % of the salary of other tertiary-educated full-time employed⁵⁷ (OECD, 2018a).

The student population is expected to fluctuate over the next decades, with a particular increase at earlier ages and more stable cohorts at tertiary level. Eurostat forecasts a 2 % reduction of 7-18 year-olds by 2030 compared to 2017 (in line with the OECD 2016b) and a 7 % increase by 2050. For below-6 year-olds, a dramatic increase of 18 % by 2030 is expected, and a further increase of 10 % by 2050. The relevant age group for tertiary education (19-26 year-olds) will shrink by 4 % by 2030 and thereafter increase very slightly by 1 % by 2050. This necessitates a particular focus on ECEC in the future. More immediate fluctuations in participation patterns in education included a 3 % decline in vocational education and training (VET) between 2013 and 2014 and a particular increase in short-cycle university students of 6 % in 2014 and again 5 % in 2016.

⁵⁶ OECD EaG 2017, indicator B1.

⁵⁷ OECD EaG 2017, table D3.2a.

4. Citizenship education

Citizenship education is a cross-curricula topic in Denmark. Given the decentralised structure of education in Denmark there is no central oversight, but students excel.

Citizenship education in Denmark is mainly a cross curricular theme at ISCED level 1 to 3. But citizenship is offered as an independent subject at grade 8 and 9 as well ("samfundsfag"). Curricula for upper secondary education state that both educational programmes and the school culture should help to prepare pupils for participation, co-responsibility, rights and responsibilities in a free and democratic society. According to the 2016 International Civic and Citizenship Education Study (ICCS)⁵⁸ by the International Association for the Evaluation of Educational Achievement (IEA) (Schulz et al, 2017), Danish eighth grade students score highest on knowledge on civic issues in international comparison.

The differentiation of competences is less developed than in other Nordic countries (Eurydice, 2017). There are no guidelines on classroom assessment in citizenship education in primary, general secondary education and in school-based VET and there are no national tests in citizenship education. In general secondary education, citizenship education is taught by non-specialist teachers qualified in other subjects. But since 2017 a part-time two-year course is available leading to a 'Master of Authority and Citizenship' covering issues such as the relationship between the individual and the community and concepts like individualism, globalisation, Europeanisation and multiculturalism. Experience from the first courses will allow the authorities to improve future initial teacher education.

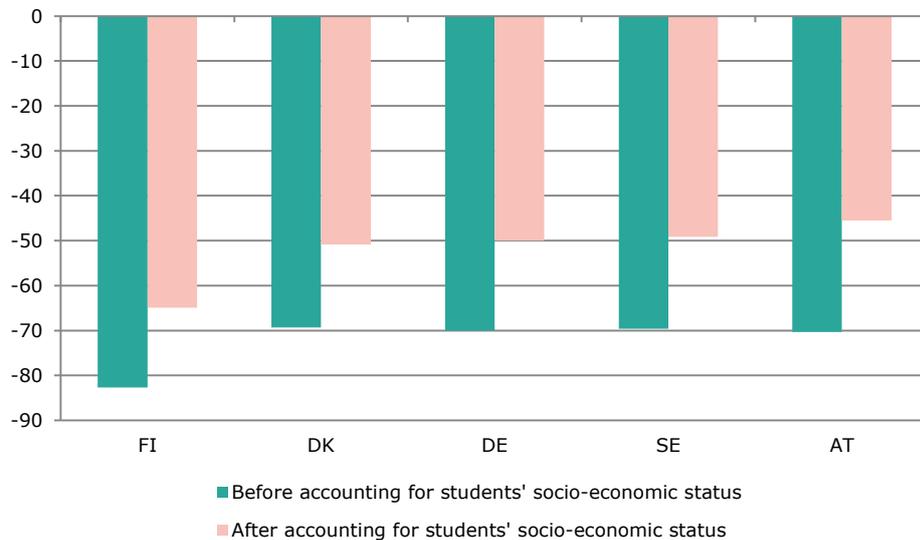
Critical thinking has now been made an explicit learning objective and extra-curricular activities depend on schools. The new curriculum for the Folkeskole in 2015/2016 simplifies the common objectives issued in 2009 and focuses on citizenship and human rights and makes critical thinking now an explicit learning objective. This reform gives students more possibilities to modulate their own school day. Engagement and extra-curricular activities with the community are a regular part of a student's life. Primary and secondary schools are responsible for organising this.

5. Modernising school education

Denmark has generally good education outcomes; however young people from a weak socio-economic and in particular immigrant background lag seriously behind. Denmark does well in international testing. It is among the best performing EU countries with regard to the share of low achievers in mathematics, science and reading (PISA 2015) with an overall rate of 15 % which meets the Education and Training 2020 benchmark and exceeds it for mathematics with 13.6 %. However, PIRLS data from 2016 show that reading skills among Danish fourth graders have not improved since 2006 in contrast to other Nordic countries such as Norway or Sweden (Mejding et al, 2017), confirming the lack of progress in PISA among 15 year-olds since 2000. Recent reforms in Folkeskolen and in upper secondary education that have aimed to improve quality have still to be evaluated. Denmark has, compared to other Nordic countries, a significantly smaller share of high-performing students (OECD, 2016a).

⁵⁸ ICCS reports on students' knowledge related to concepts of citizenship, equity, decision-making and civic self-image. In ICCS 2016 the civic knowledge scale was set to a metric with a mean of 500 (the average score of countries participating in ICCS 2009).

Figure 2. Difference in science achievement between immigrant and non-immigrant students (PISA score points) with and without adjustment for socio-economic status



Source: OECD PISA 2015.

Second-generation young people with an immigrant background are much more likely to be low achievers than non-immigrant students. While Denmark's immigrants have a smaller share of low performers in mathematics than the EU average, it is the only country where the second generation does not improve as measured by PISA 2015 (European Commission, 2016 and 2018a). Among immigrants, those from Western countries generally perform better than those from other countries but still perform below non-immigrants. National tests in reading in 2016/2017 confirm a clear performance gap for immigrants but not that the second generation does worse. While 78 % of non-immigrants performed well in second grade, only 52 % of first-generation immigrants and 61 % of second-generation with a migrant background did so. Tests in eighth grade showed a similar pattern (Ministry of Education, 2017).

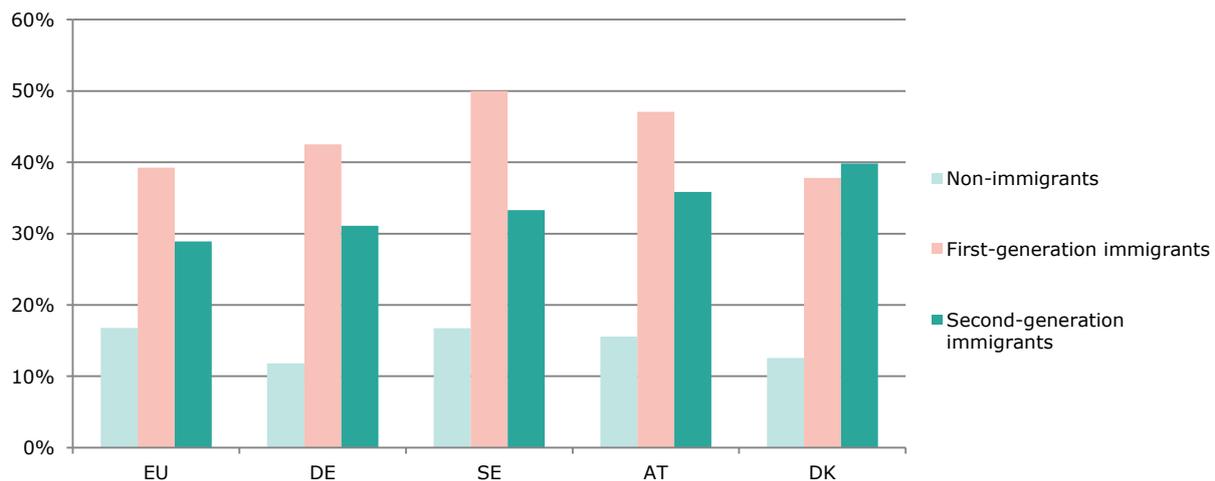
The Folkeskolen reform means Danish students now have the longest school hours among Nordic countries (Vive, 2017). According to national PIRLS 2016 analysis, this additional learning time has not yet contributed to improved learning outcomes. This is in line with international studies. Bad results in international reading testing may also reflect the finding that Danish students take the lowest pleasure in reading of all countries participating in PIRLS. Their teachers similarly report that only about 15 % of them read for pleasure. The resilience of Danish students with immigrant background is mixed. Compared to other Nordic countries they do better academically and show a stronger achievement motivation but have higher life-related anxieties (OECD, 2018b).

While internet usage has increased to one of the highest levels in the EU there is no clear indication of a short-term improvement in digital skills. 95 % of the population aged 16-74 used the internet in 2017 compared to 78 % in 2006. For the same age group the indicator for basic or above digital skills improved between 2015 and 2016 but dropped in 2017 below the level of 2015, unlike in the other Nordic countries. The digital skills of the employed population increased between 2015 and 2017 for those with low overall skills, remained about the same for those with basic skills and decreased somewhat for those with above-basic digital skills. Denmark's 'Digital Growth Strategy' (Ministry of Industry, 2018), agreed upon in parliament in February 2018, identifies 38 activities with the aim of making Denmark a digital frontrunner. About EUR 10 million have been allocated for a four-year trial programme (2019-2021) on testing different models to strengthen technology understanding in primary and secondary school, one of the strategy's seven key initiatives (European Commission, 2018b). In addition, a strategy to strengthen teaching and learning of natural sciences was presented in 2018 (Eurydice, 2018).

There is a strong focus on harnessing digitalisation, including in education. In 2018, an action plan for technology in teaching and learning was prepared, addressing how to strengthen

digital competences for all age groups and among teachers and school managers; to make better use of ICT in teaching; and to educate on the ethical use of data. More broadly, the government and the social partners have established a 'Disruption Council' to adapt the Danish labour market to the collaborative economy and digitisation. The aim is to develop a strategy whereby digitalisation, robots and artificial intelligence improve welfare, while preparing the labour market for a future in which many traditional jobs are expected to disappear. Its work also informs education providers on the reforms required due to these technological changes.

Figure 3. Percentage of low achievers in mathematics (PISA 2015)



Source: OECD PISA 2015.

The rate of early leavers from education and training (ESL) for 18-24 year-olds has fallen steadily, but immigrants have difficulties accessing upper secondary education. From 2007 to 2017 ESL declined by 5.7 percentage points to 7.2 % but increased in 2017 by 1.6 percentage points. This increase was more pronounced in towns, suburbs and rural areas than in cities. The ESL performance gap of young people from an immigrant background is only 0.7 percentage points higher than native-born; for those not originating from western countries, it is only at 1.5 percentage points higher. While comparatively fewer young immigrants drop out from education in Denmark, they still face difficulties entering upper secondary education. 28 % of the students that are interested in continuing in upper secondary education have been declared educationally not ready. This group reaches 52 % for vocational programmes as against 17 % for general upper secondary education. In general upper secondary education, the share of young people not fit to continue has increased continuously in recent years. Since 2017, all schools have to assess in eighth grade whether a pupil is ready to pass on to upper secondary education, not only focusing on the pupil's academic, personal and social competence but also using a newly introduced practical dimension⁵⁹.

Box 1: Youth Initiative North Jutland assisted about 1400 marginalised Danes into education and work.

15-30 year-olds with no educational qualifications received tailor-made support with an ESF contribution of EUR 5 million, about 50 % of the total budget. Collaboration between professionals from education, social services and employment made it possible to develop personalised education and job plans. A wide range of services including job guidance, mentoring, internships and traineeships prompted 68 % of the young people to start education or take up work. Besides essential skills (Danish language, maths and social studies) they learned also about healthy diet, personal communication and financial literacy.

More information: <http://ec.europa.eu/esf/main.jsp?catId=46&langId=da&projectId=2137>

⁵⁹ The Consolidation Act on Guidance.

Denmark has one of the highest participation rates in early childhood education and care (ECEC) both for native and foreign-born. In 2015, 91 % of children under 2 years old participated in ECEC and 97.1 % of 3 year-olds. This is the highest participation for under-2s in the EU (OECD, 2018a). While the government has identified ECEC as a key measure to reduce the socio-economic isolation of foreign-born people in its strategy 'One Denmark — without parallel societies, no ghettos in 2030', the situation at municipality level remains uneven and, as previously stated, may also be deteriorating due to budget cuts. Teacher-child ratios keep increasing in some municipalities as does the share of unqualified staff working in ECEC (Christensen, 2017).

Box 2: Teachers in Denmark

Denmark has a relatively even age distribution of teachers in education and a more even gender balance than other EU countries. The bulk of teachers are between 30 and 60 years old (OECD, 2016a). However, Denmark will have to continue to attract young people to the teaching profession considering the future demographic trend. Denmark is one of only seven EU countries that engage in forward planning for teachers (Eurydice, 2018). Male teachers are comparatively well represented with 30.4 % in primary and 32.3 % in lower secondary education. This compares to, for instance, 2 % in primary school in Slovenia and 22 % in lower secondary school in Sweden.

Danish teachers earn relatively well but working conditions have been subject to reforms. Teachers' pay is relatively attractive at primary and lower secondary level, but less so at upper secondary level (OECD, 2017a). Generally, the impact of these reforms has been positively evaluated. But the increased instruction time leaves teachers with less time to prepare lessons for students more individually (Vaaben and Vive, 2017), which is a central aim of the reform.

Qualification of teachers is an issue, as is their limited engagement in continuing professional development. The National Research and Analysis Center for Welfare reports that 12 % of school leaders find that the lack of qualified teachers hampers schools from delivering optimal education. An additional 25 % consider this somewhat the case. In a recent survey, 41 % out of 98 municipalities reported that they experience shortages in skilled labour in schools. 43 % believe it has become more difficult to recruit teachers within the last 3 years (Kommunernes Landsforening, 2017). The international PIRLS 2016 study identified a decrease in the continuing professional development of teachers compared to 2011. About 50 % of students have teachers not attending further professional development. There are no courses during working time, no special leave and expenses for travel or substitute teachers are not covered (Eurydice, 2018). Most Danish teachers and school heads hold bachelor's degrees only. The lack of continuing professional development is a concern as teaching and the management of schools becomes an ever more challenging task.

6. Modernising higher education

Denmark continues to have, with 48.8 %, one of the highest tertiary educational attainment rates in the EU with a sizeable number of students from abroad. Tertiary attainment increased by 10.7 percentage points during the last 10 years. Denmark belongs to the countries with a high number of foreign students. According to Eurostat, both the number of students originating from EU countries as well as those from non-EU countries continued to increase between 2013 and 2016, reaching 9 % for the former and 10.8 % for the latter. As far as degree-mobile students are concerned, in 2016 alone Denmark registered a 10 % increase to 10.9 % among EU students and to 12.9 % for all foreign students. Thanks to the traditional gap year between upper secondary education and tertiary education, Danish students entering tertiary education are older in international comparison. They also tend not to enter the labour market after having obtained their bachelor's degrees but to stay in education for a master's degree.

When migrant students reach tertiary level, their educational outcomes are broadly similar to those of natives. Analysing the highest completed qualification by ethnicity in 2017 (Ministry of Foreign Affairs and Integration, 2017) shows that about the same percentage of women from migrant as from native backgrounds had obtained a bachelor's or a master's degree.

Migrants from a western background did more than twice as well (28 %) as natives or migrants from a non-western background (both 12 %) in obtaining master's degrees. These figures suggest a certain inward migration of already well qualified migrants to undertake master's studies.

Danish reforms in higher education concentrate on funding. A new funding formula for higher education is intended to form the basis for performance-based funding. Basic funding (25 %) will be renegotiated every 4 years. The number of active students determines activity funding (67.5 %) and the remaining 7.5 % is distributed based on performance on certain criteria (7.5 %). The key measurement for this performance-based funding is the amount of time it takes graduates to find their first employment.

Denmark aims to become digitally the leading country in Europe. The "Digital Growth Strategy" provides for relevant measures in higher education. As well as offering more IT courses, higher education should train students to be among the best in the world and thus make Denmark a catalyst for both new technologies and new business models. Even though Denmark has made progress in increasing the number of science, technology, engineering and mathematics (STEM) graduates⁶⁰ (European Commission, 2018b), these graduates still don't fully satisfy labour market demand. No increase is registered for ICT specialists. (European Commission, 2017b). The Technology Pact — part of the 'Digital Growth Strategy' signed by 80 participating institutions in April 2018 — aims to encourage even more young people to select technology-oriented STEM subjects.

7. Modernising vocational education and training

Denmark is addressing decreasing enrolments in VET and links VET more strategically to economic and innovation systems. The share of students in upper secondary participating in VET further decreased to 41 % in 2016 (Cedefop, 2018a). A tri-partite agreement aiming to attract young people into VET and to increase completion rates was concluded in August 2017. Under this agreement, employers committed to offer at least 8 000-10 000 additional apprenticeship places by 2025 to allow more young people to choose and to complete a VET programme (Apprenticeship toolbox, 2018). Initiatives to secure a sufficient and qualified workforce in the long run include strengthening financial incentives for companies that offer apprenticeships and the creation of subsidy programs providing internships. In 2017, VET knowledge centres were launched to develop Centres of Excellence (Cedefop, 2018). These are to provide knowledge and training in specific areas with high relevance for emerging and growing sectors: robotics and automation, welfare technology, process technology, craftsmanship and handicrafts, craftsmanship and design, sustainable building and energy-related building renovation, e-business, and database service development. These centres have a close and formalised cooperation with other actors relevant for regional growth. The government has provided DKK 133 million (EUR 17.8 million) to establish and operate the centres between 2017 and 2020, and a further DKK 80 million (EUR 10.7 million) for specific technology investments.

8. Promoting adult learning

Denmark continues to further modernise its high performing adult education and continuing training system. Denmark has one of the highest adult participation rates in learning in the EU: 26.8 % in 2017 (Eurostat 2017). According to the Continuing Vocational Training Survey from 2015 (Eurostat 2015), 34.6 % of employees participated in continuing vocational training (EU-28 average 40.8 %). Participation of the low-skilled in education and training is the second highest in Europe (17.3 % in 2017).

A tripartite agreement towards stronger and more flexible adult education and continuing adult training was concluded in October 2017. The agreement contains initiatives aimed at helping those wishing to upgrade their qualifications in their present profession as well as those considering switching jobs to another profession or industry in line with the Council Recommendation on Upskilling Pathways. It will also serve to improve the quality of the adult

⁶⁰ In 2016, Denmark had the second highest number of STEM graduates among Nordic countries (23.3 % compared to 15.5 % in Sweden, 14.3 % in Norway) but this compares to 28.9 % in Ireland and 25.5 % in France. Denmark produces a comparable share of STEM PhDs to Germany and Finland with 1.3 % but less than Sweden (1.4 %) or Switzerland (1.9 %) and clearly more than Norway with 0.8 %.

vocational training (ArbejdsMarkedsUddannelser (AMU)) programmes, and ensure more flexibility for companies. The agreement will give employers in the public and private sector better access to qualified labour, and a better framework will be created for keeping workforce skills up-to-date with the pace of change in the labour market.

The agreement will run for 4 years (2018-2021). Its key elements are:

- (1) Targeted labour market transition — with establishment of a ‘transition fund’ (more than DKK 400 million (EUR 54 million)) intended to promote labour market mobility by strengthening the possibilities for employees to participate in job-orientated training and education, either in their spare time or during their working hours;
- (2) Strengthening basic skills and more extensive use of screening tests (around DKK 60 million (EUR 8 million));
- (3) Improving the quality of the adult vocational training (AMU) programmes (DKK 420 million (EUR 56.3 million));
- (4) Increased compensation for participation in all AMU programmes;
- (5) Further development of the adult and continuing higher education system and a better certification system (DKK 5 million annually (EUR 0.7 million));
- (6) A more professional AMU system with greater flexibility, documented learning through tests and easier access for providers of AMU programmes and a single entrance to the VET system;
- (7) Flexible VEU employer contribution and refund of DKK 680 million (EUR 91 million);
- (8) Dedicated outreach activities (DKK 100 million (EUR 13.4 million)).

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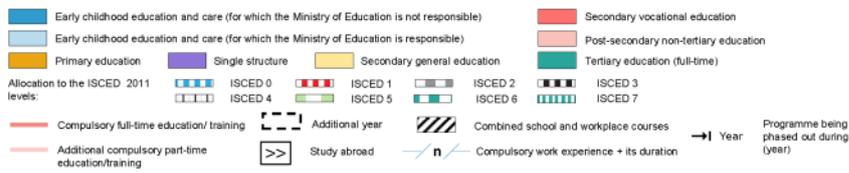
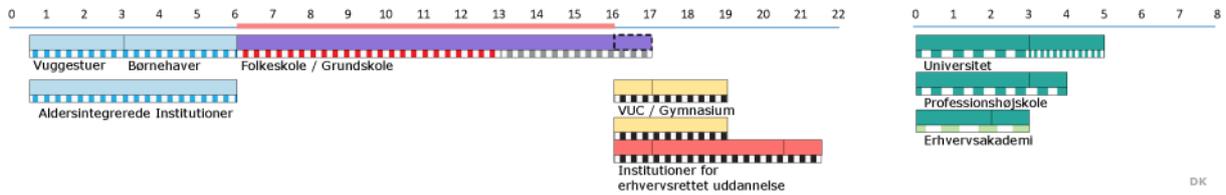
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10. Annex I: Key indicator sources

Indicator	Eurostat online data code
Early leavers from education and training	edat_lfse_14 + edat_lfse_02
Tertiary educational attainment	edat_lfse_03 + edat_lfs_9912
Early childhood education and care	educ_uoe_enra10
Underachievement in reading, maths, science	OECD (PISA)
Employment rate of recent graduates	edat_lfse_24
Adult participation in learning	trng_lfse_03
Public expenditure on education as a percentage of GDP	gov_10a_exp
Expenditure on public and private institutions per student	educ_uoe_fini04
Learning mobility: Degree mobile graduates	JRC computation based on Eurostat / UIS / OECD data
Credit mobile graduates	educ_uoe_mobc02

11. Annex II: Structure of the education system



Source: European Commission/EACEA/Eurydice, 2017. *The Structure of the European Education Systems 2017/18: Schematic Diagrams*. Eurydice Facts and Figures. Luxembourg; Publications Office of the European Union.

Comments and questions on this report are welcome and can be sent by email to:
 Klaus KOERNER
klaus.koerner@ec.europa.eu
 or
EAC-UNITE-A2@ec.europa.eu

ESTONIA



1. Key indicators

		Estonia		EU average		
		2014	2017	2014	2017	
Education and training 2020 benchmarks						
Early leavers from education and training (age 18-24)		12.0% ^b	10.8%	11.2%	10.6%	
Tertiary educational attainment (age 30-34)		43.2%	48.4%	37.9%	39.9%	
Early childhood education and care (from age 4 to starting age of compulsory primary education)		91.7% ¹³	92.6% ¹⁶	94.2% ¹³	95.3% ¹⁶	
Proportion of 15 year-olds underachieving in:	Reading	9.1% ¹²	10.6% ¹⁵	17.8% ¹²	19.7% ¹⁵	
	Maths	10.5% ¹²	11.2% ¹⁵	22.1% ¹²	22.2% ¹⁵	
	Science	5.0% ¹²	8.8% ¹⁵	16.6% ¹²	20.6% ¹⁵	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-8 (total)	80.9%	81.5%	76.0%	80.2%	
Adult participation in learning (age 25-64)	ISCED 0-8 (total)	11.6%	17.2%	10.8%	10.9%	
Learning mobility	Degree mobile graduates (ISCED 5-8)	:	8.6% ¹⁶	:	3.1% ¹⁶	
	Credit mobile graduates (ISCED 5-8)	:	: ¹⁶	:	7.6% ¹⁶	
Other contextual indicators						
	Public expenditure on education as a percentage of GDP	5.7%	5.9% ¹⁶	4.9%	4.7% ¹⁶	
Education investment	Expenditure on public and private institutions per student in € PPS	ISCED 1-2	€4 623	€4 846 ¹⁵	€6 494 ^d	: ¹⁵
		ISCED 3-4	€5 015	€5 473 ¹⁵	€7 741 ^d	: ¹⁵
		ISCED 5-8	€8 818	€9 716 ¹⁵	€11 187 ^d	: ¹⁵
Early leavers from education and training (age 18-24)	Native-born	12.0%	10.9%	10.4%	9.6%	
	Foreign-born	:	:	20.2%	19.4%	
Tertiary educational attainment (age 30-34)	Native-born	42.5%	48.1%	38.6%	40.6%	
	Foreign-born	55.4%	52.4%	34.3%	36.3%	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-4	75.2%	80.1%	70.7%	74.1%	
	ISCED 5-8	86.7%	83.0%	80.5%	84.9%	

Sources: Eurostat (see section 10 for more details); OECD (PISA).

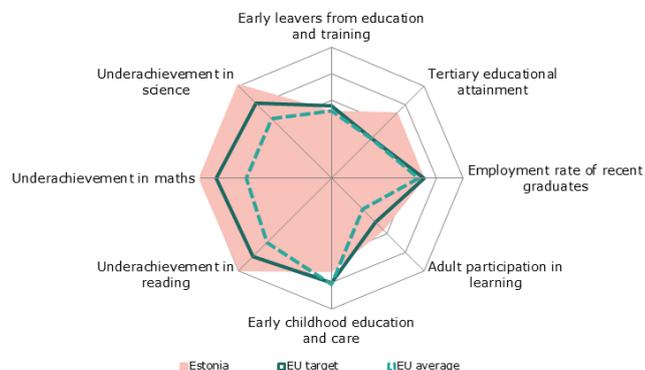
Notes: data refer to weighted EU averages, covering different numbers of Member States depending on the source;

b = break in time series, d = definition differs, 12 = 2012, 13 = 2013, 15 = 2015, 16 = 2016.

On credit graduate mobility, the EU average is calculated by DG EAC on the available countries; on degree graduate mobility, the EU average is calculated by JRC over Eurostat and OECD data.

Further information can be found in the relevant section of Volume 1 (ec.europa.eu/education/monitor).

Figure 1. Position in relation to strongest (outer ring) and weakest performers (centre)



Source: DG Education and Culture calculations, based on data from Eurostat (LFS 2017, UOE 2016) and OECD (PISA 2015). Note: all scores are set between a maximum (the strongest performers represented by the outer ring) and a minimum (the weakest performers represented by the centre of the figure).

2. Highlights

- Modernisation efforts are being made at all levels of education in Estonia and investment in education remains above the EU average. However, the need to adapt the education system to anticipated shifts in the labour market and in the economy, as well as to the interests of students and adults persist. Ageing trends among teachers raise important challenges.
- The level of civic knowledge of Estonian students has increased. There are clear policies and approaches to support citizenship education.
- Tertiary educational attainment is increasing, but dropout from university is still high.
- Performance-based funding was introduced in vocational education and training to encourage schools to tackle high dropout, offer workplace-based learning and foster cooperation with the business sector.
- Participation in adult learning is higher than the EU average, but the need for upskilling among the adult population is high.

3. Investing in education and training

In relative terms, public spending on education is above the EU average. In 2016, general government expenditure on education (COFOG) decreased in real terms by 3.2 %. Spending on education accounted for 5.9 % of GDP, compared to 6.1 % in 2015, although this was still above the EU average of 4.7 %. Spending on education decreased to 14.6 % of total government spending in 2016 (15.1 % the year before), but is still among the highest in the EU and well above the EU average of 10.2 %. By type of transaction, the sharpest decrease compared to 2015 (-33 %) was recorded under gross capital formation. This reflects the completion of investments in educational infrastructure (e.g. buildings, computers, IT infrastructure) in 2015 linked to the end of the funding cycle 2007-2013.

The reorganisation of the school network continues but is incomplete, which raises cost efficiency challenges. Municipalities can apply for grants to modernise the school network, financed partly by the European Regional Development Fund (ERDF). In exchange, municipalities have to arrange the network of local schools, while merging or restructuring basic schools (ISCED 1-2) and to discontinue the provision of general upper secondary education. 16 state gymnasiums (ISCED 3) are already operating (out of a planned total of 24). The goal is to address demographic trends, ensure quality education and optimise spending by reducing unused space⁶¹ and maintenance costs. However, the pace of adaptation varies among municipalities, and responsibilities for the school network have not yet been aligned to the recent local administration reform. In 2017, 163 schools offered upper secondary education⁶² (compared to about 200 in 2013), but the reorganisation aims to further lower the number to 100 by 2020.

⁶¹ When the reform started there were more than 20 square meters per student that needed maintenance (lighting, heating, repairs, etc.) in half of the school buildings in Estonia.

⁶² This includes gymnasiums that also offer basic education.

Figure 2. General government expenditure on education as a percentage of GDP


Source: DG EAC elaboration on Eurostat's general government spending. Online data code: [gov_10a_exp](#).

4. Citizenship education

The level of civic knowledge of Estonian students increased. The International Civic and Citizenship Education Study (ICCS)⁶³ shows that the level of civic knowledge of Estonian students is above the average of the 20 countries surveyed (546 points compared to the ISSC-average of 517). Compared to 2009, Estonian students scored 21 points higher. 43 % of Estonian eighth graders have a very high level of civic knowledge (ICCS average: 35 %), while only 3.4 % scored very low (average: 13 %). Girls outperform boys by 33 points (ICCS average: 25 points). Students in Russian-medium schools scored significantly lower than their peers in Estonian-medium schools (58 points). This performance gap is not linked to students' socio-economic background, their political interest or activities, nor the characteristics of the school (MoER, 2016a). Answers to questions on values and attitudes show that students' support for equal opportunities between men and women improved. 80 % of teenagers in Estonia reported that they would vote in local elections in the near future (85 % on average), but less so in national elections (77 % vs 85 %). 70 % of students assessed their relationship to teachers as positive and more than 90 % valued their own contribution to school life.

There are clear policies and approaches to support citizenship education. In Estonia citizenship education is taught as a separate subject in general education starting from sixth grade and integrated into other compulsory subjects throughout the entire school education, including in initial vocational education and training (VET). Students' civic competences are assessed at school to summarise individual achievement. A new testing model will be developed starting from 2019. A model of entrepreneurship training aims to develop entrepreneurial spirit among students and teachers. 47 % of all general education schools, 85 % of vocational schools and 90 % of higher education institutions tested the model in 2017, with on average 64 % of participating institutions already implementing it.

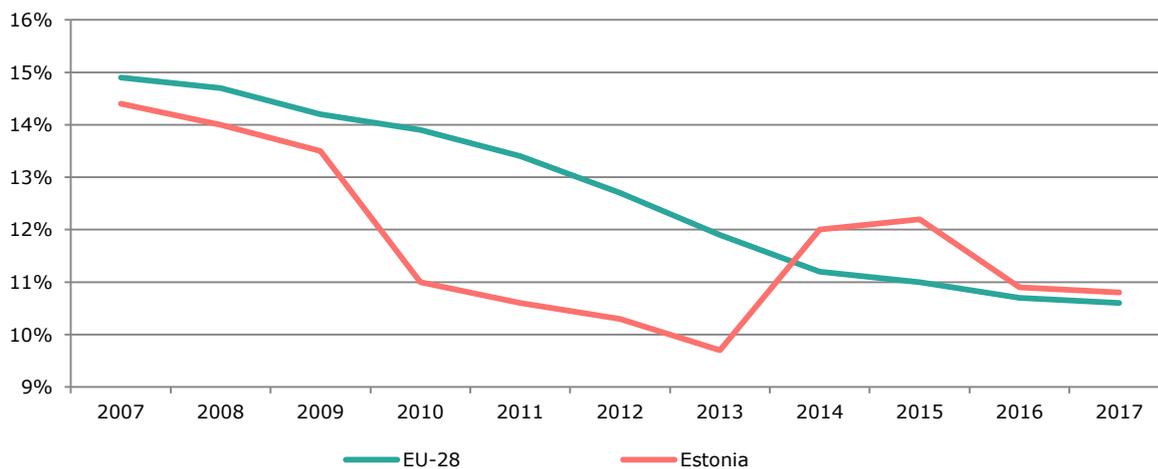
5. Modernising school education

Early school leaving is a challenge, particularly in the context of labour market trends and the changing structure of the economy. The rate of early leavers from education and training among those aged 18-24 was 10.8 % in 2017. Although this is around the EU average (10.6 %), it is above Estonia's Europe 2020 target of 9.5 %. Early school leaving remained virtually unchanged in the past years and is high in the context of a shrinking population, skills shortages

⁶³ In 2016, 14 EU Member States participated in ICCS: Belgium- Flanders, Bulgaria, Croatia, Denmark, Estonia, Finland, Germany (North Rhine-Westphalia), Italy, Latvia, Lithuania, Malta, the Netherlands, Slovenia and Sweden.

and the need to update the skills of the population. The rate remains much higher for men (14.2 %) than women (7.3 %). About 60 % of all early school leavers in Estonia⁶⁴ have never started upper secondary education and 40 % dropped out in upper secondary, mainly in VET. Dropout in VET has decreased (22.4 % in 2016), but remains high. About 20 % of young people fail to complete secondary education within seven years of graduating from basic education (MoER, 2017a). These figures point to the importance of strengthening career guidance and support services, particularly in basic schools, to tackle early school leaving.

Figure 3. Early leavers from education and training (ages 18-24)



Source: Eurostat. Online data code: [edat_lfse_14](#).

Enrolment rates in early childhood education and care (ECEC) are improving. The participation of children aged between 4 and compulsory school age (7) increased to 92.6 % in 2016. This remains below the EU-average of 95.3 % and the EU's 'Education and Training 2020' benchmark of 95 %. Enrolment rates for lower age groups have also been improving⁶⁵. EU funds are supporting the development of places for age-groups 0-7. Parents are entitled to a place in early education once the child is 1.5 years, if they wish. Municipalities can offer placement in childcare⁶⁶ for children below four. However, the curriculum and the requirements for staff have not yet been harmonised between the two types of care options (i.e. childcare and pre-school⁶⁷). The number of children in the ECEC age-group is expected to decrease slightly in coming years, in line with demographic trends. The proportion of children with a different mother tongue who are in language immersion classes in pre-school is increasing, which may support language acquisition from early on.

Although Estonia performs well in terms of equity in international surveys, some challenges remain. Estonia performs well in international skills surveys like PISA. Average student performance is high, while the impact of socio-economic status on the acquisition of basic skills is one of the lowest in the EU. The gender gap is a challenge in functional reading (albeit improving), but not in mathematics or science (MoER, 2016b). However, national examinations show that the learning outcomes of students in schools in rural areas are lower than those of their peers in urban areas (Serbak and Valk, 2016). Although the number of learning support specialists is increasing, there are shortages: less than half of all schools had a speech therapist and a social pedagogy therapist in 2017, and less than a third had a psychologist or special education teacher. In addition, teachers sometimes lack knowledge on how to deal with students with special educational needs (MoER, 2018).

Proficiency in Estonian language for students with a different mother tongue remains a challenge. PISA 2015 showed that the performance gap between students studying in Estonian

⁶⁴ Eurostat data for 2016: [lfso_16elvnsta] and [lfso_16elvncom].

⁶⁵ Enrolment rates by age groups (2017): 1y: 33.46 %, 2y: 76.68 %, 3y: 90.89 % (Statistics Estonia).

⁶⁶ Outside ISCED classification.

⁶⁷ For children up to school age. ISCED 0 classification.

and those in Russian-medium school persists. The proportion of Russian-medium basic school graduates (ISCED 1-2) with at least an intermediate level of proficiency in Estonian (B1) decreased to 57 % in 2017, significantly below the 90 % target set for 2020. However, Estonian language acquisition has been improving in upper secondary, where at least 60 % of the curriculum has been taught in Estonian since 2007. 83 % of graduates had reached the required B2 level in 2016. Evidence shows that proficiency in Estonian and foreign languages improves labour market outcomes, but Russian-medium basic school graduates have lower levels of proficiency (MoER, 2015). In 2017 the number of teachers in general, vocational and pre-school whose Estonian language skills did not meet the requirements was equal to 7.8 % of all teachers.

Despite an increased focus on teachers, the attractiveness of the teaching profession is still low. Almost 50 % of school teachers are aged 50+ and one in three works part-time. Teacher salaries have increased by almost 60 % since 2012. On average, in 2017, a municipal school teacher working full-time earned the equivalent of 105 % of the average wage in Estonia. Authorities' goal is for salaries to reach 120 % of the average wage, in line with those of higher education graduates. Despite increases, teachers in pre-school earn only 73 % of the average salary of school teachers. Competition for teacher education programmes has improved slightly, but is still low. A new leaders' competence model for headmasters was designed and incorporated in master's programmes for school leaders. In addition, the salaries of lecturers in higher education are not at a competitive level (MoER, 2018).

There is an increased focus on digital skills, but about half of students are unhappy with the development of their digital skills. Estonia uses self-assessment to evaluate students' digital skills at various levels of the school system (grades 4, 8, 11). In 2017, 82 % of students assessed their skills level as above average, but almost 50 % were not happy with the amount of digital skills development at school. More than a third of students were not happy with how often digital tools are used in the classroom and would like to use them more often (MoER, 2018). The provision of digital skills through the school curriculum is unequal among schools (ibid). Although a full picture of teachers' digital competences is not available, official reports by the Ministry of Education and Research suggest that the need for upgrading teachers' digital skills is high (ibid).

6. Modernising higher education

Tertiary educational attainment continued to increase in 2017 but dropout rates are still high. In 2017, 48.4 % of the population aged 30-34 had a higher education degree, 3 percentage points more than in 2016. This is significantly above the EU average of 39.9 %. The gender gap persists —41.6 % of men compared to 55.6 % of women in the target age group have a tertiary degree, although it should be noted that the attainment rate for men is above the EU benchmark of 40%. Nevertheless, maintaining these high rates will be difficult considering the high dropout rates (21.9 % in 2017). Since 2017, Estonia has been applying a revised performance-based funding model in higher education. Preliminary data shows a slight improvement in the proportion of students graduating within time, the proportion of students studying in priority fields, and an increase in the proportion of foreign students in Estonian universities and of Estonian students participating in mobility abroad (MoER, 2018).

The number of students is declining and a large part of students work and are adult learners. Between 2012 and 2017 the number of students enrolled in Estonian universities decreased by 28 %. The latest EUROSTUDENT survey shows that 66 % of all students in Estonia work and study at the same time (PRAXIS, 2018). Students' average age is 26. More than one in five students is over 30. Therefore, many students are adult learners, requiring flexible study arrangements. Students enter the labour market early on, with 41 % of 20-24 year-old students already working regularly during their studies. More than half of working students are employed in their area of specialisation and 69 % of students work to gain experience. Surveys (Ernst & Young, 2017) show that 38 % of graduates are not satisfied with workplace-based learning opportunities⁶⁸ and 22 % were not satisfied with their study programmes. In addition, 23 % of graduates were not satisfied with their teachers and the level of teaching. The employment rate of recent graduates improved in 2017 to 83 % (75.5 % in 2016), placing it slightly below the EU average of 84.9 %.

⁶⁸ Workplace-based learning has only been piloted in higher education since 2017.

One in four graduates reported not working in a field related to their studies. Since 2015, ERDF has been financing scholarships in smart specialisation fields.

The skills profile of higher education graduates is insufficiently aligned to labour market needs. The proportion of graduates in science, technology, engineering and mathematics (STEM) is improving, reaching 29 % in 2017. However, there are only 12.8 STEM graduates for every 1 000 people in the 20-29 age group, compared to 19.1 on average in the EU. The number of ICT graduates has increased by 50 % in five years, but unmet demand in the ICT sector is particularly high (EC, 2018). Labour shortages have been identified in sectors such as science, technology and engineering, in managerial positions, and in legal and healthcare professions (OECD, 2017). The labour market outcomes of STEM graduates are very different depending on the field of study. Graduates in mathematics and statistics continue their studies to postgraduate and to doctorate level twice as often as ICT graduates. Their salaries are high, but not as high as those of ICT graduates. Although technical fields (engineering, manufacturing and construction, including architecture) offer good labour market prospects, their attractiveness is low (MoER, 2017). Recent evidence shows that a growing number of university graduates start vocational studies after graduating from university and gaining experience on the labour market (Cedefop, 2018a).

There is some progress with the internationalisation of higher education. International students accounted for 9.5 % of the total student body in 2017 (2.3 % in 2011) and 17 % in doctoral studies. By field of study, the proportion of international students exceeded 10 % in business, social sciences and agriculture and is close to 10 % in ICT-related studies. National data suggests that one in five international students stays for work and 7 % continue their studies in Estonia. Not speaking Estonian is the main barrier to entering the labour market (except in ICT).

The full potential of Estonia's research and innovation (R&I) system remains underused. Estonia has implemented several measures to boost the growth of the knowledge economy, but the challenge is to maximise its impact. There is a good variety of higher education, research and technology-enabling institutions and infrastructure in place. However, weak links between business and science, low private investment in R&D, the quality of scientific output and the supply of human capital and skills are key bottlenecks to expanding Estonia's innovation capacity. Supported by EU funds, Estonia's public R&D intensity, at 0.6 % of GDP, has been generally above the EU average. The government has put in place several measures to improve the working conditions of researchers, promote research careers and attract foreign talent. The mismatch between the needs of the business sector and the limited provision of knowledge from the public research system continues to hamper Estonia's innovation capacity. Doctoral grants increased by 1.5 times in 2018 to support the completion rates. In this context, the 2018 country-specific recommendations call on Estonia to promote research and innovation, in particular by providing effective incentives to broaden the innovation base (Council of the European Union, 2018).

7. Modernising vocational education and training

Efforts are being made to improve the attractiveness of VET, which remains low. The share of basic school graduates who continue to VET has not increased significantly in the past ten years. It was 25 % in 2017, below the national target of 35 %. However, recent data shows that an increasing number of young people (37 %) are opting for VET 3 years after graduating from basic education, showing once again the need to strengthen career guidance. The employment rate of recent VET graduates was 86.2 %, above the EU average (76.6 %). The salaries of VET graduates have increased rapidly, indicating a strong demand for specialists with professional skills (MoER, 2018). 78 % of VET graduates from 2015-2016 are in employment (Ernst & Young, 2017) and 68 % of employed graduates work in a field related to their studies. 21 % of graduates have continued their studies after graduating from VET, half of them in higher education. Work-based learning is increasing: 7 % of students in VET were involved in workplace-based learning in 2017. A quarter of all VET institutions offer this type of learning together with more than 370 companies (ibid). The curricular reform launched in 2013 was finalised in 2017. It introduced a new system of vocational qualifications with five levels of qualifications, corresponding to the European Qualifications Framework. The process was supported by the European Social Fund and national funds.

Box 1: Performance-based funding in VET

In 2018 Estonia introduced performance-based funding in VET, complementing a revised basic funding component, which will no longer be exclusively based on per-capita financing. The overall budget for VET was also increased, particularly to finance support services. Basic funding is fixed for three years and linked to the number of learners, the fields of study, the salaries of teachers, number of students with special educational needs, the number of support specialists and the school infrastructure. Performance funding is based on the proportion of students who graduate in nominal time; graduate by taking the professional examination or who continue their studies on entering the labour market; and the proportion of students in workplace-based learning. On average, performance-based funding will account for 8 % of total funding. The new funding model aims to promote innovation and better cooperation between schools and companies.

8. Promoting adult learning

Adult participation in learning continues to increase, however, the need for reskilling and upskilling is high. In 2017 adult participation in learning reached 17.2 %, surpassing the Education and Training 2020 benchmark of 15 % and the EU average of 10.9 %. A more ambitious target (20 %) was set for 2020 at national level. In 2017, participation increased particularly among the unemployed (from 10 to 14 %). The proportion of adults aged 25-65 without at least professional or vocational education was 28.6 % in 2017 and has not improved significantly in recent years. In the context of Estonia's labour market and population trends, the need for upskilling and reskilling is particularly important. According to the Continuing Vocational Training Survey, in 2015, 86.1 % of Estonian companies (compared to EU-28 average of 72.6 %) provided vocational training to their employees and 31.9 % of employees participated in training (EU-28: 40.8 %). The majority of Estonian enterprises indicated that the main skills needed to develop the enterprise were team working, technical, practical and job-specific skills. Mobile workshops were organised throughout the country to introduce young people to professions and work practices in carpentry and metalwork and to familiarise them with nursing and bio-analytics through a virtual reality workshop. A pre-vocational education programme was launched targeting people younger than 26 who are not aware what to study or have not graduated from any VET programmes.

Box 2: Upskilling supported by the European Social Fund

There are three different support schemes.

- 16 projects totalling over EUR 2.6 million are being implemented with the aim to bring adults with low educational attainment back to formal education and upgrade their skills. Nearly 3 000 participants were involved in these projects by the end of 2017.
- Other projects support the development of key competences such as digital skills, language skills for adults whose mother tongue is not Estonian, social skills and personal development for persons with disabilities. The number of beneficiaries targeted over the period 2015-2020 is 20 000.
- In addition, around 25 000 adults have received work-related training by the end of 2017 and over 66 000 are targeted by the end of 2020.

All courses are provided free of charge.

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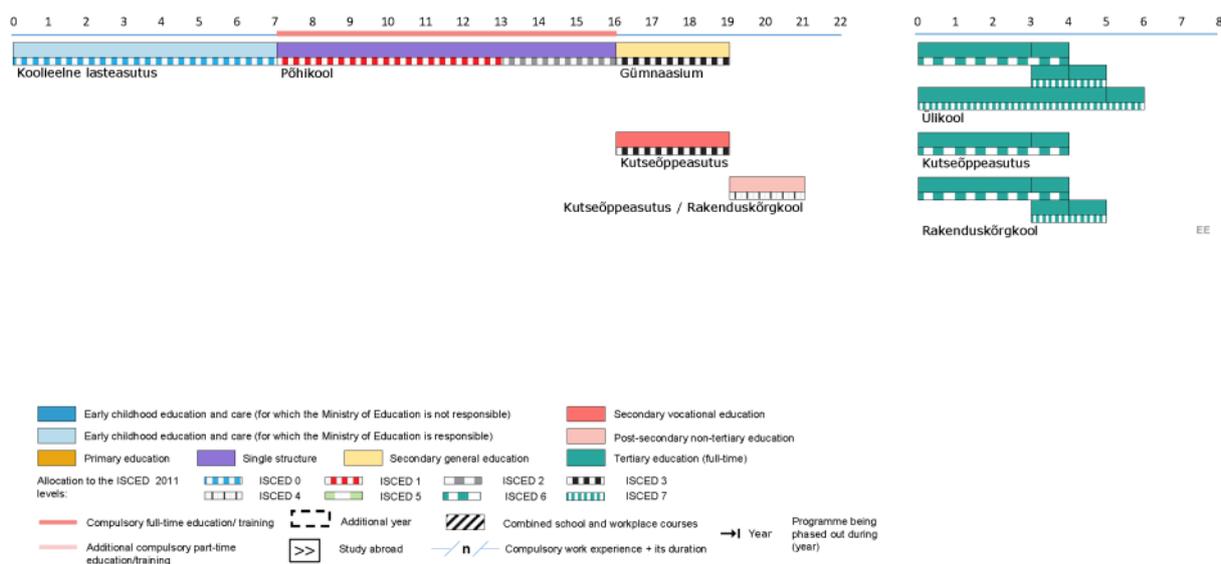
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10. Annex I: Key indicator sources

Indicator	Eurostat online data code
Early leavers from education and training	edat_lfse_14 + edat_lfse_02
Tertiary educational attainment	edat_lfse_03 + edat_lfs_9912
Early childhood education and care	educ_uae_enra10
Underachievement in reading, maths, science	OECD (PISA)
Employment rate of recent graduates	edat_lfse_24
Adult participation in learning	trng_lfse_03
Public expenditure on education as a percentage of GDP	gov_10a_exp
Expenditure on public and private institutions per student	educ_uae_fini04
Learning mobility: Degree mobile graduates	JRC computation based on Eurostat / UIS / OECD data
Credit mobile graduates	educ_uae_mobc02

11. Annex II: Structure of the education system



Source: European Commission/EACEA/Eurydice, 2017. *The Structure of the European Education Systems 2017/18: Schematic Diagrams*. Eurydice Facts and Figures. Luxembourg: Publications Office of the European Union.

Comments and questions on this report are welcome and can be sent by email to:
 Alexandra TAMASAN
alexandra.tamasan@ec.europa.eu
 or
EAC-UNITE-A2@ec.europa.eu

FINLAND



1. Key indicators

		Finland		EU average		
		2014	2017	2014	2017	
Education and training 2020 benchmarks						
Early leavers from education and training (age 18-24)		9.5%	8.2%	11.2%	10.6%	
Tertiary educational attainment (age 30-34)		45.3%	44.6%	37.9%	39.9%	
Early childhood education and care (from age 4 to starting age of compulsory primary education)		83.6% ¹³	87.4% ¹⁶	94.2% ¹³	95.3% ¹⁶	
Proportion of 15 year-olds underachieving in:	Reading	11.3% ¹²	11.1% ¹⁵	17.8% ¹²	19.7% ¹⁵	
	Maths	12.3% ¹²	13.6% ¹⁵	22.1% ¹²	22.2% ¹⁵	
	Science	7.7% ¹²	11.5% ¹⁵	16.6% ¹²	20.6% ¹⁵	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-8 (total)	77.0%	77.0%	76.0%	80.2%	
Adult participation in learning (age 25-64)	ISCED 0-8 (total)	25.1%	27.4%	10.8%	10.9%	
Learning mobility	Degree mobile graduates (ISCED 5-8)	:	3.6% ¹⁶	:	3.1% ¹⁶	
	Credit mobile graduates (ISCED 5-8)	:	15.8% ¹⁶	:	7.6% ¹⁶	
Other contextual indicators						
Education investment	Public expenditure on education as a percentage of GDP		6.4%	6.1% ¹⁶	4.9%	4.7% ¹⁶
	Expenditure on public and private institutions per student in € PPS	ISCED 1-2	€7 718	€8 377 ¹⁵	€6 494 ^d	: ¹⁵
		ISCED 3-4	€6 432	€6 451 ¹⁵	€7 741 ^d	: ¹⁵
ISCED 5-8		€13 138	€13 283 ¹⁵	€11 187 ^d	: ¹⁵	
Early leavers from education and training (age 18-24)	Native-born	9.1%	7.9%	10.4%	9.6%	
	Foreign-born	19.5% ^u	15.2% ^u	20.2%	19.4%	
Tertiary educational attainment (age 30-34)	Native-born	46.9%	46.7%	38.6%	40.6%	
	Foreign-born	31.0%	27.1%	34.3%	36.3%	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-4	74.0%	73.3%	70.7%	74.1%	
	ISCED 5-8	81.5%	82.1%	80.5%	84.9%	

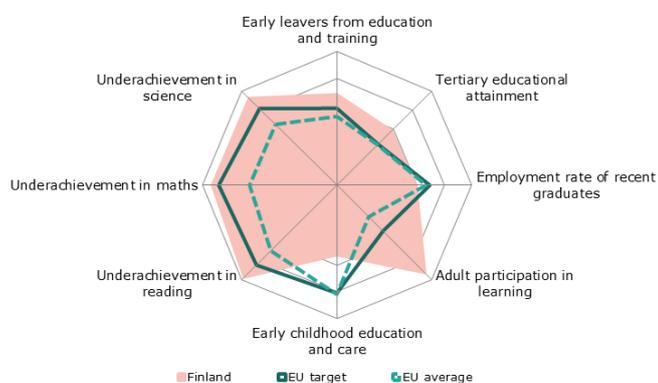
Sources: Eurostat (see section 10 for more details); OECD (PISA).

Notes: data refer to weighted EU averages, covering different numbers of Member States depending on the source; d = definition differs, u = unreliable, 12 = 2012, 13 = 2013, 15 = 2015, 16 = 2016.

On credit graduate mobility, the EU average is calculated by DG EAC on the available countries; on degree graduate mobility, the EU average is calculated by JRC over Eurostat and OECD data.

Further information can be found in the relevant section of Volume 1 (ec.europa.eu/education/monitor).

Figure 1. Position in relation to strongest (outer ring) and weakest performers (centre)



Source: DG Education and Culture calculations, based on data from Eurostat (LFS 2017, UOE 2016) and OECD (PISA 2015). Note: all scores are set between a maximum (the strongest performers represented by the outer ring) and a minimum (the weakest performers represented by the centre of the figure).

2. Highlights

- Education outcomes have declined slightly over time but remain good, in particular with regard to basic skills.
- The very comprehensive Finnish approach towards citizenship education gives rise to young Finns having high civic skills compared to their peers in other Member States.
- While equity is a key principle of Finnish education performance, gaps between different groups have increased and young people with an immigrant background, although still a relatively small group, perform significantly worse than native-born people.
- Higher education faced consolidation and budget restrictions but the 'Vision for higher education and research in Finland 2030' aims to mobilise the sector.
- Finland continues to implement crucial and forward-looking reforms in its education system, in a climate of fiscal adjustment.

3. Investing in education and training

Fiscal consolidation continues; education expenditure as a share of GDP remains well above the EU average but below other Nordic countries. Government expenditure on education as a share of GDP declined by 0.5 percentage points between 2010 and 2016, to 6.1 %. This is still 1.4 percentage points above the EU average but 0.8 percentage points lower than Denmark and 0.5 percentage points lower than Sweden. Finland spends a higher share on secondary level, 2.6 % compared to the 1.9 % EU average, more than other comparable countries except Denmark. The share of GDP devoted to higher education is similar to Denmark, but considerably larger than in other comparable countries and the EU average. While most spending categories did not see a reduction over time, compensation for employees (teachers) has declined since 2015.

Finnish education remains efficient and effective but cutbacks were felt in all educational sectors, most heavily in vocational education and training (VET) and in higher education.

Two thirds of primary education is financed at local level and this share slowly increased between 2012 and 2014 as consecutive governments reduced public education spending by EUR 1.5 billion between 2011 and 2018. Cumulatively, funding for schools was reduced by about EUR 190 million. If savings at municipal level since 2012 for early childhood and care (ECEC) and basic education are added, overall savings would increase to EUR 1 billion. EUR 300 million was cut for VET, and in higher education the cuts reached EUR 250 million for universities of applied sciences and EUR 300 million for other universities. In the same period 2011 to 2018, public funding for research was reduced by EUR 300 million. A recent survey by the Finnish teacher union⁶⁹ showed that the workload of teachers in general education, including non-teaching tasks, has increased compared to 2011.

Measures aim to increase efficiency in education. This is to be achieved through mergers and by closing institutions at all levels. Job losses in higher education have occurred; 3 000 jobs have been shed in VET. The number of courses offered has been reduced, and an impact on teacher/student ratios has been observed. Institutions have been encouraged, in particular in higher education and VET, to review their course offer. This also allowed them to update their offer and to develop also broader and interdisciplinary courses.

Recent initiatives aim to increase the quality of education and research. These include the 'basic education forum', the introduction of a 'guarantee of learning', a new proposal on upper secondary education and the 'Vision for higher education and research in Finland 2030' (all are described elsewhere in this report). All of these outline new approaches to strengthen the quality and relevance of education. However, since the additional funding associated with them does not

⁶⁹ OJA Trade Union of Education (6.4.2018).

fully offset previous and current spending cuts it may be difficult for the education sector and education stakeholders to fully benefit from them.

4. Citizenship education

Finland has a very comprehensive approach towards citizenship education. It is both a cross-curricular theme integrated into other compulsory subjects and a subject in its own right. Schools at each level of education are required to implement multi-disciplinary learning modules relevant for citizenship education. Pupils take an active part in planning the learning content and delivery processes (Eurydice, 2017).

Finland has a comparatively high number of minimum recommended hours of citizenship education as a separate subject. This amounts to 9.5 hours per year at ISCED 1 and 28.4 hours at general ISCED 2 and 3 levels — Estonia and Luxembourg are the only other countries teaching between 25 and 30 hours at these levels. In upper secondary general education students can choose the grade at which they complete the three compulsory courses in social studies, but they can also enrol in an additional optional course on this subject area (Eurydice, 2017). Curricula for upper secondary education further state that both educational programmes and the school culture should help to prepare pupils for participation, co-responsibility and rights in a free and democratic society (Eurydice, 2017).

Finland provides rather general guidelines instead of specific recommendations for the classroom assessment of citizenship education and actively trains teachers. It proposes several methods for classroom assessment in primary, in general secondary and in school-based VET, ranging from questionnaires and oral examinations to project-based or self-assessment. These aim to evaluate knowledge and skills rather than attitudes. National tests in social sciences at grade 9 were administered in Finland for monitoring purposes in 2010/11 and are scheduled to be repeated in 2022. Finnish teachers dealing with subjects that are related to citizenship education must cover these topics as elective part of their pre-service or initial teacher education, and can also do further in-service and professional development.

Finnish young people have strong civic skills. According to the 2016 International Civic and Citizenship Education Study (ICCS) by the International Association for the Evaluation of Educational Achievement (IEA)⁷⁰, Finnish eighth-grade students score among the best on knowledge on civic issues in international comparison. As in other subject areas, girls do better than boys. Language and immigrant background have a greater impact on performance than in other participating EU countries, whereas the impact on performance of socio-economic status is lower.

5. Modernising school education

Finland continues to be among the best performing EU countries regarding basic skills with a relatively equitable and accessible education system. Finland has reduced its early school leaving (ESL) rate from over 10 % in 2010 to close to 8 % in 2017, the national target for 2020. In 2017, the ESL rate for foreign-born (15.2 %) was almost twice as high as for the native-born (7.9 %). Large differences in the ESL rate also exist between young people in rural areas (10.1 %) and those in cities (7 %). According to the 2015 OECD PISA survey of 15 year-olds, Finland remains one of the best performing countries, notwithstanding a somewhat negative trend over time. Since 2009, performance in mathematics and science has worsened and has stalled for reading (European Commission, 2017a). But the IEA's survey in 2016 (PIRLS) showed that the reading skills of 10 year-olds remain strong and unchanged compared to 2011. The main factors influencing reading skills are: (1) reading knowledge before entering school, (2) reading as a leisure activity, and (3) the family background (Kaisa Leino et al, 2017).

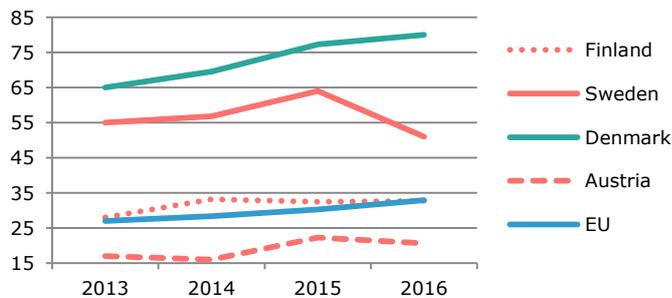
Finland has a traditionally low participation in early childhood education and care (ECEC). The share of under 3 year-olds in ECEC increased by 6.7 pps between 2007 and 2016 to

⁷⁰ ICCS reports on students' knowledge related to concepts of citizenship, equity, decision-making and civic self-image. In ICCS 2016 the civic knowledge scale was set to a metric with a mean of 500 (the average score of countries participating in ICCS 2009).

32.7 %. Both the share and the growth are in line with the EU average but are below other Nordic countries⁷¹. Participation for those between 4 years old and compulsory school age increased to 87.4 %. Lowering ECEC fees in 2018 for families with middle and low incomes should help increase participation (NRP, 2018).

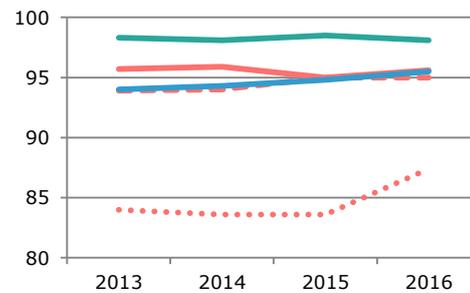
Figure 2. Participation in early childhood education and care

Participation of less than 3 year-olds



Source: Eurostat. Online data code: *ilc_caindformal*.

Participation of 4 year-olds until school age



Source: Eurostat. Online data code: *educ_uoe_enra10*.

Upcoming legislation aims to improve the quality of ECEC. A new law to be adopted in September 2018 aims to improve quality of ECEC as well as national data collection and statistics. The number of tertiary educated teachers, in particular those having a bachelor of education degree, will rise. From 2030 onwards two thirds of centre based staff must have a tertiary degree and all managers have to hold master degrees. Over the last 5 years, ECEC teacher training places at universities have been expanded by 1 000 and a further 1 000 places are to be created from 2018 to 2021.

Inequality in Finland has traditionally been low but has started to increase (European Commission, 2018a). Comparing OECD PISA 2006 and 2015 in science performance, equity indicators showed a significant deterioration. Of three main determinants of inequalities reviewed in a recent study — low educational level of parents, unemployment or receipt of social assistance — the latter has the greatest impact on the education outcomes of children (Vauhkonen et al, 2017). Foreign-born students not only leave education more often, they also tend to repeat grades. PISA tests show that in 2015 the difference between schools remained one of the lowest internationally and that the largest variation occurs within schools. At regional level, performance differences increased: the best performing region, Helsinki Metropolitan area, outperformed Western Finland, the worst performer, by about 37 PISA score points (equivalent to one school year). Performance decreased the most in Eastern Finland (OECD, 2016b). And the gender performance gap between boys and girls was one of the most pronounced in PISA 2015, in particular in science (Vettenranta J. et al, 2016).

Besides introducing new curricula at all levels of education, Finland is taking a series of additional measures to increase quality in education. The 'Basic education⁷² forum' convening researchers, experts, teachers, principals, students, parents, municipalities and all other levels of administration, proposes to build on the existing highly egalitarian system to introduce the 'future basic school'. It will strengthen the diversity of teaching and learning models, use individualised instruction and systemic development of expertise while increasing cooperation within and beyond schools. The school system is already characterised by intensive communication with parents and teachers supporting students attentively.

Finland's teaching force is ageing but teaching is a very attractive occupation with remuneration in some sectors and in later career lower than in other Nordic countries. At upper secondary level (ISCED 3) the age of teachers continuously increases, with close to 50 % of teachers being 50 years or older. This is in contrast to countries like Denmark or Sweden where the average age of teachers remains rather stable or slightly decreases. Finland is one of the few countries with long-term forward planning (Eurydice, 2018). The salary of Finnish teachers

⁷¹ Denmark had 70 % and Sweden 51 % in 2016 [*ilc_caindformal*].

⁷² Basic education comprises 6 years of primary and 3 years of lower secondary education.

compared to other tertiary-educated workers is higher at all education levels except in pre-primary level than in other Nordic countries or the EU/OECD average (OECD, 2018, Table D3.2a). However, comparing Finnish teachers' salaries after 15 years of experience using purchasing power parity shows them to be clearly lower than those in other Nordic countries and only around the EU/OECD average. In the increasingly important ECEC sector, Finnish teachers earn about the EU average at recruitment but their maximum salary amounts to only two thirds of the EU average (OECD, 2017), potentially limiting attractiveness.

Formerly weak participation in continuing professional development has improved. In 2013, the OECD's TALIS survey showed low levels of continuing professional development, with only 15 % of teachers having a personal study plan and limited teacher collaboration and networking. A recent national study showed improvement — 80 % of teachers in basic and 88 % in general upper secondary education have participated in continuing professional development beyond the 3 annual obligatory days during the last 3 years (Kumpulainen, 2017). In 2016, the government established the 'Teacher Education Forum' to reorganise initial teacher education and continuing professional development based on national and international research, best practices and experience. Its result is the 'Development programme for teachers' pre- and in-service education'. EUR 15 million for 2017 and EUR 12 million for 2018 have been distributed to pilot projects through the Forum.

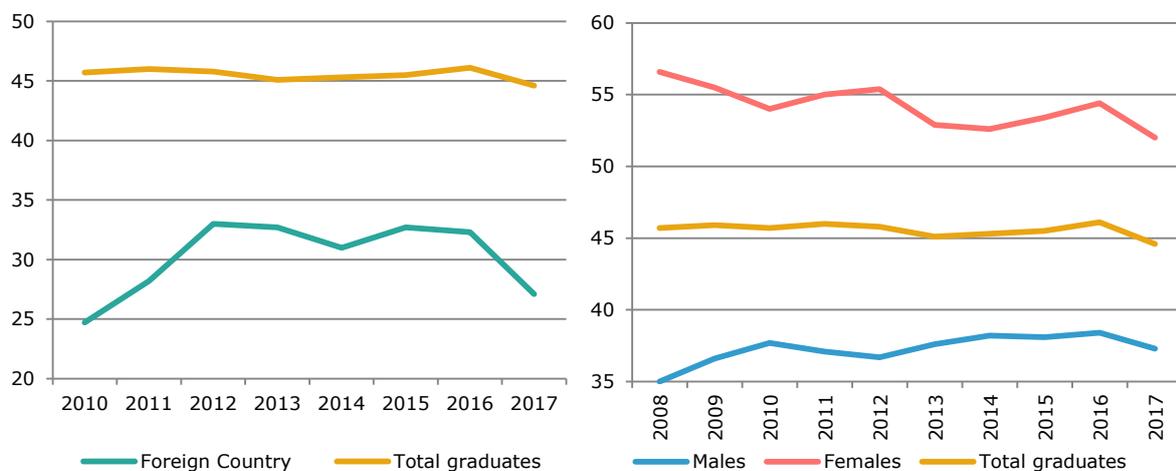
Finland compares generally well on digital skills. For advanced ICT skills and development, Finland retains a leading position. On basic ICT skills, the Netherlands, Sweden and Denmark score better (European Commission, 2018b). The current government initiated two key programmes in this area. For 2016-2019 it allocated EUR 300 million for the Knowledge and Education programme and EUR 100 million for the Digitalisation programme. This will make it possible to temporarily create 2 500 mentor teacher positions in municipalities to assist teachers in using new technologies and to promote using digital environments. Introducing the upper secondary matriculation examination as a fully computer-based exam by 2019 should encourage all teachers and students to update their digital skills.

6. Modernising higher education

Tertiary educational attainment levels are high but have recently dropped slightly. 44.6 % of 30-34 year-olds obtained tertiary education in 2017, 2.7 percentage points fewer than in 2007. With 37.3 % in 2017, male tertiary attainment increased by 2.3 percentage points since 2008, while the share of women of 52 % declined by 4.6 percentage points. In 2017 only 27 % of foreign-born people had tertiary education. This is less than in Austria (36.8 %) or the Netherlands (34.6 %) and other Nordic countries, where over 50 % of foreign-born people had tertiary education⁷³.

⁷³ In 2017, 58.1 % foreign-born people aged 30-34 in Denmark had obtained tertiary education compared to 46.6 % native-born and in Sweden 51.2 % compared to 51.5 %.

Figure 3. Trends in tertiary attainment in Finland by country of origin and gender



Source: Eurostat. Online data codes: *edat_lfse_03* and *edat_lfs_9912*.

Some surveys aim to shed light on the decline in tertiary attainment. Attitude surveys show that, for those who do not start tertiary education, the main reason is the wish to work (40 %) followed by family and health reasons (18 %). This is in line with the EU average, but Finns are clearly less content with their education level and consider more often that their studies did not meet either their needs or their interests. The reasons behind this are complex. Career tracking started in 2004, was extended to all public universities in 2016 and is currently being further developed in three projects.

Higher education has suffered more under the rebalancing of the budget than other education sectors. As described above, higher education was subject to cumulative budget cuts of EUR 850 million for the period 2011–2018. Only some universities could temporarily compensate with their own funding sources. This led to staff reductions and changes to teaching and research routines. Budgetary realignment has speeded up streamlining and consolidation of the higher education offer. Universities have tried to support a process where institutions develop a clearer vision, better cooperation on national and international levels and a matching offer of studies and research.

The 'Vision for higher education and research in Finland 2030' aims to mobilise the higher education sector. As a response to identified challenges and as a follow-up to the 2017 OECD Review of Innovation Policy in Finland, the government invited higher education institutions, professors, students and experts to develop a vision to achieve the following goals:

- (1) more than 50 % of the 25 to 34 year old should complete at least a bachelor's degree;
- (2) improved opportunities for continuous education/learning;
- (3) more resources for research outcomes of higher quality;

Box 1: A tournament involving multidisciplinary teams of students promotes innovation in Finland.

The Teiniminnotalkoot project organised the SuperTeam tournament for students from the Metropolia University and the education provider Omnia. The aim is to strengthen innovation skills and support students' transition from education to employment. Teams included students from a wide variety of fields and were given 6 weeks to develop innovative ideas for actual challenges presented by companies. One of the tournament prizes was awarded to a group who found a new way to inspire physically inactive young people to exercise by using smart watches, encouraging them to exercise through weekly challenges programmed into their smart watches.

The project is financed by the European Social Fund and will run until 2018.

<http://www.metropolia.fi/>

7. Modernising vocational education and training

The 2017 comprehensive VET reform aims to provide flexible pathways for learners, to integrate separate funding schemes into one coherent funding system and to further develop apprenticeship training and other forms of work-based learning (Cedefop, 2018c). The proportion of VET students of all upper secondary students (ISCED 3) remained stable in 2016 at 71 %⁷⁴, which is well above the EU average of 49 %. The employment rate of recent VET graduates in 2017 (77 %) is slightly above the EU average (76.6 %).

Box 2: Reform of vocational education and training

Emerging skills needs, relatively high inactivity rates of the working age population and the low employment rates of the low-skilled (53.2 % in 2017) triggered the reform, with the goal of improving the status of VET in Finnish society. It aims to guarantee access to education and training and to strengthen the lifelong learning dimension in line with the Upskilling Pathways Council Recommendation. Important aspects are:

- (1) preserving eligibility for further studies;
- (2) ensuring a regionally comprehensive network; and
- (3) reforming apprenticeship training by easing the administrative and financial burden on employers.

A key aspect of the reform is its competence-based approach, in particular the introduction of individual competence-based study plans for all learners. These include information on identification and recognition of prior learning, competence tests and other demonstration of skills and guidance and support to complete an entire qualification or a supplementary skill set, for both young people and adults already in working life.

The reform will be supported by a new uniform funding system for upper secondary VET, continuous VET, apprenticeship training and labour market training leading to qualifications. In this way it keeps the various existing educational pathways and includes core funding (50 % of total funding, based on the number of learners), performance funding (35 %, based on the number of completed qualifications and units) and effectiveness funding (15 %, based on learners' transition to employment, pursuit of further education and feedback from learners and employers). The reform came into force at the beginning of 2018 and will, after a gradual roll-out, be fully operational by 2022. A budget of EUR 60 million has been allocated to the reform.

Successful implementation of the VET reform (Cedefop 2018b) could result in improved skills matching on the Finnish labour market and a better-qualified labour force in the future, contributing to an improved employment rate. However, recent significant cuts in the VET budget (a total of EUR 230 million, with the most significant taking place in 2017) could make it difficult to successfully implement the reform. Monitoring the reform will be essential to potentially allow for corrective action on certain aspects (discontinuation of studies, impact on the regional availability and linguistic accessibility of education, increase in the number of places for apprenticeship training and training agreement, quality of training places). In addition, the National framework for qualifications entered into force on 1 March 2017, with referencing to the European Qualifications Framework and self-certification to the Qualifications Frameworks in the European Higher Education Area completed in December 2017 (Cedefop, 2018a). It covers the full range of national qualifications classified into eight levels on the basis of learning outcomes.

8. Promoting adult learning

Finland continues to improve its high-performing adult learning system. With 27.4 %, adult participation in learning is the second highest in the EU — notably through better alignment of the offer to future labour market needs. New provisions on basic education for adults entered into force on 1 January 2018, introducing a new uniform basic education structure to support the basic skills of individuals who are over the compulsory education age. The Finnish National Agency

⁷⁴ This figure encompasses all age groups including adult learners .

for Education and the European Social Fund are financing the project 'National anticipation model for adult education'. Its aim is to develop and pilot an anticipation system for adult education and training. An expert group representing companies, employers and employees' organisations, providers of further training, administration (relevant ministries and regional administration), researchers and adult learners proposed measures for transport and logistics as a pilot sector to develop the skills and competences of adult learners. Responding to the increase in migrants and refugees, the Liberal Adult Education Act was amended early 2018. The revised act gives greater responsibility to training institutions to provide language and vocational training to facilitate the integration of migrants including refugees into society and employment. Without the prior obligatory national language proficiency test (abolished on 1 January 2018) migrants should more easily enter vocational education and training, learn professions and become integrated into the labour market.

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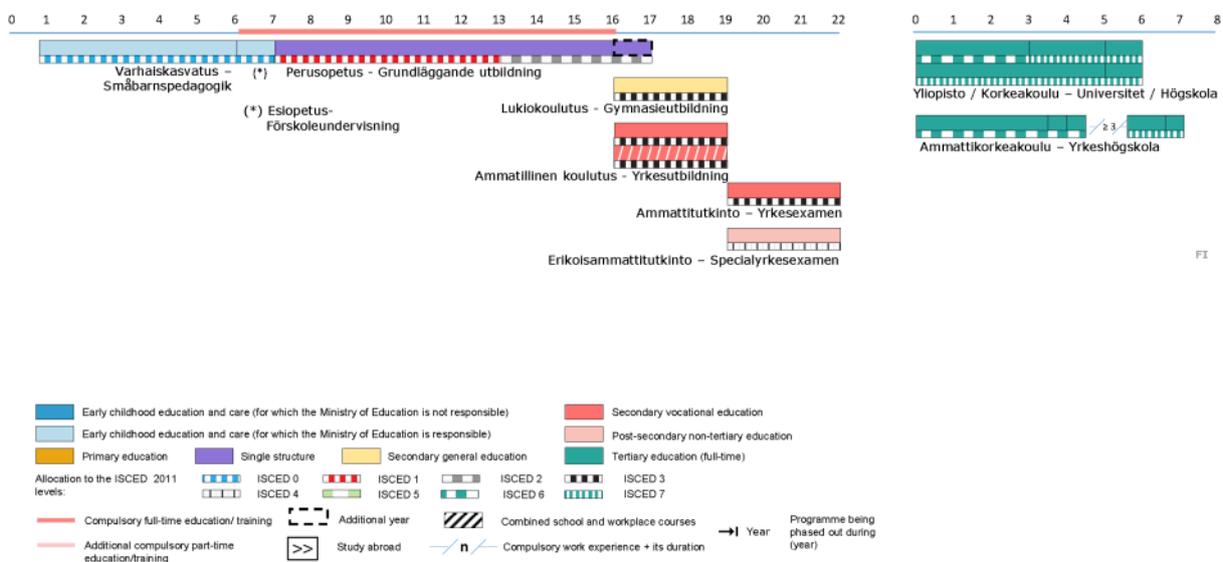
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10. Annex I: Key indicator sources

Indicator	Eurostat online data code
Early leavers from education and training	edat_lfse_14 + edat_lfse_02
Tertiary educational attainment	edat_lfse_03 + edat_lfs_9912
Early childhood education and care	educ_uae_enra10
Underachievement in reading, maths, science	OECD (PISA)
Employment rate of recent graduates	edat_lfse_24
Adult participation in learning	trng_lfse_03
Public expenditure on education as a percentage of GDP	gov_10a_exp
Expenditure on public and private institutions per student	educ_uae_fini04
Learning mobility: Degree mobile graduates	JRC computation based on Eurostat / UIS / OECD data
Credit mobile graduates	educ_uae_mobc02

11. Annex II: Structure of the education system



Source: European Commission/EACEA/Eurydice, 2017. *The Structure of the European Education Systems 2017/18: Schematic Diagrams*. Eurydice Facts and Figures. Luxembourg: Publications Office of the European Union.

Comments and questions on this report are welcome and can be sent by email to:
 Klaus KOERNER
Klaus.Koerner@ec.europa.eu
 or
EAC-UNITE-A2@ec.europa.eu

FRANCE



1. Key indicators

		France		EU average		
		2014	2017	2014	2017	
Education and training 2020 benchmarks						
Early leavers from education and training (age 18-24)		9.0%	8.9%	11.2%	10.6%	
Tertiary educational attainment (age 30-34)		43.7%	44.3%	37.9%	39.9%	
Early childhood education and care (from age 4 to starting age of compulsory primary education)		100.0% ¹³	100.0% ¹⁶	94.2% ¹³	95.3% ¹⁶	
Proportion of 15 year-olds underachieving in:	Reading	18.9% ¹²	21.5% ¹⁵	17.8% ¹²	19.7% ¹⁵	
	Maths	22.4% ¹²	23.5% ¹⁵	22.1% ¹²	22.2% ¹⁵	
	Science	18.7% ¹²	22.1% ¹⁵	16.6% ¹²	20.6% ¹⁵	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-8 (total)	75.2%	74.4%	76.0%	80.2%	
Adult participation in learning (age 25-64)	ISCED 0-8 (total)	18.4%	18.7%	10.8%	10.9%	
Learning mobility	Degree mobile graduates (ISCED 5-8)	:	2.9% ¹⁶	:	3.1% ¹⁶	
	Credit mobile graduates (ISCED 5-8)	:	13.2% ¹⁶	:	7.6% ¹⁶	
Other contextual indicators						
Education investment	Public expenditure on education as a percentage of GDP	5.5%	5.4% ^{16,p}	4.9%	4.7% ¹⁶	
	Expenditure on public and private institutions per student in € PPS	ISCED 1-2	€6 378	€6 587 ¹⁵	€6 494 ^d	: ¹⁵
		ISCED 3-4	€10 147	€10 415 ¹⁵	€7 741 ^d	: ¹⁵
		ISCED 5-8	€12 058	€12 382 ¹⁵	€11 187 ^d	: ¹⁵
Early leavers from education and training (age 18-24)	Native-born	8.6%	8.3%	10.4%	9.6%	
	Foreign-born	15.5%	15.5%	20.2%	19.4%	
Tertiary educational attainment (age 30-34)	Native-born	44.4%	45.4%	38.6%	40.6%	
	Foreign-born	38.5%	38.1%	34.3%	36.3%	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-4	66.7%	61.6%	70.7%	74.1%	
	ISCED 5-8	80.4%	83.0%	80.5%	84.9%	

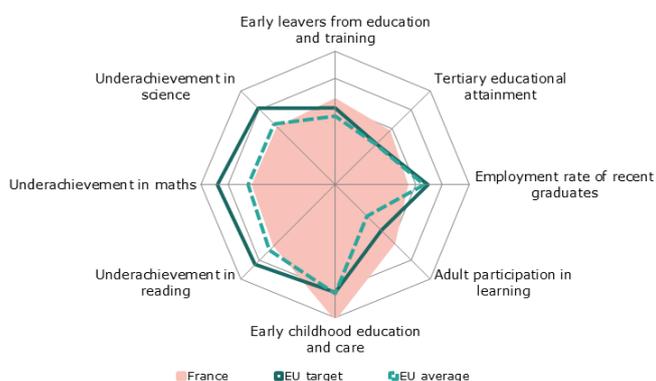
Sources: Eurostat (see section 10 for more details); OECD (PISA).

Notes: data refer to weighted EU averages, covering different numbers of Member States depending on the source; d = definition differs, p = provisional, 12 = 2012, 13 = 2013, 15 = 2015, 16 = 2016.

On credit graduate mobility, the EU average is calculated by DG EAC on the available countries; on degree graduate mobility, the EU average is calculated by JRC over Eurostat and OECD data.

Further information can be found in the relevant section of Volume 1 (ec.europa.eu/education/monitor).

Figure 1. Position in relation to strongest (outer ring) and weakest performers (centre)



Source: DG Education and Culture calculations, based on data from Eurostat (LFS 2017, UOE 2016) and OECD (PISA 2015). Note: all scores are set between a maximum (the strongest performers represented by the outer ring) and a minimum (the weakest performers represented by the centre of the figure).

2. Highlights

- The government has introduced measures to improve basic skills, reduce inequalities and transmit moral and civic values.
- The age for compulsory education will be lowered to three from September 2019.
- Complementary reforms of upper secondary and tertiary education have been launched to improve guidance and success rates.
- The authorities are encouraging more research on education, innovative practices and strengthening evaluation.
- France continues to perform well on the Europe 2020 headline targets on early school leaving and tertiary education attainment.

3. Investing in education and training

The budget of the Ministry of Education for school education increased by 2.6 % in 2018 compared to 2017, reaching EUR 50.6 billion (MEN, 2017 a). In 2016, France spent 5.4 % of its GDP on education (compared to the EU average of 4.7 %). 2.4 % of GDP was spent on secondary education, ranking France second in the EU (EU average 1.9 %). The 2018 budget for primary education has been increased (see Section 5 below)⁷⁵. The *'Grand Plan d'Investissement'* will dedicate EUR 0.3 billion to pilot innovative projects for teacher training and EUR 0.4 billion to improve the completion rate for tertiary education (Premier ministre, 2018a). The authorities are expecting the number of students entering tertiary education between 2016 and 2026 to increase by 327 000, which will call for further spending increases (MESRI, 2018a).

4. Citizenship education

France puts a strong emphasis on citizenship education. It is one of two EU countries — together with Belgium — where citizenship education is provided as a compulsory separate subject for all grades of general education (Eurydice/European Commission/EACEA, 2017). The topic is also a cross-curricular theme incorporated in other subjects. Recent official documents place respect for others within the scope of basic skills, alongside reading, writing and mathematics.

In the aftermath of the terrorist attacks in 2015, the French action plan for the 'Great mobilisation of schools for the values of the Republic' led to a stronger focus on moral and civic values and critical thinking. A 'Citizen Pathway' (*Parcours citoyen*) was launched in 2016, consisting mainly in moral, civic and media education, and targeted at all levels of school education (MEN, 2018a). There are no specialist teachers of citizenship education but increased efforts have been made since 2015 to strengthen teachers' competences in transmitting values related to civic and moral education, both in initial teacher education (ITE) and in continuing professional development (CPD) programmes. The role of teachers in this area has moved towards helping students to learn, for instance by promoting their ability to engage in debates and develop critical thinking. This requires a significant shift from the traditional central role that teachers have played to the role of facilitator of student learning. In continuation of the 'Citizen Pathway' initiative, France will launch a one-month universal national service for all young people aged 16 in 2019.

As in a number of countries, the curriculum for citizenship education for initial vocational education and training is less developed than for general education. This could require measures to ensure the same offer for all types of education. The Observatory for Secularism is of the view that schools need to be socially mixed to ensure secularism (Premier ministre, 2018b).

⁷⁵ Annual expenditure by educational institutions on primary students in France is 15 % lower than in OECD countries, whereas it is 37 % higher for upper-secondary students. (OECD, 2017a).

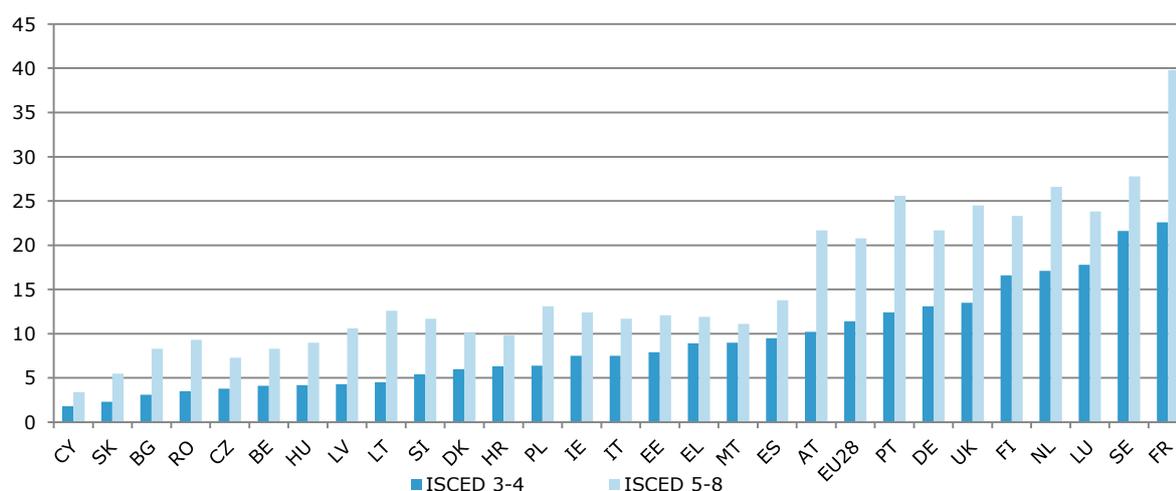
France also promotes the active participation of students in the social and democratic life of the classroom or school. Elected student councils have become a requirement for each lower secondary school as places for learning democracy. Generally, student participation in the collective life of the school has been assessed as having a stronger impact on civic knowledge or voting later on than participation outside the school, making student participation particularly relevant (CNESCO, 2016). According to the EU-SILC survey, France has the highest proportion of citizens who are active in social, civic and political activities with a strong correlation with educational attainment (see Figure 2 below).

The 2017 Law on equality and citizenship allows for the validation by higher education institutions of the knowledge and competences acquired by students through non-academic activities that include citizenship involvement.

A 'Citizen Reserve of National Education' was created in 2015. It enables civil society volunteers to work alongside teachers on citizenship and secularism projects.

In February 2018, the government adopted a national plan for the prevention of radicalisation that includes educational measures. These include: (i) educating teachers more about the values of the French Republic, (ii) revising the status and inspection of schools that do not have a contract with the Ministry and doing the same for home-schooling, and (iii) systematically educating pupils about the media and information to develop critical-thinking, instil a culture of debating and reduce the risk of on-line radicalisation (MEN, 2018b).

Figure 2. Active citizens by educational level 2015 (% of people ages 16 and over)



Source: EU-SILC, Eurostat: Social participation and integration statistics. Online data code *ilc_scp19* and *ilc_scp20*.

Note: 'Active citizenship' is defined as 'having attended meetings, signed petitions, or otherwise participated in activities related to political groups, associations or parties.'

5. Modernising school education

France performs well in reducing early school leaving. The 2017 rate was 8.9 %, which is below the EU and national targets for 2020 (less than 10 % EU, less than 9.5 % France).

Box 1: An original project to fight against early school leaving

The *Demos* project offers children from disadvantaged backgrounds the opportunity to become members of a youth orchestra to help integrate them socially and fight against early school leaving. It is notably supported by the European Social Fund.

More information: <http://demos.philharmoniedeparis.fr/>

Socioeconomic and territorial disparities in educational outcomes remain strong at all educational levels. Inequalities linked to pupils' immigrant background are also high (European Commission, 2017). Inter-generational social mobility is at risk due to the strong impact of the parents' background on educational outcomes (OECD, 2017b, p.48). Access to higher education varies widely between regions; hence social mobility also strongly depends on a pupil's geographical location (DEPP 2017a, France Stratégie, 2016).

Basic skill levels in primary education are low. French results from the Trends in International Mathematics and Science Study (TIMSS 2015) and the Progress in International Reading Literacy Study (PIRLS 2016) are at the bottom of the results of EU countries (IEA, 2017). To help improve policy-making, enable teachers to adapt teaching practices to pupils' needs, provide inspectors with indicators on schools' performance and give students feedback on their results, the Ministry has set up new pupil, school and education system evaluations (MEN, 2017b), in line with recommendations from the country's Court of Auditors (Cour des Comptes, 2018).

The type of secondary school-leaving diploma (the '*baccalauréat*') obtained is strongly dependent on a pupil's socio-economic background. While 77 % of children whose parents are managers have a general education diploma and 9 % of them a vocational diploma, the corresponding proportions for children of blue-collar workers are 34 % and 44 % (MEN, 2017c). Similar findings hold true for higher education.

To improve basic skills and reduce inequalities, France is lowering the starting age of compulsory education from six to three starting in September 2019. The measure targets those few children who do not participate in early childhood education and care (ECEC), most of whom are from disadvantaged and immigrant backgrounds. The focus will be on language acquisition and well-being as foundations for building basic skills. All children ages 4-6 already participate in ECEC⁷⁶.

Plans to improve continuing professional development are focusing on improving (ECEC) teachers' competences to tackle individual students' difficulties. It is argued that staff dealing with children in ECEC are not sufficiently aware of and trained in research findings on child development, educational methods or socio-economic inequalities (Taddei F., 2018), and that such training will be decisive for the measures to have an impact on child well-being, basic skills and the reduction in inequalities.

The halving of class size in the first two grades of primary education will progressively be extended to all classes in disadvantaged schools until September 2019. The government is planning to strengthen teacher training to improve teachers' ability to deliver differentiated teaching. This is essential if class size reduction is to have an impact. It is estimated that reducing the size of classes may bring about an increase of 2 percentage points in GDP and create 120 000 jobs over the long run (Premier ministre, 2018a). Positively, teachers in priority education get bonuses; however, they enjoy an accelerated accumulation of points which helps them move faster to a school of their choice. This could exacerbate the already high turnover in disadvantaged schools (OECD, 2017b).

The newly created catch-up holiday tutoring for pupils entering secondary education and increasing the number of assistants for pupils with a disability are two measures aimed at better enabling teachers to effectively tackle individual pupils' difficulties (European Commission, 2017 and MEN, 2017a). The measures may also help to further reduce the historically very high rate of grade repetition in France, which has already decreased sharply since the introduction of a law in 2014 stipulating that it should be exceptional (DEPP, 2016 and 2017b). This was in line with an OECD analysis that the practice is expensive and ineffective in improving learning outcomes (OECD, 2017b). Nevertheless, a 2018 decree giving back to teachers the possibility to propose grade repetition was welcomed by stakeholders and could reverse the trend. The belief remains strong among parents and teachers that grade repetition is beneficial (CNESCO, 2015).

⁷⁶ Source: Eurostat, table educ_uoe_enra10.

Teacher participation in continuing professional development (CPD) is comparatively low (OECD, 2014). 18 hours of annual participation are compulsory for primary education teachers, while there is no similar obligation for secondary education teachers. The budget allocated for CPD is far from being fully used (Assemblée Nationale, 2016)⁷⁷. The difficulty of replacing teachers and insufficient reimbursement of costs are regular obstacles to participation. Participation in CPD is not taken into account for career advancement, except when acceding to supervisory positions. This is contrary to a number of recommendations by various public bodies (European Commission, 2017). Content-wise, the subject-specific approach is prevalent in CPD in France, combined with training to support the implementation of reforms. This contributes to the low level of French teachers feeling (well) prepared in terms of pedagogy — 60 % compared with 89 % on average across the OECD (OECD, 2014). The newly created *Conseil scientifique de l'Éducation nationale* may help to deliver on the Ministry's intention to better articulate training with the latest research findings. A guide of good practices for teachers to support teaching reading and mathematics was released in April 2018 (MEN, 2018c).

While the OECD *Teaching and Learning International Survey* (TALIS) highlighted a low level of collaboration practices between teachers in France, only half of the schools have a dedicated room for such exchanges besides the teachers' room (CNESCO, 2017). Also, classroom furniture is not sufficiently adjustable to enable group workshops that are commonly used for differentiated teaching. Modernising teaching would therefore require some improvement in the infrastructure in many schools.

Box 2: Coordinated reforms of upper secondary and tertiary education

Upper secondary and tertiary education are being reformed in a mutually complementary manner (MEN, 2018d and MESRI, 2018b and 2018c). Both reforms are subject to wide consultations.

The upper secondary reform plans improving guidance and modernising the school-leaving examination ('baccalauréat').

On 14 February 2018, France's Council of Ministers adopted a communication on the *baccalauréat* reform in general and technological education. The objective is to better direct the examination at preparing for higher education or the labour market. The revised *baccalauréat* — to be fully in place by 2021 — will include a stronger role for continuous evaluation during the last 2 years of schooling (40 % of the final mark) and five examinations (60 %), including a written philosophy test and an oral test.

Streams ('*filières*') will be replaced by a more flexible curriculum: pupils will follow a common curriculum, including a new 'Scientific and digital humanities' course, and opt for specialities. They will have one and a half hours of guidance per week during the last 2 years of upper secondary education. This could help to address the impact of parental background on students' choices and help reduce the failure and dropout rates in higher education, which disproportionately affect less advantaged students (DEPP, 2017c).

In the context of increasing numbers and cohorts' proportion of young people entering higher education, the sector is being reformed to increase the completion rate at bachelor level ('licence'). Very low and uneven completion rates make the current situation neither efficient nor equal: the socio-economic background of students impacts on their type of *baccalauréat* which in turn is strongly correlated with success or failure at university (see Section 6 below). Together with the improved guidance and preparation at upper secondary level, access to and conditions for success at higher education are being reformed.

In France, all *baccalauréat* graduates are entitled to admission to the university and study programme of their choice. The strong and long-term increase in the proportion of cohorts passing the *baccalauréat* (88 % in 2017, MESRI, 2018a), combined with an increase in the population, has put strong pressure on higher education institutions. This has led to, among other things, random selection of students in certain study areas where demand for places exceeds availability.

⁷⁷ For instance, in 2015, less than a third of the available budget for primary education teachers' CPD was used.

On 8 March 2018, a new higher education law was promulgated to support guidance to and success in higher education. It is to be implemented beginning in September 2018. Information for prospective students on the 'Parcoursup' platform has been improved to combine right of access, an end to random selection and individualisation of pathways framed by a 'contract for pedagogical success'. Universities can require those who wish to study in particular fields to have specified levels of competences or to take complementary courses if their secondary education has not provided sufficient preparation ('attendus'). Financial support is provided to the teaching staff to implement the individualisation of pathways. Educational support, more flexibility in programmes and the promotion of new forms of teaching methods are planned to increase completion rates.

A number of stakeholders have argued against universities imposing so-called expectations ('attendus') which they fear could constitute a disguised selection system, while authorities repeatedly state that the traditionally taboo selection is not envisaged. The Conference of Presidents of Universities of France warned of the need to align funding with the ambitions of the reform (CPU, 2018).

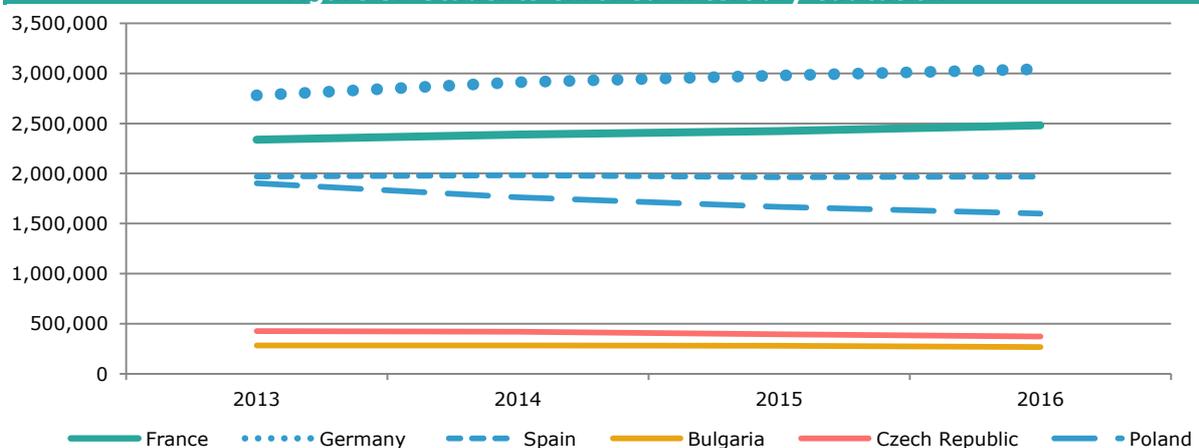
6. Modernising higher education

The percentage of French people ages 30-34 with tertiary education was 44.3 % in 2017, well above the EU average of 39.9 %. In 2015, 49.2 % of people ages 17-33 held a tertiary education degree, compared with the national target of 50 % for 2020.

Student numbers in higher education continue to increase (+ 1.4 % or 36 000 additional students in 2017 compared to 2016, see Figure 3 below) with a steadily rising proportion of vocational upper secondary graduates going on to higher education (MESRI, 2018a). Only 28 % of students graduate from their bachelor programme within 3 years, 41 % within 4 years. The figures are lower for holders of a technological or vocational *baccalauréat*. 31 % of students drop out after only 1 year, a part of them changing programme (MESRI 2018b). This has led the government to propose the reform presented in box 1 above (MESRI, 2018c and 2018d).

Measures have been adopted to support greater equity in higher education, together with the on-going reform. 21 000 additional places were created in September 2018: 17 000 in universities and 4 000 in short-cycle institutions. The Government committed to creating 10 000 additional places in programmes with high demand from students. Minimum numbers of places reserved for holders of the technological or vocational *baccalauréat* in technological and vocational higher education will be increased substantially to help support completion of studies. Minimum percentages for holders of a needs-based grant will be guaranteed. In addition, under the 2018 law to support guidance to and success in higher education, students will be exempted from paying annual social security contributions.

Figure 3. Students enrolled in tertiary education



Source: Eurostat. Online data code: [educ_uoe_enrt03](#).

7. Modernising vocational education and training

The labour market integration of vocational education and training (VET) students is slowly improving and there is potential for increasing the labour market relevance of the initial VET (I-VET) system. In 2017, 48 % of recent graduates from school-based VET and 69 % of recent graduates from work-based VET found a job (DEPP 2018a and 2018b). The employment premium of work-based pathways can be observed at all ISCED levels. Significant efforts have been made by public authorities to tackle the challenges in VET, notably by increasing the financial incentives for apprenticeships.

The 2018 European Semester country-specific recommendations to France included the following recommendation: 'Pursue the reforms of the vocational education and training system, to strengthen its labour market relevance.' (Council of the European Union, 2018).

The 2018 VET reform encompasses all stages of apprenticeships (see box below). The French government plans to improve the transparency and funding of the apprenticeship system, with direct financing of the centres based on individual contracts (instead of a structure-based funding through the regions) and companies' incentives targeted to SMEs and first level of qualifications. The authorities are also planning improvements in school-based VET which represents around 75 % of I-VET (MEN, 2018e). The measures target attractiveness, efficiency, labour market relevance and bridges with other pathways including European mobility.

Box 2: The 2018 reform of VET and apprenticeships

The initial and continuing VET system in France still faces challenges with effectiveness (in terms of access and labour market outcomes) and efficiency (in terms of financing and governance). Parallel to the reform of general and technological education presented above, an ambitious VET reform was initiated in 2017 (adopted on August 1st 2018). Its aim is to enable all individuals (and in particular the most vulnerable) to upskill or reskill in order to build their professional career and protect it against labour market changes and unemployment risks. I-VET is to be made more attractive to young people and relevant to labour market needs and contracting conditions simpler and safer both for apprentices and employers. For continuing VET, the personal training account will be modernised, the quality of the training provided improved, and access to training for the unemployed and low-skilled should be supported by increased means. In both sub-sectors, the funding mechanisms and governance will be simplified by a National Skills Agency '*France compétences*' and through readjustments in the joint management by the State, the regions and social partners (e.g. regions are to be given a greater role in guidance, but a lesser role in apprenticeship steering). Additionally, a massive Skills Investment Plan was launched at the end of 2017 (EUR 14 billion, 5 years), with the objective of upskilling and returning to the labour market 1 million low-qualified unemployed adults and 1 million young people not in education, employment or training (the objective for 2022 is to increase the number returning to work by 15 %), and to support some aspects of the reform and policy experimentation.

8. Promoting adult learning

The 2018 VET reform (see above) puts significant emphasis on continuing vocational education and training (C-VET) to address the needs of the adult population with a particular focus on the low-qualified. In 2017, the share of low-qualified people ages 25-64 stagnated (21.6 %). Their participation in learning and their employment rate slightly improved (52.7 %) in line with the economic recovery. Still, the gap remains substantial compared to the rest of the population, and equality in access to training could be improved, especially for low-qualified adults, SME employees and jobseekers. For employees, re-boosting the C-VET system would help to increase the number of participants in courses. One of the flagship measures to help individuals secure their professional pathway is the reform of the personal training account. It includes the account to be credited in euros instead of hours and to be made available on a new mobile application enabling peer reviews of the training provision, backed by more career guidance. It will still be possible to use the account for longer-term training projects to secure a professional transition. For the quality of the learning offer, providers benefiting from public funds

will also need to be certified by an independent body beginning in 2021. A strengthening of the solidarity system will help SMEs finance their company training plans and give their employees easier access to training.

In 2017, only 57 % of individuals ages 25-64 possessed basic or above basic overall digital skills (compared with the EU average of 59 %).

Some aspects of the reform may show results that will be in line with the EU Council Recommendation on upskilling pathways. These include systematically proposing basic skills modules to jobseekers and keeping the top-up for low-qualified people's personal training accounts. All existing tools on validation of non-formal and informal learning can be mobilised. It should be noted that the decree of 4 July 2017 widened the scope of eligible activities and shortened the reference period to one year instead of three.

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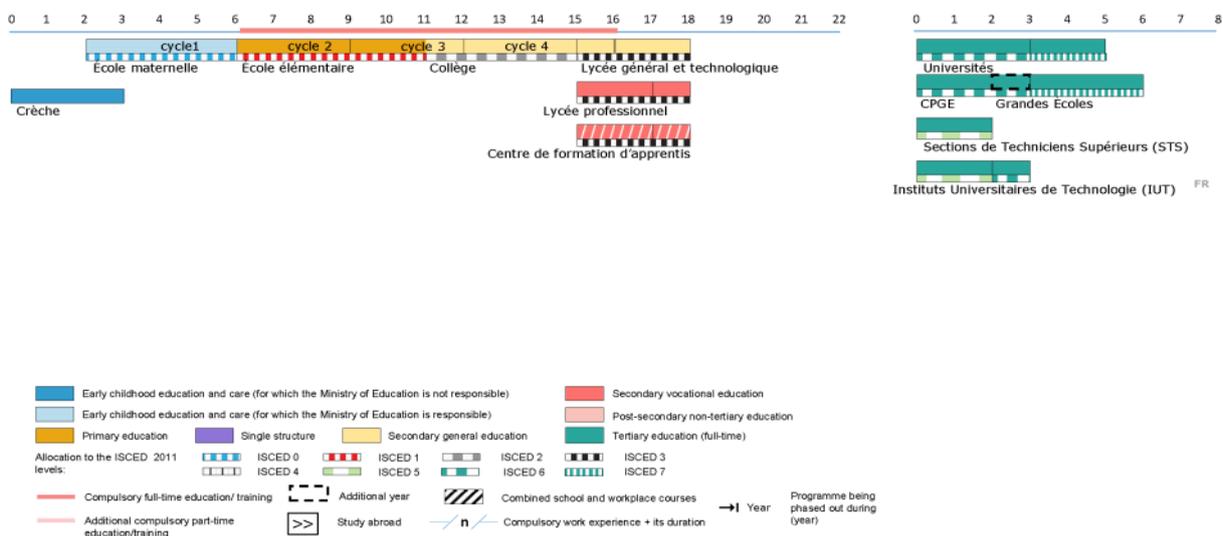
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10. Annex I: Key indicator sources

Indicator	Eurostat online data code
Early leavers from education and training	edat_lfse_14 + edat_lfse_02
Tertiary educational attainment	edat_lfse_03 + edat_lfs_9912
Early childhood education and care	educ_uoe_enra10
Underachievement in reading, maths, science	OECD (PISA)
Employment rate of recent graduates	edat_lfse_24
Adult participation in learning	trng_lfse_03
Public expenditure on education as a percentage of GDP	gov_10a_exp
Expenditure on public and private institutions per student	educ_uoe_fini04
Learning mobility: Degree mobile graduates	JRC computation based on Eurostat / UIS / OECD data
Credit mobile graduates	educ_uoe_mobc02

11. Annex II: Structure of the education system



Source: European Commission/EACEA/Eurydice, 2017. *The Structure of the European Education Systems 2017/18: Schematic Diagrams*. Eurydice Facts and Figures. Luxembourg: Publications Office of the European Union.

Comments and questions on this report are welcome and can be sent by email to:
Christèle DUVIEUSART
christele.duvieusart@ec.europa.eu
or
EAC-UNITE-A2@ec.europa.eu

GERMANY



1. Key indicators

		Germany		EU average		
		2014	2017	2014	2017	
Education and training 2020 benchmarks						
Early leavers from education and training (age 18-24)		9.5%	10.1%	11.2%	10.6%	
Tertiary educational attainment (age 30-34)		31.4%	34.0%	37.9%	39.9%	
Early childhood education and care (from age 4 to starting age of compulsory primary education)		97.4% ¹³	96.6% ¹⁶	94.2% ¹³	95.3% ¹⁶	
Proportion of 15 year-olds underachieving in:	Reading	14.5% ¹²	16.2% ¹⁵	17.8% ¹²	19.7% ¹⁵	
	Maths	17.7% ¹²	17.2% ¹⁵	22.1% ¹²	22.2% ¹⁵	
	Science	12.2% ¹²	17.0% ¹⁵	16.6% ¹²	20.6% ¹⁵	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-8 (total)	90.0%	90.9%	76.0%	80.2%	
Adult participation in learning (age 25-64)	ISCED 0-8 (total)	8.0%	8.4%	10.8%	10.9%	
Learning mobility	Degree mobile graduates (ISCED 5-8)	:	4.9% ¹⁶	:	3.1% ¹⁶	
	Credit mobile graduates (ISCED 5-8)	:	12.9% ¹⁶	:	7.6% ¹⁶	
Other contextual indicators						
Education investment	Public expenditure on education as a percentage of GDP		4.2%	4.2% ¹⁶	4.9%	4.7% ¹⁶
	Expenditure on public and private institutions per student in € PPS	ISCED 1-2	€7 176	€7 452 ¹⁵	€6 494 ^d	: ¹⁵
		ISCED 3-4	€9 510	€9 824 ¹⁵	€7 741 ^d	: ¹⁵
		ISCED 5-8	€12 614	€12 864 ¹⁵	€11 187 ^d	: ¹⁵
Early leavers from education and training (age 18-24)	Native-born	8.3%	8.1%	10.4%	9.6%	
	Foreign-born	19.5%	23.1%	20.2%	19.4%	
Tertiary educational attainment (age 30-34)	Native-born	32.0%	34.4%	38.6%	40.6%	
	Foreign-born	29.3%	32.8%	34.3%	36.3%	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-4	87.7%	89.1%	70.7%	74.1%	
	ISCED 5-8	93.1%	93.0%	80.5%	84.9%	

Sources: Eurostat (see section 10 for more details); OECD (PISA).

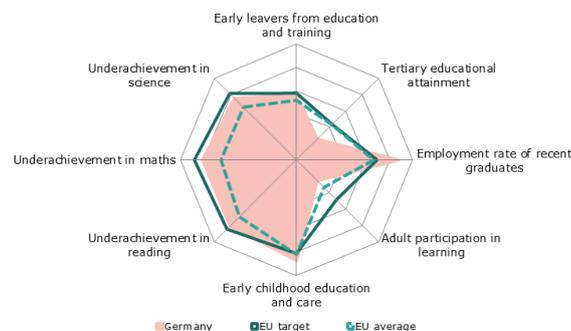
Notes: data refer to weighted EU averages, covering different numbers of Member States depending on the source; d = definition differs, 12 = 2012, 13 = 2013, 15 = 2015, 16 = 2016.

On tertiary education attainment, Germany includes post-secondary education (ISCED 4) in the measurement of progress towards its national Europe 2020 target of 42%. When included, Germany has reached 48.8% in 2017.

On credit graduate mobility, the EU average is calculated by DG EAC on the available countries; on degree graduate mobility, the EU average is calculated by JRC over Eurostat and OECD data.

Further information can be found in the relevant section of Volume 1 (ec.europa.eu/education/monitor).

Figure 1. Position in relation to strongest (outer ring) and weakest performers (centre)



Source: DG Education and Culture calculations, based on data from Eurostat (LFS 2017, UOE 2016) and OECD (PISA 2015). Note: all scores are set between a maximum (the strongest performers represented by the outer ring) and a minimum (the weakest performers represented by the centre of the figure).

2. Highlights

- Spending on education remained flat as a share of GDP while increasing challenges call for sustained long-term financial efforts.
- Citizenship education is well established in schools and elsewhere and is responding to new challenges, such as radicalisation.
- Primary students' performance worsened in key competences such as reading and maths. Social and immigrant backgrounds remain decisive for performance.
- Teacher shortages impact negatively on education and call for additional efforts to raise the attractiveness of the profession.
- German universities report the third-highest rate of incoming students in the EU, from Europe and beyond.

3. Investing in education and training

Germany's spending on education remains below the EU average. Spending as a share of GDP remained unchanged in 2016 at 4.2 % compared to an EU average of 4.7 %⁷⁸. Out of overall government expenditure, 9.5 % went to education, also below the EU average (10.2 %). However, real growth compared to 2015 was 2.6 %. Owing to the federal structure of the country, the bulk of Germany's education expenditure is borne by the federal states and the municipalities.

Upward education spending is a long-term investment. To tackle the low level of education expenditure in Germany by international comparison (Destatis, 2017), experts advise on targeted spending increases rather than simply increasing the volume of spending (IW, 2017). An overall spending target of 10 % of GDP for research, innovation and education combined has been raised to 3.5 % of GDP for research and innovation alone. For education, the government announced specific investments of EUR 2 billion to further expand all-day schools, 3.5 billion for early childhood education and care (ECEC) and 3.5 billion for digital education (German Government, 2018).

Particular investment needs arise from demographic developments and changed work patterns. While the population is aging over the long term (European Commission, 2017a), a growing young population over the next 10-15 years due to higher birth rates and immigration necessitates increased expenditure for ECEC and for school education. Neither ECEC provision nor all-day offers are sufficient to meet projected needs. Estimates for necessary additional investment to further increase quantity and quality range from EUR 18 billion until 2025 for ECEC and all-day care (Rauschenbach et al., 2017) to EUR 24 billion until 2021 for ECEC alone (Bertelsmann, 2018). At municipal level, investment needs in schools and adult education currently amount to EUR 32.8 billion, the second highest expenditure item after traffic infrastructure (KfW, 2017).

4. Citizenship education

Citizenship education is taught widely at all levels of education. The Standing Conference of the Ministers of Education and Cultural Affairs (KMK) has issued guidance on education on human rights, democracy, media literacy, history, politics and intercultural education which apply to all federal states (European Commission, 2018a). The topic is both taught as a separate subject and integrated into other subjects. Competences defined in the curriculum include thinking critically (taught already at primary school and also in secondary VET); fostering a sense of belonging; respecting other cultures and religions; and democracy, including knowledge of international organisations (European Commission, 2018a). Citizenship education features also highly in extra-

⁷⁸ Since 2011 Germany has had a country-specific recommendation to increase investment in education in the context of the European Semester (Council of the European Union, 2018).

curricular activities, where the OECD reports for Germany one of the highest shares of schools offering volunteering or service activities among OECD countries (OECD, 2016).

Recent initiatives address current societal challenges. The national programme 'Live Democracy', which has run since 2015, funds projects to prevent radicalisation and promotes democracy at a local, regional or national level. In 2018, EUR 115.5 million have been earmarked for initiatives under the programme, including for the prevention of Islamic extremism in schools. More than 170 specifically trained social workers, called anti-mobbing professionals or respect coaches, will be deployed in schools across Germany. They will train young people in discussion culture to enable them to withstand radical propaganda⁷⁹.

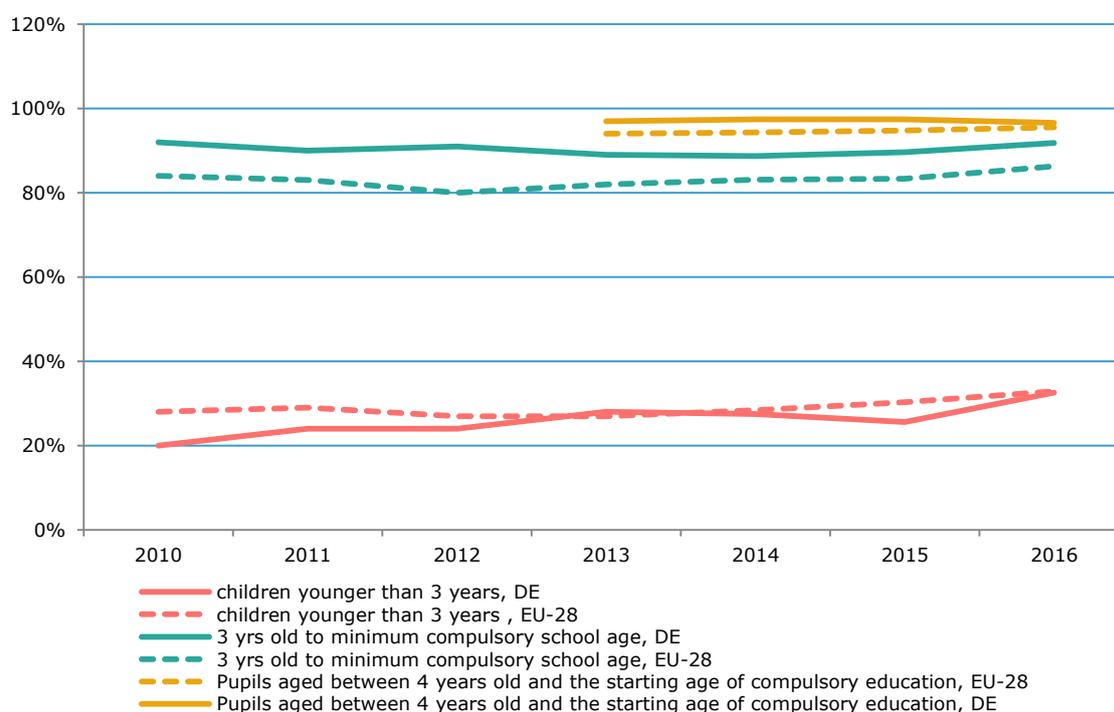
Citizenship education extends beyond the school context. Germany has an impressive network of one federal and 16 state agencies for political education. They provide analyses, studies and teaching material to teachers, schools and the public at large on political and societal issues. These issues include national, European and international politics and history; migration; populism; left- and right-wing extremism; Islamism; education; and the environment. To promote democracy through education, the German Society for Democratic Education brings together expert educational researchers and practitioners, publishers, parents and students. The 'voluntary social year' and the 'voluntary environmental year' established in 2008 as federal programmes have their origins in the 1950s. They enable young people no longer attending school to work mainly in the social and environmental sector but also in culture, politics, sports, at home and abroad, and in this way help improve both their personal development and professional orientation.

5. Modernising school education

Early school leaving remains stable. In 2017, the share of young adults (18-24) having left school with at most lower secondary education was 10.1 %, i.e. at the national target of 10 %. Early school leaving is higher in cities (10.3 %) and towns and suburbs (10.7 %) than in rural areas (8.5 %), most likely owing to the higher concentration of schools with socio-economic challenges in urban environments. The higher risk of early school leaving for foreign-born students compared to native-born remained the same at 23.1 % vs 8.1 %.

Participation in ECEC is above the EU average but supply still does not meet demand. In 2016, a total of 96.6 % of children aged between four and compulsory school age were enrolled in ECEC compared to 95.3 % in the EU. Reflecting the recent creation of places in the early care sector, the participation of under-3 year-olds in ECEC rose from 25.9 % in 2015 to 32.6 % in 2016. National data suggest the demand-supply gap ranges from 7.3 percentage points in eastern to 14.8 percentage points in western federal states (Federal Ministry of Family Affairs, 2017). Regional and local disparities exist with regard to child-teacher ratios, which are overall much higher in East Germany. Hours of coverage are also higher in East Germany where the majority of ECEC places in 2016 (77 %) were for 35 hours and more per week, compared to 43 % in West Germany (Ländermonitor).

⁷⁹ <https://www.jugendmigrationsdienste.de/respekt-coaches/>

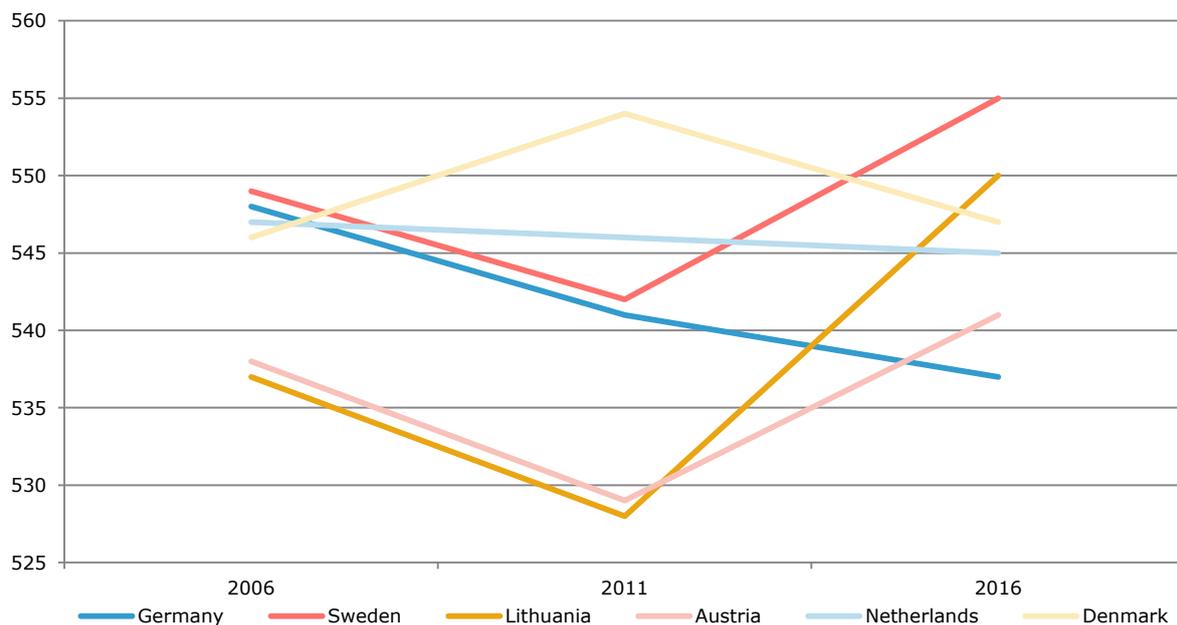
Figure 1. Children in formal childcare by age group


Source: Eurostat, EU-SILC survey. Online data codes: *ilc_caindformal* and *educ_uoe_enra10*

Free ECEC provision is increasing. Several federal states across the political spectrum (Berlin, Brandenburg, Mecklenburg-West Pomerania, Lower Saxony and Rhineland-Palatinate) have entirely or partly abolished ECEC tuition fees, while others are planning to do so. The main reason is the recognition of ECEC facilities as educational institutions providing more than pure care tasks. There is some debate on whether scrapping or reducing fees may impede further expansion of places and quality improvements. The increased financial support from central government (see section 3) is meant to support federal states' efforts to improve quality and quantity and reduce fees (German Government, 2018).

Performance of primary students worsened. A 2016 national survey measuring fourth graders' skills in reading, listening, spelling and maths showed on average worse performances in all areas compared to 2011 (Stanat et al., 2017). The survey highlights a strong connection between skills level and social and immigrant background⁸⁰. However, the higher share of students with a migrant background among fourth year primary students (from 9 % in 2011 to 34 % in 2016) is not the only explanation for the worsening of performance as it deteriorated for native-born students too. PIRLS, focusing on reading skills of fourth graders, also emphasises social disparities with regard to reading competences (Hußmann et al., 2017). It showed that while the share of high performers rose from 8.6 % in 2001 to 11.8 % in 2016, so did the share of low achievers, with almost one fifth (18.9 %) reaching only the lowest or second lowest competence level. By international comparison Germany has fallen behind since 2001 when only four EU countries scored significantly better: in 2016 it was 13.

⁸⁰ In 2018 Germany received a country-specific recommendation to 'improve educational outcomes and skills levels of disadvantaged groups.' (Council of the European Union, 2018).

Figure 2. Average reading achievement of 4th graders in Germany and peer countries


Source: IEA's Progress in International Reading Literacy Study – PIRLS (2016).

Integration of refugee children is more difficult when they are concentrated in specific schools. In 2017 new asylum seekers dropped sharply to 198 317 from 722 360 in 2016 (BAMF, 2018a). The number of unaccompanied minors remains high, amounting to 30 874 by December 2017 and 54 962 if counting those that just recently reached legal age (BAMF, 2018b). Most of them are channelled into vocational education and training (see section 7). Since 2015, welcome classes and parallel support classes with a focus on language teaching for newly arrived migrant children have been developed at all school levels (BAMF, 2018b). Placing refugee children in schools in challenging socio-economic environments has been criticised. While teachers there are usually better trained to deal with diversity, lacking contact with students without a migrant background or from stable families without behavioural or motivational problems renders the integration of refugee children more difficult (SVR, 2018).

Inclusive education of special needs students is a long-term challenge. While schooling of special needs students in mainstream education has increased overall, the majority of special needs students continue to attend special needs schools in 12 federal states. Due to educational tracking, considerably more special needs students are integrated in the less academic tracks. Regional differences also exist with regard to diagnosing children (Autorengruppe Bildungsberichterstattung, 2018). Examples of successful integration, such as a school winning the national school prize in 2018, exist alongside demands to pause further integration of special needs students in mainstream schools⁸¹ mainly because of a lack of personnel, preparation and support for teachers.

Policy-making is focusing on digital skills. In 2017, 68 % of Germans reported having at least basic digital skills, a share unchanged since the previous year, placing Germany seventh among EU Member States (EU average 57 %) (European Commission, 2018). The political attention to digitalisation, including infrastructure and skills, is high, with a newly established post of state minister for digitisation. For schools, the DigitalPakt Schule, announced in 2016, was endorsed by the new government. It stipulates that the federal government will invest EUR 5 billion in digital infrastructure in schools within the next 5 years. The federal states will in return provide necessary teacher training and curricula updates.

⁸¹ For example, by a major teachers' association, the 'Deutscher Lehrerverband'.

Media literacy is underrepresented in digital training. Various initiatives by federal states aim to strengthen continuing professional development on digital skills, which teachers judged inadequate according to a study on digital education (Schmid, 2017). Both teachers and pupils rate media competence, including data protection and ethics, as highly important (BITKOM, 2015). While media competence is a policy priority, shortcomings and big regional differences appear to exist with regard to news and the ability to analyse and contextualise them, which might compromise effective education on fake news at schools. A small-sample survey by the Technical University of Dresden (Hagen et al., 2017) showed that usage of online and social media for news consumption is hardly present in curricula, and that news literacy forms a minimal part of initial teacher training, resulting in a lack of basic skills and knowledge on the subject.

Box 1: Teachers face multiple challenges

Primary schools in Germany have to cope with increasing numbers of children due to demographic changes and immigration. Education experts predict that almost 105 000 new primary teachers will have to be hired by 2025 – 60 000 to replace retiring teachers, 26 000 to cope with increasing pupil numbers and 19 000 for the extension of all-day schooling – while only 70 000 teacher graduates can be expected until then (Klemm; Zorn, 2018). Official needs forecasting by the KMK was last published in 2015. It will be updated in autumn 2018 to account for the trend change. Furthermore, past policy decisions such as the closing of teacher study programmes and hiring freezes will take time to reverse.

Cancelled classes across school types are considered a major problem related to teacher shortages. Estimates range from 5-7 %, but exact monitoring remains the exception⁸². Career changers receiving fast-track and on-the-job training are a common response, and represent in some regions the majority of new hirings (GEW, 2017). However, they often lack the competences acquired through a fully-fledged initial teacher education. Different accreditation procedures for teacher candidates and career changers also create tensions.

Teachers' unions draw attention to heavy workloads due to replacement teaching necessary to compensate shortages, but also inadequate physical working environments because of overdue renovation all of which affect the attractiveness of the profession. A representative survey among school directors revealed that in the last 5 years 48 % of German schools reported cases of psychological violence against teachers such as mobbing, direct verbal aggression and harassment. At a quarter of all schools (26 %) teachers were subject to physical violence. Experts disagree whether there is an actual increase in incidents or merely more media attention, and have called for better monitoring of the issue.

6. Modernising higher education

Tertiary educational attainment remains stable. The long-term increase in higher education enrolment continues, with a slight increase in tertiary education attainment of 34 % in 2017 compared to 33.2 % in 2016⁸³. The employment rate of recent tertiary graduates continued at 93 % in 2017 to be above the EU average (84.9 %). Of the 556 800 graduates in 2016, 58.2 % obtained a bachelor's degree, 37.5 % a master's and 5.3 % (29 000) a PhD. As in most EU countries, the most common undergraduate studies were in business, administration and law (26.7 %) followed by engineering, manufacturing and construction (25 %). At master's level, this order was broadly maintained, with 20.1 % and 18.7 % respectively, followed by arts and humanities (16.9 %) and natural sciences, mathematics and statistics (11.9 %), where Germany had the highest shares of graduates in the EU in both fields. Conversely, most PhDs were in natural sciences, mathematics and statistics (28.6 %), followed by health and welfare (26.6 %) and engineering, manufacturing and construction (12.7 %). Across all levels, Germany maintained its first position in the EU for science, technology, engineering and mathematics graduates (36 % compared to the EU average of 25.7 %).

⁸² Saxony collects relevant data.

⁸³ Eurostat data.

German students are highly mobile. Germany is the only country in the EU where all higher education institutions are legally required to provide mobility opportunities for all students (European Commission, 2018c). Consequently, the share of credit-mobile students is significant, with 12.8 % of students studying for some period abroad in 2016. The most popular destinations for credit-mobile students were France, followed by the United Kingdom and Spain. German students are also increasingly likely to obtain academic degrees abroad, while at the same time the country remains an attractive place of study for foreign students. In absolute numbers, Germany has the highest outward degree mobility in the EU and the third highest inward degree mobility after the UK and France⁸⁴. Outgoing students are clearly fewer than incoming students who come from diverse geographical backgrounds including China, Russia and India (European Commission, 2018c).

Social factors still play a decisive role in participation in higher education. Only about a quarter (27 %) of higher education students in Germany have parents without tertiary education, the second lowest share in the EU after Denmark (DZHW, 2018). Studies show that the reasons for this are not confined to the higher education system, which has become more permeable in recent years, but also reflect selective processes early on in educational biographies (Kracke et al., 2018). School-based university entry systems like Germany's are usually effective with regard to labour market transition but have the lowest participation rates of disadvantaged students (European Commission, 2017b). The OECD has classified Germany as one of the countries with low social mobility with regard to earnings, occupation and education (OECD, 2018).

A large share of students work while studying. As in many EU countries, financial support from family and partners accounts for half of students' funding, whereas self-earned income makes up 34 % and national public student support 12 % (DZHW, 2018). While tuition fees are low or non-existent, accommodation costs are the biggest burden on students' finances and have risen substantially in recent years. 71 % of all students have either regular or occasional jobs during term time, the highest share in the EU (DZHW, 2018). The value of individual national public support is high compared to other EU countries, while the share of students receiving student support is smaller than the European average (DZHW, 2018). The government plans to extend the public support system for students (BAFöG), with higher grants and loans to be provided to more students (German Government, 2018).

Access to medical studies will be reformed. In Germany the demand for study places in medicine greatly exceeds the supply, with 45 000 applications for 9 000 places in 2017/18. In December 2017, the German constitutional court ruled that access to medical studies would have to be reorganised within 2 years. Standardised admission procedures have to be introduced, the waiting time for applicants capped and the limited choice to six universities abolished. The ruling also has implications for school policy as federal states are called upon to ensure the nationwide comparability of school leaving (Abitur) grades.

7. Modernising vocational education and training

Germany continues to promote very high quality in VET. The employment rate of recent VET graduates was at 91.3 % in 2017, the highest in the EU. However, the proportion of upper secondary students (ISCED 3) in VET decreased slightly to 46 % in 2016, below the EU average of 49 %. As a response to an increasing trend towards academic education, Germany has continued to promote dual VET among learners and employers through information tours, workshops and guidance sessions in schools, and youth, vocational and training fairs. However, despite slight increases in the number of people searching for training places (by 0.4 %), offered training places (1.5 %) and training contracts (0.6 %) in 2017, the number of unfilled apprenticeship positions rose further compared to 2016 due to the difficulty of matching demand and supply (BMBF, 2018).

Digital skills are strengthened in VET. The first digital learning transfer networks between companies, chambers and universities (DigiNet) were launched in October 2017. EUR 10 million was provided to purchase digital equipment and fund pilot projects to modernise teaching and learning. Provisions were established to help people with disabilities participate in initial VET and continuing VET programmes using digital media (Cedefop, 2018).

⁸⁴ Data from 2014/15.

Students with a migrant background face larger obstacles in VET education. Measures providing training to people with a migrant background, including refugees, comprised German language training, individual analysis and competence assessments, personalised guidance to take up an apprenticeship or internship, and support to companies who employ refugees. The national report on VET education found that people with a migrant background still face larger systemic obstacles. They are only half as likely to start VET as people without a migrant background (27.6 % v 55.8 %). Particular difficulties exist for persons from Turkish or Arabic backgrounds even though they made the most effort to find apprenticeships (BMBF, 2018).

8. Promoting adult learning

Upskilling and reskilling of the workforce is needed. Adult participation in learning lies at 8.4 % (EU average 10.9 %) affecting particularly the low-skilled (see Box 2). In 2015, 77.3 % of German companies (EU-28 average 72.6 %) provided vocational training to their employees and 38.1 % of employees participated in this training (EU-28 average 40.8 %). The majority of German enterprises indicated that the main skills needed to develop the enterprise are team working and customer handling skills. Skills shortages increasingly hamper economic development. Economic simulations suggest that the lack of about 440 000 skilled workers is slowing down economic growth by about 0.9 % (IW, 2018).

Box 2: Several upskilling measures are under way

Several projects are being implemented which are relevant for the Upskilling Pathways Council Recommendation (Council of the European Union, 2016). The federal state of Baden-Württemberg launched 'Upskilling 4 All', a one-year project for low-qualified employees aged 25+. The Federal Ministry of Education has provided EUR 583 000 to finance a three-year project ('CHANCEN NUTZEN!') to help low-skilled adults get a recognised vocational qualification. The Ministry also provided EUR 1 500 000 to fund 'VALIKOM', a three-year pilot initiative to coordinate the validation of job-related competences, targeting people aged 25+ irrespective of their employment status and any previous qualifications.

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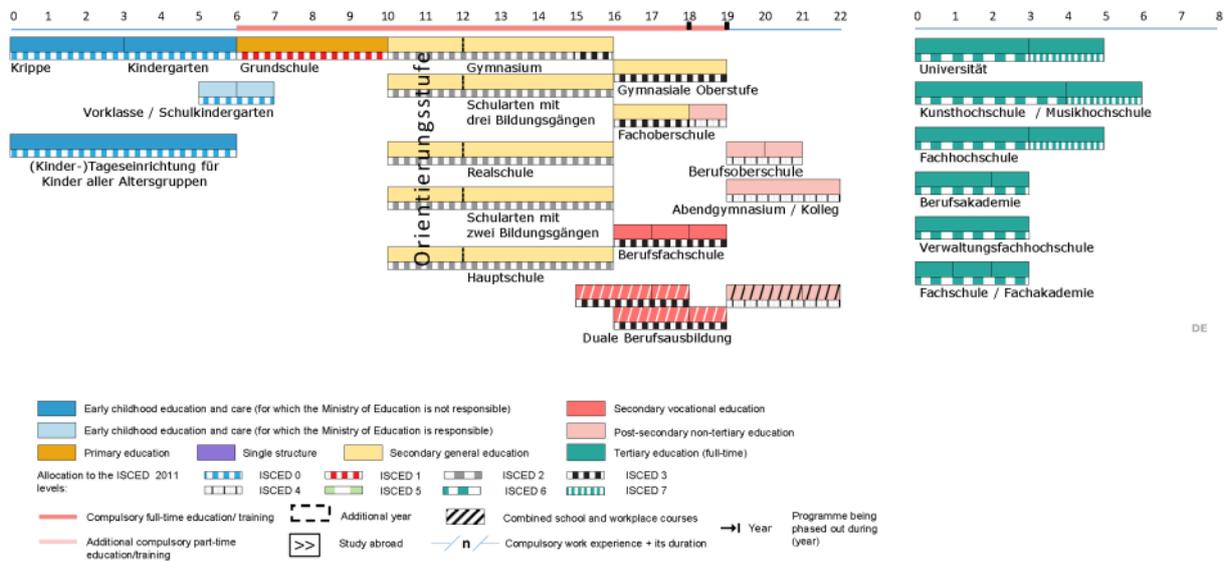
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10. Annex I: Key indicator sources

Indicator	Eurostat online data code
Early leavers from education and training	edat_lfse_14 + edat_lfse_02
Tertiary educational attainment	edat_lfse_03 + edat_lfs_9912
Early childhood education and care	educ_uoe_enra10
Underachievement in reading, maths, science	OECD (PISA)
Employment rate of recent graduates	edat_lfse_24
Adult participation in learning	trng_lfse_03
Public expenditure on education as a percentage of GDP	gov_10a_exp
Expenditure on public and private institutions per student	educ_uoe_fini04
Learning mobility: Degree mobile graduates	JRC computation based on Eurostat / UIS / OECD data
Credit mobile graduates	educ_uoe_mobc02

11. Annex II: Structure of the education system



Source: European Commission/EACEA/Eurydice, 2017. *The Structure of the European Education Systems 2017/18: Schematic Diagrams*. Eurydice Facts and Figures. Luxembourg: Publications Office of the European Union.

Comments and questions on this report are welcome and can be sent by email to:
 Ulrike PISIOTIS
ulrike.pisiotis@ec.europa.eu
 or
EAC-UNITE-A2@ec.europa.eu

GREECE



1. Key indicators

		Greece		EU average		
		2014	2017	2014	2017	
Education and training 2020 benchmarks						
Early leavers from education and training (age 18-24)		9.0%	6.0%	11.2%	10.6%	
Tertiary educational attainment (age 30-34)		37.2%	43.7%	37.9%	39.9%	
Early childhood education and care (from age 4 to starting age of compulsory primary education)		76.3% ¹³	79.8% ¹⁶	94.2% ¹³	95.3% ¹⁶	
Proportion of 15 year-olds underachieving in:	Reading	22.6% ¹²	27.3% ¹⁵	17.8% ¹²	19.7% ¹⁵	
	Maths	35.7% ¹²	35.8% ¹⁵	22.1% ¹²	22.2% ¹⁵	
	Science	25.5% ¹²	32.7% ¹⁵	16.6% ¹²	20.6% ¹⁵	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-8 (total)	44.3%	52.0%	76.0%	80.2%	
Adult participation in learning (age 25-64)	ISCED 0-8 (total)	3.2%	4.5%	10.8%	10.9%	
Learning mobility	Degree mobile graduates (ISCED 5-8)	:	11.1% ¹⁶	:	3.1% ¹⁶	
	Credit mobile graduates (ISCED 5-8)	:	2.2% ¹⁶	:	7.6% ¹⁶	
Other contextual indicators						
Education investment	Public expenditure on education as a percentage of GDP	4.3%	4.3% ¹⁶	4.9%	4.7% ¹⁶	
	Expenditure on public and private institutions per student in € PPS	ISCED 1-2	:	: ¹⁵	€6 494 ^d	: ¹⁵
		ISCED 3-4	:	: ¹⁵	€7 741 ^d	: ¹⁵
		ISCED 5-8	:	: ¹⁵	€11 187 ^d	: ¹⁵
Early leavers from education and training (age 18-24)	Native-born	7.3%	5.4%	10.4%	9.6%	
	Foreign-born	27.8%	16.9%	20.2%	19.4%	
Tertiary educational attainment (age 30-34)	Native-born	41.3%	47.1%	38.6%	40.6%	
	Foreign-born	8.4%	11.9%	34.3%	36.3%	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-4	38.8%	44.8%	70.7%	74.1%	
	ISCED 5-8	47.4%	55.8%	80.5%	84.9%	

Sources: Eurostat (see section 10 for more details); OECD (PISA).

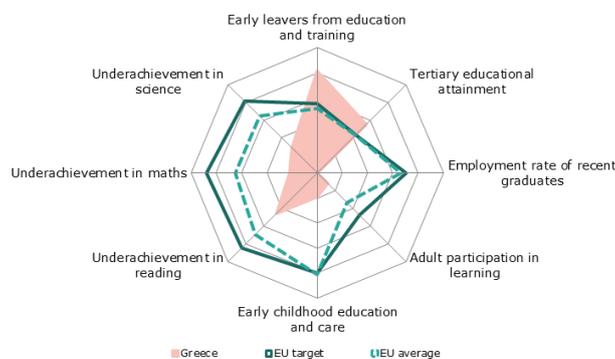
Notes: data refer to weighted EU averages, covering different numbers of Member States depending on the source;

d = definition differs, 12 = 2012, 13 = 2013, 15 = 2015, 16 = 2016.

On credit graduate mobility, the EU average is calculated by DG EAC on the available countries; on degree graduate mobility, the EU average is calculated by JRC over Eurostat and OECD data.

Further information can be found in the relevant section of Volume 1 (ec.europa.eu/education/monitor).

Figure 1. Position in relation to strongest (outer ring) and weakest performers (centre)



Source: DG Education and Culture calculations, based on data from Eurostat (LFS 2017, UOE 2016) and OECD (PISA 2015). Note: all scores are set between a maximum (the strongest performers represented by the outer ring) and a minimum (the weakest performers represented by the centre of the figure).

2. Highlights

- Education funding is low. Better monitoring of spending could help improve efficiency.
- Compulsory pre-primary education will be extended. Affordable childcare for under 3 year-olds remains scarce, resulting in declining participation and increased reliance on informal childminding.
- Citizenship education is well covered in general education but less present in vocational education.
- Tertiary educational attainment has increased further and is well above the EU average. Despite improvements, recent tertiary education graduates still face the lowest employability in the EU, together with the highest overqualification in their jobs.
- Provision of vocational education and training was strengthened by the expanded apprenticeship system, while adult learning remains insufficient, especially the training of employees in companies.

3. Investing in education and training

Spending on education remains low. At 4.3 % in 2016, education expenditure as a share of GDP remained the same as in 2015 and below the EU average (4.7 %). Education expenditure has picked up somewhat in real terms, reflecting GDP growth. Since 2010, cuts were proportionally higher in secondary and — to a lesser extent — tertiary education than in primary education. Private spending, which accounts for more than one third of overall spending on education, has between 2013 and 2015 considerably decreased for books, stationery and other school material as well as for private childminding. Spending on tutorial schools (*frontistiria*) and private tuition remains high and spending on studies abroad increased substantially (31.7 %) (KANEP, 2018). According to Eurostat, 89 % of Greek households — more than in any other EU country — reported difficulties in paying for formal education⁸⁵.

Spending on education is inefficient. Overall spending on education, which was severely affected by the economic crisis, is low. There appears to be room for more efficiency including on the distribution of administrative tasks for teachers and school directors (OECD 2018). Consistent data collection and consolidated budgets would render monitoring expenditure more effective (OECD, 2018). To tackle the problem, the Greek statistical authority ELSTAT has signed a memorandum with the Ministry of Education, Research and Religious Affairs⁸⁶.

4. Citizenship education

Citizenship education is part of general education but less present in vocational education. Citizenship education is integrated into a range of subjects such as social sciences, languages and literature, ethics/religious and physical education in primary and general secondary school. It is also a separate subject in primary, lower and upper secondary education, with a significant amount of time allocated to it (European Commission, 2018a). In addition, it is covered during the thematic week when teachers design their own programmes according to the Ministry of Education's guidelines. In initial vocational education and training (IVET), citizenship education is provided to a much lesser extent both as integrated and separate content (European Commission, 2018a).

The curriculum covers a broad range of objectives. Emotional awareness is primarily conveyed through communicating and listening. Responsibility and autonomy is already stressed at primary level and critical thinking extends to initial VET (European Commission, 2018a). Many more Greek students than their peers in OECD countries feel that their teachers give them the opportunity to express themselves (OECD, 2017). Respecting other cultures and religions is also

⁸⁵ The 2018 publication refers to data from 2016.

⁸⁶ Henceforth the Ministry of Education.

part of the citizenship education curriculum whereas developing a collective identity is covered mainly in the subject of religious education.

The role and format for religious education at school are subject to debate. After the Greek Constitutional Court repealed changes to the religious education curriculum in April 2018, a public debate ensued over the role of the church in education. The Greek constitution stipulates that a national and religious conscience should be developed and defines Orthodox Christianity as the principal religion.

5. Modernising school education

Early school leaving decreased further. At 6 % in 2017, the early school leaving (ESL) rate was well below the EU average of 10.6 %. There is a significant gap between the very low ESL occurrence in Greek cities (3.8 %) and a higher rate in rural areas (11.2 %)⁸⁷.

Participation in early childhood education and care (ECEC) remains lower than in most EU countries. In 2016, 79.8 % of 4-6 year-olds attended ECEC facilities compared to the EU average of 95.3 %. Participation in ECEC for under 3 year-olds declined further from already very low levels and stands at 8.9 % (2016), well below the EU average (32.9 %), making Greece one of the countries with the highest reliance on informal care (OECD, 2017b). In 2017, around 40 000 children from low-income families did not receive vouchers for participation in ECEC (EETAA, 2017a, b), suggesting a considerable gap between demand and supply both within and beyond the group eligible for subsidies. To reduce the gap, municipalities can apply for financial support from the government to create additional ECEC facilities (EETAA, 2018).

Compulsory pre-primary education will be extended by one year. Mandatory enrolment of 4 year-olds in kindergarten is being gradually introduced from 2018/2019, to be applicable in all municipalities after a three-year adjustment period. It remains to be seen how implementation will proceed given the shortage of places in ECEC.

Refugee education is becoming an integral part of the system. In 2017, 23 kindergartens were opened in refugee centres, including on the islands of Lesbos, Kos, Samos, Chios and Leros. Seconded permanent teachers worked as refugee education coordinators in all major refugee accommodation centres and monitored school attendance of children in residential neighbourhoods. Reception classes in primary and secondary schools allowed 5 291 children to attend mainstream schools in 2017/2018, while preparatory afternoon classes provided schooling for another 2 025 children. Two new preparatory afternoon classes for primary school children were opened on Lesbos. Furthermore, the working group for the integration of refugees within the Ministry of Education has been upgraded into an independent department. However, despite these major efforts, the challenge remains substantial and long term, especially on the islands where most refugee children still lack access to education⁸⁸.

Education professionals are missing an overall strategy for education. A survey among 1 248 educators and administrators from all education levels conducted in Spring 2018 revealed that a lack of overall strategic planning is considered the biggest problem of the Greek education system (71 %), followed by underfunding (66 %) and lack of evaluation (44 %) (Global Link, 2018). Furthermore, 76 % of respondents think that teachers should be evaluated, while opinion on whether evaluation results should be linked to salary development is divided (45 % for vs 48 % against). While some issues are clearly linked to the economic crisis, such as poor infrastructure (92 %) or cancelled classes due to lack of personnel (78 %), others are structural, such as the need for better organisation in classrooms (80 %) and the overload of teaching content (66 %).

Substitute teachers shoulder a large part of school education. Non-permanent substitute teachers continue, at 14 % of the teacher population⁸⁹ (OECD, 2018), to be disproportionately prevalent in Greek schools. Their contracts, which are limited to the duration of the school year and non-renewable for the same school, undermine continuity and sustainability for students and

⁸⁷ Eurostat data.

⁸⁸ Of the 58 000 estimated migrants, including refugees currently in Greece, 38 % or 22 000 are children (UNHCR, 2018).

⁸⁹ In 2015/16.

schools and impede on these teachers' professional development and personal lives. Despite the precarious status, in 2018 more than 120 000 candidates applied for around 20 000 available posts for 2018/2019. Reform options for substitute teachers presented by the OECD in its recent review on education in Greece include: (i) creation of a specific employment status that offers stable, though not lifelong, employment; or (ii) extending the induction period and adding a contractual period prior to obtaining public official status (OECD, 2018).

Special needs education faces multiple challenges. People with special needs in Greece are more likely than the EU average to be limited to lower secondary education attainment (42.8 % vs 34.8 %). Although the participation rate of people with special needs decreases at age 16+ across Europe, it is significantly lower in Greece, with 14.9 % graduating from upper secondary and post-secondary education (ISCED 3-4) vs the EU average of 21.3 % (KANEP, 2018). In 2017/2018, of the 75 680 students who were officially recognised as requiring special needs education, most were included in mainstream schools, with only 10 883 educated in special needs schools. New Centres for Educational and Counselling Support are foreseen by law 4547/2018 with more staff. They are expected to shorten currently long waiting times — up to 3 years — for needs diagnosis, which leave many children without timely therapeutic and/or learning support. Furthermore, two thirds of special needs teachers have substitute contracts, so the continuity of support so important for this vulnerable group is not available.

Box 1: Changes in school education for teachers and pupils

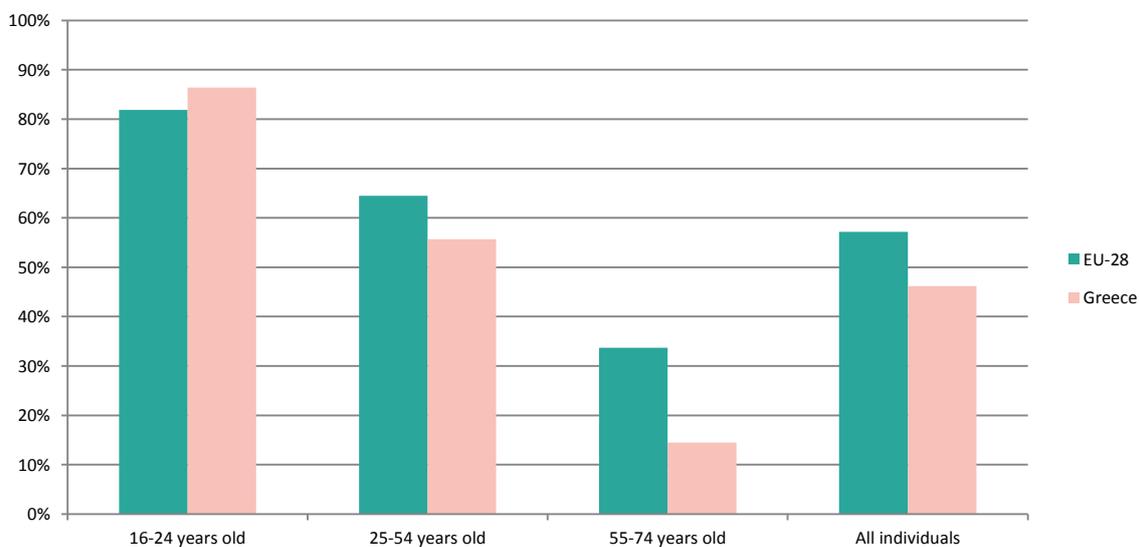
Law 4521/2018 reduces the number of subjects tested in school leaving exams in upper secondary from 12 to 4 (modern Greek, mathematics, history and biology) as of 2019. For the remaining subjects, assessment during the school year will count towards the final grade. The law also introduces creative projects in various subjects in upper secondary. The changes are intended to scale up upper secondary education from being merely a preparation for university. In addition, provision of primary and secondary education — including VET — will be significantly expanded in correctional facilities. Finally, several teacher subject specialisations are merged, reducing the overall number from 164 to 89.

Law 4547/2018 reorganises support structures in schools and introduces mandatory evaluation of education executives (such as regional education directors, directors of educational support centres, school directors) and self-evaluation by schools. The existing — but partly scattered and/or overlapping resources — will be streamlined into fewer bodies, which will provide support for schools, in areas such as pedagogy, implementation of curricula and training and diagnoses for learning support. In the new support system, school advisors are removed from the front line within schools and their role is taken over by educational coordinators placed in centres. At the same time, schools are expected to exert greater autonomy by carrying out self-evaluation. The evaluation measures introduced for education executives are a step towards more accountability, which is largely lacking in the Greek education system (Dimitropoulos, Kindi, 2017). However, the law also abolishes teacher evaluation (which had in practice been frozen since 2014), going against the OECD's recommendation for an overall evaluation framework for teachers, linked to their career development (OECD, 2018).

More than half of the Greek population lacks basic digital skills. At 46 % in 2017, the share of Greeks reported to have at least basic digital skills has not progressed since 2016, putting the country in 25th position within the EU. Greece has the fewest ICT specialists (1.4 %⁹⁰) among the EU-28 despite an anticipated need for advanced digital skills in the EU labour markets (Cedefop, 2016). Through the European Social Fund (ESF), IT infrastructure has been provided at many schools, but digital education is still insufficiently integrated into the curriculum. On science education, a striking 50 % of Greek 15 year-old students report they spend little or no time doing practical experiments in the lab (OECD, 2016).

⁹⁰ Of the working population.

Figure 2. Individuals with basic or above basic digital skills, by age group (2017)



Source: Digital economy and society index (DESI) (2017).

6. Modernising higher education

Tertiary educational attainment has risen further. At 43.7 % in 2017, Greece is well above the EU average (39.9 %) and the national target (40 %). This reflects one of the steepest increases (8.8 percentage points) in the EU⁹¹ over the last 5 years. The economic crisis, which may have caused people to stay longer in education, can only partly explain the increase. The most rapid expansion of higher education (HE) took place around the millennium and demographic changes resulted in a decreasing age cohort. Within Greece, big regional differences in tertiary attainment exist, ranging from over 50 % in Attica (which includes Athens) to 25 % in the southern Aegean. Foreign-born students are much less likely to obtain HE degrees than native-born students (11.9 % vs 47.1 %) — the biggest gap in the EU.

Employment rates of recent graduates further increased but continue to be the lowest in the EU. Due to the incipient economic recovery, it has become somewhat less difficult for recent graduates to find jobs in Greece. For tertiary graduates (ISCED 5-8), employment rates grew by 8.4 percentage points over the period 2014-2017 and stood at 55.8 % in 2017, but were still well below the EU average (84.9 %). Among non-tertiary secondary graduates, 44.8 % were employed in 2017 vs. 74.1 % in the EU, an increase of 6 percentage points over the previous 3 years.

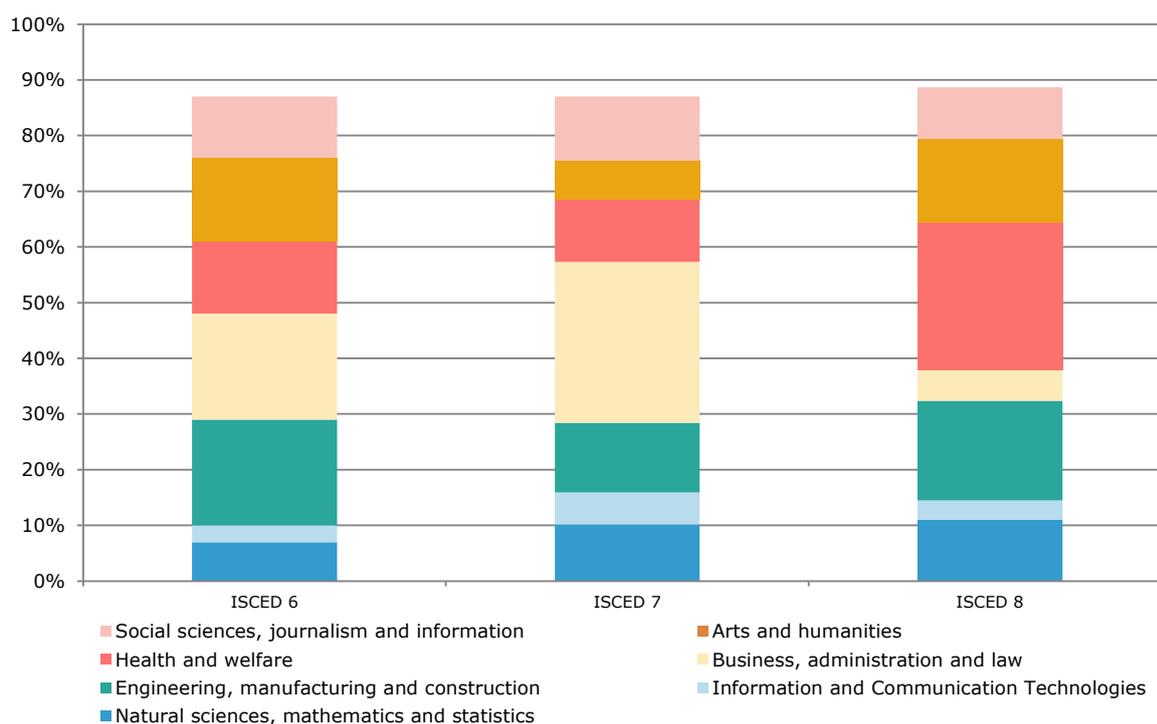
Skills mismatches are the highest in the EU. At 43.3 % in 2016, the share of tertiary graduates working in jobs that do not require a higher education qualification was higher than elsewhere in the EU (EU average: 26 %) (Cedefop), 2018). Crop production, retail trade, services and state administration are the four main employment sub-sectors in Greece and the most new jobs were created in the catering sector between 2014 and 2017 (National Institute of Labour, 2018). While the difficult macro-economic environment partly explains the high degree of mismatches, there is also a need to create stronger links between labour market needs and education. This includes well-functioning skills forecasting which feeds into VET and university curricula (OECD, 2017a). According to a recent study, main policy challenges include: to increase the attractiveness of VET; to reorientate from preparing graduates for the public sector to towards the private sector; and to upskill the unemployed (IOBE, 2018).

Study preferences of Greek students resemble those of their European peers. Most students graduate with a first degree in business, administration and law or engineering (both

⁹¹ Second only to Austria, where the increase is, however, due to statistical reclassification.

19 %) followed by arts and humanities (15 %) and natural sciences (7 % of in 2016⁹²). At master's level, more degrees are awarded in business, administration and law (28.9 %) than any other field, matching the trend in most EU countries. 10.2 % of master's degrees are awarded in natural sciences, above the EU average of 7.1 %. However, the participation rate in master's programmes is, at 8.1 %, the lowest in the EU (European Commission, 2018c). At PhD level, with a participation rate of 3.5 %⁹³ (European Commission, 2018c), the share of natural sciences graduates is, at 11 %, among the lowest in the EU (26 %)⁹⁴ while most PhDs (26.5 %) are awarded in health and welfare.

Figure 3. Distribution of Greek tertiary graduates by programme orientation (2016)



Source: Eurostat. Online data code: [educ_uoe_grad02](#).

The higher education landscape is being re-mapped. The Ministry of Education's intention to upgrade technical education institutions (TEIs) — which focus on applied sciences, technology and art — into universities, entails several mergers of HE institutions. ADIP, the agency for quality assurance in HE, has pointed out the need for a strategic plan and comprehensive prior evaluation of the potential effects of this reform. The new University of West Attica was established in 2018 by merging the TEIs of Athens and Piraeus. As of 2019/2020 the TEI of Epirus will become part of the University of Ioannina, while the TEIs of Central Macedonia and of Eastern Macedonia and Thrace are to be merged with the International Hellenic University.

Strong outward mobility continues. With more than 30 000 students enrolled in a degree programme abroad in 2014/2015, Greece is fourth in the EU for outward degree mobility in absolute numbers after Germany, France and Italy (European Commission, 2018c). This student mobility is mainly privately funded since grants and loans do not extend to studies abroad apart from limited credit mobility within recognised short-term mobility schemes such as Erasmus+ (European Commission, 2018c).

⁹² The best performer is the United Kingdom at 17 %, followed by France (10 %) and Germany (6 %) (Eurostat data 2016).
⁹³ 2014/2015 data.

⁹⁴ Preceded by Slovenia and Romania, with the leaders being France at 44.5 % and Spain at 32 %.

Resources are strained in the higher education sector. After Croatia, Greece has the second highest teacher-student ratio in the EU, with one professor serving 44 students (EU average: 1 to 15). The net loss of professors since 2010 due to non-replacement of retirees is estimated at around 30 %. The share of academic staff under 35 is, at 3.3 %, the smallest in the EU, while more than 50 % are aged 50 and above (European Commission, 2018c). For the 2018/2019 academic year, the Ministry of Education announced an increase of 4 000 places for first-year students (76 692 places overall) compared to 2017, as well as EUR 34 million in additional funding. Funded by the ESF, 1 500 young researchers will be hired as lecturers as of the 2018/2019 academic year. They are expected to teach up to three classes to acquire teaching experience. However, the positive effect on student-teacher ratio might be offset by an increasing lack of space at many higher education institutions (HEIs).

Violence at HEIs is a persistent problem. Findings by the University of Macedonia reported in the press, indicate that 358 violent incidents took place from 2011 to 2017 at HEIs in Greece, including obstruction of activities, trespassing, threats, attacks and drug dealing. The report, which draws on print media articles, is inconclusive on the effect of abolishing 'university asylum' (which allows law enforcement presence inside universities only by permission of the University Senate) in 2011 and its reintroduction in August 2017. While violent incidents rose sharply in 2012, numbers later dropped, especially in the last 3 years covered by the study. To address the problem of delinquency at HEIs, the Ministry of Education set up a special 'Committee for the Study of Academic Freedom and Peace Issues'. The committee's recommendations were published in September 2018.

7. Modernising vocational education and training

The national strategic framework for VET is in place but ensuring the attractiveness of the sector remains a challenge. The proportion of students (at ISCED 3) in upper secondary VET in Greece remains stable at around 30 %, but is far below the EU average (47.3 %). The employment rate of recent VET graduates remains much lower than the EU average of 76.6 %, and well below the total employment rate in Greece (56.2 %), despite having increased to 40.7 % in 2016. Common quality frameworks for apprenticeships and VET curricula were established in 2017. Furthermore, two bodies support the national strategic framework, namely: (i) the National Education and Human Resource Development Council, which provides advice and scientific guidance for policy making, including effective linking to the labour market; and (ii) the new National VET Committee, which is monitoring the framework's actions.

Greece has continued to expand its apprenticeship system. An optional fourth apprenticeship year for upper secondary VET graduates was introduced with the support of the ESF. Following a pilot phase, this option was launched in March 2017 for 1 200 apprentices in the public and private sector in seven specialisations. Nine more specialisations were added in October 2017 for the second cycle, involving 3 450 apprentices. This nine-month programme gives access to EQF level 5 qualifications. For the academic year 2018-2019 five new specialisations are introduced. There is also a dual VET scheme at upper secondary level implemented by OAED (the Greek Public Employment Service) in its vocational schools, with over 6 000 apprentices in 2017.

Box 2: ESF support for secondary VET schools

The ESF-funded 'New beginning for EPAL' programme ('EPALS' are vocational upper secondary schools), launched in October 2017, aims to improve the efficiency of VET provision and reduce the dropouts rates in upper secondary VET schools. Among other things, it offers pedagogical support in schools to improve learners' literacy and numeracy competences and psychological support to assist their smooth integration into school. The programme is currently being piloted in nine EPALS and is expected to expand to all such institutions (approximately 400) in the 2018/2019 academic year. An overall budget of EUR 26.3 million has been earmarked for a four-year implementation period.

https://www.minedu.gov.gr/publications/docs2018/mia_nea_arxi_gia_ta_epal.pdf

8. Promoting adult learning

Despite the need for upskilling, participation in adult learning remains very low. At 4.5 % in 2017, participation in adult learning was well below the EU average (10.9 %). According to the Continuing Vocational Training Survey, in 2015, 21.7 % of Greek companies provided vocational training to their employees (EU average: 72.6 %) and only 18.5 % of employees participated in this training (EU average: 40.8 %) – the lowest rate in the EU. Most Greek companies consider customer service and teamwork skills as the most important for business development. To remedy the low level of digital skills (see Section 5), Greece is setting up a programme to train and certify young unemployed 18-24 year-olds in the ICT sector. In addition, 74 second chance schools across the country as well as Lifelong Learning Centres of municipalities provide education and qualification opportunities for low-skilled adults.

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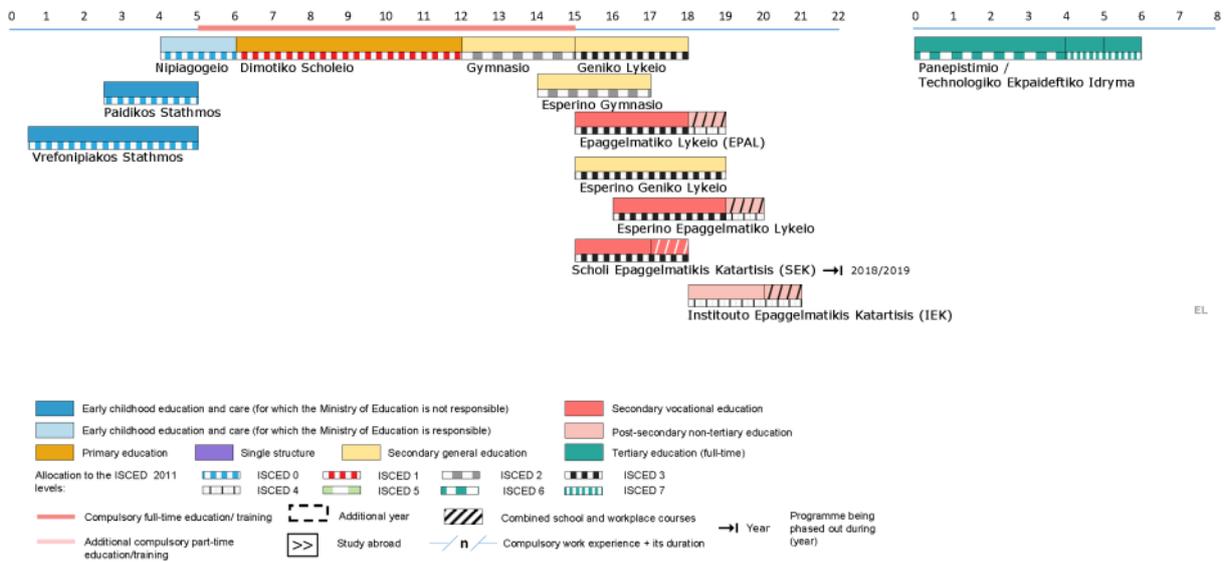
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10. Annex I: Key indicator sources

Indicator	Eurostat online data code
Early leavers from education and training	edat_lfse_14 + edat_lfse_02
Tertiary educational attainment	edat_lfse_03 + edat_lfs_9912
Early childhood education and care	educ_uoe_enra10
Underachievement in reading, maths, science	OECD (PISA)
Employment rate of recent graduates	edat_lfse_24
Adult participation in learning	trng_lfse_03
Public expenditure on education as a percentage of GDP	gov_10a_exp
Expenditure on public and private institutions per student	educ_uoe_fini04
Learning mobility:	
Degree mobile graduates	JRC computation based on Eurostat / UIS / OECD data
Credit mobile graduates	educ_uoe_mobc02

11. Annex II: Structure of the education system



Source: European Commission/EACEA/Eurydice, 2017. *The Structure of the European Education Systems 2017/18: Schematic Diagrams*. Eurydice Facts and Figures. Luxembourg: Publications Office of the European Union.

Comments and questions on this report are welcome and can be sent by email to:
 Ulrike PISIOTIS
Ulrike.Pisiotis@ec.europa.eu
 or
EAC-UNITE-A2@ec.europa.eu

HUNGARY



1. Key indicators

		Hungary		EU average		
		2014	2017	2014	2017	
Education and training 2020 benchmarks						
Early leavers from education and training (age 18-24)		11.4%	12.5%	11.2%	10.6%	
Tertiary educational attainment (age 30-34)		34.1%	32.1%	37.9%	39.9%	
Early childhood education and care (from age 4 to starting age of compulsory primary education)		94.7% ¹³	95.7% ¹⁶	94.2% ¹³	95.3% ¹⁶	
Proportion of 15 year-olds underachieving in:	Reading	19.7% ¹²	27.5% ¹⁵	17.8% ¹²	19.7% ¹⁵	
	Maths	28.1% ¹²	28.0% ¹⁵	22.1% ¹²	22.2% ¹⁵	
	Science	18.0% ¹²	26.0% ¹⁵	16.6% ¹²	20.6% ¹⁵	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-8 (total)	78.5%	84.7%	76.0%	80.2%	
Adult participation in learning (age 25-64)	ISCED 0-8 (total)	3.3%	6.2%	10.8%	10.9%	
Learning mobility	Degree mobile graduates (ISCED 5-8)	:	3.3% ¹⁶	:	3.1% ¹⁶	
	Credit mobile graduates (ISCED 5-8)	:	2.9% ¹⁶	:	7.6% ¹⁶	
Other contextual indicators						
Education investment	Public expenditure on education as a percentage of GDP	5.1%	4.9% ¹⁶	4.9%	4.7% ¹⁶	
	Expenditure on public and private institutions per student in € PPS	ISCED 1-2	€2 828	€3 702 ¹⁵	€6 494 ^d	: ¹⁵
		ISCED 3-4	€6 068	€5 802 ¹⁵	€7 741 ^d	: ¹⁵
		ISCED 5-8	€6 379	€6 616 ¹⁵	€11 187 ^d	: ¹⁵
Early leavers from education and training (age 18-24)	Native-born	11.5%	12.5%	10.4%	9.6%	
	Foreign-born	:	:	20.2%	19.4%	
Tertiary educational attainment (age 30-34)	Native-born	33.9%	32.3%	38.6%	40.6%	
	Foreign-born	44.7%	24.8% ^u	34.3%	36.3%	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-4	72.6%	81.6%	70.7%	74.1%	
	ISCED 5-8	85.7%	88.7%	80.5%	84.9%	

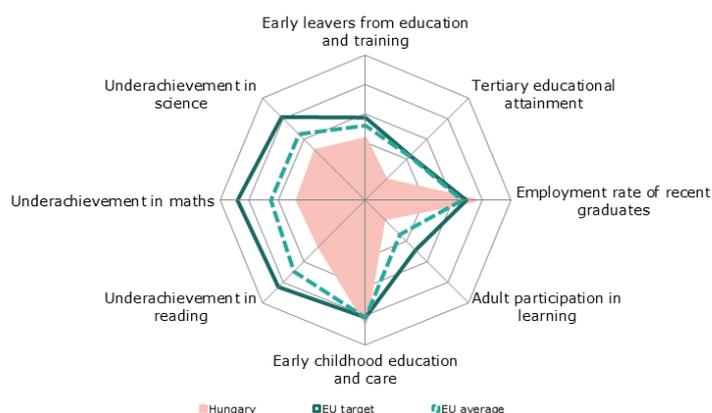
Sources: Eurostat (see section 10 for more details); OECD (PISA).

Notes: data refer to weighted EU averages, covering different numbers of Member States depending on the source; d = definition differs, u = unreliable, 12 = 2012, 13 = 2013, 15 = 2015, 16 = 2016.

On credit graduate mobility, the EU average is calculated by DG EAC on the available countries; on degree graduate mobility, the EU average is calculated by JRC over Eurostat and OECD data.

Further information can be found in the relevant section of Volume 1 (ec.europa.eu/education/monitor).

Figure 1. Position in relation to strongest (outer ring) and weakest performers (centre)



Source: DG Education and Culture calculations, based on data from Eurostat (LFS 2017, UOE 2016) and OECD (PISA 2015). Note: all scores are set between a maximum (the strongest performers represented by the outer ring) and a minimum (the weakest performers represented by the centre of the figure).

2. Highlights

- Recent measures have attracted more teacher education applicants to study programmes in special and pre-school education.
- Large performance gaps between schools indicate strong selectiveness in education.
- Citizenship education, also covering patriotic values, is integrated in the curriculum of primary and secondary education.
- Recent legislative changes bring some flexibility to VET and adult education but lower the age of career choice.
- Tertiary graduates enjoy the highest wage premium compared to lower secondary education in the EU, but enrolment in higher education is still low.

3. Investing in education and training

General government expenditure on education as a proportion of GDP was 4.9 % in 2016, above the EU average of 4.7 %. In 2016 education absorbed 10.5 % of total public expenditure, slightly above the EU average. In real terms, however, this represents a 5.8 % decrease compared to the previous year.

Skills shortages are comparatively high in Hungary. There were nearly 80 000 unfilled positions registered in the first quarter of 2018, which is 33 % more than at the same time in 2017 (KSH, 2018). Reflecting skills shortages, adults who have tertiary education enjoy one of the highest wage premiums in the OECD. In vocational education and training (VET), much emphasis has been put on adapting the curriculum to the immediate needs of companies in recent years. In vocational secondary education, the lower track of VET, the teaching of vocational content and work-based learning was advanced to ninth grade, while general education content was reduced. Though manufacturing companies report mainly a need for vocational secondary school graduates with practical training experience, they value these employees in all physical occupations less than employees from vocational grammar schools (Köllő, 2018).

The population is shrinking despite several measures in family policy. Though the fertility rate has improved since 2010, it is still insufficient to stop the population decline of the last 40 years. The yearly decrease of the school population was 0.8 % in 2017/2018 (KSH, 2018). The decline in student numbers was 10 times stronger than the decrease in the number of schools in the period 1990-2016. This reduces efficiency in spending. Furthermore, the resultant larger school choice gives more room to separate students by socioeconomic status, leading to increasing differences between schools (Radó, 2018). In recent years Hungary has introduced a number of incentives to increase the birth rate, such as waiving a part or the full amount of the student loan for mothers of two or more children, extending the duration of maternity leave and increasing the capacity of nurseries. Demography remains high on the government agenda, and the government has announced taking further measures to stop the negative trend.

4. Citizenship education

Students are familiarised with the concepts of citizenship both in theory and in practice. Throughout the whole general education pathway, students can choose between the subjects of ethics or religious education, which integrate elements of citizenship education. The subject 'history, social and citizenship studies', taught in grades 5 to 12, includes sections on 'basic citizenship knowledge', 'media models and institutions' as well as 'social knowledge'. Citizenship education is integrated in the subject 'community development' in initial vocational education and training. To increase students' sense of citizenship, the 2011 Act on National Education introduced a compulsory school community service programme. From January 2016, proof of participation in this programme (i.e. 50 hours of community service) is a condition for obtaining the upper secondary school leaving certificate. The core curriculum also covers patriotic education (Government, 2012). In December 2017, the government ordered all public institutions including

pre-schools and schools to draw up an Action Plan by June 2018 to prepare themselves in case a state of emergency is declared. In June 2018 a Commissioner for Patriotic and Defence Education was appointed.

A growing number of schools apply an ecological programme to increase students' awareness of their environment. The Hungarian network of eco-schools started in 2000 as part of the international network of Environment and School Initiatives. An eco-school aims to provide environmental education not only through its pedagogical programme but every aspect of the school life, such as the operation of school facilities, extra-curricular activities and waste management. The environment is considered in its broader sense, including the local community in which the school is situated. Schools encourage students' initiatives and team work across the board.

5. Modernising school education

The 2016 Progress in International Reading Literacy Study (PIRLS) showed improvements in reading but large performance gaps between schools. The reading comprehension of fourth-grade students measured by the PIRLS had improved since 2011, by more (37 %) than the international average (29 %). The Study shows that 37 % of Hungarian students go to schools where disadvantaged students are the majority, the second-highest share among participating countries. This means that disadvantaged students are more strongly separated from their non-disadvantaged peers in Hungary than in other countries. The difference between the performance of the most advantaged and most disadvantaged students is 57 score points, against a 43 international average score gap. In PISA 2015, which tested competences at age 15, the impact of Hungarian students' socioeconomic status on their performance was the strongest across all participating countries. In its 2018 European Semester country-specific recommendation, the Council of the EU recommended that Hungary take measures to improve education outcomes and increase the participation of disadvantaged groups, in particular Roma, in quality and inclusive mainstream education (Council of the European Union, 2018).

In 2017, the early school leaving (ESL) rate increased to 12.5 %, above the EU average of 10.6 %. While the ESL rate has been decreasing steadily across the EU, it has not fallen in Hungary since 2010. Participation of 17 and 18 year-olds in secondary education dropped sharply between 2011 and 2016 (from 98 % to 85 %), after the school-leaving age was lowered from 18 — the age of completing secondary education — to 16 in 2012. These trends make it likely that ESL, which measures 18-24 year-olds with only low qualifications not in education or training, will rise further in the years ahead. In November 2016 the government adopted an action plan to reduce ESL and introduced mandatory data collection on students' progress at school, which feeds into a digital early warning and pedagogical support system (EWS). The first surveys show that 11 % of students are at risk of leaving school without completing upper-secondary education (Educational Authority, 2018a). The share of students concerned varies greatly by school type and region. In the three most affected counties, 17-19 % of students are identified as being at risk of dropping out. In the lower track of VET, the share is 21 %; in the higher VET track, 14 %; and in lower secondary 12 %. In general upper-secondary education the risk of dropping out is exceptionally low, at 3 %.

Box 1: Supporting schools at risk of student dropout

European Social Fund Project HRDOP 3.1.5-16
Duration: January 2017 — September 2020
Available budget: HUF 12.9 billion (~EUR 40 million)

Objectives: to support students at risk of dropout; improve the capacity of the school system to compensate for students' disadvantages; tackle segregation; develop the professional support capacity of the Educational Authority; foster collaboration between the education sector and local communities and address differentiated development of the schools involved.

Expected results: within-school segregation will be resolved in 100 schools; 150 kindergartens and 240 schools will apply new skill-development/teaching methods; 1 800 teachers will participate in continuing professional development; 4 000 kindergarten children and 30 000 students will receive support.

Based on the first EWS survey results, 300 schools were selected that showed the highest risk of dropout. Mentors assist the entire school staff in mapping development needs and coordinate interventions. Mentors come from schools that are similar to the assisted schools in the composition of their student population but that have better completion rates. By the end of 2017/2018, school development plans had been drafted for every participating school. As a next step, 150 kindergartens with high shares of disadvantaged children will be selected and involved in the project. The aim is to increase their capacity to prepare children for starting school.

Interventions to improve access and quality of early childhood education and care may help level out child development differences prior to schooling. 95.7 % of children aged 4-6 participate in early childhood education and care (ECEC), around the EU average and slightly above the Education and Training 2020 benchmark of 95 %. Roma participation is 91 %, close to the national average and the highest among Member States in the region (FRA, 2016). As performance gaps appear at early ages, lowering the age of compulsory participation in kindergarten from age 5 to 3 as of 2015/2016 is a positive step, likely to improve children's later performance at school. To ensure participation, the family allowance was made conditional on kindergarten attendance. The provision of free access to kindergarten and school meals to disadvantaged children has been extended substantially since 2015/2016. To help make the profession more attractive, the teacher career model was extended in 2016 to ECEC staff holding a tertiary degree in education. This may have contributed to the steady increase in applications to pre-school teacher training programmes in recent years. Increasing the qualification level of ECEC staff improves the quality of the service and is strongly associated with improved educational outcomes for children (European Commission, 2014).

Early tracking increases selectiveness and the risk of disadvantaged pupils being separated from their peers. Grouping into different educational tracks can start as early as age 10. Disadvantaged students have very low chances of entering the higher educational tracks⁹⁵. According to the 2017 national survey, the competence level of pupils at grade 10 in vocational secondary schools was lower on average than the competence level of sixth-graders and showed no progress from grade 8 to 10. This reflects the concentration of low-performing pupils in such schools (Educational Authority, 2018b) and shows that this school type does not effectively develop students' basic skills. Enrolment data show over-application especially to the well-performing 6- and 8-year upper secondary schools. Entry to these schools is via a highly competitive exam which makes high demands on candidates in terms of the application of content. These differences between school types worsen the substantial 'opportunity gap' between privileged and disadvantaged families observed as early as at primary level (see section on PIRLS). Inequality in education narrows the possibility for social mobility: from all EU countries, low-income families in Hungary have the poorest chances of approaching the mean income (OECD, 2018).

The separation of disadvantaged pupils, including Roma, has accelerated in the last decade. Increasing residential separation and the effect of parental choice on local school enrolment policies within the highly differentiated school system have resulted in the education system becoming ever more segregated on ethnic grounds. Despite the state taking over the management of all public schools from municipalities in 2013 with the aim of levelling inequalities, most Roma children still attend schools where all or most children are Roma. In certain cases this is linked to the ethnic composition of the locality of the school (FRA, 2016). ESL is more than six times higher (59.9 %) among Roma than among non-Roma (8.9 %)⁹⁶. In May 2016, the European

⁹⁵ Proportion of disadvantaged and cumulatively disadvantaged students by education track (MTA 2018):

- 1 % in 6- and 8-year grammar schools;
- 4 % in the other grammar schools (= general upper-secondary schools);
- 7 % in vocational 'grammar' schools; and
- 21 % in vocational secondary schools.

⁹⁶ Labour Force Survey 2014.

Commission launched infringement proceedings against Hungary over discrimination against Roma children in education in breach of the Race Equality Directive. Legislative amendments to address this issue have since been adopted by Parliament but will only apply to inscriptions as of 2018/2019.

The number of applicants for initial teacher education rose in 2017 but teacher shortages are still acute. The teaching workforce is ageing, and according to forecasts some 50 000 teachers will retire within 10 years (Government, 2016a). In the meanwhile, dropout rates are high and the number of new entrants to the profession remains low. According to the 2016 Career Tracking Survey, 71 % of recently graduated primary school teachers were active on the labour market, but only 88 % of them in occupations that needed a higher education degree (Educational Authority, 2017b). This means that at least 38 % of these graduates do not work as a primary teacher. Teachers' salaries have been raised in recent years but are still 25 % lower than those of other tertiary graduates (OECD, 2018b). Students in initial teacher education are entitled to the 'Klebelsberg stipendium' on condition that they work for a time at a public school after graduation.

Recent measures aim to increase the number of new entrants to training for special education. In 2017 the number of admitted entrants to special education training was less than 1 400 while there were nearly 2.5 times than number of applicants. More than 2 000 special needs teachers are estimated to be missing in daily practice and a further 1 000 related positions are fulfilled by teachers with no appropriate qualifications. As of 2017/2018, two additional higher education institutions launched programmes to train new teachers in special education, and the Klebelsberg stipendium was extended to special education students. The government announced that HUF 3.8 billion (~EUR 11.6 million) in additional funding would be earmarked in 2017 and HUF 1.9 billion (~EUR 5.8 million) in 2018 to cover the costs of increasing student numbers (Educational Authority, 2017a).

Box 2: Digital Education Strategy

Hungarian students scored the lowest in the EU in the 2012 PISA computer-based tests (OECD, 2015) and the digital skills of the adult population lag behind the EU average (European Commission, 2018). In response, the Ministry of Human Capacities adopted the Digital Education Strategy for 2017-2020 (Government, 2016b). The aim is that Hungary should reach the EU average with respect to digital literacy and usage, internet penetration rate, teachers' digital competences and the digitalisation of education by 2018.

The Strategy covers all sectors of education from school to adult learning. It addresses infrastructure; teachers' digital skills; teaching methodologies; education management; curricular reform and the development of digital content.

In 2017, the Digital Pedagogical Methodological Centre was established to support the implementation of the Strategy in school education. As a first step, the Digital School pilot was conducted in 2016/2017, coordinated by the Association of Informatics, Telecommunication and Electronic Companies (IVSz). Participants made recommendations to create a digital model school and regarding the professional and technological conditions of digital education.

Financial support is available for tools and methods supporting the development of digital competences and related infrastructural development through a dedicated call for proposals⁹⁷. School maintainers may receive HUF 70-110 million (EUR 220 000-350 000) per school to finance development plans. The total available budget is HUF 6.2 billion (EUR 20 million). Other projects⁹⁸ provide funding for the purchase of digital equipment, network building, methodological development and publications.

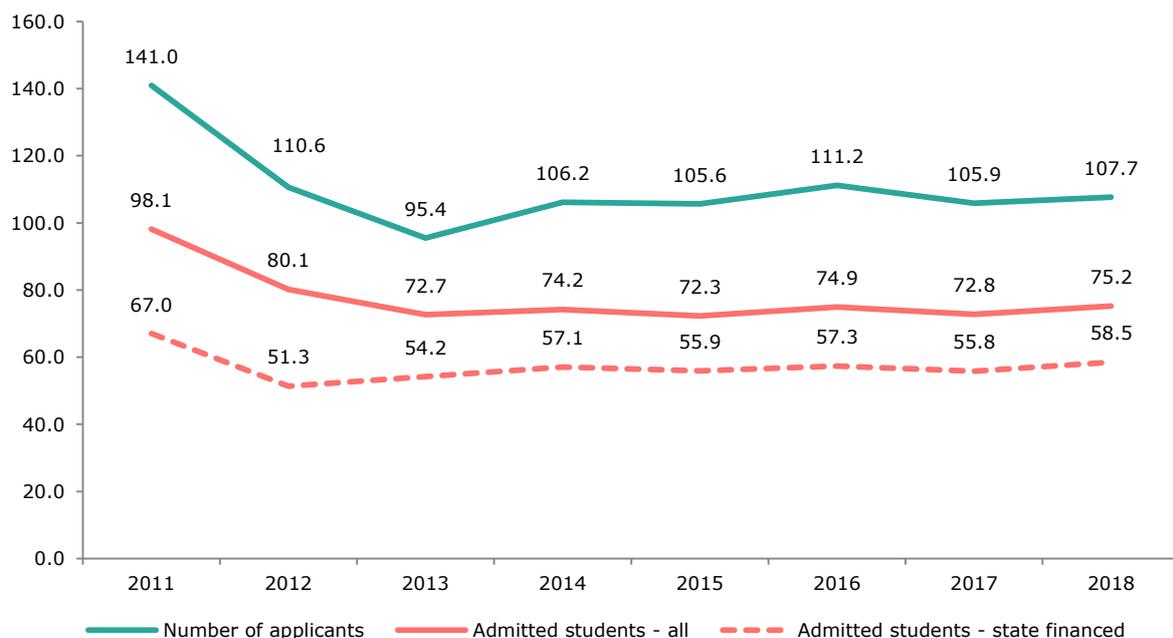
⁹⁷ HRDOP-3.2.3-17.

⁹⁸ HRDOP-3.2.4-16 and HRDOP-3.2.15.

6. Modernising higher education

A continuing low level of applicants in higher education is likely to further restrain tertiary attainment rates. The employment rate of recent tertiary graduates is 88.7 %, well above the EU average of 84.9 %, reflecting strong demand for highly skilled workers. Tertiary graduates also enjoy the highest wage premium across the EU (OECD, 2017). However, current enrolment and completion trends are not aligned with the demand: the tertiary educational attainment rate among 30-34 year-olds decreased to 32.1 % in 2017, against an increasing EU average (39.9 %). Enrolment numbers dropped significantly in 2012 when the government announced it was cutting the number of state-financed student places and introducing study contracts. In 2018, the number of admitted students increased for the first time in 2 years (Figure 2). As of 2020, a foreign language certificate of proficiency level B2 will be an entry requirement for all but short-cycle tertiary programmes. This may further reduce the already shrinking pool of applicants, as only 48 % of applicants currently hold a B2 level certificate (MTA, 2018). The Ombudsman found that the proposed language requirement would need to be accompanied by a greater allocation of human and other resources to language teaching to avoid infringing constitutional rights (Ombudsman, 2017). To support participation in language exams, the Government made the fees of the first successful B2 level exam reimbursable⁹⁹.

Figure 2. Change in the number of applicants and admitted students, 2011-2018 (in thousands)



Source: Felvi database, 2018

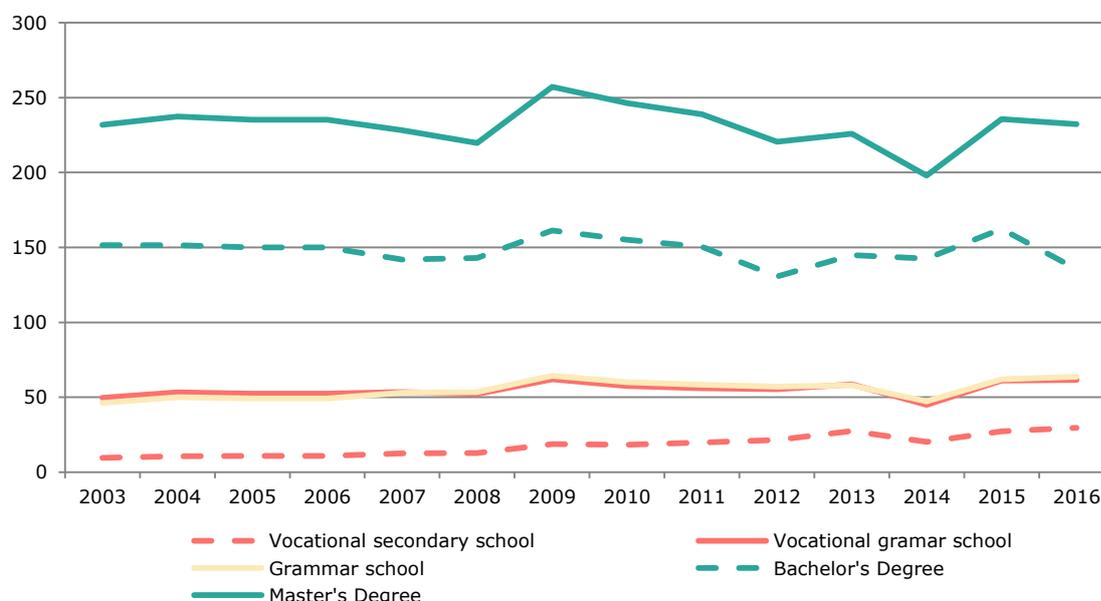
The share of private funding used to support participation in tertiary education is the third highest across the EU. More than one in three Hungarian students works throughout the year, including during the exam and holiday periods (Eurostudent, 2018). Students having paid jobs work on average 35 hours a week, and only half of these jobs are closely related to their studies. This reduces their time for studies and thereby the efficiency of public spending on higher education. More than a quarter of the students interrupting their studies for at least 1 year indicate work-related reasons. The share of disadvantaged students among all admitted students was very low at 1.4 % in 2016 (MTA, 2018), indicating a high level of inequity in study options. In April 2018 the government announced it would increase the budget for students' social benefits by about 40 % (Government, 2018b).

⁹⁹ Government Decree 503/2017.

7. Modernising vocational education and training

The two tracks of vocational education and training differ strongly in terms of the career perspectives of their graduates. The employment rate of recent VET graduates (ISCED 3 and 4) in 2017 was high: 85.9 % against an EU average of 76.6 %. VET has two regular pathways: vocational secondary school (*szakközépiskola*) for less academically-inclined students and vocational grammar school (*szakgimnázium*) with a higher element of general education. Vocational secondary schools provide practical workplace training focused on the imminent needs of companies, with limited general education content. This, together with the concentration of children of low socioeconomic status in this type of schools, explains their heavy deficit in basic skills measured in PISA and national surveys (Educational Authority, 2018b). Half of vocational secondary school graduates are employed as unskilled or semi-skilled workers. Their proportion in the public work scheme — doing primarily unskilled work — increased from 2.4 % to 6.2 % between 2011 and 2016 (MTA, 2018). Students leaving vocational grammar schools, with a higher element of general education, fare much better on the labour market than students leaving vocational secondary schools.

Figure 3. Relative wage premium of qualifications compared to basic qualification — whole population (% , 2003-2016)



Source: MTA 2018 http://www.mtaki.hu/wp-content/uploads/2018/01/D2_8.xlsx

Recent legislative changes bring some flexibility to VET and adult education but further lower the age of career choice. The obligation to learn a 'side-qualification' in vocational grammar schools — at the cost of general education content — was cancelled by an amendment of the law on VET and adult education in December 2017. Students will no longer be obliged to pass an exam for a vocational side-qualification as part of the matura. In certain sectors students will be able to choose a specialisation instead of studying the whole sector. In adult education it has become possible to train for a specific module and not a whole profession. The amendment also makes it possible for students to sign a pre-study contract with a training company as early as in their final year of lower secondary school, potentially determining career choice at the age of 13. Switching between professions or between levels of education is cumbersome because of the reduced general education and the increased vocation-specific content starting in the first year of VET programmes. The wage disadvantage of vocational secondary school graduates increases by age, which indicates a lack of transferability of skills acquired in these schools (Köllő, 2018).

Sectoral Skills Councils will decide on training needs. As part of the 2017 amendments, 20 Sectoral Skills Councils were established in July 2018 to define training needs by sector and region. Their members, appointed for the first time by the Hungarian Chamber of Commerce and Industry,

will compile the syllabus and provide work-based training places. Students may learn to use technologies at the VET centres if these are not available at the training companies.

8. Promoting adult learning

Promoting adult participation in learning remains a challenge, especially among the unemployed. Adult participation in learning remained low at 6.2 % in 2017, well below the EU average of 10.9 %. According to the Continuing Vocational Training Survey, 19.4 % of employees participated in continuing training provided by their employers in 2015, the second lowest rate in the EU. People in employment are about four times more likely to participate in training than unemployed people. Only 50 % of the population has at least basic digital skills (see section on the Digital Education Strategy).

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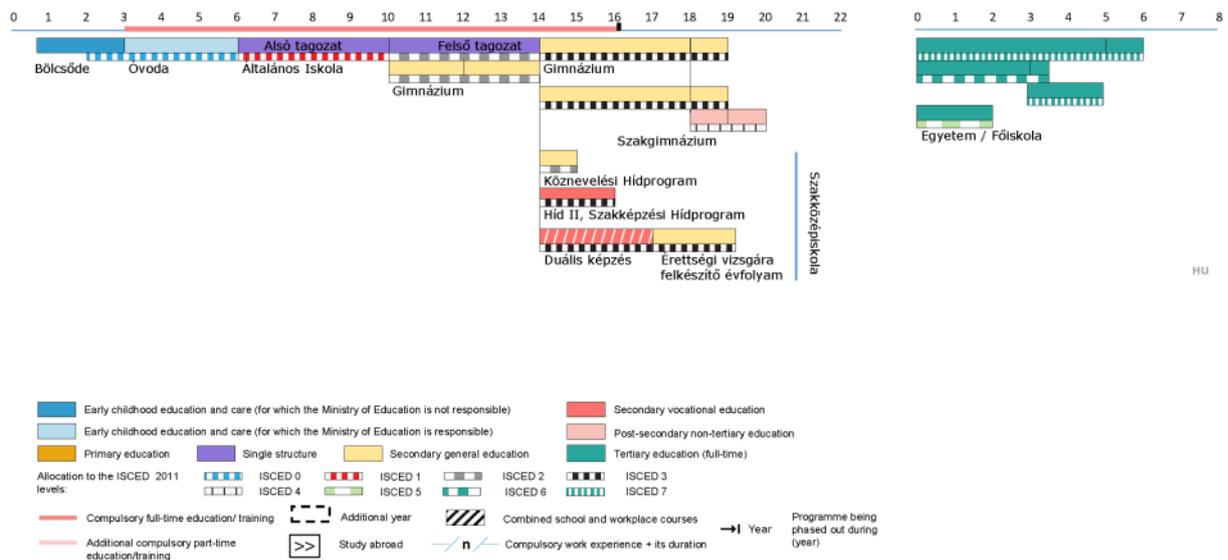
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10. Annex I: Key indicator sources

Indicator	Eurostat online data code
Early leavers from education and training	edat_lfse_14 + edat_lfse_02
Tertiary educational attainment	edat_lfse_03 + edat_lfs_9912
Early childhood education and care	educ_uoe_enra10
Underachievement in reading, maths, science	OECD (PISA)
Employment rate of recent graduates	edat_lfse_24
Adult participation in learning	trng_lfse_03
Public expenditure on education as a percentage of GDP	gov_10a_exp
Expenditure on public and private institutions per student	educ_uoe_fini04
Learning mobility: Degree mobile graduates	JRC computation based on Eurostat / UIS / OECD data
Credit mobile graduates	educ_uoe_mobc02

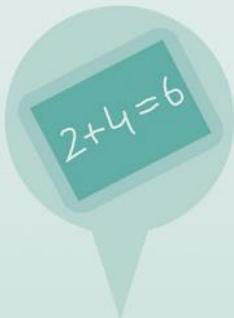
11. Annex II: Structure of the education system



Source: European Commission/EACEA/Eurydice, 2017. *The Structure of the European Education Systems 2017/18: Schematic Diagrams*. Eurydice Facts and Figures. Luxembourg: Publications Office of the European Union.

Comments and questions on this report are welcome and can be sent by email to:
 Livia RUSZTHY
livia.ruszthy@ec.europa.eu
 or
EAC-UNITE-A2@ec.europa.eu

IRELAND



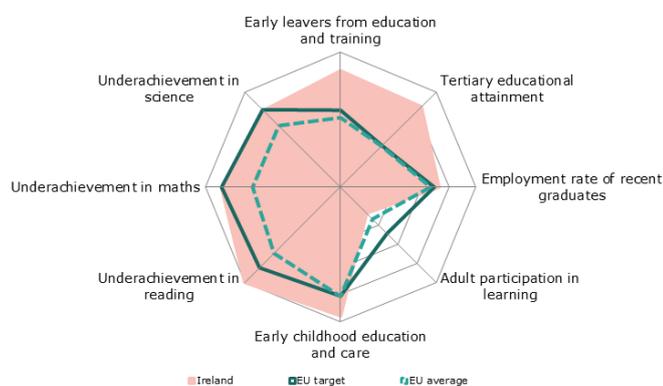
1. Key indicators

		Ireland		EU average	
		2014	2017	2014	2017
Education and training 2020 benchmarks					
Early leavers from education and training (age 18-24)		6.9%	5.1%	11.2%	10.6%
Tertiary educational attainment (age 30-34)		52.2%	53.5% ^b	37.9%	39.9%
Early childhood education and care (from age 4 to starting age of compulsory primary education)		99.7% ¹³	98.8% ¹⁶	94.2% ¹³	95.3% ¹⁶
Proportion of 15 year-olds underachieving in:	Reading	9.6% ¹²	10.2% ¹⁵	17.8% ¹²	19.7% ¹⁵
	Maths	16.9% ¹²	15.0% ¹⁵	22.1% ¹²	22.2% ¹⁵
	Science	11.1% ¹²	15.3% ¹⁵	16.6% ¹²	20.6% ¹⁵
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-8 (total)	75.7%	83.6%	76.0%	80.2%
	ISCED 0-8 (total)	6.8%	8.9%	10.8%	10.9%
Learning mobility	Degree mobile graduates (ISCED 5-8)	:	6.9% ¹⁶	:	3.1% ¹⁶
	Credit mobile graduates (ISCED 5-8)	:	: ¹⁶	:	7.6% ¹⁶
Other contextual indicators					
Public expenditure on education as a percentage of GDP		4.3%	3.3% ¹⁶	4.9%	4.7% ¹⁶
Education investment	Expenditure on public and private institutions per student in € PPS	ISCED 1-2	€6 356	: ¹⁵	€6 494 ^d
		ISCED 3-4	€8 064	: ¹⁵	€7 741 ^d
		ISCED 5-8	€10 376	: ¹⁵	€11 187 ^d
Early leavers from education and training (age 18-24)	Native-born	7.0%	5.3%	10.4%	9.6%
	Foreign-born	6.2%	4.0%	20.2%	19.4%
Tertiary educational attainment (age 30-34)	Native-born	52.0%	52.1%	38.6%	40.6%
	Foreign-born	52.8%	56.6%	34.3%	36.3%
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-4	60.4%	72.6%	70.7%	74.1%
	ISCED 5-8	84.5%	89.5%	80.5%	84.9%

Sources: Eurostat (see section 10 for more details); OECD (PISA).

Notes: data refer to weighted EU averages, covering different numbers of Member States depending on the source; b = break in time series, d = definition differs, 12 = 2012, 13 = 2013, 15 = 2015, 16 = 2016. On credit graduate mobility, the EU average is calculated by DG EAC on the available countries; on degree graduate mobility, the EU average is calculated by JRC over Eurostat and OECD data. The calculation of the ECEC benchmark includes ISCED 0 and ISCED 1 as in Ireland primary education starts before compulsory education. Further information can be found in the relevant section of Volume 1 (ec.europa.eu/education/monitor).

Figure 1. Position in relation to strongest (outer ring) and weakest performers (centre)



Source: DG Education and Culture calculations, based on data from Eurostat (LFS 2017, UOE 2016) and OECD (PISA 2015). Note: all scores are set between a maximum (the strongest performers represented by the outer ring) and a minimum (the weakest performers represented by the centre of the figure).

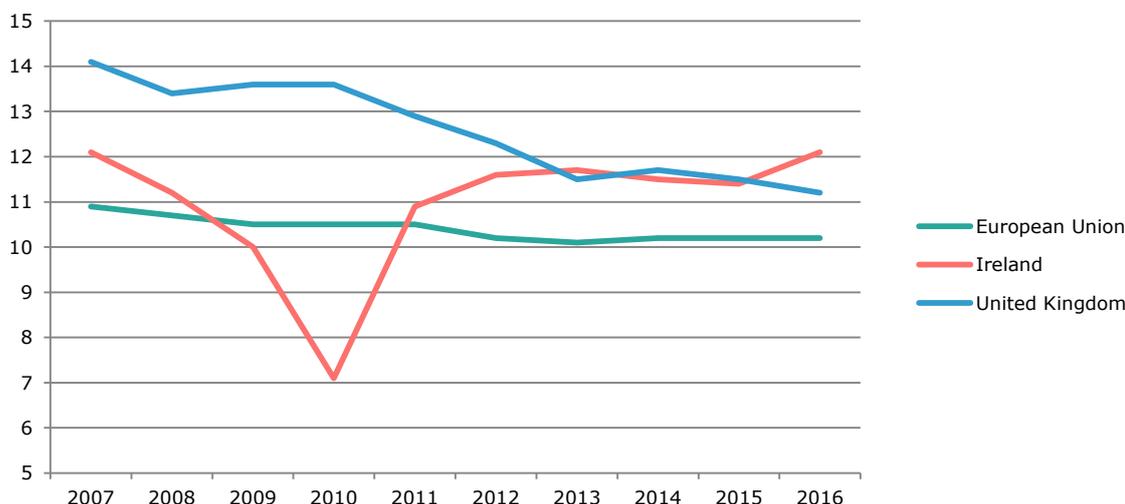
2. Highlights

- Ireland is undertaking reforms to increase quality, relevance and achievement at every level of its education system. There is also significantly increased investment on education and training.
- The country maintains a very good overall performance in the provision of basic skills.
- Ireland is seeking to adapt its education system to the challenges of the digital transformation and pursue the key higher education reform.
- Ireland is seeking to upskill and reskill its adult population to better meet the needs of the business sector and match education with the future labour market evolution.
- Ireland is running two key programmes fostering civic education in schools.

3. Investing in education and training

Expenditure on education has recovered recently, recording a sharp increase. Public expenditure on education as a proportion of GDP is not a fully reliable indicator in Ireland, given the specific structure of the Irish GDP and its recent significant shifts¹⁰⁰. Measured as a percentage of total public budget, Ireland spent 12.1 % on education in 2016, against 10.2 % for the EU-28 average (see Figure 2 for changes over time). This indicates that the sector is once again a budgetary priority. New funding has gone in particular to the recruitment of a sizeable number of new teachers and special needs assistants (Irish Government, 2018). These expansionary measures have been highly welcomed by stakeholders (ESRI, 2018).

Figure 2. Education as % of total general government expenditure in 2007-2016



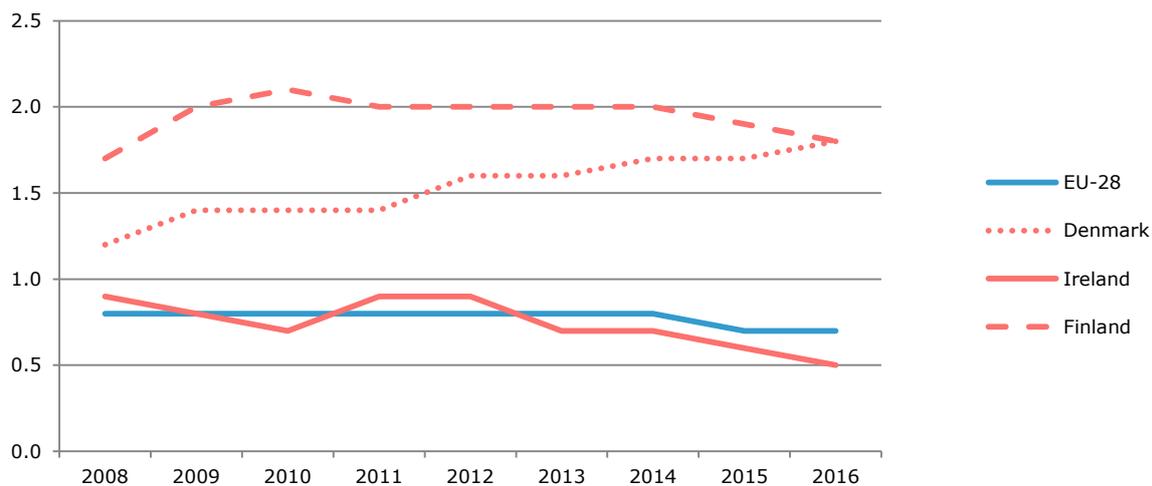
Source: Eurostat, 2018. Online data code: [gov_10a_exp](#).

Capital and infrastructure investment are also on a renewed positive trend. In February 2018 a EUR 30 million investment in ICT infrastructure for primary and post-primary schools was announced, enabling a large number of schools to purchase equipment and integrate digital technology into teaching and learning (Eurydice, 2018).. This is set to be complemented by

¹⁰⁰ Using gross domestic product (GDP) the figure would be 3.3 % in 2016, whereas using gross national income (GNI*) specifically adapted to Ireland, it would be c. 4.7 %.

additional supports for the introduction of Computer Science as a new subject in schools from September 2018. There is a particular focus on physical capital needs, concentrating on the institute of technology sector, with the aim being to expand capacity and upgrade campus infrastructure in the 2018-2021 period (Eurydice, 2018). In this context, EUR 21 million has been earmarked to increase the number of researchers across all disciplines, plus EUR 200 million for public-private partnerships. Public investment in early childhood education and care has also risen significantly in recent years, from EUR 260 million in 2015 to EUR 486 million in 2018. Finally, major investments on education are planned under the National Development Plan 2018-2027¹⁰¹.

Figure 3. Higher education (ISCED 5) expenditure as share of GDP in 2008-2016



Source: Eurostat, 2018. Online data code: [gocv_10a_exp](#).

Third-level spending is still considered insufficient by international standards. The 2017 OECD *‘Education at A Glance’* report highlights that Ireland spends a much lower proportion of its GDP on third-level education than other OECD countries on average (Graph 3). Overall funding for higher education has increased in recent years, but a decision on the future financing mechanisms, including the possible introduction of an income-contingent loan system, is still awaited (OECD, 2017). These decisions are even more pressing in the context of Brexit, as increases in non-EU applications to Irish higher education institutions are already being felt. A new reform was tabled on 15 January 2018 with the publication by the Department of Education and Skills (DES) of the *‘Review of the Allocation Model for Funding of Higher Education Institutions’* and the *‘Higher Education System Performance Framework for 2018-2020’*, paving the way for a new and ambitious tertiary sector agenda for Ireland¹⁰².

4. Citizenship education

Two key programmes are now in place to foster civic education. These prompt students to consider the social, political, cultural and economic factors affecting individual and collective relations. A new area of learning entitled *‘Wellbeing’* was introduced in Ireland for first-year students in secondary education as of September 2017. Key components include: social, personal and health education (SPHE); and civic, social and political education. Students’ performance will be recorded for the first time under the junior-cycle profile of achievement in autumn 2020. Students also take courses in SPHE at primary level, fostering their personal development, health and wellbeing (Eurydice, 2017). Civic education will also be a key component of further curricular reforms for the senior cycle in the future. Experts recommend that there should be an explicit reference to human rights in the planned new framework and that education on religious beliefs and ethics should be incorporated into the new reform (Ruane and Waldron, 2017).

¹⁰¹ See pages 86-88 on <https://www.per.gov.ie/en/national-development-plan-2018-2027/>

¹⁰² More on <https://www.education.ie/en/Press-Events/Press-Releases/2018-press-releases/PR18-01-15.html>

5. Modernising school education

Ireland performs quite well on participation in early childhood education and care (ECEC) and on early school leaving. The ECEC participation rate in Ireland was slightly above the EU average at 98.8 % in 2016¹⁰³. The proportion of early school leavers in Ireland fell to 6.1 % in 2017, substantially below both the 8 % national target and the EU-28 average. The 2018 Irish national reform programme highlights a number of recent policy initiatives to support learners at risk, particularly socio-economically disadvantaged students and pupils with special educational needs. Recent policy changes in this area will need to be monitored in terms of their impact. Meanwhile, reviews of non-school programmes currently under way, including Youthreach and Out of School Provision, will focus on how to ensure effective inclusion for those who do not succeed in the mainstream school system (Irish Government, 2018).

The provision of accessible, affordable and quality full-time childcare is still insufficient. The universal free pre-school provision scheme will be further extended in September 2018, allowing all children to have 2 full years of pre-school education, broken down into two 38-week programme years. The Affordable Childcare Scheme (ACS) is currently under development. Legislation to underpin the scheme was passed on 26 June 2018¹⁰⁴. The ACS will include both universal and targeted subsidies, and will replace all existing targeted childcare schemes, providing financial support for both pre-school and school age childcare. In advance of the rollout of the ACS, subsidies under a number of childcare schemes, both universal and means-tested, have been increased (Irish Government, 2018).

More is being done to ensure better service delivery in ECEC. A minimum qualification requirement (NFQ Level 5) for ECEC staff came into force in 2017. In addition, the Irish Government has incentivised professionalization through providing higher rates of payment to pre-school rooms with a graduate leader and through a bursary scheme for staff working in the sector who acquire a degree-level qualification at their own expense. In 2017, 20% of ECEC staff working directly with children had a graduate qualification (NFQ Level 7 or higher). In addition, the quality of ECEC is supported through mentoring and training, including the Better Start Quality Development Service and the National Síolta-Aistear Initiative. The Access and Inclusion Model (AIM) provides a continuum of universal and targeted supports to enable the meaningful participation of children with disabilities in pre-school provision. A childminding action plan, to support the wider regulation and quality of home-based ECEC, is planned for the end of 2018 (Irish Government, 2018). Since 2016, the National Síolta Aistear Initiative is funding the development of materials, resources and CPD opportunities for the ECEC workforce in the two frameworks.

Box 1: an ESF-funded project in County Donegal is helping students who recently dropped out of school to gain employment skills

The 'Support, Training and Enterprise Programme' (STEP) is organised by the YMCA in the northern town of Letterkenny (County Donegal).

The project targets unemployed young people who have been out of school for over 6 months. STEP courses include training in communications, career planning, and customer service and information technology.

Participants complete two work placements over 6 weeks during the course. They are awarded a certificate on completion. Training, transport and food allowances are also provided.

The project is co-financed by the European Social Fund and the DES.

<https://www.donegalnow.com/news/donegal-step-programme-currently-recruiting-2017-18-classes/160231>

¹⁰³ ECEC participation includes participation in both primary schools as well as ECEC centres.

¹⁰⁴ https://www.dcy.gov.ie/docs/26.06.2018_Childcare_Support_Bill_is_passed_by_the_Oireachta/4722.htm

Compared with other countries, Ireland achieves a high level of basic skills. The 2016 Progress in International Reading Literacy Study (PIRLS) report shows that Ireland's primary school children are one of the best performing in Europe and are in the top tier of OECD countries for reading skills¹⁰⁵. The reading achievement scores of fourth graders improved by 15 score points since the last survey in 2011. The number of students with only basic reading skills has dropped significantly, while the percentage of those with advanced reading skills rose from 16 % in 2011 to 21 % in 2016 (Eivers et al. 2019). Recent international tests place Ireland in a strong position in terms of how students perform in English and maths in an international context (OECD, 2017), but, a deterioration has been visible in the teaching and learning of the Irish language in the primary and secondary school systems (ESRI, 2018). Performance in foreign languages is still insufficient by international standards (Chief Inspector's Report, 2018).

Box 2: New and ambitious foreign languages strategy for Ireland

In December 2017, the DES launched the government's 'Strategy for Foreign Languages in Education 2017-2026'.

The plan sets out a roadmap to put Ireland in the top 10 countries in Europe for the teaching and learning of foreign languages and includes actions to ensure a steady supply of language teachers.

It also sets out targeted measures for increasing the number of languages taught, improving proficiency, fostering diversity and increasing immersion programmes. The number of post-primary schools offering two or more foreign languages will be increased by 25 % and the number of foreign language assistants in schools will be doubled in the years to come.

The implementation of such an ambitious plan will require significant changes to how foreign languages are taught in Ireland and will require extra resources.

<https://www.education.ie/en/Schools-Colleges/Information/Curriculum-and-Syllabus/Foreign-Languages-Strategy/Foreign-Languages-Strategy.html>

Student performance is benefiting from Ireland's literacy and numeracy strategy, from investment in disadvantage and special educational needs support, and from curricular reforms. DEIS (Delivering Equality of Opportunity in Schools), remains the policy instrument for addressing educational disadvantage: its central strands are enhancing attendance, progression, retention and attainment. Policy actions focus on a school action plan for literacy and numeracy from an early stage, with strong links between the home, school and community. The action also focuses on schools working cooperatively and on cooperation between education and other services. The plan prioritises the educational needs of children and young people from disadvantaged communities from early childhood through second-level education. 825 schools are included in the programme in the 2016/17 school year. These comprise 640 primary schools (328 urban/town schools and 312 rural primary schools) and 185 second level schools.

There is more strategic steering of education from the authorities. On 7 February 2018, the DES published its 2018 action plan for education, with over 370 actions and sub-actions to be implemented during the year. The plan recognises the importance of changing demographics, inclusion and the role of teachers and sets out to further tackle disadvantage, strengthen inclusion and support transitions between different education levels (DES, 2018). The 'End of Year Review' 2017, the first full-year review published under the 2016-2019 action plan, concluded that 86 % of the actions for 2017 had been fully or partially carried out. In February 2018, the National Council for Curriculum and Assessment announced a review of senior-cycle education, to commence in September 2018, which will feed into a possible future reform of this sector.

¹⁰⁵ More on <http://pirls2016.org/pirls/student-achievement/pirls-achievement-results/>

Measures have been taken to support teacher supply. A number of measures have been introduced to support the supply of teachers, particularly in specific subject areas at post primary level. In March 2018 the DES, following discussions with the universities, announced an expansion in the number of places on initial teacher education programmes in 2018 at both undergraduate and postgraduate levels, including additional places in STEM, Irish and modern foreign language programmes. The Programme for Access to Higher Education (PATH) Fund supports the implementation of the National Plan for Equity of Access to Higher Education 2015-2019. This Fund comprises dedicated funding to support access to higher education allocated on a competitive basis to higher education institutions to support particular priority areas as determined by the DES. PATH 1 in line with a priority in the National Access Plan provides €2.7m over 3 years to support the objective in the National Access Plan to increase access to initial teacher education for 120 students from the target groups identified in the National Access Plan such as Lone Parents and Travellers (DES, 2017).

Ireland is currently developing its 2018-2022 ICT action plan to address skills shortages in this sector. OECD PISA survey results show that Irish 15- and 16 year-old students engaged significantly less often with ICT at school and with ICT use outside of school, highlighting the need for policy focus on this area (OECD, 2017). A new computer science subject is being introduced in secondary schools from September 2018. Meanwhile, significant teacher supply and infrastructural deficits are set to be addressed via recently announced new measures (DES, 2017). Irish schools have been invited to apply to form clusters of 'digital savvy' schools. In December 2017, the DES announced the 'School Excellence Fund — Digital'. Primary and secondary schools are invited to apply to form clusters of schools, working together on innovative projects in teaching and learning with digital technologies. The project seeks to demonstrate the use of digital technologies and to include it into curricula. Finally, in January 2018 it was announced that 40 post-primary schools around the country will start teaching computer science for the Leaving Certificate from this September, with the first students sitting an exam in this subject in 2020 (Eurydice, 2018).

6. Modernising higher education

Ireland has a very high tertiary attainment rate and has set ambitious goals for the future. In 2017 as much as 53 % of 30-34 year-olds had tertiary qualifications, compared to an EU average of just below 40 %. Enrolment in higher education has been traditionally high in Ireland, reflecting at least in part the lack of alternatives and the relative undervaluing of vocational pathways (McCoy et al., 2014, McGuinness et al., 2018). While the 2018 national reform programme identifies a target of 60 % of 30-34 year-olds with tertiary attainment, the further education and training sector's potential to provide pathways to sought-after qualifications is not yet fully exploited. The national reform programme highlights areas where the dropout rate from higher education is particularly high; it acknowledges that more work is needed to support students to complete their studies (Irish Government, 2018). By the end of 2018, a review of career guidance tools and career information will be completed for post-primary, further education and higher education students, as well as for adults. The aim is to ensure that Ireland is providing high quality, relevant career guidance support service to all students from post-primary level up to further and higher education (Eurydice, 2018).

Tracking of students and graduates is well developed in Ireland. The Higher Education Authority (HEA) reports on 'Retention and Progression in Higher Education' and shows that 86% of new entrants to full-time undergraduate degrees in 2014/2015 progressed to their second year of study in 2015/16. Further work will be done to see how students can best be supported to continue on their course or transfer to another programme (HEA, 2018). Graduate tracking and labour market pathways are also on the agenda in Ireland: 'What Do Graduates Do? - The Class of 2016' was published in January 2018. This study shows that 70% of recent graduates progressed to employment, and 10% went overseas. 81% of Masters and Doctorate level graduates are in employment nine months after graduation, up one percentage point from 2015 (80%) (HEA, 2018)

There is increased long-term investment in Irish higher education. Additional funding of EUR 36.5 million was provided for higher education in the 2017 budget and a further EUR 60 million was announced in the 2018 budget. This additional funding will support targeted initiatives including skills programmes, performance and innovation funding, technological university development and apprenticeships in the sector. The DES has recently announced a new EUR 5.7 million 'Higher Education Access Fund' to help students from under-represented groups to

access higher education. Funding will be given to regional clusters of institutions to support approved access initiatives and will support places for 2 100 additional students in 2018. Finally, higher education was highlighted as a key area for investment under 'Project Ireland 2040'. An investment programme is planned, including a EUR 200 million public-private partnership in 11 institutes of technology and a comprehensive capital investment programme with additional cumulative investment of EUR 2.2 billion up until 2027. This will also be accompanied by the new role of technological universities, which will have a new mandate to underpin and drive regional economic development.

The applied sciences sector is being upgraded in Ireland. The new Technological Universities Act came into force in March 2018. Applications for technical university status are submitted to the HEA for assessment by an international panel of experts. These are put forward by consortia of existing institutes of technology, which come together to seek future technical university status. The first application was submitted and approved earlier this year, and the first Technological University will be established in Dublin in early 2019. Further applications are anticipated later in 2018 and in subsequent years. A €220m project, being delivered via PPP, will benefit the new TU for Dublin. This is in addition to the forthcoming PPP programme for the wider Institute of Technology sector as 8 of the 11 institutes benefitting from this scheme are in TU consortia. This latest initiative confirms the strong focus on STEM, including ICT, engineering and life sciences to drive regional development in Ireland. Finally, quality assurance is becoming an area of growing strategic importance to Irish higher education institutions. In December 2017, two Quality and Qualifications Ireland (QQI) reports were published, with the aim of making higher education more relevant for both students and the future labour market (QQI, 2017).

7. Modernising vocational education and training

Ireland continued to expand its apprenticeship system to higher qualification levels and to new sectors. This action is part of the 2025 national skills strategy, published in 2016, and aims to significantly increase work-based learning opportunities for school graduates who choose not to go to general higher education, as well as for employees (DES, 2016). Steps were taken to develop new apprenticeships, up to European qualifications framework (EQF) level 8; previously apprenticeship qualifications were only at EQF level 5, covering a wider range of sectors. It is also expected that the new apprenticeship fields will increase female participation. The National Women's Council of Ireland and the Further Education and Training Authority (SOLAS) have been working together to identify the reasons for, and obstacles to, low female participation in apprenticeships. Approximately 40 new apprenticeship areas will be introduced over the next few years, including in ICT and other STEM occupations. Despite reforms, the employment rate of recent vocational education and training graduates, at 72.3 % in 2017, was still below the EU average of 76.6 %. In 2018, the National Skills Council is continuing its work to identify and prioritise skills demands and pinpoint how the education and training sector and other relevant stakeholders can best respond to this challenge. Finally, a survey of businesses that have worked with the regional skills fora will be held to measure satisfaction with their engagement with the fora so that the Education and Training system can continue to improve the service that is offered in each region.

8. Promoting adult learning

Adult participation in learning increased by 2.7 pps in 2017 to 8.9%, as against an EU average of 10.9%, suggesting that recent reforms in the field of Further Education and Training (FET) are beginning to show results. The Action Plan for Education 2018 foresees the creation of better career pathways through strengthening the apprenticeship and traineeship systems, supporting the development of an Upskilling Pathways Plan, and continuing to work with Skillnets to deliver enterprise-led training, including the establishment of four new Skillnets in sectors and regions highlighted in national workforce and sectoral policy, creating greater diversity of opportunity in learning beyond school. In-depth analysis of the potential target group of Upskilling Pathways has been undertaken. 'Supporting Working Lives and Enterprise Growth in Ireland', a new policy framework for the FET sector focuses on up-skilling and re-skilling opportunities for those already in employment, with a particular emphasis on groups furthest from the education system, e.g. those with lower education attainment. The policy was published in July 2018, and will be followed by initiatives to support FET actors in providing adult learners with the skills necessary for work. In 2018 the Council addressed to Ireland the following country-specific

recommendation under the European Semester: "Prioritise the upskilling of the adult working-age population, with a focus on digital skills" (Council of the European Union, 2018).

A comprehensive review of the National Training Fund was published in August 2018. This review will guide strategic decisions on the Fund's structure and future direction.

Other developments outlined in the 2018 Action Plan include: developing a national policy on the recognition of prior learning; implementation of the FET Professional Development Strategy 2017-2019; completion of the Mid-Term review of the Further Education and Training Strategy; improving the impact of the Post Leaving Certificate (PLC), Youthreach, Vocational Training Opportunities Scheme (VTOS) and Specific Skills Training (SST) schemes, to ensure relevance to the labour market and effective progression for learners; completing a review of career guidance services; and the implementation of actions from the ICT Skills 2014-2018 Action Plan.

Digital skills levels of the population are improving but still remain relatively low. In 2017, only 48% of the population possessed at least basic digital skills, as compared with the EU average of 57 %. In 2017, a Strategy for Technology-Enhanced Learning (TEL) in Further Education and Training (FET) was published. It aims to establish TEL as an intrinsic element of FET. Implementation will improve access to FET, equip learners with the skills and confidence to use technology as part of their work, and enhance overall learner engagement in FET. SOLAS will work closely with the DES to implement this strategy.

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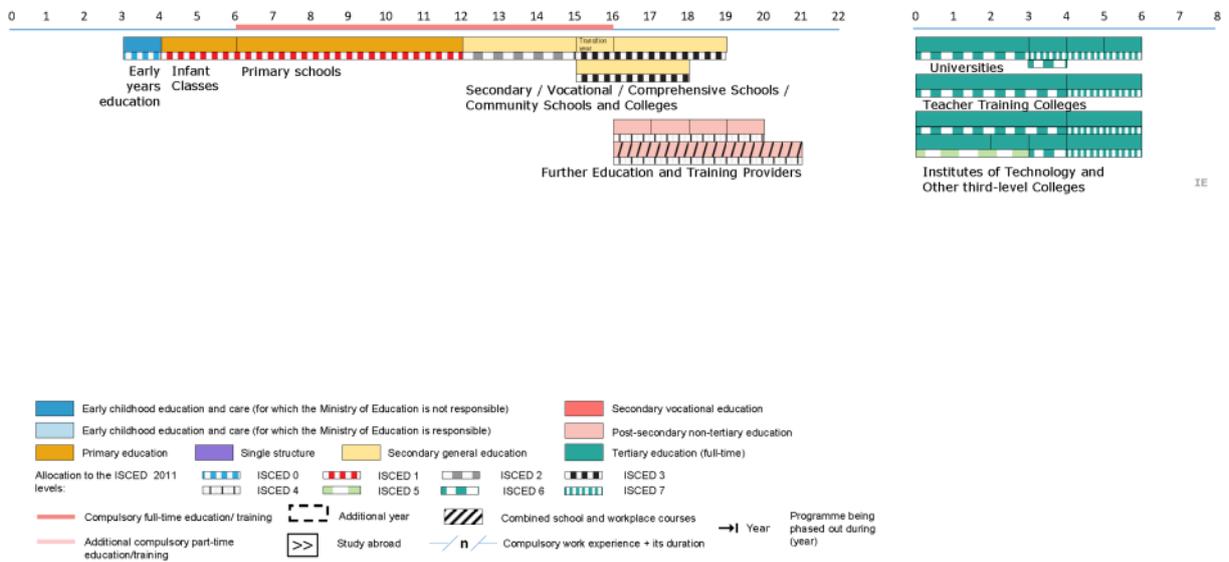
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10. Annex I: Key indicator sources

Indicator	Eurostat online data code
Early leavers from education and training	edat_ifse_14 + edat_ifse_02
Tertiary educational attainment	edat_ifse_03 + edat_ifs_9912
Early childhood education and care	educ_uoe_enra10
Underachievement in reading, maths, science	OECD (PISA)
Employment rate of recent graduates	edat_ifse_24
Adult participation in learning	trng_ifse_03
Public expenditure on education as a percentage of GDP	gov_10a_exp
Expenditure on public and private institutions per student	educ_uoe_fini04
Learning mobility: Degree mobile graduates	Eurostat / UIS / OECD
Credit mobile graduates	educ_uoe_mobc02

11. Annex II: Structure of the education system



Source: European Commission/EACEA/Eurydice, 2017. *The Structure of the European Education Systems 2017/18: Schematic Diagrams*. Eurydice Facts and Figures. Luxembourg; Publications Office of the European Union.

Comments and questions on this report are welcome and can be sent by email to:
EAC-UNITE-A2@ec.europa.eu

ITALY



1. Key indicators

		Italy		EU average		
		2014	2017	2014	2017	
Education and training 2020 benchmarks						
Early leavers from education and training (age 18-24)		15.0%	14.0%	11.2%	10.6%	
Tertiary educational attainment (age 30-34)		23.9%	26.9%	37.9%	39.9%	
Early childhood education and care (from age 4 to starting age of compulsory primary education)		96.5% ¹³	96.1% ¹⁶	94.2% ¹³	95.3% ¹⁶	
Proportion of 15 year-olds underachieving in:	Reading	19.5% ¹²	21.0% ¹⁵	17.8% ¹²	19.7% ¹⁵	
	Maths	24.7% ¹²	23.3% ¹⁵	22.1% ¹²	22.2% ¹⁵	
	Science	18.7% ¹²	23.2% ¹⁵	16.6% ¹²	20.6% ¹⁵	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-8 (total)	45.0%	55.2%	76.0%	80.2%	
Adult participation in learning (age 25-64)	ISCED 0-8 (total)	8.1%	7.9%	10.8%	10.9%	
Learning mobility	Degree mobile graduates (ISCED 5-8)	:	3.3% ¹⁶	:	3.1% ¹⁶	
	Credit mobile graduates (ISCED 5-8)	:	7.8% ¹⁶	:	7.6% ¹⁶	
Other contextual indicators						
Education investment	Public expenditure on education as a percentage of GDP		4.0%	3.9% ¹⁶	4.9%	4.7% ¹⁶
	Expenditure on public and private institutions per student in € PPS	ISCED 1-2	€6 226	€6 667 ¹⁵	€6 494 ^d	: ¹⁵
		ISCED 3-4	€6 797 ^d	: ¹⁵	€7 741 ^d	: ¹⁵
ISCED 5-8		€8 451	€8 583 ¹⁵	€11 187 ^d	: ¹⁵	
Early leavers from education and training (age 18-24)	Native-born	13.0%	12.0%	10.4%	9.6%	
	Foreign-born	32.6%	30.1%	20.2%	19.4%	
Tertiary educational attainment (age 30-34)	Native-born	26.7%	30.6%	38.6%	40.6%	
	Foreign-born	12.8%	12.8%	34.3%	36.3%	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-4	38.3%	48.4%	70.7%	74.1%	
	ISCED 5-8	52.9%	62.7%	80.5%	84.9%	

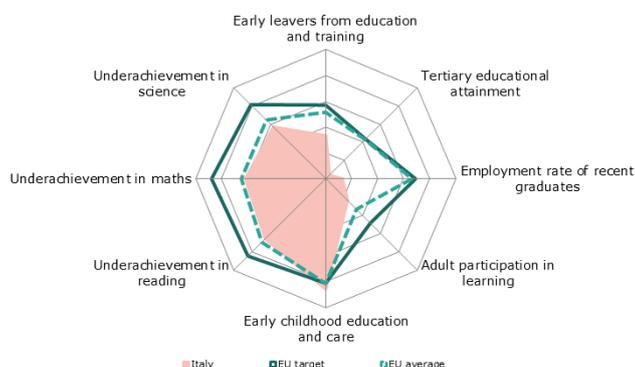
Sources: Eurostat (see section 10 for more details); OECD (PISA).

Notes: data refer to weighted EU averages, covering different numbers of Member States depending on the source; d = definition differs, 12 = 2012, 13 = 2013, 15 = 2015, 16 = 2016.

On credit graduate mobility, the EU average is calculated by DG EAC on the available countries; on degree graduate mobility, the EU average is calculated by JRC over Eurostat and OECD data.

Further information can be found in the relevant section of Volume 1 (ec.europa.eu/education/monitor).

Figure 1. Position in relation to strongest (outer ring) and weakest performers (centre)



Source: DG Education and Culture calculations, based on data from Eurostat (LFS 2015, UOE 2016) and OECD (PISA 2015). Note: all scores are set between a maximum (the strongest performers visualised by the outer ring) and a minimum (the weakest performers visualised by the centre of the figure).

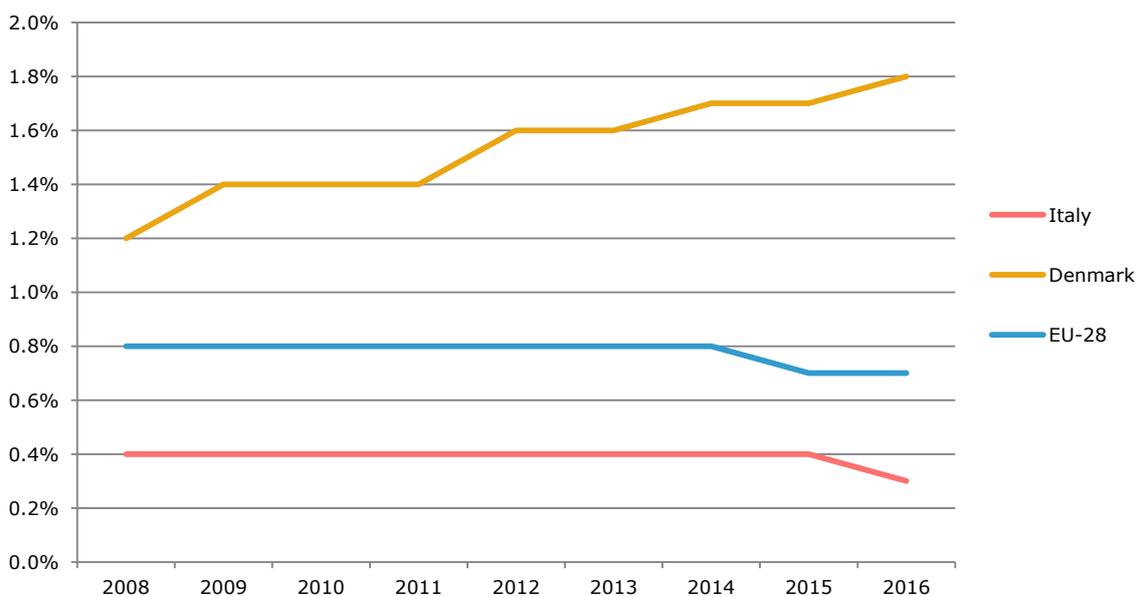
2. Highlights

- Italy’s investment in education is well below the EU average, particularly in higher education.
- The 2015 school reform was partially implemented, and some key measures are currently being reconsidered by the new government; wide regional disparities in educational attainment persist, as evidenced by national and international surveys.
- Civic and citizenship education is defined by law as a key objective, to be implemented at school level.
- The quality of higher education is receiving more attention and the framework for allocating public funding to universities has improved in recent years.
- The transition from education to work remains difficult, also for high-qualified people.

3. Investing in education and training

Education receives a comparatively small share of the public budget. General government expenditure on education continues to be among the lowest in the EU, both as a proportion of GDP (3.9 % in 2016, compared to the EU average of 4.7 %) and as a proportion of total general government expenditure (7.9 %; EU average, 10.2 %). While the share of funding allocated for primary and secondary school (ISCED levels 0-3) is broadly in line with EU averages, expenditure on tertiary education is the lowest in the EU after the UK, at just 0.3 % of GDP in 2016, well below the EU average of 0.7 % (Figure 2). The Council has adopted a country specific recommendation for Italy under the 2018 European Semester to “*foster research, innovation, digital skills and infrastructure through better-targeted investment and increase participation in vocational-oriented tertiary education*” (Council of the European Union, 2018).

Figure 2. General government expenditure on tertiary education as share of GDP (2016)



Source: Eurostat. Online data code: [gov_10a_exp](#).

The student population is projected to shrink by 1 million (8.8 %) over the next ten years. According to projections based on Eurostat data, the number of school-age children (3- to 18-year-olds) would decrease from the current 9 million to 8 million in 2028¹⁰⁶ (Fondazione Agnelli, 2018). Under existing regulations, this could result in the loss of over 50 000 teaching posts, lower teacher mobility and teacher turnover. In the long term, new approaches will need to be developed to ensure the renewal of the teaching body, and the capacity for innovation of the education system.

The high number of young people not in employment, education or training (NEET) continues to represent a challenge. In 2017, around a fifth of Italians (20.1 %) aged between 15 and 24 were neither in employment, nor in education or training – by far the highest share in the EU¹⁰⁷. The figure for 2017 remained virtually unchanged compared to 2016 (19.9 %), almost twice as high as the EU average (10.9 %).

4. Citizenship education

Civic and citizenship education is defined by law as a key objective of education, but there is no systematic approach to its implementation, which happens at school level.

Civic and citizenship education in Italian schools is taught at all levels of school, starting in pre-primary. It is integrated into other compulsory subjects: history and geography in primary and lower secondary school, and socio-historical disciplines, law and economics in upper secondary (both general and IVET). In 2015, the “*La buona scuola*” school reform¹⁰⁸ advocated a more whole-school approach. The law provides principles, objectives and guidelines, assigns objectives to schools and underlines their role to promote the acquisition of social, civic and intercultural competences at all education levels from primary to school-based IVET. Schools identify the strengths and weaknesses of their institution in relation to key competences and citizenship in the self-assessment report (RAV). Schools and individual teachers have the autonomy to choose how to implement these to reach the expected goals (e.g. citizenship and social/civic competences, knowledge of the Italian Constitution and other laws and understanding of the European Union Charter of Fundamental Rights). Assessment of social and civic competences is included in the certificate of competences at the end of lower secondary education (ISCED 2, grade 8). Teachers do not currently receive pre-service training in civic and citizenship education, although in-service training is available under the National Plan for Teacher Training, and is open to all teachers, regardless of their subjects.

Most schools actively participate in national and European initiatives to promote civic and citizenship education. The Ministry of Education offers a range of annual activities targeted at primary and secondary schools, such as “A Day in the Senate”, “I would like a law that...”, “Witness Rights”, “Training Day at Montecitorio” and “Parlawiki – building the vocabulary of democracy”. At European level, more than 60 000 teachers and 11 000 schools participate in the EU e-twinning platform¹⁰⁹, within over 20 000 school co-operation projects. Citizenship education is one of the priorities of the 2014-2020 National Operational Programme for the Structural Funds 2014-2020 for the education sector co-funded by the Structural Funds (See Box 1). The result is that there are many good initiatives, but they do not systematically cover all schools or all students

Box 1: European Social Fund (ESF) support for teaching global citizenship in schools

As part of the objective “Strengthening students’ key competences” under the National Operational Programme for the school sector 2014-20 (PON *Per la Scuola – competenze e ambienti per l’apprendimento*), in 2017 the Ministry of Education made available EUR 120 million to primary and secondary schools for projects on citizenship education. The aim is to strengthen students’ transversal, social and civic competences, helping them to become competent,

¹⁰⁶ This is due to decreasing fertility rates across the country combined with a sharp reduction in international migratory influxes (from 7.5 per thousand in 2007 to 3 per thousand in 2017).

¹⁰⁷ Followed by Cyprus with 16.1 %.

¹⁰⁸ Law no. 107/15 of 13 July 2015.

¹⁰⁹ The eTwinning action is an initiative of the European Commission that aims to encourage European schools to collaborate using Information and Communication Technologies by providing the necessary infrastructure (online tools, services, support).

responsible citizens in a modern, connected and interdependent society. Each of the participating schools will receive up to EUR 30 000 to finance 30- or 60-hour modules on global citizenship. The thematic areas and objectives eligible for ESF support include the following:

- **Environmental education:** The aim is to form citizens able to tackle environmental challenges, knowledgeable about the contents of international climate change agreements, mindful of environmentally responsible behaviours and aware of the characteristics of the territory they live in. Students will be able to develop “reduce-reuse-recycle” schemes, to devise and implement projects for sustainable mobility and for adopting, managing and caring for green spaces, parks and urban spaces.
- **Economic citizenship:** The main objectives are: strengthening financial and economic literacy with a focus on a more inclusive and ethical economy; consumer education, awareness of the relationship between economic growth, wealth and economic development; knowledge of financial instruments, risk prevention, knowledge of financial institutions and market regulations.
- **Civic education, respect of diversity and active citizenship:** Projects will focus on the Italian Constitution, the concept of subsidiarity, public goods and common goods, democracy, active citizenship and participation. Examples of activities include the development of a budget, the participative design of school spaces, as well initiatives of shared management and active citizenship in local contexts.

5. Modernising school education

The expansion of early childhood education and care (ECEC) services could help to bring about improved learning outcomes by helping to compensate for socioeconomic disadvantages. The enactment of the school reform foresees the coordination of early childcare and pre-primary education in larger centres called *Poli per l’infanzia* (European Commission 2017). The objective is to reach a coverage rate of 33 % of children under three (currently around 10 %) and to have ECEC facilities in at least 75 % of municipalities. For the school year 2017/18, the previous government distributed EUR 209 million among the Italian regions (expected to rise to EUR 239 million in the next school year) according to three criteria: population in the relevant age bracket (0-6), current attendance rates for early childcare, and share of children not enrolled in pre-primary education.

The implementation of the 2015 school reform is now being reconsidered by the new government. The new government in place after the March 2018 election has announced a major review of the school reform “*La Buona Scuola*”, which had already been weakened in its implementation under the previous government, leaving many issues unsolved. Successive derogations to the stricter mobility rules introduced by the reform (a mandatory period of three years for newly appointed teachers before they could apply for a transfer) have exacerbated teacher turnover¹¹⁰, leading to teacher shortages in the North as most applications are for North-to-South transfers¹¹¹. The implementation of work-based learning (a mainstay of *La Buona Scuola*) is currently under review, while the possibility for school principals to hire teachers directly based on school needs (*chiamata diretta*), which never really took off, was abolished in June 2018.

The education system is characterised by wide and persisting regional gaps in learning outcomes. The regional disparities in learning achievements already highlighted by international tests (European Commission 2017) were largely confirmed by the latest round of national student testing conducted by INVALSI (*Istituto nazionale per la valutazione del sistema educativo di istruzione e di formazione*)¹¹². The number of low achievers in Italian, mathematics and English in grade 8 is significantly and consistently higher in the South of the country than the North (45 % vs

¹¹⁰ Almost 240,000 teachers (out of 819,000) changed school or geographical area the last three years: a turnover rate of 29%.

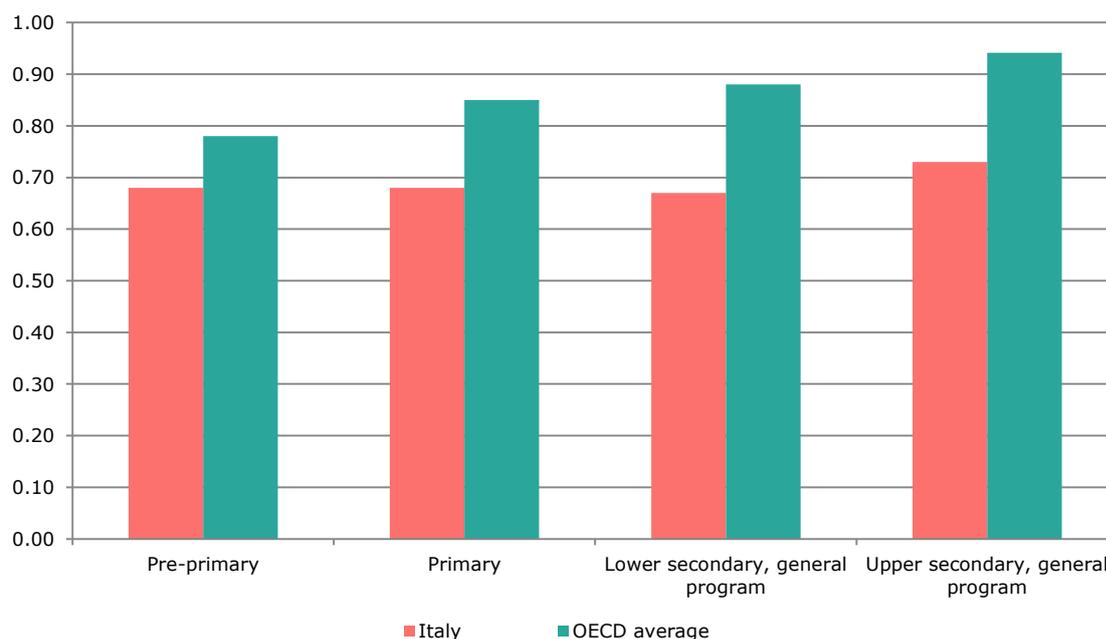
¹¹¹ Geographical mismatches mean that most teachers are from the South while most teaching posts are available in the North.

¹¹² The INVALSI tests are taken every year by all students in grades 2, 5, 8 and 10 to measure their achievement in Italian, mathematics and, as of 2018, English (grades 5 and 8 only).

28 % in Italian, 54-56 % vs 28-32 % in mathematics, 67 % vs 27-30 % in English). The education system in the South also appears to be less equitable than in the North and Centre: at primary level, there are marked differences between schools and, in some cases, between classes in the same school, which could indicate a tendency to group less able students in separate classes from very early on. Schools in the South also have a larger proportion of low-achieving students from low socio-economic backgrounds (INVALSI 2018).

Recruiting and motivating good teachers is a challenge. Teachers' salaries remain low compared to international standards (Figure 3) and career prospects are limited (OECD 2017). A new national contract for the school sector signed in February 2018 for the period 2016-2018 provides wage increases for school teachers and non-teaching staff for all educational levels (from primary to tertiary). The average increase covering the past three years (2016 to 2018) was EUR 89 per month (gross), representing an average rise of 0.5 %. This is in line with contract renewals in the rest of the public sector, but significantly below the 2018 inflation rate. The possibility for school principals to reward teachers based on merit introduced by the 2015 reform has been weakened by merging the dedicated fund (*Fondo per la valorizzazione del merito*) into a single fund (*Fondo per il miglioramento dell'offerta formativa*) to be disbursed through negotiations with trade union representatives at school level. The new recruitment system for school teachers should improve average quality, since initial teacher education now includes a two-year period of paid apprenticeship in place of the system of being enrolled in waiting lists and being hired on need. The system was formally introduced in 2017 (European Commission 2017) and is expected to be operational as of the 2018/19 school with the first intake of applicants to be determined by the Ministry of Education on the basis of estimated vacancies.

Figure 3. Teachers' actual salaries relative to earnings of tertiary-educated workers (2015)



Source: OECD, Education at a Glance 2017: OECD Indicators, Table D3.2a.

Non-Italian students' educational attainment lags significantly behind that of Italians.

There were 826 000 non-Italian students in the school year 2016/17 (9.4 % of the school population and 11 000 more than the previous year). Boys slightly outnumbered girls (52 % and 48 % respectively) and the majority (61 %) was born in Italy. Compared to Italian students, foreign students are at higher risk of grade repetition (31.3 % vs 10 %) and early school leaving (30.1 % vs 12 %). They show a stronger orientation towards VET education and lower enrolment rates of boys compared to girls, especially after grade 10 (MIUR 2018). There are no recent measures to even out differences of attainment with Italian students.

Box 2: The fight against early school leaving and educational poverty

In January 2018 the Ministry of Education published a strategy to fight early school leaving (ESL) and educational poverty. The aim is to reduce the ESL rate (currently 14 %) to below 10 %, in accordance with the Europe 2020 target, and to increase investment in developing basic skills and competences. The strategy sets out a number of actions to be implemented over the next 5 years in the framework of a national action plan co-ordinated by the government in agreement with the regions and municipalities and overseen by Parliament. Part of the plan consists in mapping existing initiatives and proposing new measures to fight ESL. The strategy identifies critical areas to be targeted, including through financial support, in particular:

- making the passage from primary to secondary school more effective,
- allocating resources to schools based on learning outcomes and ESL rates,
- extending early childhood education and care,
- improving data collection,
- strengthening networks for sharing good practices,
- enhancing links between cities and neighbourhoods and the school community.

At school level, the strategy recommends strengthening and promoting digital innovation, lab-based learning and after-school activities, and encouraging stronger involvement of families.

6. Modernising higher education

High dropout rates and a comparatively long duration of studies contribute to low tertiary educational attainment rates, but enrolment in higher education is increasing.

Over 280,000 high-school graduates enrolled in a university in the academic year 2016-2017, an increase of 4.3 % over the previous year and the largest since 2002. Almost a fifth of new entrants (19.3 %) chose STEM subjects, with the vast majority (14.5 %) opting for engineering (MIUR 2017). Italy has one of the lowest tertiary educational attainment rates for 30- to 34-year-olds in the EU (26.9 % as compared to the EU average of 39.9 % in 2017), but the share of university graduates has been steadily increasing, a trend projected to continue¹¹³.

The educational attainment of an average Italian is heavily determined by parental background. This is exacerbated by several factors - tracked secondary school system, a lack of a non-academic track in tertiary education, and high drop-out rates. Only 8 % of students from families with at most lower secondary education (*diploma di licenza media*- ISCED 2) reach tertiary education, and more than half only complete lower secondary school. At the opposite end of the spectrum, 65 % of students from graduate parents achieve a tertiary degree, and only 6% never progress past lower secondary. In 2016, 75 % of new university entrants came from general upper secondary schools (*licei*).

The low number of graduates is also a reflection of the increasingly high costs of studying coupled with low returns on education. Tuition fees in Italy are among the highest in the EU, estimated at around 1,650 USD per year and the majority of students (80 %) does not receive financial support (OECD 2017). In a bid to improve access to tertiary education, in 2017 the government introduced a tuition fee exemption for students coming from households with an income below €13,000, and partial exemptions for incomes between €13,000 and €30,000. There has been no evaluation so far of the impact on enrolments.

The employment rate of recent graduates is increasing but remains below pre-crisis levels. In 2017, the employment rate of recent graduates in the age group 25-29 was 54.5 %, compared to the EU average of 81.5 %. Older cohort of 30- to 34-years olds fared better, but their employment rate (77.3 %), was still well below the EU average of 87.1 %. Low demand from the productive sector characterised by small and medium size firms is a factor in graduates' poor employment prospects. In addition, firms privilege candidates with previous work experience,

¹¹³ The proportion of students entering tertiary education in each birth cohort is currently equal to 44% (and 41% if considering people younger than 25)

indicating that the skill-signaling power of university degrees is relatively weak. Tertiary professional education institutes (*Istituti Tecnici Superiori* – ITS) offer much better prospects, with graduate employment rates above 80 %, but they are still too limited in scope for a real impact to be felt¹¹⁴. As of 2018, new university-track tertiary professional education pathways (*Lauree Professionalizzanti*) should be available to students alongside the ITS.

Some steps were taken to improve funding. The 2018 budget law provides for the funding of 1,300 additional tenure tracks for associate professors (*ricercatore a tempo determinato di tipo B*). In addition, the "excellent departments" initiative (*"Dipartimenti di Eccellenza"*) should result in additional recruitments in the order of 900 new tenure track positions, for a total of up to 2,000 new associate professors entering the Italian universities – a 2 % increase in academic staff which is nevertheless insufficient to compensate for retirements. Through an amendment to the 2018 budget law, the government reallocated to student financial aid the funds which were originally earmarked for a special initiative to attract professors from foreign universities (*"cattedre Natta"*). This initiative was never implemented, due to strong opposition by universities (European Commission 2017). A second discontinued initiative was a research fund targeted to the best assistant and associate professors (called *"Fondo di finanziamento attività base di ricerca"*) which was introduced in 2017¹¹⁵.

7. Modernising vocational education and training

Italy has continued to increase the quality of VET notably through strengthening of work-based learning pathways and expansion of tertiary VET. Participation of students in VET at ISCED3 level (including *Istituti Tecnici*) remains stable at 56%. Recent VET graduates employability is slowly increasing, at 50.8%, in 2017, but still far below the EU average of 76.6%, a long-lasting issue. Nevertheless, tertiary VET, in particular the Higher Technical Institutes (ITS) which closely involve businesses, show (as already noted above) very promising employment success. Steps are being taken to gradually increase the number of ITS students. Implementation of a revised apprenticeships system and compulsory work-based learning experience for both VET and general education is ongoing. A new funding plan was prepared to cover the 2018-2020 period. The plan aims at strengthening the dual system as well as school-based VET, to make work-based learning more sustainable. To further strengthen the relationships between VET and the labour market, agreements between public authorities and businesses have been concluded to strengthen companies' involvement in work-based learning. Financial incentives are offered to companies to employ with open contracts the learners who undertook a period of work-based learning in their companies. In addition, Cedefop completed in 2017 a comprehensive analysis of the apprenticeship scheme. The project included in depth interviews with all partners involved (e.g. apprentices, VET providers and companies offering apprenticeship placements) and workshops to present and discuss findings (Cedefop 2017). There is a graduate tracking system in I-VET although the periodicity of the inquiry has been somewhat irregular. However, a comprehensive tracking strategy is not in place and career guidance based on solid information is limited and provided in a scattered way.

8. Promoting adult learning

Steps were taken to implement the Upskilling Pathways Council Recommendation to address the "low-skilled equilibrium" trap. Adult participation in learning stood at 7.9 % in 2017, a decrease compared to 2016. The decrease in participation of low skilled adults in training (from 2.3% in 2016 to 2% in 2017), those who need it most, is also worrying. Digital skills remain low: in 2016, only 44 % of the population possessed at least basic digital skills (compared with the EU average of 56 %). Some measures are being implemented to increase digital skills levels but a comprehensive digital skills strategy is missing, with a negative impact on parts of the population such as the elderly and inactive people, who are not directly targeted by other measures. According to the OECD national Skills strategy published in 2017, Italy is trapped in a low skilled equilibrium, where the low supply of skills is accompanied by low demand for skills. In 2015, 60.2 % of Italian companies (compared to EU-28 average of 72.6 %) provided vocational training to their employees. The rate of employees who participated in this training was 45.9 % (above the

¹¹⁴ Currently there are 98 ITS, mostly concentrated in Northern regions, with about 10,500 students.

¹¹⁵ Law n. 232/16 of 11 December 2016.

EU-28 average of 40.8 %). In December 2017, a tax credit system was introduced for companies that invest in training. This amounts to 40% of the cost of employees for the period in which they are involved in training activities. Eligible training activities are those targeted at the acquisition/consolidation of knowledge in the technologies highlighted in the National Industry 4.0 Plan. A major development was the adoption of a comprehensive National Qualifications Framework in January 2018. Italy uses ESF funding to provide the PIAAC online tool to Public Employment Services to assess the basic skills of job-seekers. The centres for adult education offer targeted personalized pathways, leading to a certificate at European Qualifications Framework level 3 or 4.

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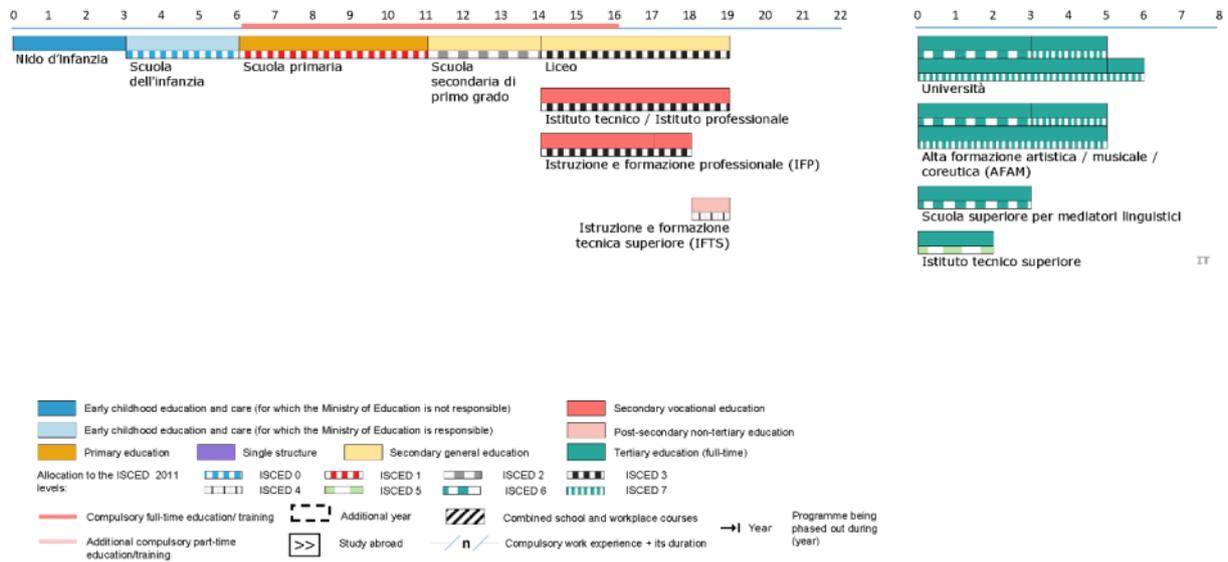
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10. Annex I: Key indicator sources

Indicator	Eurostat online data code
Early leavers from education and training	edat_lfse_14 + edat_lfse_02
Tertiary educational attainment	edat_lfse_03 + edat_lfs_9912
Early childhood education and care	educ_uoe_enra10
Underachievement in reading, maths, science	OECD (PISA)
Employment rate of recent graduates	edat_lfse_24
Adult participation in learning	trng_lfse_03
Public expenditure on education as a percentage of GDP	gov_10a_exp
Expenditure on public and private institutions per student	educ_uoe_fini04
Learning mobility: Degree mobile graduates	JRC computation based on Eurostat / UIS / OECD data
Credit mobile graduates	educ_uoe_mobc02

11. Annex II: Structure of the education system



Source: European Commission/EACEA/Eurydice, 2017. *The Structure of the European Education Systems 2017/18: Schematic Diagrams*. Eurydice Facts and Figures. Luxembourg: Publications Office of the European Union.

Comments and questions on this report are welcome and can be sent by email to:
 Grazia ROMANI
grazia.romani@ec.europa.eu
 or
EAC-UNITE-A2@ec.europa.eu

LATVIA



1. Key indicators

		Latvia		EU average		
		2014	2017	2014	2017	
Education and training 2020 benchmarks						
Early leavers from education and training (age 18-24)		8.5%	8.6%	11.2%	10.6%	
Tertiary educational attainment (age 30-34)		39.9%	43.8%	37.9%	39.9%	
Early childhood education and care (from age 4 to starting age of compulsory primary education)		94.4% ¹³	95.5% ¹⁶	94.2% ¹³	95.3% ¹⁶	
Proportion of 15 year-olds underachieving in:	Reading	17.0% ¹²	17.7% ¹⁵	17.8% ¹²	19.7% ¹⁵	
	Maths	19.9% ¹²	21.4% ¹⁵	22.1% ¹²	22.2% ¹⁵	
	Science	12.4% ¹²	17.2% ¹⁵	16.6% ¹²	20.6% ¹⁵	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-8 (total)	77.0%	78.0%	76.0%	80.2%	
Adult participation in learning (age 25-64)	ISCED 0-8 (total)	5.6%	7.5%	10.8%	10.9%	
Learning mobility	Degree mobile graduates (ISCED 5-8)	:	8.0% ¹⁶	:	3.1% ¹⁶	
	Credit mobile graduates (ISCED 5-8)	:	6.4% ¹⁶	:	7.6% ¹⁶	
Other contextual indicators						
Public expenditure on education as a percentage of GDP		5.9%	5.5% ¹⁶	4.9%	4.7% ¹⁶	
Education investment	Expenditure on public and private institutions per student in € PPS	ISCED 1-2	€4 836	€5 061 ¹⁵	€6 494 ^d	:
		ISCED 3-4	€4 965	€5 446 ¹⁵	€7 741 ^d	:
		ISCED 5-8	€6 580	€7 608 ¹⁵	€11 187 ^d	:
Early leavers from education and training (age 18-24)	Native-born	8.5%	8.6%	10.4%	9.6%	
	Foreign-born	:	:	20.2%	19.4%	
Tertiary educational attainment (age 30-34)	Native-born	39.9%	43.2%	38.6%	40.6%	
	Foreign-born	40.3%	56.9%	34.3%	36.3%	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-4	65.2%	69.6%	70.7%	74.1%	
	ISCED 5-8	86.0%	84.9%	80.5%	84.9%	

Sources: Eurostat (see section 10 for more details); OECD (PISA).

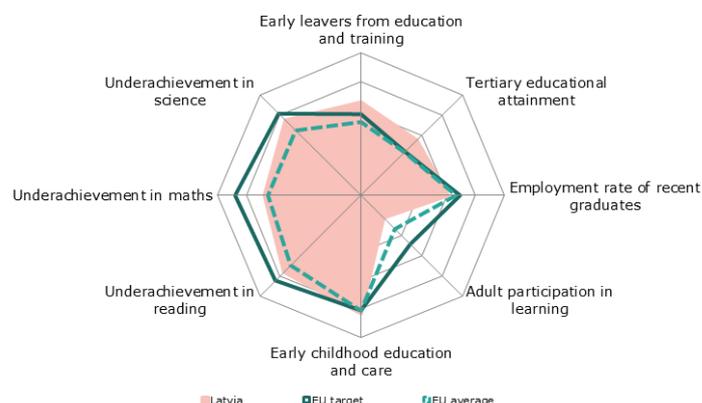
Notes: data refer to weighted EU averages, covering different numbers of Member States depending on the source;

d = definition differs, 12 = 2012, 13 = 2013, 15 = 2015, 16 = 2016.

On credit graduate mobility, the EU average is calculated by DG EAC on the available countries; on degree graduate mobility, the EU average is calculated by JRC over Eurostat and OECD data.

Further information can be found in the relevant section of Volume 1 (ec.europa.eu/education/monitor).

Figure 1. Position in relation to strongest (outer ring) and weakest performers (centre)



Source: DG Education and Culture calculations, based on data from Eurostat (LFS 2017, UOE 2016) and OECD (PISA 2015). Note: all scores are set between a maximum (the strongest performers visualised by the outer ring) and a minimum (the weakest performers visualised by the centre of the figure).

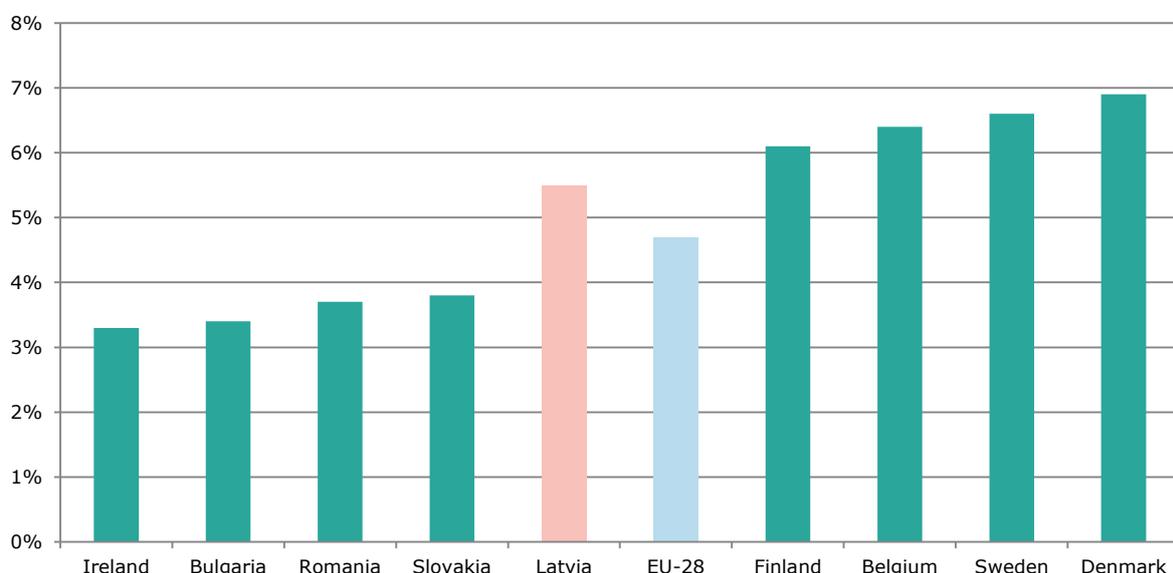
2. Highlights

- The Latvian education system is making progress on quality standards, but faces a shrinking student population, an ageing teaching corps and a hard-to-streamline school network.
- The new competence-based curriculum is being implemented gradually and may improve learning outcomes.
- The proportion of graduates is high and growing, but the share of science, technology, engineering and mathematics (STEM) graduates is one of the lowest in the EU.
- The fragmentation of higher education institutions and study programmes is difficult to resolve, but the new financing model together with plans for improved staff policies may eventually lead to improvements.
- Participation in adult learning continues to be a challenge despite measures to boost it.

3. Investing in education and training

Latvia invests a comparatively high share of its GDP in education, but expenditure per student is low in absolute terms. Latvia's general government expenditure on education remained well above the EU average in 2016, both in terms of proportion of GDP (5.5 % vs 4.7 %) and proportion of total public expenditure (14.7 % vs 10.2 %). Expenditure per student expressed in purchasing power standard (PPS) is comparatively high relative to the country's GDP per capita, but remains below the EU average at all levels of education (see Figure 2).

Figure 2. General government expenditure on education as share of GDP (2016)



Source: Eurostat. Online data code: [gov_10a_exp](#).

Public expenditure on primary to post-secondary non-tertiary education is highly decentralised, especially after government transfers. While two-thirds of the initial funds come from the central government, after transfers the local government is responsible for nearly three-quarters of the funds for these levels of education, well above the OECD average of 36 %.

This high degree of decentralisation, in case of bigger secondary and gymnasium-type schools, may be a factor in the good overall performance of Latvia's education system (OECD, 2016)¹¹⁶.

Different learning outcomes based on school size and location remain a risk for equity. Access to quality education is not fully equitable, with students in bigger secondary schools (*vidusskolas*) and gymnasiums (*ģimnāzijas*) having much better access to quality education than students in the small schools more common in rural areas (Krasnopjorovs, 2017).

Government pressure on municipalities to streamline the school network continues and may eventually lead to a network with fewer, but bigger upper-secondary schools that are better able to provide quality education. The number of students in general education (5-18 years old) has been decreasing in line with Latvia's marked population decline (-12.1 % between 2004 and 2013) and is projected to contract by a further 14 % by 2050. Further streamlining of the secondary school network is necessary in order to shift investment away from maintenance of the large school network and towards teaching and learning, but there is strong resistance from municipalities. A new amendment to Latvia's Education Law, that will come into force in 2020, gives the government the right to set the minimum number of students per class in upper-secondary schools.

4. Citizenship education

A new syllabus on social and civic competences is being developed as part of the competence-based curriculum reform. Changes include merging the teaching of Latvian and world history (currently two separate subjects); teaching civic participation as the norm of 'patriotic' behaviour; and elements of financial education.

Citizenship education in Latvia is a general objective of the education system and is taught at all levels of compulsory (integrated primary and lower-secondary) and upper-secondary education. Elements of citizenship education are integrated into pre-school education content and into all or most school education subjects, both compulsory and optional. There are differences in citizenship education between general upper secondary (grades 10-12) and IVET education: some compulsory subjects which incorporate aspects of citizenship education are not taught at all in IVET and fewer optional subjects are offered to IVET students.

Students' achievement in citizenship education is tested both in school and certification examinations. There are both optional and compulsory examinations addressing citizenship education in the form of a standardised assessment of knowledge, skills and attitudes. The results are used to award certificates or as part of formal decisions with regard to student progression to the next stage of education. Certification tests in citizenship education take place at the secondary level of general education and are also open to some students in school-based IVET. The centralised examinations in history and the Latvian language address topical issues relevant to citizenship education (meaning of citizenship, democracy, tolerance, patriotism, national identity, and attitudes towards migration).

There are specific guidelines to ensure student participation in school governance. Guidelines were introduced in 2016 which require schools to provide representation and participation of students in decision-making, including through students' self-governing bodies. Students are entitled to organize their own activities on issues such as family, freedom and dignity.

Training for teachers is provided at both initial and in-service level. Prospective teachers are trained to become semi-specialists in citizenship education during initial teacher training (ITE), i.e. they specialise in citizenship education and up to three other subjects. Citizenship education in grades 10-12 is taught by semi-specialist teachers trained in social studies and another subject such as history or geography. Continuous professional development (CPD) is offered through various activities, including "Regional summer academy for the Baltics on human rights education and education for democratic citizenship and history learning"¹¹⁷. Latvia's teachers' association

¹¹⁶ Results from the Programme for International Student Assessment (PISA) suggest that when autonomy and accountability are intelligently combined, they tend to be associated with better student performance.

¹¹⁷ Run by the European Wergeland Centre with the support of the Ministry of Education and Science of the Republic of Latvia.

provides a forum for teachers to connect, discuss, and share resources and information. They also organise seminars and provide training, with a focus on history. A training programme for school administrators, including directors, deputy heads and methodology specialists covers issues such as citizenship education in working with parents, in educational work and out of class activities; resources for citizenship education and their application; and strategies for promoting teacher cooperation on citizenship education.

5. Modernising school education

Latvia's early school leaving rate is relatively low and has been steadily decreasing since 2008, but wide disparities persist between genders and between urban and rural areas.

In 2017, the share of early leavers from education and training (ESL) in the age group 18-24 was 8.6 %, down two percentage points since 2016 and well below the EU average of 10.6 %. The ESL rate for males (12 %) was more than twice that for females (5 %), resulting in the widest gender gap in the EU.

While participation in early childhood education and care (ECEC) is almost universal for 4 to 6-year-olds, enrolment of the youngest children (1.5-3) is lower. An autonomous function of each local government is to ensure an opportunity for the children living in their administrative territory to obtain preschool education; in practice, however, in some municipalities the place in public preschool education institution is not always guaranteed. Access to pre-school remains problematic in the capital city Riga, where places in municipal pre-schools are not available for all children¹¹⁸. In that case, municipalities have a legal obligation to cover the costs of a private preschool education institution.

The switch to a new competence-based curriculum has been postponed by one year and is now foreseen for 2020. Stakeholder events were held during winter 2017 - 2018 on various aspects of the new curriculum, including STEM learning outcomes, the role of knowledge and skills in competence-based curriculum and the role of citizenship education. The piloting of new materials and teaching approaches is taking place in 100 schools. Changes to the Law on General Education have been made – notably allowing school principals to approve various forms of learning organisation as proposed by teachers. This includes the use of different learning spaces outside the classroom (libraries, museums, outdoors, sites of business and production), and various forms of group and individual work in assignments.

Latvia is preparing a gradual switch to Latvian as the sole language of instruction by 2021, effectively bringing to an end minority language education programmes in upper secondary schools. Amendments to the Law on Education passed in March 2018 abolish the possibility to have up to 40 % of instruction in the minority language in minority secondary schools. As of 2019/2020, 80 % of subjects and classes in years 7-9 are to be taught in Latvian, and as of 2022/2023, all general subjects in upper-secondary education level will be taught in the state language. Ethnic minority students will still be able to follow some courses in their mother tongue (language, literature, culture and history). The measure has raised concerns about the quality of teaching, and about minority schools' capacity to deliver change without compromising quality. The majority of teachers in minority schools are Russian speakers, and while they have had extensive training in Latvian, they may not all be able to implement the new curriculum in Latvian only. There is concern for the 25 % of students whose Latvian language proficiency in writing is not sufficient¹¹⁹ and that there could be an increase in drop-out rates for Russian speakers. The government plans to develop and provide teaching aids and methodological materials, and to improve the professional competence of teachers (understanding of the curriculum and improvement of their Latvian language skills). Minority schools will continue to be formally separate from Latvian schools.

¹¹⁸ For example: in September 2016 around 1,000 children could not access municipal pre-school facilities due to a lack of places, according to Riga Municipality's own figures.

¹¹⁹ According to Latvian Language Agency (2016), about 75% of youth whose mother tongue is not Latvian are fully self-sufficient (fluent) in writing in Latvian.

The Government has approved the introduction of selection criteria in some secondary schools. As of June 2018, when enrolling students in grades 7 to 9, State gymnasiums are entitled to organise entrance examinations in conformity with the State basic education standard. The same applies to upper-secondary schools (grade 10). There is concern that introducing selection criteria and admissions examinations for students in years 7 to 9 could result in a form of early tracking, which could reduce equity and increase social stratification in the education system.

Many teachers in Latvian schools are approaching retirement age, and too few new teachers are joining the profession. Latvia has the highest share of female teachers in the EU (87 %) and one of the oldest - in 2016/17 s 28 % of teachers were over 55, and only 25 % were under 40 (Ministry of Education and Science, 2017). Young people are not attracted to the teaching profession: less than 1 % of 15-year-olds aspire to work as a teacher: of these, only 0.2 are men (OECD, 2018). In January 2018 the government introduced a gradual increase in teachers' salaries from September 2018 to 2022. The lowest monthly pay for teachers increased from 680 euros to 710 euros in September 2018, and is set to reach 900 Euros in September 2022. Financial coverage will come from reorganising the school network, improving the educational process and allocating additional funding from local and state budgets.

The government has approved the conceptual basis for a new model of teacher education and training linked to the competence-based approach and intended to reflect changes in learning environment and the use of technology. As a priority, new higher education (HE) programmes for initial teacher education will be developed in six state higher education institutions (HEIs) with support from the European Social Fund. Such programmes aim to overcome the fragmentation of teacher training in HE (part of old programmes will be closed) and to support the implementation of the new competence-based curriculum. The projects planned outcomes include 16 new teacher training programmes immediately, and 23 new programmes in total by 2023.

Collaborative teaching approaches are being piloted as part of the curriculum reform. The curriculum reform will give schools more freedom to choose their approaches to teaching and envisages teacher collaboration for its successful implementation. Collaborative approaches are being developed in the 100 pilot schools. The goal is also to identify obstacles to collaborative approaches, and to see what competences and resources are needed for them to succeed.

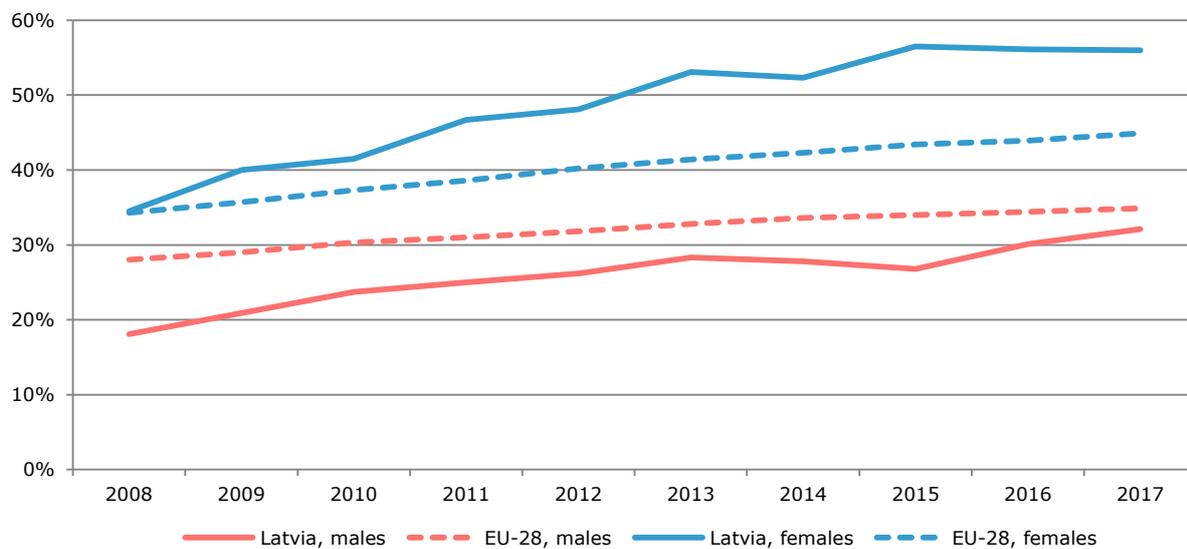
The Government has approved the law amendment to reform the special education schools network and close pedagogical correction programmes. The amendments to the General Education Law which came into force on July 18, 2018, recognise two types of special educational institutions: special schools (public or private) and special schools-development centres (public). All children with special needs of preschool age will be educated in mainstream preschools – in general programmes or in special programmes or groups. From September 2020, children and learners with learning disabilities, language disorders, physical disabilities and long-term illnesses should be educated in mainstream settings.

6. Modernising higher education

Student population decline has had little impact on institutions and study programmes: fragmentation of higher education remains the main concern. Latvia has taken steps to strengthen quality assurance and to use EU funds to create incentives to rationalize the network and study programmes (See Box 1). However, despite a marked decline in student population (38% between 2005 and 2017), the number of study programmes has grown by a third over the same period. The reduction in the total number of students has resulted in an increase in the proportion of publicly funded study places (currently 42 % of the total, the remaining 58 % being fee-paying) (Government of Latvia, 2018).

The share of young adults with tertiary education is high and growing. In the last ten years tertiary educational attainment among 30- to 34-year-olds has increased at twice the EU average rate, from 25.7 % in 2007 (EU 30.1 %) to 43.8 % in 2017 (EU 39.9 %), now the second highest in the EU. Participation of men in tertiary education remains significantly lower than that of women, but while male attainment rates are still growing (from 26.8 % in 2015 to 32.1 % in 2017), the rate for women has remained virtually unchanged (from 56.5 % to 56 %) (Figure 3).

Figure 3. Tertiary educational attainment by gender as % of the corresponding population (from 30 to 34 years)



Source: Eurostat. Online data code: [edat_ifse_03](#).

The government is promoting STEM subjects in order to achieve a better balance in the supply of skills. Latvia has one of the lowest shares of tertiary-educated adults with a degree in the science, technology, engineering and mathematics (STEM) fields of all EU countries, at 20.5 % compared with an EU average of 25.7 %, and well below neighbouring Estonia (27.4 %) and Lithuania (23.8 %). This share may increase in the future, since according to OECD figures, 27% of new entrants to tertiary education in 2015 chose a STEM field - mostly engineering, manufacturing and construction (18%) (OECD, 2017). The government is encouraging this by increasing the proportion of publicly financed study places in STEM fields. In 2018, based on medium and long-term labour market forecasts, about 60% of state-funded places were allocated for natural sciences, engineering, health care, as well as for master and doctoral studies that are important for the preparation of both new teaching staff and scientists. 41 % of state-funded study positions are provided in STEM programmes (Government of Latvia, 2018).

Latvia has launched graduate tracking. The introduction of a Register of Students and Graduates in 2017 has created an instrument for tracking employment of HE graduates. Personal data on HEI students will be collected and stored, and used to produce data on employment of graduates, aggregated by study programmes and by institution. Data gained from graduate tracking will be used to support targeted funding of higher education and to provide guidance to prospective students in their choice of study programme.

Implementation of the two major reforms launched in 2015 on quality assurance and a new financing model for higher education is ongoing. The Higher Education Quality Agency (AIKA) is currently undergoing a review process to be affiliated to the European Quality Assurance Register for Higher Education (EQAR). In 21 June 2018, AIKA became a member of the European Association for Quality Assurance in Higher Education (ENQA). In accordance with the new financing model for higher education, additional performance-based funding for 6.5 million EUR was distributed to 14 HEIs that have successfully involved students in research and development, participated in international research projects and cooperated with businesses.

Latvia has taken steps to internationalise higher education. In March 2018 the Education Law was amended to allow state HEIs to accept Bachelor's, Master's and PhD theses and to hold examinations in EU languages if the related study programme is taught in a EU language. The number of foreign students has increased fourfold over the last ten years: in 2017, there were 8806 foreign students in Latvia's HEIs, 11% of the total number of students. This is helping to cushion the impact of the reduction in the local student population. Currently, foreign guest professors, assistant professors and lecturers make up 5.6% of the total number of academic staff. The government's objective is to increase the share of foreign teaching staff to 7% by 2020 (Government of Latvia, 2018).

Box 1: European Social Fund support for development of quality HE programmes and rationalisation of study programmes.

In a bid to introduce incentives for HEIs to develop higher quality study programmes and to reduce fragmentation, the Ministry of Education and Science has begun an ESF-funded project supporting development of new programmes, but only on condition of streamlining the academic offer of HEIs taking part in the project.

The first phase of the project foresees the development of new teacher education programmes as a way to overcome both fragmentation and uneven quality of teacher education. Overall, 23 teacher education programmes are to be developed by 2023. The second phase of the project will support the development of HE programmes in EU languages and joint PhD degree programmes, pooling the academic resources of several HEIs to create better quality PhD programmes. In total, EUR 10.8 million is budgeted for the project (EUR 9.1 million from the ESF).

7. Modernising vocational education and training

Latvia continues to modernise its VET system with a focus on strengthening work-based learning and curricula reform in the context of declining enrolment and employment outcomes of VET graduates. Enrolment in upper secondary VET in Latvia saw a slight decline to 38.1 % in 2016 compared to previous years and to the EU average of 49.3 % (UOE, 2016). Students enrolled in VET had some exposure to work based learning (UOE, 2016); however just 53.9 % of VET graduates aged 20-34 in 2016 report having acquired a more substantial work-experience in the form of mandatory traineeships (LFS AHM, 2016). The employment rate of recent VET graduates in 2017 dropped to 69.1 %, compared to 74.8 % in 2016, well below the EU average of 76.6 % in 2017. The Council of the European Union has adopted a country specific recommendation to Latvia under the 2018 European Semester to *"increase the labour market relevance of vocational education and training, and foster upskilling of low-skilled workers and jobseekers"* (Council of the European Union, 2018). In 2017, a new ESF supported project of 25.7 million EUR was launched aiming to involve 3.150 students by the end of 2022, as well as providing the possibility for 11.025 students to participate in a (shorter-term) training practice in a company. However, by the August 20 2018 only 840 students were in work-based learning with the support of the project. After the adoption in 2015 of the Latvian Qualifications Framework and follow-up legislative actions, the Vocational Education Law was amended in 2017¹²⁰ to introduce *i. a.* a modular approach in vocational training.

Box 2: Reform of the VET system curriculum

Latvia has initiated a full overhaul of its VET curriculum with the support of ESF. The reform, begun between 2010 and 2015 and has now moved into its second phase. The aim is to complete curriculum modernisation by 2022. The current project foresees the improvement of 14 existing sectoral qualification frameworks, developing one more for the Art, Design and Creative industry sector and developing standards, teaching and examination content for the rest of the 240 occupations in Latvia. This includes developing 160 occupational standard/qualification requirements (in addition to 80 developed in the first phase), modular curriculum programmes for 184 professional qualifications (in addition to 56 from the first phase) and examination content for 210 professional qualifications (32 in the first phase). A major challenge, beyond the ambitious goals of developing the content, will be timely adoption and implementation of new curriculum in schools.

¹²⁰ Latvijas Republikas Saeima. Grozījumi Profesionālās izglītības likumā

8. Promoting adult learning

Participation in adult learning continues to be a challenge despite measures to boost participation, including a dedicated ESF project. In 2017, participation in adult learning stood at 7.5 %, well below both the EU average of 10.9 % and Latvia's own Europe 2020 national target of 15 %. Measured over a 12 month period, the share of adults in Latvia who have had a learning experience was 47.5 % - slightly above the EU average of 45.1 % (AES, 2016). This suggests that a substantial proportion of adults do access training in Latvia, but less frequently than the EU average. Furthermore, a relatively small proportion (27.2 %) of employees working in private sector companies with ten or more employees have been provided with training by their employer – as compared to the EU average of 40.8 % (Eurostat). The Employment Council has sought to create a high quality, sustainable and comprehensive adult learning system that can quickly adapt to market needs. The new system promotes public VET schools as active providers in the adult learning market. Measures to increase their ability to offer learning opportunities to companies, and to remove obstacles to achieving this goal, were considered, in particular in terms of teachers' availability and financial resources. A process for sectoral collective agreements on the professional development of employees was initiated. A working group established by the Prime Minister prepared proposals to facilitate the involvement of state VET schools in adult learning. In terms of the educational attainment of adult population, in Latvia a relatively small share of adults – 9.6 % – have not acquired at least an upper-secondary qualification, compared to an EU average of 22.5 %. But the share of low-qualified adults in employment in Latvia was larger - 58.4 % - compared to the EU average of 55.6 %.

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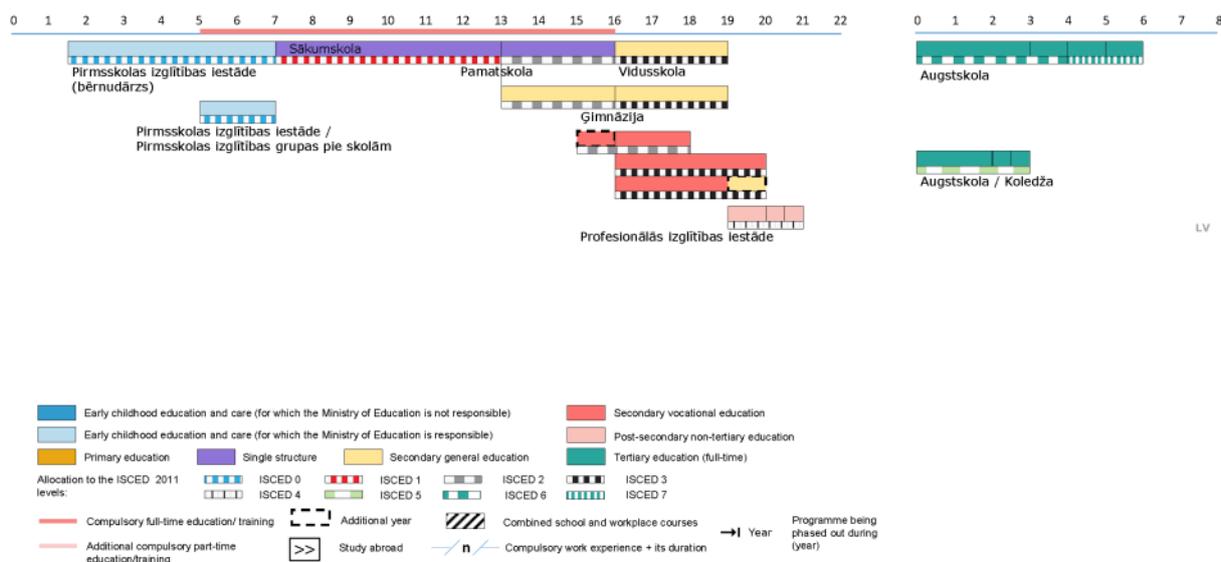
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Comments and questions on this report are welcome and can be sent by email to:
 Grazia ROMANI
grazia.romani@ec.europa.eu
 or
EAC-UNITE-A2@ec.europa.eu

LITHUANIA



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Tertiary educational attainment (age 30-34)		53.3%	58.0%	37.9%	39.9%	
Early childhood education and care (from age 4 to starting age of compulsory primary education)		88.8% ¹³	91.4% ¹⁶	94.2% ¹³	95.3% ¹⁶	
Proportion of 15 year-olds underachieving in:	Reading	21.2% ¹²	25.1% ¹⁵	17.8% ¹²	19.7% ¹⁵	
	Maths	26.0% ¹²	25.4% ¹⁵	22.1% ¹²	22.2% ¹⁵	
	Science	16.1% ¹²	24.7% ¹⁵	16.6% ¹²	20.6% ¹⁵	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-8 (total)	80.7%	83.9%	76.0%	80.2%	
Adult participation in learning (age 25-64)	ISCED 0-8 (total)	5.1%	5.9%	10.8%	10.9%	
Learning mobility	Degree mobile graduates (ISCED 5-8)	:	8.6% ¹⁶	:	3.1% ¹⁶	
	Credit mobile graduates (ISCED 5-8)	:	7.0% ¹⁶	:	7.6% ¹⁶	
Other contextual indicators						
Education investment	Public expenditure on education as a percentage of GDP	5.4%	5.2% ¹⁶	4.9%	4.7% ¹⁶	
	Expenditure on public and private institutions per student in € PPS	ISCED 1-2	€3 727	€3 941 ¹⁵	€6 494 ^d	: ¹⁵
		ISCED 3-4	€4 361	€3 998 ¹⁵	€7 741 ^d	: ¹⁵
		ISCED 5-8	€7 358	€7 432 ¹⁵	€11 187 ^d	: ¹⁵
Early leavers from education and training (age 18-24)	Native-born	5.9%	5.4%	10.4%	9.6%	
	Foreign-born	:	:	20.2%	19.4%	
Tertiary educational attainment (age 30-34)	Native-born	53.5%	57.8%	38.6%	40.6%	
	Foreign-born	:	:	34.3%	36.3%	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-4	70.3%	72.2%	70.7%	74.1%	
	ISCED 5-8	87.2%	91.5%	80.5%	84.9%	

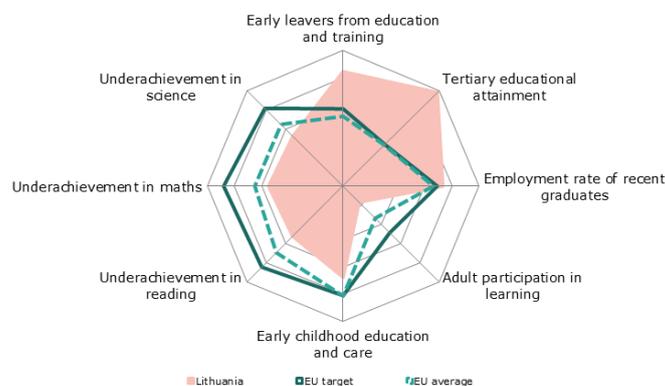
Sources: Eurostat (see section 10 for more details); OECD (PISA).

Notes: data refer to weighted EU averages, covering different numbers of Member States depending on the source; d = definition differs, 12 = 2012, 13 = 2013, 15 = 2015, 16 = 2016.

On credit graduate mobility, the EU average is calculated by DG EAC on the available countries; on degree graduate mobility, the EU average is calculated by JRC over Eurostat and OECD data.

Further information can be found in the relevant section of Volume 1 (ec.europa.eu/education/monitor).

Figure 1. Position in relation to strongest (outer ring) and weakest performers (centre)



Source: DG Education and Culture calculations, based on data from Eurostat (LFS 2017, UOE 2016) and OECD (PISA 2015). Note: all scores are set between a maximum (the strongest performers represented by the outer ring) and a minimum (the weakest performers represented by the centre of the figure).

2. Highlights

- In an education system that successfully prevents early leaving from education and training, comprehensive reforms to teachers' careers and training have been launched with a view to increasing quality of teaching.
- Demographic decline remains a major challenge for the education system, leading in particular to regional differences in access to and quality of education.
- The civic knowledge of Lithuanian students improved between 2009 and 2016, and its students participate extensively in social and civic activities.
- Reforms in higher education structures and accreditation aim to address widely recognised efficiency and quality concerns, but still face stakeholder resistance.
- In 2017 Lithuania continued to reform vocational education and training (VET), in the context of a low share of VET students and declining employability of recent VET graduates.

3. Investing in education and training

Lithuania invests more public funding in education and training than the EU average, but expenditure per learner remains low. Lithuania's general government expenditure on education was 5.2 % of GDP in 2016 vs 4.7 % on average across the EU¹²¹. This is a decline of 1.2 pps between 2010 and 2016, significantly larger than the 0.6 pps EU-wide decline in the same period. The share of total public government expenditure that goes to education and training has remained broadly stable, at 15.1 % in 2016, just 0.1 ps. less than in 2010. The respective EU figures were 10.5 % in 2010 and 10.2 % in 2016. Despite the relatively high levels of investment in absolute terms, Lithuania's expenditure per pupil/student from primary to tertiary education, which stood at EUR 4 693 in 2015, was the third lowest in the EU (only Bulgaria and Romania invested less).

Persistent demographic decline remains a major challenge for the education and training system. The number of pupils and students across the education system declined every year between 2010 and 2017, a cumulative decline of 19 % over the period¹²². The policy challenges caused by this decrease are complicated by the strong differences across educational sectors and regions. Thus, while the number of general school pupils (counting non-VET pupils in primary and secondary school) declined by 21.6 % over the period, that of primary pupils alone rose by 1 %¹²³. In geographic terms, while Vilnius county lost 5.7 % of pupils in general education between 2010 and 2017, the rest of the country saw an enrolment decline by one in four¹²⁴ (Figure 2). An immediate effect of these challenges was presented in an audit, which showed that approximately 30 % of audited schools¹²⁵, predominantly those in rural areas, needed to merge classes by bringing together pupils from up to four different grades into a single class (National Audit Office of Lithuania, 2017).

¹²¹ Eurostat [gov_10a_exp] and [nama_10_gdp].

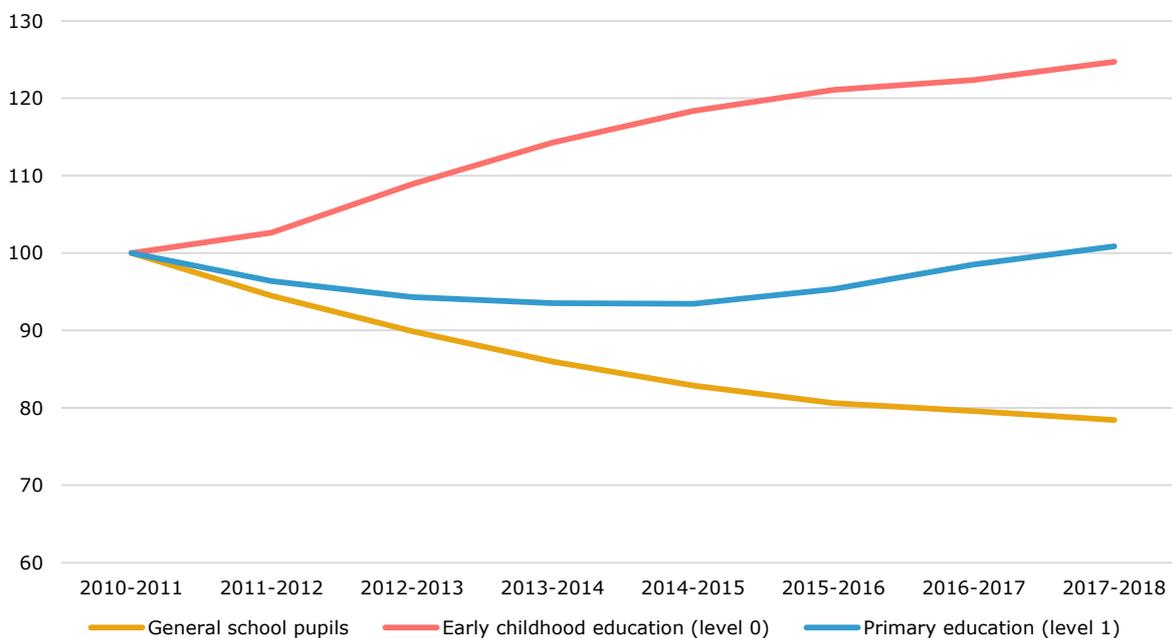
¹²² Statistics Lithuania indicator 'Pupils and students by level of education'.

¹²³ Statistics Lithuania indicator 'General school pupils'.

¹²⁴ The decline in other Lithuanian regions ranged from 35.2 % in Taurage county to 17.1 % in Klaipeda county.

¹²⁵ Audit procedures were carried out in 21 municipalities and 116 general education schools.

Figure 2. Change in number of pupils in education sectors in Lithuania 2010-2017 (index 2010 = 100)



Source: Statistics Lithuania.

The government initiated reforms to address challenges in the 'student basket' funding system. Education in Lithuania is predominantly funded through a 'student basket' model, in which funding is allocated based on the number of students enrolled. The model, introduced across education sectors between 2002 and 2012, initially aimed to address problems of efficiency, regional disparities and the optimisation of the institutional network (Shewbridge, C. et al., 2016). While it helped to support improvements in attainment over that period, the success of the model more recently has been complicated by demographic and regional challenges: in fact, it is now seen as having incentivised fragmentation and quantity of provision over quality¹²⁶ (National Audit Office of Lithuania, 2017). To address these challenges, the government is planning to move from the student basket model to the 'class' and 'quality' basket funding model for schools¹²⁷, and to introduce performance-based financing contracts for higher education institutions. While acknowledging challenges with the existing system, the OECD has recommended against introducing a system-wide class basket funding model and called for either an adaptation of the existing model or more fine-tuning of the new one (OECD, 2017).

4. Citizenship education

Citizenship education is provided both as a separate and integrated subject and is organised into a coherent delivery system. Lithuania provides citizenship education both integrated into other compulsory subjects and as a separate subject — it is one of 10 EU Member States with this approach¹²⁸. Citizenship education is taught as a separate subject in lower secondary education for 8.8 hours per year, which is among the lowest time allocations among the 16 Member States with a similar approach¹²⁹. Even though no particular competences for citizenship education are taught in initial teacher education, Lithuania has joined six other EU Member States in offering prospective teachers an option to take a minor focus on citizenship

¹²⁶ The student basket encouraged universities, for example, to increase the number of programmes and the enrolment rates to the maximum allowed by accreditation criteria. In schools, the model has led to funding challenges in regions with sharply declining populations.

¹²⁷ The class basket would base funding on the number of classes in a school, while the quality basket aims to link funding with the results of yet undefined quality indicators.

¹²⁸ Including Estonia and Finland.

¹²⁹ Estonia and Finland each recommend more than 50 hours per year.

education, under which they can specialise in citizenship education in addition to up to three other subjects (Eurydice, 2017). Additionally, both teachers and school heads in Lithuania have the opportunity to take part in continuing professional development activities in this area – a result reflected also in the relatively high percentage of teachers who participated in training on citizenship education (IEA 2017, Table 2.11).

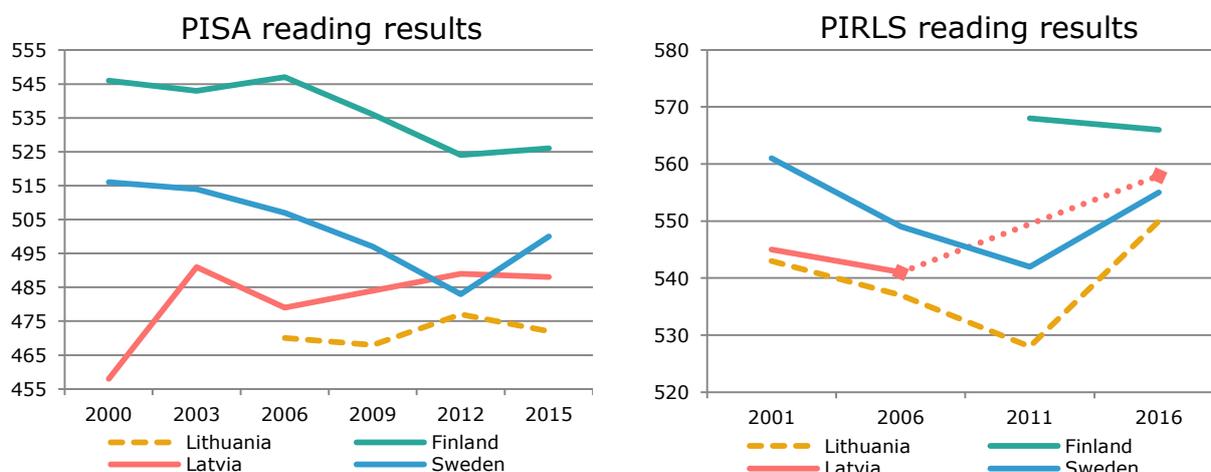
The civic knowledge of Lithuanian students improved between 2009 and 2016. In the 2016 International Civic and Citizenship Education Study (ICCS¹³⁰) Lithuanian students scored just above the average of the 24 countries surveyed (518 versus 517 points respectively), an increase of 13 points on 2009. In line with the other countries studied, gender and socio-economic status had a sizeable effect on students' knowledge: girls scored better than boys (by 28 points) and students with lower socio-economic status scored lower than their better-off peers (by 42 points). In all these cases, however, Lithuania's results remained comparable to those of other EU Member States taking part in the survey. The solid citizenship competences of Lithuanian pupils are reflected also in their participation in community activities. 86 % of teachers report taking part with their classes in cultural activities, the second highest result among the countries surveyed, with only Slovenia higher at 87 %. (IEA 2017, Table 5.7). Lithuanian students also participated significantly more often than their peers in environmental and sports activities, as well as in activities to protect cultural heritage and in visits to political institutions.

5. Modernising school education

Lithuania's education and training system is successful in preventing early leaving and provides a solid level of basic skills. Lithuania continues to perform well in preventing early leaving from education and training: with the rate at 5.4 % in 2017, Lithuania reached its Europe 2020 target and is among the EU's top performers (EU average 10.6 %). Pupils in Lithuania have been showing an improving level of basic skills in two different international comparative tests. In the 2016 Progress in International Reading Literacy Study (PIRLS), Lithuanian fourth-grade pupils achieved 550 points, their best result since 2001 (543) and a significant increase from 2011 (528) (Mullis I.V.S. et al., 2017). Similarly, in the 2015 Trends in International Mathematics and Science Study (TIMSS), Lithuanian eighth grade pupils achieved an average mathematics score of 512, the best since Lithuania joined the study in 1995¹³¹ (Martin M.O. et al., 2016). Despite the improvements, Lithuania's pupil performance remains slightly below the average of Lithuania's EU peers. Additionally, TIMSS and PIRLS both measure the knowledge taught in schools; the greater focus on problem-solving in the Programme for International Student Assessment (PISA) showed in 2015 that Lithuanian 15 year-olds' skills in mathematics, reading and science remained below the EU average and had declined from the previous cycle (Figure 3). The report of Lithuania's National Audit Office (2017) further points out that the performance of students at smaller schools, mostly located in villages, is lower than both the EU and national equivalents.

¹³⁰ ICCS investigates the ways in which young people are prepared to undertake their roles as citizens. In 2016 the scale was set to a metric with a mean of 500. 14 EU Member States participated in ICCS: Belgium (Flanders), Bulgaria, Croatia, Denmark, Estonia, Finland, Germany (North Rhine-Westphalia), Italy, Latvia, Lithuania, Malta, the Netherlands, Slovenia and Sweden.

¹³¹ Up from 502 in 2011.

Figure 3. Change in PISA (15 year-old pupils) and PIRLS (fourth-grade pupils) reading results 2000-2016


Sources: Programme for International Student Assessment (PISA, OECD 2016) and IEA's Progress in International Reading Literacy Study – PIRLS (2016).

Note: No PIRLS results are available for Latvia 2011 or Finland 2001 and 2006.

Lithuania has seen remarkable success in increasing participation in early childhood education and care (ECEC), although concerns about quality and regional differences remain. Even though Lithuania's rate of participation in ECEC for children between 4 years old and the starting age of compulsory education, at 91.4 % in 2016¹³², remains below the EU average of 95.3 %, Lithuania has seen a considerable increase in the current decade: a rise of 7.6 pps between 2010 and 2016¹³³. This success in overall enrolment, however, remains tempered by regional differences in participation and quality. The enrolment of 3-6 year-olds in ECEC is approximately two times lower in rural areas than in urban areas (46.2 % and 106.2 % respectively in 2017¹³⁴). Separate concerns exist about the quality of ECEC, with the National Audit Office finding in 2016 that no data are available to make informed decisions on the assessment of quality in the sector (National Audit Office of Lithuania, 2016). To further increase coverage and address other concerns, Lithuania is using the European Social Fund (ESF) and the European Regional Development Fund (ERDF) to build and renovate ECEC institutions, and provide transportation in rural communities.

Comprehensive reforms to teachers' careers and training have been launched, aiming to increase quality of education. Lithuania has been facing significant challenges in the demographic makeup of its teachers, further aggravated by low rates of enrolment in initial teacher training programmes and a relatively discouraging system of salaries and career structure. This led the Council of the European Union to recommend that Lithuania improves educational outcomes by rewarding quality in teaching and in higher education (Council of the European Union, 2017). After 2 years of negotiation, a new collective agreement with teacher unions was signed in November 2017 and kicked off a move from salaries based on teaching hours¹³⁵ to a fixed salary model. The model, set for introduction in the 2018/2019 school year, aims to provide a smoother salary progression and increase their overall level, especially for teachers working outside major urban centres. The costs of the reform will be covered through a combination of additional investment from the national budget and savings accruing from a scheme for early retirement¹³⁶, with support from European funds for promoting alternative forms of activities for teachers and attracting new specialists to the profession. While the reform is based on a signed collective agreement and

¹³² Eurostat data code educ_uoe_enra10.

¹³³ Eurostat data code tps00179.

¹³⁴ Statistics Lithuania indicator 'Enrolment in preschool and pre-primary education'. The urban area rate is above 100 % because of pupils commuting from neighbouring rural areas.

¹³⁵ The wide variation in actual teaching hours created negative incentives for quality by keeping teaching salaries low for a significant proportion of teachers and encouraging work across multiple schools. This was particularly an issue in rural areas.

¹³⁶ The scheme also plans to offer retraining for teachers who wish to continue working in a non-teaching profession.

addresses pertinent issues, some stakeholders have raised concerns about its costs and the possibility that it may in fact have a potentially negative net effect on teachers' salaries.

Box 1: Initial teacher education and needs forecasting round out comprehensive teacher-focused reforms

Lithuania's efforts to modernise the teaching profession have gone beyond changes to the salary and career structures. The Ministry of Education and the Research and Higher Education Monitoring and Analysis Centre (MOSTA) have developed an analysis and forecasting tool for the teaching profession, with support from the European Commission's Structural Reform Support Service. The tool will be available to local and regional authorities, primarily for workforce planning, as well as to the national authorities, to support management of initial teacher education programmes. The full rollout of the tool is planned for the 2018/2019 academic year.

A final step in the teacher system reform relates to initial teacher education. The new Teacher Training Regulation, adopted in May 2018, sets quality requirements for study programmes and teacher internships, specifies possibilities for teacher training and professional development, and sets criteria for national teacher training centres. Three centres — in Vilnius, Kaunas and Šiauliai — will become the national focal areas for teacher education of three main kinds: (i) consecutive (for education majors after secondary school); (ii) concurrent (as a minor for subject teachers); and (iii) professional studies. In addition, partnerships will be established with organisations which aim to recruit teachers who have previously held other careers. One such initiative in this area is the '*Renkuosi mokyti*' (I choose to teach) programme, run by the School Improvement Centre. The reforms are supported by the ERDF and the ESF with over EUR 36 million in the 2014-2020 programming period.

6. Modernising higher education

Lithuania has the highest rate of tertiary educational attainment in the EU and has significantly increased the system's inclusiveness. Despite a slight decline from the preceding year, in 2017 Lithuania remained the EU leader in tertiary educational attainment, at 58 % of people aged 30-34. However, Lithuania was also among the top three in the EU for the difference in tertiary attainment between women and men — the gap stood at 20.5 pps in Lithuania vs 10.0 on average across the EU. Employment rates of recent tertiary graduates at ages 20-34, measured 1-3 years after completion of tertiary education, have continued to improve and stood at 91.5 % in 2017 (84.9 % in the EU¹³⁷). To further strengthen its system of employability tracking of tertiary education graduates, Lithuania joined the Eurograduate pilot survey, which is testing the possibility of Europe-wide graduate tracking. On equity, Lithuania saw the highest improvement in the inclusiveness of its tertiary education system among the countries taking part in the Eurostudent VI study, having increased the share of students from lower socio-economic backgrounds by 10 % over 3 years (Hauschildt et al., 2018).

Amid concerns about quality and efficiency, Lithuania launched reforms to consolidate universities and strengthen accreditation of higher education programmes. Despite its high graduation rates and high employability of recent graduates, concerns remain about the tertiary education system's efficiency and quality. The number of institutions and programmes has not adapted to the declining number of students, which fell by 36.8 % between 2010 and 2017¹³⁸. In 2016, only 2.4 % of graduates in Lithuania were from abroad¹³⁹, Lithuanian tertiary education is relatively unattractive to international students. To address these challenges, the government launched a series of reforms, most notably to consolidate the network of universities and strengthen the accreditation system. At the beginning of January 2018, the Lithuanian Parliament passed resolutions on the consolidation of five state universities in Kaunas into two, while the Lithuanian Centre for Quality Assessment in Higher Education implemented a new cycle of accreditation based on study fields. While both of these reforms mark a step towards addressing

¹³⁷ Eurostat [edat_ifse_24].

¹³⁸ Statistics Lithuania indicator 'Pupils and students by level of education'.

¹³⁹ Calculations by the European Commission's Joint Research Centre, based on Eurostat: [educ_uoe_mobg02], [educ_uoe_grad01].

widely recognised challenges in Lithuanian tertiary education, they have also been strongly contested in an intense public debate. In addition, the number of universities to be consolidated in the current round falls short of the spring 2017 experts' recommendations. A Constitutional Court complaint has been submitted for one of the two mergers. This, in addition to a separate Constitutional Court complaint about the accreditation of study fields, is likely to delay the timing and limit the scope of the ongoing reforms.

7. Modernising vocational education and training

In 2017 Lithuania continued reforming its vocational education and training (VET) system to address low VET participation and improve labour market relevance.

Participation of students in upper secondary VET remained low in 2016 at 27.2 % against an EU average 49.3 %. VET students have some exposure to the world of work during their studies, (57 % of VET graduates took part in mandatory unpaid traineeships), but almost none had access to apprenticeship-type training. The employment rate of recent upper secondary VET graduates dropped to 71.5 % in 2017, while the rate improved across the EU, reaching 76.6 %¹⁴⁰.

The main policy development in 2017 was the adoption of a revised Law on VET. The goal of the new law is to increase responsiveness to economic change, modernise the management and funding of the VET system and upgrade quality assurance so as to improve its prestige. The Law gave sectoral professional committees a larger role in ensuring quality assurance for qualifications and in the planning of apprenticeships (Cedefop ReferNet, 2018a). A regular external evaluation of VET providers has also been introduced, along with requirements for regular self-assessment and maintenance of internal quality management systems. In parallel, Lithuania has continued the development of a framework for sectoral qualification standards, including 24 standards. At the beginning of 2018, only one standard had been officially approved, with nine (already developed earlier with ESF support) undergoing revision and 14 still needing to be developed. Adoption of a modular approach to VET curricula was gaining speed, with 27 % of VET learners enrolled in modular programmes in 2017 compared to just 11 % the year before. However, challenges remain over: (i) ensuring the timely update of standards; (ii) completing the corresponding revision of VET programmes; and (iii) promptly launching the programmes' implementation. In 2018 Lithuania received a country-specific recommendation to 'improve the quality, efficiency and labour market relevance of education and training, including adult learning' (Council of the European Union, 2018).

8. Promoting adult learning

Participation in adult learning remains low, despite the persistent need for the workforce to learn new skills and update existing ones.

The share of the population in the 25-64 age group that has not acquired at least a medium-level qualification was 5.2 % — the lowest in the EU. However, only 46.1 % of this group was employed in 2017¹⁴¹. Only a small proportion of adults participate in adult learning — only 5.9 % of adults aged 25-64 in 2017 have had a recent (i.e. during the last 4 weeks) education or training experience, against 10.9 % on average in the EU. The proportion of adults who had at least one learning experience over a longer period (12 months) was also low (27.9 % vs an EU average of 45.1 %) and the figure had declined compared to previous years. Also, only 56 % of individuals aged 25-64 in 2017 possessed basic or above basic overall digital skills, vs the EU average of 59 %. On a positive note, according to the Continuing Vocational Training Survey, private companies with at least 10 employees provided training to a larger share of their employees than before — 25.6 % in 2016 against 18.6 % in 2011, although this is still significantly below the 2016 EU average of 40.8 %.

¹⁴⁰ Eurostat code [lfsa_ergaed].

¹⁴¹ Eurostat code [lfsa_ergaed].

Box 2: A decentralised approach to developing adult learning system in Lithuania

Since the adoption of the Law on non-formal adult education and continuing learning in 2015, adult learning policy has put significant emphasis on building capacity and implementing adult learning programmes through decentralised bodies. With the support of grants from the Erasmus+ programme, the adult learning policy included the setting-up of a network of municipal adult learning coordinators. In 2017, the policy also included updating the public co-financing system for non-formal adult learning, by setting a minimal threshold of 50 % of national financing to be distributed to municipalities to co-finance local adult learning initiatives.

A new ESF-funded project entitled 'Developing adult education system by providing learners with general and core competencies' was launched in 2017 and will run until 2020 (Cedefop ReferNet, 2018b). The aim is to encourage the adult population to participate in lifelong learning, by offering relevant and attractive services in municipalities to develop general and key competences. The project includes initiatives to increase adults' motivation to take part in lifelong learning. In 2017, training was held for 540 adults, across more than half of the country's municipalities.

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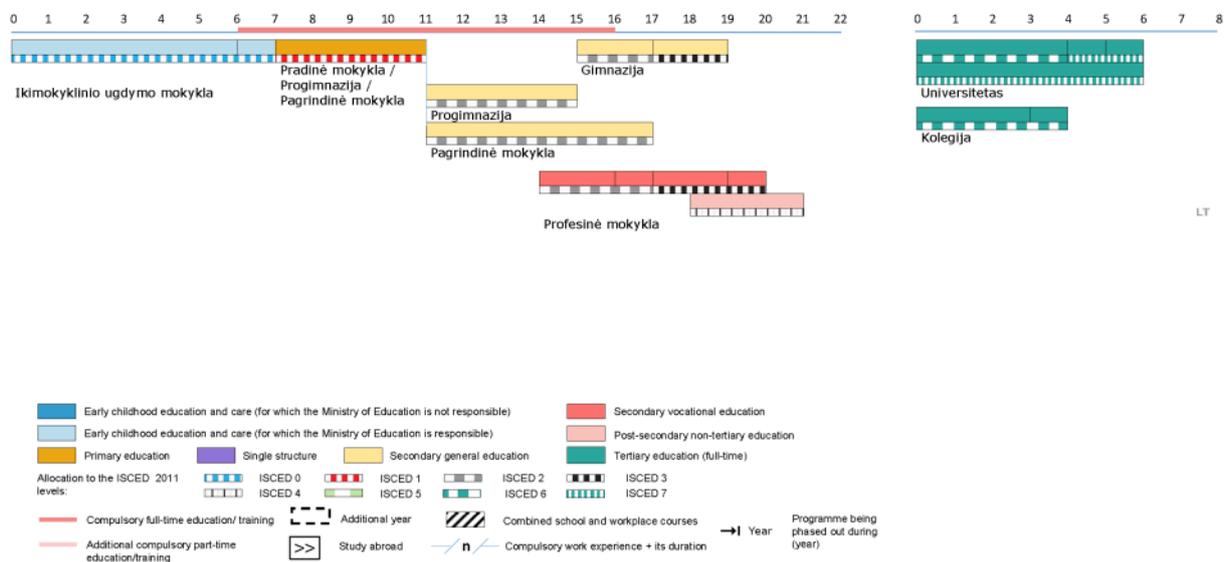
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10. Annex I: Key indicator sources

Indicator	Eurostat online data code
Early leavers from education and training	edat_lfse_14 + edat_lfse_02
Tertiary educational attainment	edat_lfse_03 + edat_lfs_9912
Early childhood education and care	educ_uoe_enra10
Underachievement in reading, maths, science	OECD (PISA)
Employment rate of recent graduates	edat_lfse_24
Adult participation in learning	trng_lfse_03
Public expenditure on education as a percentage of GDP	gov_10a_exp
Expenditure on public and private institutions per student	educ_uoe_fini04
Learning mobility: Degree mobile graduates	JRC computation based on Eurostat / UIS / OECD data
Credit mobile graduates	educ_uoe_mobc02

11. Annex II: Structure of the education system



Source: European Commission/EACEA/Eurydice, 2017. *The Structure of the European Education Systems 2017/18: Schematic Diagrams*. Eurydice Facts and Figures. Luxembourg: Publications Office of the European Union.

Comments and questions on this report are welcome and can be sent by email to:
 Veronica DE NISI
veronica.de-nisi@ec.europa.eu
 or
EAC-UNITE-A2@ec.europa.eu

LUXEMBOURG



1. Key indicators

		Luxembourg		EU average		
		2014	2017	2014	2017	
Education and training 2020 benchmarks						
Early leavers from education and training (age 18-24)		6.1%	7.3%	11.2%	10.6%	
Tertiary educational attainment (age 30-34)		52.7%	52.7% ^u	37.9%	39.9%	
Early childhood education and care (from age 4 to starting age of compulsory primary education)		98.4% ¹³	94.2% ¹⁶	94.2% ¹³	95.3% ¹⁶	
Proportion of 15 year-olds underachieving in:	Reading	22.2% ¹²	25.6% ¹⁵	17.8% ¹²	19.7% ¹⁵	
	Maths	24.3% ¹²	25.8% ¹⁵	22.1% ¹²	22.2% ¹⁵	
	Science	22.2% ¹²	25.9% ¹⁵	16.6% ¹²	20.6% ¹⁵	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-8 (total)	83.8%	88.5%	76.0%	80.2%	
Adult participation in learning (age 25-64)	ISCED 0-8 (total)	14.5%	17.2%	10.8%	10.9%	
Learning mobility	Degree mobile graduates (ISCED 5-8)	:	70.6% ¹⁶	:	3.1% ¹⁶	
	Credit mobile graduates (ISCED 5-8)	:	13.8% ¹⁶	:	7.6% ¹⁶	
Other contextual indicators						
	Public expenditure on education as a percentage of GDP	4.9%	4.8% ¹⁶	4.9%	4.7% ¹⁶	
Education investment	Expenditure on public and private institutions per student in € PPS	ISCED 1-2	€15 628	€15 944 ¹⁵	€6 494 ^d	: ¹⁵
		ISCED 3-4	€15 417	€14 460 ¹⁵	€7 741 ^d	: ¹⁵
		ISCED 5-8	€34 161	€35 658 ¹⁵	€11 187 ^d	: ¹⁵
Early leavers from education and training (age 18-24)	Native-born	5.6%	6.8%	10.4%	9.6%	
	Foreign-born	7.8% ^u	8.2% ^u	20.2%	19.4%	
Tertiary educational attainment (age 30-34)	Native-born	42.5%	49.1%	38.6%	40.6%	
	Foreign-born	59.7%	55.6%	34.3%	36.3%	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-4	78.2%	87.9%	70.7%	74.1%	
	ISCED 5-8	86.4%	88.9%	80.5%	84.9%	

Sources: Eurostat (see section 10 for more details); OECD (PISA).

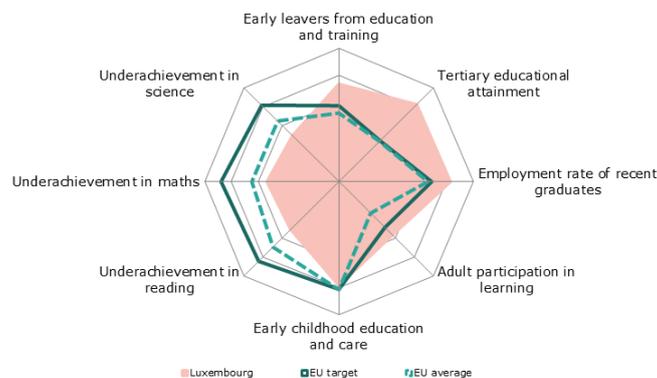
Notes: data refer to weighted EU averages, covering different numbers of Member States depending on the source;

d = definition differs, u = unreliable, 12 = 2012, 13 = 2013, 15 = 2015, 16 = 2016.

On credit graduate mobility, the EU average is calculated by DG EAC on the available countries; on degree graduate mobility, the EU average is calculated by JRC over Eurostat and OECD data.

Further information can be found in the relevant section of Volume 1 (ec.europa.eu/education/monitor).

Figure 1. Position in relation to strongest (outer ring) and weakest performers (centre)



Source: DG Education and Culture calculations, based on data from Eurostat (LFS 2017, UOE 2016) and OECD (PISA 2015). Note: all scores are set between a maximum (the strongest performers represented by the outer ring) and a minimum (the weakest performers represented by the centre of the figure).

2. Highlights

- Luxembourg has the highest average spending on education per student in the EU but growth in general government expenditure on education has slowed in recent years.
- Pupils' performance at school is heavily influenced by their ability to cope with the trilingual system.
- Grade repetition remains frequent and a major factor behind early school leaving.
- In 2018, more flexible conditions of access to the teachers' competition for early childhood and primary education attracted more candidates.
- Employment rates are significantly higher than the EU average across all education levels.

3. Investing in education and training

Luxembourg has the highest average spending on education per student in the EU but growth in general government expenditure on education has slowed in recent years.

Average spending on education per student in primary through to tertiary education in 2014 was EUR 20 025, almost three times the EU average of EUR 7 510. Funding has increased most for higher education and research, from EUR 72 million in 2009 to EUR 173.5 million in 2018. In real terms, spending remained broadly unchanged between 2011 and 2016, after rising by 65 % in the previous decade. Education spending did not keep pace with growth in either GDP or total public expenditure, falling to 4.8 % and 11.5 % respectively, though both figures are still somewhat above the EU average.

Luxembourg has a growing and mixed population, 46.7 % of which is foreign-born.

Population growth is largely due to immigration and to the fertility of the foreign population which is relatively young. Foreign employees are strongly represented at both ends of the employment spectrum, doing either unqualified work or holding highly qualified positions (European Commission, 2018). Among the foreign-born, 85 % are EU nationals (STATEC, 2018), who generally achieve high employment rates. On average, migrants tend to be highly educated: 55.6 % of migrants aged 30-34 have a tertiary degree. Due to the high proportion of highly skilled migrants, the employment rate among them (72.3 %) is higher than that of the native-born population (69.0 %). In contrast, migrants of non-EU origin are less successful in finding work, with an employment rate of 53.9 % and high female inactivity. Luxembourg nationals are predominant in public administration and services.

More than half of the school population has a migrant background: 21.4 % of 15 year-olds are first-generation and 30.6 % are native-born with migrant parents (OECD, 2016a). These figures are exceptionally high compared to other EU Member States. Between 2010 and 2015, the number of primary school pupils increased by 1.4 % and pupils with Luxembourgish as their first language have become the minority (42 %). Almost half of pupils with a migrant background have a low socio-economic status (MENJE and the University of Luxembourg, 2016).

4. Citizenship education

Students are taught citizenship both as a separate subject and through its integration into other subjects. In basic education (grades 1-6), citizenship is integrated into history, geography and 'life and society'. At secondary level, it is taught as a compulsory separate subject both in general and initial vocational education and training. In addition, students in general upper secondary education study 'civic education' (grade 12) and 'knowledge of the contemporary world' (grades 12-13). The Centre for Citizenship Education (ZpB) offers teaching materials and training for teachers, organises public events to promote understanding of democratic processes and societal challenges, and offers guidance to formal and non-formal education providers wishing to promote a participatory culture.

Religious and moral education has been replaced by 'values education'. Since 2016/2017 a new common 'values education' ('Vie et société') course has replaced the previous 'moral and social education' and 'religious and moral instruction' courses in secondary education. Since 2017/2018 this is also the case in primary education. In parallel, a time-limited opportunity for professional reorientation was offered to teachers who had been working for at least 5 years as religion teachers or as supply teachers at elementary schools. They can follow a two-year training programme (instead of 4 years) leading to a bachelor's in Educational Sciences. This enables them to be employed as fully qualified primary school teachers.

5. Modernising school education

Luxembourg's early school leaving rate, as measured by the Labour Force Survey in line with standard EU practice, stood at 7.3 % in 2017. While significantly below the EU average, this data should be interpreted with caution because of the limited sample size in Luxembourg. National estimates based on the actual number of young people not completing upper secondary education indicate that dropouts have been on the rise since 2009 and stood at 13.5 % in 2015 (Ministère de l'Éducation Nationale, de l'Enfance et de la Jeunesse (MENJE, 2017a). More than twice as many boys drop out as girls. Some 29 % of pupils leaving Luxembourg schools in 2014/2015 continued upper secondary education either abroad or in a private/European school (MENJE, 2017a). This suggests that school failure could be reduced if public education was better adapted to pupils' needs. The Local Action for Youth offices of the Ministry of Education are responsible for identifying and contacting early school leavers to help them return to education or find a job.

Grade repetition is frequent and is strongly linked with early school leaving. About 20 % of pupils have already repeated a grade by the third grade of primary school (MENJE, 2017b); by the end of secondary education this is true for half of all pupils. Across school types, grade repetition is particularly high among pupils in vocational secondary education: by the final grade 71 % of technical education pupils will have repeated a year at least once (MENJE, 2017b). In general secondary education this share is lower, but still significant at 30 %. Failing 2 years in the course of one's studies is the clearest predictor of early school leaving (MENJE, 2017a).

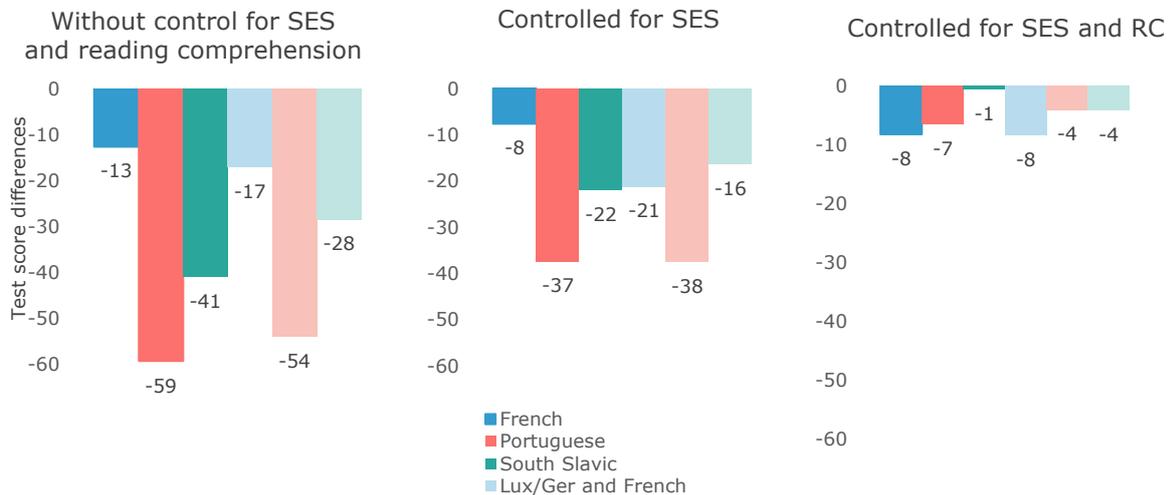
Despite a recent reform of the orientation process at the end of primary education, early use of tracks with little scope for change between levels limits equity in education. Students with lower socio-economic status are the most likely to fall behind in all subjects and to be oriented towards the technical tracks of secondary school. Changing tracks is extremely rare (Klapproth and al., 2013). The difference in the language regimes of the general and the technical tracks of secondary education — the first being French-based and the second German — also plays a role in orientation decisions and narrows the scope for switching. Pupils of foreign nationality are less frequently oriented towards the higher tracks of secondary education. A majority (63.2 %) of pupils of foreign nationality who attend general secondary education go to schools that do not follow the national curriculum (MENJE, 2016). As most of these schools demand a tuition fee, this option is mainly available to pupils of higher socio-economic status. Since 2016/2017 the orientation process at the end of primary school was reformed to give parents a say in the decision.

Pupils' performance at school is heavily influenced by their ability to cope with the trilingual system. The vernacular language at primary school is Luxembourgish, while pupils learn to read and write in German. All subjects are taught in German except for French language classes. While the main teaching language in technical secondary education remains German, in the higher tracks mathematics is taught in French, which is the language of the final exam. There are also several technical schools that offer all courses in French. In general secondary education, the teaching language of mathematics switches from German to French in grade 7, and in the case of other subjects in grade 10. This system is challenging for all, but especially for the 58 % of pupils who speak a different language than Luxembourgish at home. Nearly half of pupils (45 %) at the national competence tests¹⁴² do not reach the basic level in reading comprehension in German

¹⁴² The Épreuves standardisées (ÉpStan) are conducted at the beginning of the school year in languages (Luxembourgish, German and/or French depending on the grade) and mathematics in grades 1, 3, 5 and 9 and from 2018/2019 also grade 7. They were introduced in 2008-2009 and are developed by the University of Luxembourg at the request of the Ministry of Education as an external monitoring tool of the school system.

(grade 3), the tuition language in primary education (Martin et al. 2012). The level of language skills impacts heavily on pupils' performance in mathematics, too: as Figure 2 shows, when pupils' level of reading comprehension in the test language and their socio-economic status are controlled for, most differences in performance disappear (Martini and Ugen, 2018).

Figure 2. Language influence on mathematics achievement of French-German biliterate ninth graders, measured in score point differences



Source: Martini and Ugen, 2018)

Notes: Performance differences between ninth graders of different home languages in mathematics compared to the Luxembourgish/German (Lux/Ger) home language group (zero line). The bars show the mean value differences between the six respective language groups and the Lux/Ger home language group. SES = socio-economic status; RC = reading comprehension.

Fifteen year-olds perform significantly worse than the EU average in all three subjects in the Programme for International Student Assessment (PISA) tests: mathematics, reading and science. Luxembourg's average performance, already below the EU average, worsened between 2012 and 2015, especially in reading and science. The impact of socio-economic background on performance is the second-strongest among EU countries. It outweighs (by 2.7 times) the impact of the language spoken at home (MENJE and the University of Luxembourg 2016) and even a migrant background. Controlling for socio-economic status, the performance gap of the children of migrants is reduced by two thirds (OECD, 2017a).

In 2017, the reform to improve the quality of early childhood education and care and access to it was further strengthened. Compulsory education starts at age 4, when children enter 2 years of pre-school. Virtually all children — 94.2 % — participate. This can be supplemented with an optional year of early childhood education from age 3. In August 2017 a national reference framework for non-formal education of children and young people (aged 0-29) was adopted by amending the 2016 Act on Youth. The Act had established national quality standards in early childhood education with which all providers had to comply by September 2017. Providers are required to familiarise children aged 1-4 with both Luxembourgish and French in order to be eligible for the state co-financing scheme (chèque-service accueil). Every child is entitled to 20 free hours per week of education and care in eligible providers, with additional free hours for low-income families. From September 2016, the co-financing scheme was extended to cross-border workers. Single parents and low-income earners benefit from tax credits for education and childcare costs (OECD, 2017a).

A new law sets out the conditions and prerequisites for childminding, including professional training. The law of December 2017 regulates the activity of childminding. It is defined as the regular and remunerated care of children aged 0-12, or of those still enrolled in primary school or special education, at the request of the parents. This service is provided at the home of a self-employed childminder, with a maximum period of continuous care of no more than 3 weeks. An education and care contract has to be set up establishing the rights and duties of the parties. The law sets the maximum number of children that may be accepted simultaneously by

childminders, depending on the children's age. It also institutes professional training for childcaring, organised by the Ministry of Education.

In 2017, secondary education was reformed to better adapt the school offer to the needs of an increasingly diverse school population. The main objective of the new law on secondary education is to better meet learners' needs by giving schools more autonomy to organise the curriculum, depending on which of the three profiles¹⁴³ they opt for. The school development plans will need to reflect the needs of the school population and cover aspects such as guidance, study success, after-school activities, psycho-social assistance and improving digital skills. The number of subjects in the upper secondary school leaving exam has been reduced to allow pupils to focus on the areas matching their further study plans. The law of June 2018 envisages the creation of specialised psycho-pedagogical centres. These will be in charge of diagnosing the special educational needs of students referred to them and will define the approach to be taken for their development.

In 2018, more flexible access conditions to the recruitment competition for early childhood and primary education teachers have attracted more candidates. Despite high salaries, there is a shortage of teachers. This is linked to, for example, the requirement to show command of the three official languages. In 2018, the conditions for applying for the teachers' competition in primary education have been broadened, leading to a higher number of candidates than in the previous year. The number of recently graduated candidates has more than doubled. Novelties include the possibility to apply with a qualification only for Cycle 1 (early childhood education and care) or for Cycles 2-4 (primary education), as well as with a qualification valid for all Cycles 1-4. The induction period has been reduced from 3 to 2 years for teachers who have had a certified practice period of at least 20 weeks during their studies. Given the shortage of candidates enrolled for the competitions in 2018, the law on basic education was amended in June 2018 to allow the recruitment of candidates holding a bachelor degree in programmes related to basic education as temporary teachers in 2018/2019.

The support system for school quality has been strengthened. Following primary schools, secondary schools are now also obliged to adopt plans for school development every 3 years. Since September 2016 they are assisted in the design and follow-up of their plans by the Pedagogical and Technological Research and Innovation Coordination Service (SCRIPT). The 15 regional inspectorate offices created by the law of May 2017 are responsible for the administrative management and pedagogical supervision of primary schools, for monitoring implementation of the school development plans and for organising support actions for pupils with special educational needs. In March 2018 a National Observatory on School Quality was created whose mission is to gather and analyse evidence on the school system and the functioning of primary and secondary schools.

Box 1: A new type of structure for early childhood education and care: the mini-crèche

To give children the best possible development opportunities from a very early age, the government has created the concept of the 'mini-crèche' — a small-scale day care centre for children aged 0-12.

In March 2018 the Council of Ministers approved a draft regulation on the quality requirements mini-crèches must meet to receive ministerial accreditation. Under this, a mini-crèche can host up to 11 children at a time, including a maximum of four babies under the age of 1. The establishment has to be managed jointly by two socio-educational professionals. Mini-crèches will serve less populated areas in particular and will enjoy great flexibility on opening times, between 5 a.m. and 11 p.m.

Like all other early childhood education and care services, mini-crèches will apply the multilingual education scheme, introduced in 2017, for children aged 1-4. Accredited mini-crèches will be eligible for the state co-financing scheme (CSA). As CSA service providers, mini-

¹⁴³ The three possible profiles are: (i) 'future hubs', with an emphasis on ICT, science and new technologies; (ii) entrepreneurial schools; and (iii) schools specialised in sustainable development.

childcare centres have to comply with the principles and objectives of the national reference framework on non-formal education. These include:

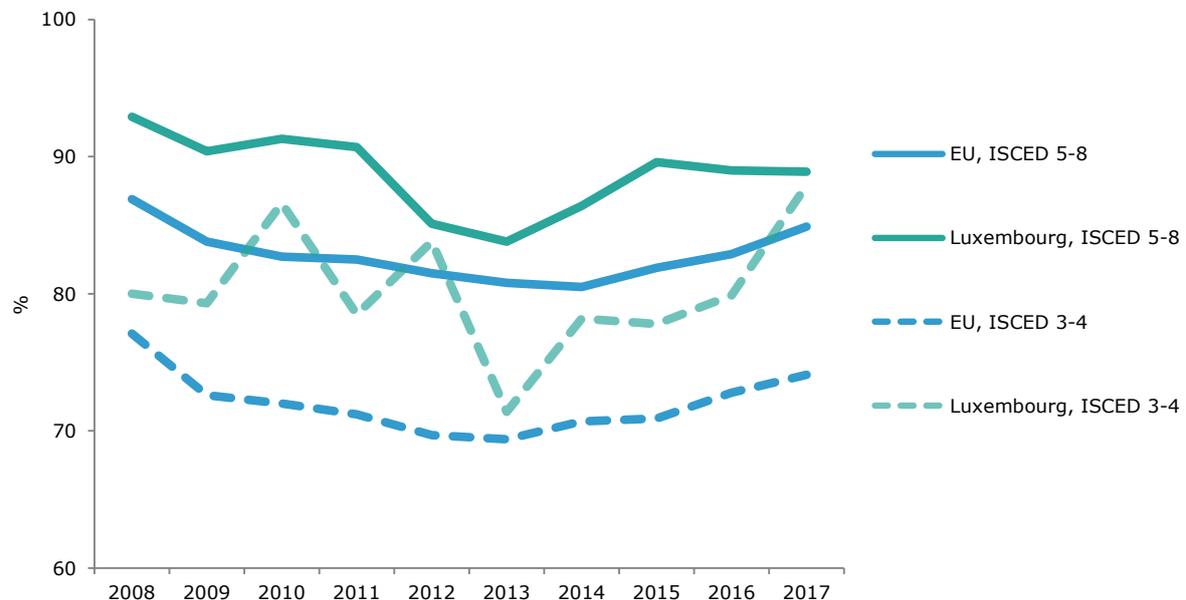
- an obligation to develop an overall action concept;
- keeping a logbook;
- continuing professional development for the socio-educational personnel; and
- undergoing external evaluation by regional officers.

6. Modernising higher education

Luxembourg has set the target of further increasing its tertiary attainment rate among 30-34 year-olds to 66 % by 2020. At 52.7 %, the country already has one of the EU's highest tertiary attainment rates. This is partly due to the high proportion of the migrant population with a tertiary degree (55.6 %), compared to 49.1 % among the native-born. Luxembourg has the largest proportion of international students (46 %) among OECD countries. Their share is particularly high at bachelor (71 %) and doctoral level (87 %).

Young tertiary graduates in Luxembourg benefit from an employment premium, but this is not as large as in other EU countries due to the high employment rates achieved at all education levels. In 2017, the employment rate for tertiary-educated young adults (20-34 year-olds) in Luxembourg was 88.9 %, above the EU average of 84.9 %. In fact, employment rates in Luxembourg are higher than the EU average across all educational levels: 74.9 % of young adults without upper secondary education are employed (vs an EU average of 56.4 %) and 87.5 % of those with either upper secondary or post-secondary non-tertiary education (vs an EU average of 78 %). In terms of earnings, however, tertiary graduates enjoy higher wage premia than their counterparts in the EU (OECD, 2017). Figure 3 shows the employment rates of 20-34 year-old graduates.

Figure 3. Employment rates of recent graduates (20-34 years old) at ISCED levels 3-4 and 5-8, 2008-2017 (%)



Source: Eurostat. Online data codes: [edat_ifse_24](#).

New legislation strengthens the organisational autonomy of the University of Luxembourg. A new law¹⁴⁴ on the University aims to increase its autonomy over internal organisation and decision-making and to set clearer rules in its management structures and decision-making procedures. It also provides for student participation in decision-making and facilitates collaboration with other research institutes in Luxembourg. Organisational autonomy was the only aspect where the University scored low in 2017, while it ranked high in terms of financial, academic and staffing autonomy, according to the European University Association.

Compared to other levels of education, funding for higher education and research has increased the most in the past 5 years, from EUR 72 million in 2009 to EUR 173.5 million in 2018. Higher education comprises a range of bachelor and master programmes, as well as doctoral studies, offered mainly by the University of Luxembourg. In addition, some secondary schools propose short-cycle programmes leading to advanced technicians' diplomas. Expenditure on higher education also includes public financial aid for students. This is available both to resident and non-resident students in officially recognised higher education programmes leading to a final degree, diploma or certificate. Financial aid for higher education may be combined with PhD grants provided within the AFR (Aides à la Formation-Recherche) PhD and AFR PPP grant scheme for research. The 2018-2021 agreement provides for a global budget of EUR 766.84 million.

New foreign tertiary education institutions are setting foot in Luxembourg. Luxembourg does not have a national accreditation organisation. The 2016 amendment of the law on the organisation of higher education stipulates that foreign and independent agencies registered in the European Quality Assurance Register for Higher Education should assess private tertiary education institutions and their programmes. Foreign tertiary education institutions delivering a programme in Luxembourg participate in its assessment. In 2017 some 21 programmes of five foreign institutions received accreditation.

7. Modernising vocational education and training

Participation in vocational education and training remains high but the vocational pathway is marked by school failure. The proportion of upper secondary students (ISCED 3) in vocational education and training (VET) was 61.0 % in 2016, well above the EU average (49.3 %). However, VET is characterised by high levels of year repetition and dropout (see section 4 on school education). Luxembourg has continued to implement its 2016 VET reform, aiming to improve completion rates. More apprenticeship programmes were offered, including a new Technician Diploma and a new Master Craftmanship. Guidance and counselling services for young people were restructured with more emphasis on social and psychological support as well as self-guidance education (Cedefop ReferNet, 2018). Action on equal opportunities for access to training was stepped up through the introduction of a range of free-of-charge courses (e.g. in IT, internet security, accounting and management control) for job-seekers and vulnerable groups.

At the initiative of two chambers, pupils are being helped to choose a profession matching their skills. In March 2018, the Chamber of Employees and the Chamber of Professions launched Basic-check, a tool to assess the linguistic skills and numerical, abstract and spatial reasoning of fifth-graders and thus help orient them towards the right profession. Pupils can sit a free assessment test at the Chamber of Employees to find out if their skills profile matches the skills requirements of the given profession.

Box 2: ESF Luxembourg Digital Skills Bridge

In May 2018, the Ministry of Labour and the Employment Agency ADEM launched the pilot project 'Luxembourg Digital Skills Bridge'. Its aim is to support companies and their employees that are substantially affected by a major technological change, including digital transition.

The employees concerned will be able to acquire new digital and other competences and receive specialised advice to identify a new job, follow an accelerated certified training and settle in to the new job. Social partners will be involved in the requalification process. Companies can apply for the financial and technical assistance irrespective of their size or sector.

¹⁴⁴ Proposal No 7132.

8. Promoting adult learning

Adult participation in lifelong learning is high but lower among low-skilled people and older workers. At 17.2 %, participation by adults in lifelong learning is considerably higher than the EU average (10.9 %). However, it is much lower among low-skilled workers (at 6 %), increasing the risk of their skills becoming outdated and of them ending up in early retirement. The employment rate of older workers remains particularly low at 39.6 % in 2016 against a 55.3 % EU average, making it especially important to improve their participation in lifelong learning (European Commission, 2018). In 2015, 77.1 % of Luxembourg companies provided vocational training to their employees (above the EU average of 72.6 %); 61.8 % of employees participated in this training (well above the EU average of 40.8 %). An amendment to the Labour Law adopted in July 2017 reorganises the state's co-financing provisions for training provided by companies and creates incentives for them to do so.

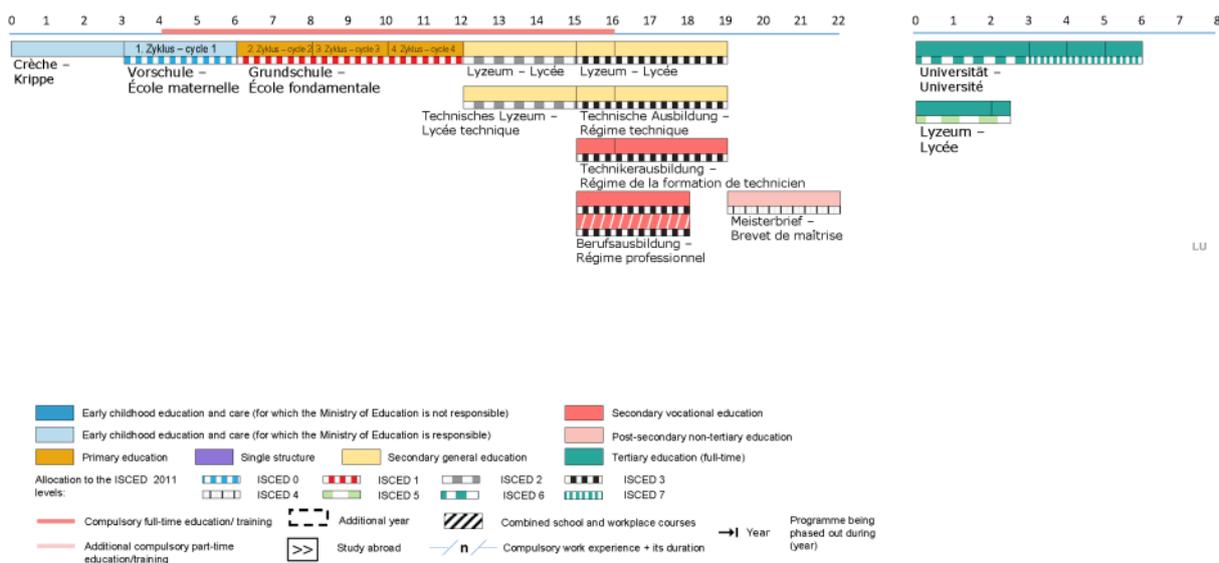
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10. Annex I: Key indicator sources

Indicator	Eurostat online data code
Early leavers from education and training	edat_lfse_14 + edat_lfse_02
Tertiary educational attainment	edat_lfse_03 + edat_lfs_9912
Early childhood education and care	educ_uoe_enra10
Underachievement in reading, maths, science	OECD (PISA)
Employment rate of recent graduates	edat_lfse_24
Adult participation in learning	trng_lfse_03
Public expenditure on education as a percentage of GDP	gov_10a_exp
Expenditure on public and private institutions per student	educ_uoe_fini04
Learning mobility: Degree mobile graduates	JRC computation based on Eurostat / UIS / OECD data
Credit mobile graduates	educ_uoe_mobc02

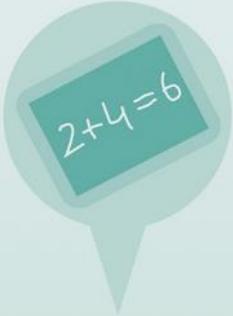
11. Annex II: Structure of the education system



Source: European Commission/EACEA/Eurydice, 2017. *The Structure of the European Education Systems 2017/18: Schematic Diagrams*. Eurydice Facts and Figures. Luxembourg: Publications Office of the European Union.

Comments and questions on this report are welcome and can be sent by email to:
 Livia RUSZTHY
livia.ruszthy@ec.europa.eu
 or
EAC-UNITE-A2@ec.europa.eu

MALTA



1. Key indicators

		Malta		EU average		
		2014	2017	2014	2017	
Education and training 2020 benchmarks						
Early leavers from education and training (age 18-24)		20.3%	18.6%	11.2%	10.6%	
Tertiary educational attainment (age 30-34)		26.5%	30.0%	37.9%	39.9%	
Early childhood education and care (from age 4 to starting age of compulsory primary education)		96.5% ¹³	98.0% ¹⁶	94.2% ¹³	95.3% ¹⁶	
Proportion of 15 year-olds underachieving in:	Reading	: ¹²	35.6% ¹⁵	17.8% ¹²	19.7% ¹⁵	
	Maths	: ¹²	29.1% ¹⁵	22.1% ¹²	22.2% ¹⁵	
	Science	: ¹²	32.5% ¹⁵	16.6% ¹²	20.6% ¹⁵	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-8 (total)	93.0%	94.5%	76.0%	80.2%	
Adult participation in learning (age 25-64)	ISCED 0-8 (total)	7.4%	10.1%	10.8%	10.9%	
Learning mobility	Degree mobile graduates (ISCED 5-8)	:	8.7% ¹⁶	:	3.1% ¹⁶	
	Credit mobile graduates (ISCED 5-8)	:	5.6% ¹⁶	:	7.6% ¹⁶	
Other contextual indicators						
Education investment	Public expenditure on education as a percentage of GDP		5.6%	5.4% ¹⁶	4.9%	4.7% ¹⁶
	Expenditure on public and private institutions per student in € PPS	ISCED 1-2	€8 548 ^p	€7 274 ¹⁵	€6 494 ^d	: ¹⁵
		ISCED 3-4	€7 229 ^p	€7 316 ¹⁵	€7 741 ^d	: ¹⁵
		ISCED 5-8	€11 450 ^p	€14 913 ¹⁵	€11 187 ^d	: ¹⁵
Early leavers from education and training (age 18-24)	Native-born	20.1%	18.4%	10.4%	9.6%	
	Foreign-born	23.6%	:	20.2%	19.4%	
Tertiary educational attainment (age 30-34)	Native-born	25.3%	29.4%	38.6%	40.6%	
	Foreign-born	42.3%	36.8%	34.3%	36.3%	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-4	87.8%	91.3%	70.7%	74.1%	
	ISCED 5-8	96.2%	96.1%	80.5%	84.9%	

Sources: Eurostat (see section 10 for more details); OECD (PISA).

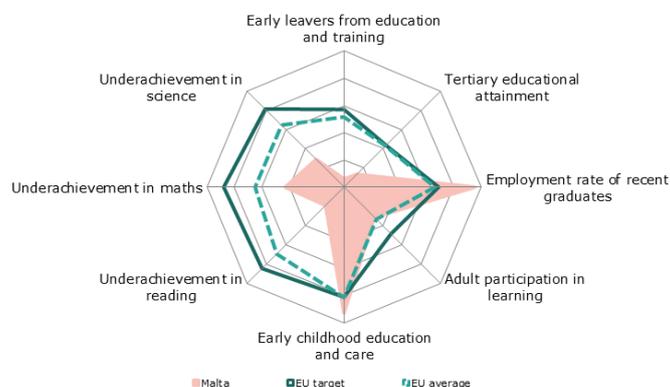
Notes: data refer to weighted EU averages, covering different numbers of Member States depending on the source;

d = definition differs, p = provisional 12 = 2012, 13 = 2013, 15 = 2015, 16 = 2016.

On credit graduate mobility, the EU average is calculated by DG EAC on the available countries; on degree graduate mobility, the EU average is calculated by JRC over Eurostat and OECD data.

Further information can be found in the relevant section of Volume 1 (ec.europa.eu/education/monitor).

Figure 1. Position in relation to strongest (outer ring) and weakest performers (centre)



Source: DG Education and Culture calculations, based on data from Eurostat (LFS 2015, UOE 2016) and OECD (PISA 2015). Note: all scores are set between a maximum (the strongest performers visualised by the outer ring) and a minimum (the weakest performers visualised by the centre of the figure).

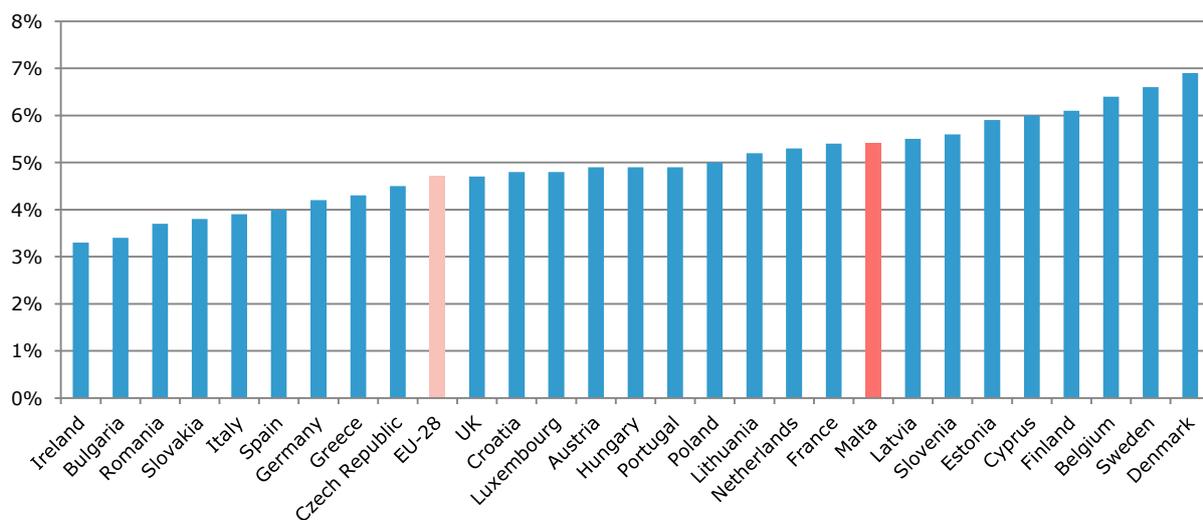
2. Highlights

- Malta invests heavily in education.
- Although steadily improving, the early school leaving rate is still high and tertiary educational attainment remains low.
- Several reform measures backed by substantial investment aim to foster quality and inclusion and could improve learning outcomes.
- Transition from education to the labour market is easier than in most other EU countries.
- The lowering of the voting age to 16 has highlighted the importance of citizenship education.

3. Investing in education and training

Malta is investing heavily in education and training to improve learning outcomes and reduce the number of early leavers. General government expenditure on education¹⁴⁵, both as a proportion of GDP (5.4 % in 2016, see Figure 2) and as a proportion of total public expenditure (14.1 % in 2016), is well above the EU averages (4.7 % and 10.2 %, respectively)¹⁴⁶. From 2018, additional funding has been allocated for increasing teachers' salaries and for their continuous professional development.

Figure 2. General government expenditure on education as a share of GDP 2016 (%)



Source: Eurostat. Onlidate data code: [gov_10a_exp](#).

The performance of Maltese students in international assessments remains poor, with major disparities linked to socioeconomic background and type of school. In PISA 2015, the proportion of low achievers in science, reading and mathematics among Maltese 15-year-olds was significantly higher than the EU average¹⁴⁷. Results from the 2016 Progress in International Reading Study (PIRLS) ranked Malta in 40th place out of 50 participating countries in terms of overall performance. This was well below the international average and there was a small decline since the previous test in 2011. Results showed that church schools performed better than state schools, which in turn performed better than independent Schools. Comparison is complicated by

¹⁴⁵ Government expenditure covers the costs of the full provision of state education, which is free of charge. It also covers the salaries of educators in church schools, while independent schools are self-financing but, the government finances the provision of Learning Support Assistants for children in independent schools.

¹⁴⁶ Source: Eurostat, General government expenditure by function (COFOG) database.

¹⁴⁷ Proportion of low achievers in science: 32.5 %, reading: 35.6 %, maths: 29.1 % (EU: 20.6 %, 19.7 % and 23.3 %).

the fact that in 2016 the test language was Maltese, whereas in 2011 it was English. (Ministry for Education and Employment, 2018c).

The government is launching new initiatives to promote reading skills. In 2018, the National Literacy Agency in collaboration with University College London has started training educators as reading recovery teachers¹⁴⁸. Complementary teachers who support students in literacy will be offered post-graduate studies in promoting effective learning.

Malta's workforce remains relatively low qualified, but employment rates are above the EU average at all qualification levels. Despite significant improvements in recent years, Malta has the highest proportion of low-qualified adults in the EU: 52.7 % of those aged between 25 and 64 have at most an education level equivalent to lower secondary education (ISCED 0-2) (See Section 7). In addition, the proportion of low-qualified young people (aged 20-24) is among the highest in the EU (22.9 % vs 16.7 %), while the tertiary educational attainment rate is one of the lowest. By contrast, over a third of foreigners living in Malta have tertiary education, helping to fill skill shortages in growth areas such as ICT, accounting, finance and science. In this regard, the National Skills Council (NSC) was setup in 2016 with the aim to first review the past and present available skills within the labour work force and evaluate the changes required to meet current and future needs. At just over 94 %, the employment rate for recent graduates (ISCED 3-8) in Malta is the highest in the EU.

The school-age population is expected to grow significantly over the coming decades. Between now and 2050, Eurostat forecasts a 15.9 % increase in the school age population (5-18-year-olds), one of the highest in the EU, driven by migration flows, with potential implications for the education system¹⁴⁹.

4. Citizenship education

The lowering of the voting age to 16 has prompted calls to strengthen citizenship education. In March 2018, Malta became the second EU country to give 16-year-olds the right to vote in national and European elections¹⁵⁰. This raised the importance of civic education. Student associations reacted by highlighting the need to strengthen civic education at all levels of compulsory education and called for the introduction of a compulsory module on civic education at secondary level (KSU Social Policy Commission, 2018).

Citizenship education in Malta is a broadly defined, cross-curricular theme. It is integrated into other subjects, both compulsory (social studies, personal, social and career development) and optional (ethics, religious education, European studies, history, geography), depending on school level and school type. It includes economics, entrepreneurship and consumer rights, and is taught by teachers of other subjects, such as social studies, history, geography and ethics. Training for teachers teaching civic and citizenship education is provided both pre- and in-service. Courses cover knowledge of topics such as law and justice, human rights and democratic citizenship as well as European citizenship and civic competences. In terms of guidance, Malta has developed handbooks and educators' guides for teaching and assessing two courses linked to citizenship. These are 'personal, social and career development' and 'social studies', relevant for primary, lower secondary and school-based IVET. General guidelines for classroom assessment exist but apply only to ISCED 1 and 2 and the compulsory part of ISCED 3.

Students' attainment of civic knowledge is below the international average and related to parental education, occupation and socio-economic status. The average civic knowledge score for Malta's 14-year-olds, as measured by the 2016 IEA International Civic and Citizenship Education Study (ICCS)¹⁵¹ was 9 points below the ICCS international average of 500, the second

¹⁴⁸ The Reading Recovery (RR) is an accredited school-based literacy programme for the lowest-achieving children aged 5 to 6.

¹⁴⁹ Behind Luxembourg (+46.2 %) and Sweden (+27.3 %)

¹⁵⁰ Austria lowered the voting age in 2007.

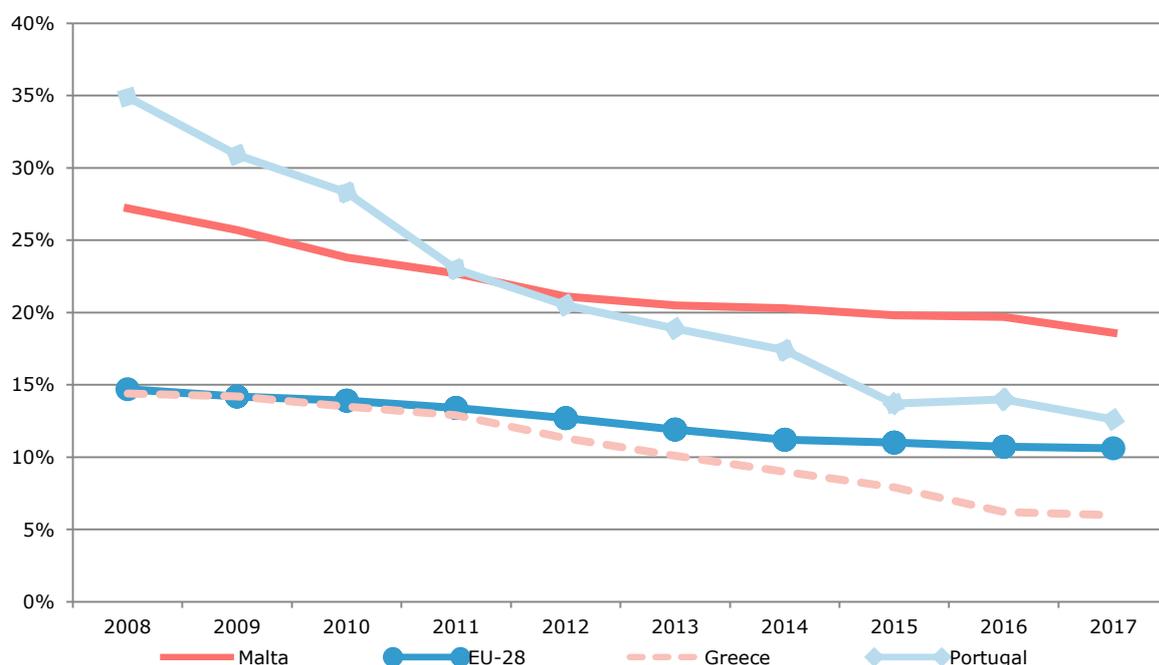
¹⁵¹ ICCS investigates the ways in which young people are prepared to undertake their roles as citizens. In 2016, the scale was set to a metric with a mean of 500. Fourteen EU Member States participated in ICCS: Belgium-Flanders, Bulgaria, Denmark, Germany (North Rhine-Westphalia), Estonia, Croatia, Italy, Latvia, Lithuania, Malta, the Netherlands, Slovenia, Finland and Sweden.

lowest among participating EU countries. The gender gap, with girls scoring 38 points higher than boys, was the widest in the study. Scores also differed significantly between school types - boys and girls students attending independent schools and girls students attending church schools scored significantly better, exceeding the international average (517). ICCS concluded that Maltese students who have many books at home and whose parents have a high income, a high educational and occupational level are more likely to score higher in civic knowledge than their counterparts (Ministry for Education and Employment, 2018a).

5. Modernising school education

The proportion of early leavers from education and training continues to decrease slowly, but still the highest in EU. In 2017 the ESL rate among 18-24 year-olds was 18.6 %, down from 19.7% in 2016, still well above the EU average of 10.6 %. The rate is much higher for males than females (21.9 % vs 15.1 %).

Figure 3. Trends in the early school leaving rate (%)



Source: Eurostat. Online data code: [edat_ifse_14](#).

Participation in early childhood education and care is almost universal for 3- 4-year-olds, and rapidly increasing for children under 3. All Maltese 4-year-olds participate in ECEC. The proportion of children below 3 in formal childcare (both full- and part-time) has risen significantly, from 17.9 % in 2015 to 31.3 % in 2016 and is now close to the EU average of 32.9 %. The government has announced a reorganization of teaching grades at pre-school level, with raises in both salaries and professional profile. A new salary grade will be introduced for graduate pre-school teachers, on the same scale as other graduates working in the public service. This should help to attract more graduates to this branch of the teaching profession. The new generation of tertiary qualified professionals to work with children aged 4 and 5 will graduate from June 2019.

The new collective agreement between the government and the teachers' union has paved the way for several reforms. In December 2017, the Malta Union of Teachers and the Education Ministry signed a sectoral agreement for 2018-2022. The agreement includes a significant salary increase for educators across the different levels; non-contact time which educators can use for educational purposes; allowances for professional development; as well as possible accelerated career progression based on voluntary professional development (see Box 1).

The government has taken further steps to make the education system more inclusive. Under the new collective agreement, mid-year exams will be discontinued from 2019 in all State

schools, both primary and secondary and replaced by a more continuous formative assessment. All syllabi will be reviewed to make them more relevant. Exam fees for SEC and MATSEC exams will be halved from 2018, and completely abolished in 2019. Since 2018 the past papers of O-Level and A-Level and MATSEC are accessible to the public free of charge. Starting in September 2019, all classes will receive a 'Learning Support Educator' in addition to those assigned to students who require individual support. The measure will be introduced gradually, starting with the first year of kindergarten. A new national homework policy was published in March 2018. The purpose is to identify practices and specify the amount of time to be spent on homework at different levels of education (Ministry for Education and Employment, 2018b).

The Learning Outcomes Framework will be implemented from the next school year under the new collective agreement. The aim is to achieve a more student-centred education where learning progress is documented for each student, and learning is targeted to their stage of development. The salary increases allow for the teachers' added responsibilities in implementing the framework. The 'One tablet per child¹⁵²' project at primary level is in its second year of implementation. The government extended the project to students in their fifth year of primary school. In 2018, all student-teachers following pre-service teacher training who have been assigned to teach at primary level received training in using tablets. Students who will be teaching children in Years 4 and 5 during teaching practice are loaned a tablet to use for that period.

The government has announced it will introduce an alternative Maltese-language exam, tailor-made for students aiming to join vocational post-secondary institutions. The new exam is targeted to students, both native and foreign-born, who intend to study in institutions such as MCAST or the Institute of Tourism Studies, and might be having difficulties with the traditional SEC exam. The option to study Maltese as a foreign language will only be open to foreigners, as is currently the case. The teaching and assessment of the Maltese language is being updated to reflect the socio-cultural and linguistic realities in Malta.

Box 1: New collective agreement for the teaching sector

The agreement applies to all teaching grades in state schools and in church schools, due to the agreement between the Maltese Government and the Holy See.

Teachers who have been in the job for less than 8 years will be paid an additional EUR 1 544 this year in allowances. By 2021, teachers who have been in the job for less than 8 years will take home EUR 2 400 in allowances more than they had in 2017. Those teachers in the profession for more than 8 years will get an increase of EUR 1 001, while those who have taught for a further 8 years will be receiving an increase of EUR 1 050 in allowances in 2018 over 2017. By 2021, teachers who have been in the job for more than 16 years will take home EUR 2 900 in allowances more than they had in 2017.

Teachers with over 20 years of experience will receive an additional allowance of EUR 2 000 'in recognition of experience and contributions in the classroom'.

Teachers will also benefit from additional special leave (currently 26 hours per year, in future 32.25 hours), which they can take during the school year.

Teachers may also receive quicker progression to higher salary scales if they opt for 'professional development' on a voluntary basis - teachers who accumulate 360 hours of self-sought continuous professional development, will progress to the next pay scale in 6 years instead of 8.

As part of efforts to ease teachers' workloads, non-contact time – the time spent not giving lessons – will also be increased. Secondary school teachers will not have more than 24 lessons per week, with contact time not exceeding 19.5 hours. Contact hours for primary school teachers will not exceed 25 hours. The non-contact time is to be used for administrative, curricular and other activities, such as attending meetings for up to 60 minutes per week.

¹⁵² This project is co-financed by the European Social Fund (ESF).

6. Modernising higher education

The strong recent expansion of higher education, together with new measures to facilitate access to it, have created new study opportunities, particularly for people from low- and medium-educated families. The tertiary educational attainment rate in the 30-34 age group remained virtually unchanged in 2017: 30.0 % vs an EU average of 39.9 %. The rate is higher for female (32.2 %) and foreign-born people (36.8 %). At the same time, the share of new entrants to the first-cycle of higher education coming from families with low educational background is one of the highest in the EU (around 40 %). New entrants from families with medium educational attainment (ISCED 3-4) (26.1 %) have also a quite strong presence, at over 30 % (European Commission/EACEA/Eurydice, 2018). In 2018, the right to maintenance grants was extended to mature and foreign students who follow a full-time day course in higher education institutions. The student income thresholds for supplementary assistance to low-income and socially disadvantaged students were revised. From the academic year 2017/2018 post-graduate students, under 40 are exempt from income tax for 2 years. Other measures aim to encourage students to choose subjects that reflect the country's need for expertise.

The public consultation on the draft University of Malta Act attracted strong criticism from academics, students and civil society, leading the government to propose a revised version. Criticism centred on the proposed introduction of a government-appointed governing board which would have the final say on key decisions such as the annual budget, limiting the university's institutional autonomy and reducing the Rector's role. Following consultations with stakeholders, the government in April announced a new proposal which gives academics and students a greater role and increases autonomy.

The ongoing expansion of Malta's higher education sector is not without difficulties, and raises questions about quality standards. The American University of Malta (AUM) opened as planned in the academic year 2017/18, but there was extensive media reporting on its problems. These include: a failure to attract students and hire suitable academic staff and the allegation that students were using the university as a means to enter the EU.

7. Modernising vocational education and training

Malta has continued reforming work-based learning and apprenticeships against a background of low enrolment in VET. The proportion of upper secondary students (ISCED 3) in VET remains very low despite a slight increase to 28.8% in 2016. The Work-Based Learning and Apprenticeship Act approved by Parliament in March 2018 provides for the governance and administration of work-placements, apprenticeships and internships as part of accredited VET programmes. It covers: responsibilities and governance structures; rights and obligations of VET providers, employers and learners, and the role of employers as learning partners; compulsory minimum hours for all forms of work-based learning; linking remuneration to the minimum wage; use of ECVET/ECTS credits; a single EQF-based apprenticeship qualification; and a training agreement register to support data collection and policy-relevant analysis. In 2017, 849 students enrolled in apprenticeships offered by Malta College of Arts, Science and Technology (MCAST), an increase from the previous year. MCAST has also increased the number of pathways offered through apprenticeship and plans formal accreditation of work-based modules. In November 2017, five further VET subjects were introduced in secondary schools: retailing, hairdressing and beauty, textiles and fashion, and media. This doubles the number of vocational subjects offered at state secondary schools.

Box 2: Nurturing learning journeys at the MCAST Foundation College

With funding from the ESF, the MCAST Foundation College has launched project to help vulnerable and socially excluded students increase their skills and competences. The project will identify the barriers to training they encounter and help create long-term structures for the benefit vulnerable students at the College. This will be done by developing tailor-made, innovative technologies for learning as well as continuous mentoring: students will be helped to fully engage in their studies and learn in an inviting and enjoyable manner. A core part of this project is the Operational Tools and Information Systems (OTIS) Platform, to be operational in 2020. It will identify what individual support is required by students with learning difficulties and members of vulnerable groups. By understanding the difficulties that each student encounters, combined with mentoring and state-of-the-art tools, the project aims to minimise barriers to learning. MCAST will also develop shorter bite-sized training programmes, of 20 hours each (Skills Kits), in a range of subjects so that students can opt to study various combinations of these courses at their own pace. These will help students improve their employability and life skills, while enabling them to further their studies at MCAST. Throughout the project, MCAST will be collaborating with stakeholders, including schools, to attract young people into vocational education. Form 4 and 5 students from MCAST's secondary school partners will be given a taste of vocational education through the Skills Kits and other activities – potentially proving attractive to students at risk of dropping out of education. MCAST academic staff will receive training on innovative programmes, teaching methodologies and technologies.

Budget: EUR 9.2 million
Beneficiary: MCAST

8. Promoting adult learning

Participation in adult learning is growing and skills levels are improving, but a high share of Malta's workforce remains low qualified. Adult participation in learning improved by 2.6 pps to 10.1% in 2017, approaching the EU average of 10.9%. However, the share of low-qualified adults aged 25-64 (52.7%), while decreasing, remains the highest in the EU. According to the Continuing Vocational Training Survey, 61.6% of Maltese companies provided continuing vocational training for workers in 2015, below to the EU average of 72.9%; large companies equalled the EU average of 95.3%, while small companies at 55.9% lagged behind the EU average of 69.3%. Similarly, participation of workers in small companies, at 18.9%, was well below the EU average of 30.0%, while their participation in large companies, at 52.8%, surpassed the EU average of 47.7%. More than 30 % of companies reported labour shortages and a reliance on foreign labour. This was particularly pronounced in the services sector, and for high skilled workers in healthcare, finance and ICT. The share of the population with at least basic digital skills improved substantially to 56% in 2017, close to the EU average of 57 %. An ESF co-funded project entitled 'Training for Employment' is helping the working age population find work by developing their skills and competences. It comprises several initiatives the Work Placement Scheme, the Work Exposure Scheme, the Traineeship Scheme and the Training Pays Scheme. Another initiative, 'Investing in Skills¹⁵³', promotes access to training for those active in the labour market so that they can increase their productivity and adaptability. The National Skills Council reviews workforce skills to minimise labour market gaps. It has so far identified three priority areas: work-based learning, digital skills, and research and development.

Progress has been made in implementing the Recommendation on Upskilling Pathways. The Ministry for Education and Employment coordinates efforts to improve skills assessment, learning opportunities, validation and recognition for adult learners. Aspects covered include the coordination of the Lifelong Learning steering committee and stakeholder working groups and the setting up of thematic working groups (on disadvantaged groups, accreditation, validation, etc.). The National Commission for Further and Higher Education, which is responsible for validating non-formal and informal learning, signed memoranda of understanding (MOU) with Jobsplus and an

¹⁵³ This initiative is co-financed by the European Social Fund (ESF).

another MOU with the Building Industry Consultative Council, in 2017, to carry out assessment procedures and tests according to the national standards. The NCFHE is also in the process of signing a memorandum of understanding with the Institute of Tourism Studies to carry out an assessment for the hospitality and tourism NOSs (Cedefop ReferNet, 2018b). The aim is to validate skills and competences obtained through work-based, non-formal or informal learning and to issue partial certifications or awards.

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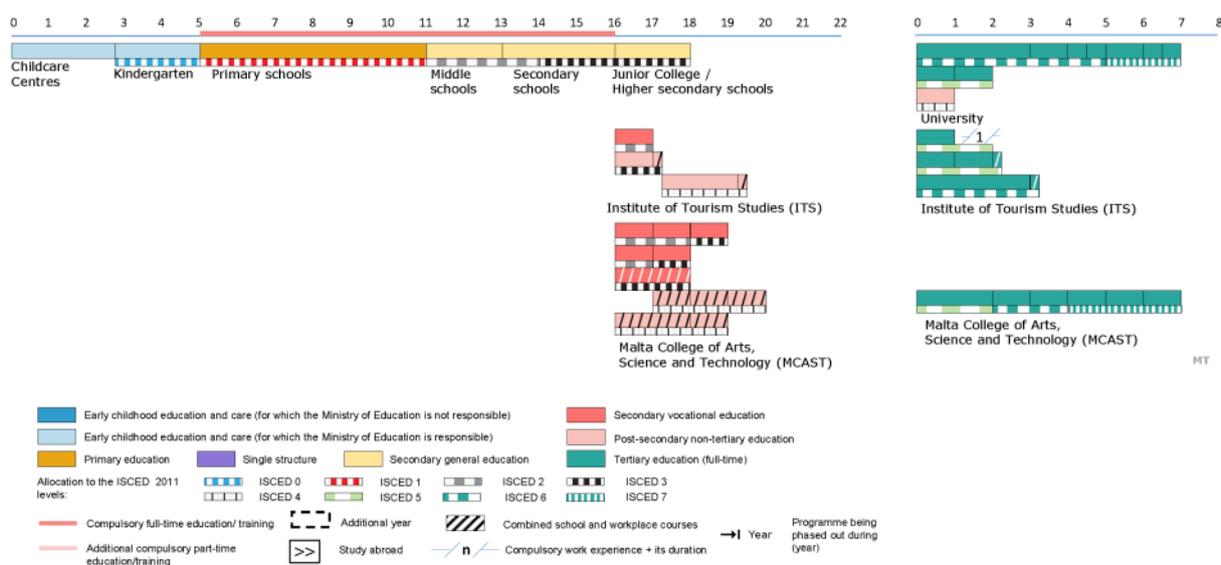
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10. Annex I: Key indicator sources

Indicator	Eurostat online data code
Early leavers from education and training	edat_lfse_14 + edat_lfse_02
Tertiary educational attainment	edat_lfse_03 + edat_lfs_9912
Early childhood education and care	educ_uae_enra10
Underachievement in reading, maths, science	OECD (PISA)
Employment rate of recent graduates	edat_lfse_24
Adult participation in learning	trng_lfse_03
Public expenditure on education as a percentage of GDP	gov_10a_exp
Expenditure on public and private institutions per student	educ_uae_fini04
Learning mobility: Degree mobile graduates	JRC computation based on Eurostat / UIS / OECD data
Credit mobile graduates	educ_uae_mobc02

11. Annex II: Structure of the education system



Source: European Commission/EACEA/Eurydice, 2017. *The Structure of the European Education Systems 2017/18: Schematic Diagrams*. Eurydice Facts and Figures. Luxembourg; Publications Office of the European Union.

Comments and questions on this report are welcome and can be sent by email to:
 Veronica DE NISI
veronica.de-nisi@ec.europa.eu
 or
EAC-UNITE-A2@ec.europa.eu

NETHERLANDS



1. Key indicators

		Netherlands		EU average		
		2014	2017	2014	2017	
Education and training 2020 benchmarks						
Early leavers from education and training (age 18-24)		8.7%	7.1%	11.2%	10.6%	
Tertiary educational attainment (age 30-34)		44.8%	47.9%	37.9%	39.9%	
Early childhood education and care (from age 4 to starting age of compulsory primary education)		97.6% ¹³	97.6% ¹⁶	94.2% ¹³	95.3% ¹⁶	
Proportion of 15 year-olds underachieving in:	Reading	14.0% ¹²	18.1% ¹⁵	17.8% ¹²	19.7% ¹⁵	
	Maths	14.8% ¹²	16.7% ¹⁵	22.1% ¹²	22.2% ¹⁵	
	Science	13.1% ¹²	18.5% ¹⁵	16.6% ¹²	20.6% ¹⁵	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-8 (total)	86.2%	90.4%	76.0%	80.2%	
Adult participation in learning (age 25-64)	ISCED 0-8 (total)	18.3%	19.1%	10.8%	10.9%	
Learning mobility	Degree mobile graduates (ISCED 5-8)	:	2.4% ¹⁶	:	3.1% ¹⁶	
	Credit mobile graduates (ISCED 5-8)	:	20.8% ¹⁶	:	7.6% ¹⁶	
Other contextual indicators						
Education investment	Public expenditure on education as a percentage of GDP	5.4%	5.3% ^{16,p}	4.9%	4.7% ¹⁶	
	Expenditure on public and private institutions per student in € PPS	ISCED 1-2	€7 408	€7 555 ¹⁵	€6 494 ^d	: ¹⁵
		ISCED 3-4	€9 171	€9 647 ¹⁵	€7 741 ^d	: ¹⁵
		ISCED 5-8	€14 067	€14 523 ¹⁵	€11 187 ^d	: ¹⁵
Early leavers from education and training (age 18-24)	Native-born	8.5%	7.1%	10.4%	9.6%	
	Foreign-born	10.3%	6.6%	20.2%	19.4%	
Tertiary educational attainment (age 30-34)	Native-born	47.4%	50.7%	38.6%	40.6%	
	Foreign-born	31.0%	34.6%	34.3%	36.3%	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-4	81.6%	85.7%	70.7%	74.1%	
	ISCED 5-8	90.1%	94.0%	80.5%	84.9%	

Sources: Eurostat (see section 10 for more details); OECD (PISA).

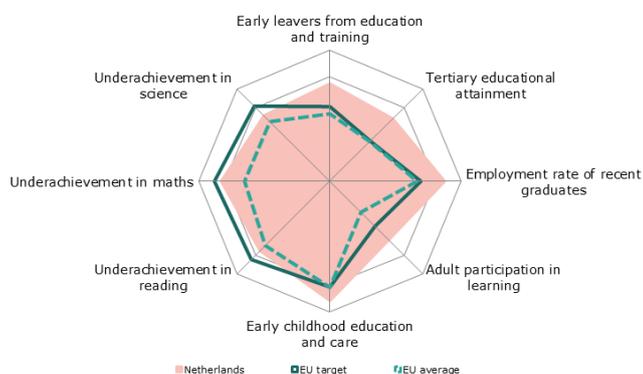
Notes: data refer to weighted EU averages, covering different numbers of Member States depending on the source;

d = definition differs, 12 = 2012, 13 = 2013, 15 = 2015, 16 = 2016.

On credit graduate mobility, the EU average is calculated by DG EAC on the available countries; on degree graduate mobility, the EU average is calculated by JRC over Eurostat and OECD data.

Further information can be found in the relevant section of Volume 1 (ec.europa.eu/education/monitor).

Figure 1. Position in relation to strongest (outer ring) and weakest performers (centre)



Source: DG Education and Culture calculations, based on data from Eurostat (LFS 2017, UOE 2016) and OECD (PISA 2015). Note: all scores are set between a maximum (the strongest performers represented by the outer ring) and a minimum (the weakest performers represented by the centre of the figure).

2. Highlights

- Public expenditure on education remains stable.
- Dutch students' civic knowledge has increased but remains behind that of peers in the region.
- Despite good overall school performance, there has been a decline in basic skills.
- Recent measures aim to increase the attractiveness of the teaching profession.
- Dutch higher education institutions perform well by international comparison.

3. Investing in education and training

Public expenditure on education remains stable. In 2016 expenditure on primary to tertiary education accounted for 5.3 % of the Netherlands' gross domestic product (GDP), well above the EU average of 4.7 %. The expenditure per student for all levels of education was at EUR 9 699.9 against an EU average of EUR 7 509.3. In real terms, spending on education increased by 2.9 % in 2016, consolidating the recovery of the previous 2 years. This can also be seen in the ratio of education spending to total public expenditure, which went above 12 % in 2016. The rise in education spending has mainly been focused on higher education (excluding research spending), reaching almost EUR 10 000 per student in 2015 (CBS, 2017).

The shrinking primary school population has called for more flexibility in running schools. On 1 January 2017, the Netherlands had close to 17.1 million inhabitants, over 100 000 more than 1 year previously. This growth was mainly due to immigration. However, the number of primary school pupils in 2016/2017 had dropped by more than 8 % since 2008/2009. This trend is expected to continue in the coming years based on population forecasts by Statistics Netherlands. The government therefore decided to make it easier for public primary schools and privately-run denominational or non-denominational primary schools to merge into 'cooperative schools' or change their status from January 2018. This makes it possible to maintain local schools in areas where the number of children is in decline.

The demand for high- and medium-skilled workers substantially exceeds labour supply. In 2018, there has been a rising number of unfilled vacancies and a decreasing number of unemployed people (CBS, 2018). The demand for high-skilled workers is expected to grow by 2.4 million and for medium-skilled workers by 1.3 million until 2025, whereas supply is expected to grow by only 1 million for highly-skilled people and to fall for medium-skilled workers during the same period (OECD, 2018b). Though the gap in educational attainment between foreign and native born has been closing at secondary level, it remains significant at tertiary level: 34.6 % of foreign-born 30-34 year olds hold a tertiary diploma against 50.7 % among native-born¹⁵⁴.

Upstreaming is a crucial success factor for the upward mobility of disadvantaged children. Research into the intergenerational mobility of migrants revealed a polarisation within the children of Turkish and Moroccan descent (OCED, 2018a). While one part of these second generation children (27 %) are in higher education, an almost equal share are early school leavers. Daughters in particular have achieved a remarkable social rise compared to their largely uneducated immigrant mothers, overtaking sons in almost all higher level streams. A little more than half of the children of Turkish and Moroccan immigrants responding to the TIES Survey¹⁵⁵ built their diplomas up to higher education — meaning that they moved up gradually through the system of vocational education.

¹⁵⁴ Eurostat edat_ifs_9912.

¹⁵⁵ The TIES Survey (Crul, Schneider and Lelie, 2012) is the first systematic collection of data on the children of 18-35 year old immigrants from Turkey and Morocco (as well as the former Yugoslavia) in 15 European cities inside 8 countries. In total, almost 10 000 people were interviewed.

Box 1: Harnessing migrants' skills for the labour market

In Europe, the employment gap between native-born children of non-EU immigrants and children of the native-born tends to decrease with the level of educational attainment, suggesting that a person's own education is a strong driver for labour market integration for this group (OECD, 2017b). Low-educated native-born with low-educated parents born outside the EU have an almost 8 percentage point lower employment rate than their peers with native parents, while the gap is only about half that for higher levels of education.

The gap in unemployment between natives and non-EU immigrants in the Netherlands is 6.2 percentage points, slightly below the EU average of 6.4 percentage points. In the face of an increasing labour demand, the Netherlands has put in place measures to validate the skills and qualifications of immigrants and to attract highly-skilled immigrants. The Highly Skilled Migrants Scheme, introduced in 2004, aims to attract 'knowledge' immigrants and allows Dutch companies to file visa applications for prospective highly skilled employees from outside the EU via a facilitated procedure (OECD, 2017c).

Municipalities are involved in improving the recognition of immigrants' skills and work with NUFFIC, a non-profit Dutch organisation in charge of the recognition of qualifications in the Dutch system. NUFFIC matches the level of education previously obtained in the country of origin with the Dutch requirements and indicates the amount of additional courses needed to obtain an equivalent professional degree.

Other initiatives target the integration of refugees by helping to fast-track them towards work, education or setting up a business. Within the framework of the Amsterdam Approach¹⁵⁶, refugees who hold a master's degree have the opportunity of completing or validating their higher education (OECD, 2018b). The city has established a contract with Universitair Asiel Fonds, a foundation which supports refugees to interact with NUFFIC for the recognition of their diplomas and links graduated refugees to the labour market as early as possible. Under this scheme, students are provided with a scholarship and coaching, with the target that 75 % of them complete their diploma.

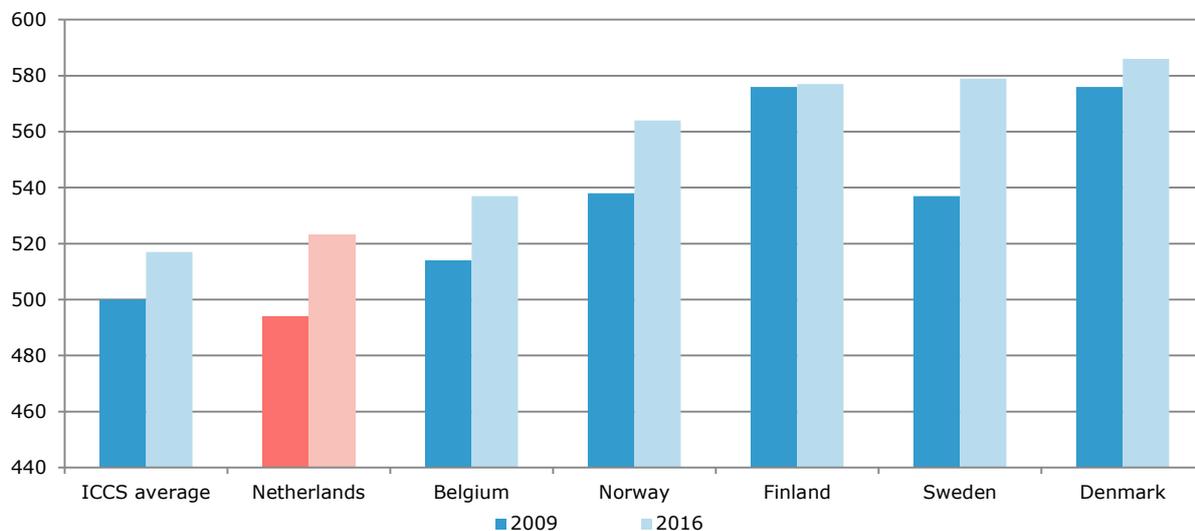
For refugees with secondary education, the main objective of the Amsterdam Approach is to help them acquire a basic qualification. Refugees between the ages 18 and 28 are guided towards an education path. This includes bridging classes that allow refugees to start their bachelor's degree. The training is implemented in cooperation with regional education centres (*Regionale Opleidings Centra, ROCs*), that mostly offer secondary vocational training, and courses in Dutch as a second language. For lower or uneducated refugees the focus is on basic language training and citizen participation.

4. Citizenship education

Dutch students' civic knowledge has increased but remains behind that of their peers in the region. In the Netherlands it is left to the schools to decide whether they teach citizenship as a separate subject or integrate it in the curriculum. According to the 2016 International Civic and Citizenship Education Study (ICCS), the civic knowledge level of eighth-grade students is close to the average of participating countries, but lower than in comparable countries. One in three Dutch students has a high level of civic knowledge, while another third score at the lowest two levels. These disparities are stronger than average and are linked to differences in parents' educational attainment levels. Personally responsible citizenship behaviour was relatively less strong among teenagers in the Netherlands; expected electoral participation was found to be the lowest, alongside Germany. Although the sample size is relatively small, there is a statistically significant negative correlation between immigrant status and expected electoral participation. Immigrant students reported a reduced level of trust towards institutions in the Netherlands.

¹⁵⁶ The Amsterdam Approach to asylum status-holders aims to fast-track them towards work, education and participation in society.

Figure 2. Average civic knowledge in the Netherlands compared with the international average and regional peers



Source: ICCS 2016¹⁵⁷

Students are encouraged to take civic commitments through various programmes. A social service period is being introduced, which will be optional and last up to 6 months. It will be acknowledged in the form of a diploma supplement. In higher education, a campaign was launched in July 2017, in which students are teamed up as coach with younger peers in secondary education, vocational education or higher education. The Students-4-Students campaign is designed to improve learning progress and prevent dropout. Students who volunteer as coaches receive training and may get credit points for their services. Experience shows that the use of role models can be effective in reaching target groups at risk of dropping out of their course — especially first-generation students and those with an ethnic-minority background.

5. Modernising school education

The strong increase in asylum seekers poses a challenge to the entire education system, starting from early childhood education and care (ECEC). As in many other Member States, the number of asylum seekers arriving new to the Netherlands increased strongly in 2014-2017¹⁵⁸. Their main countries of origin are Syria, Eritrea, Iraq, Afghanistan and Albania. Similarly to other European destination countries faced with increased numbers of asylum seekers, the shortage of qualified, multilingual staff with cultural knowledge poses a challenge in the Netherlands. The lack of a national policy for the education of refugee and asylum-seeker children below four contributes to variation between municipalities in the availability, quality and responsiveness of early childhood services (MPI, 2018). Children aged 2.5-4 at risk of a language disadvantage can benefit from ECEC services (*voor-en vroegschoolse educatie, VVE*) free of charge. VVE is not targeted specifically towards young asylum seekers but any families where the main language spoken is other than Dutch. In 2014, some 78 % of eligible children participated in VVE. The government increased the funding for VVE substantially to allow disadvantaged children to attend the programme for 16 instead of 10 hours a week from 2020.

The number of schools within asylum seekers' centres decreased in 2017 as more newcomer children enter regular education. Children from age five are required to attend school within three months of documented arrival in the Netherlands. Newcomer children attend regular education. Schools may either be located in a reception centre serving newcomers

¹⁵⁷ ICCS investigates the ways in which young people are prepared to undertake their roles as citizens. It reports on students' knowledge and understanding related to the issues and concepts of citizens, equity, decision-making and civic self-image. In ICCS 2016 the civic knowledge scale was set to a metric with a mean of 500 (the average score of countries participating in ICCS 2009).

¹⁵⁸ Eurostat [migr_asyappctza].

exclusively, or outside reception centres in regular schools. Usually these schools have reception classes for students whose mother tongue is not Dutch or sometimes they receive newcomer students in regular classes (MPI, 2018). In 2017 the number of schools in reception centres decreased from 83 to 78 as more newcomers arrived through family reunification channels. These children are directed to regular education outside the reception centres (Inspectorate of Education, 2018). According to the Education Council (2017), regular schools are not well prepared to tackle the ensuing language diversity in class, either when teachers are not trained for this or when schools cater for only a few newcomer children. Following the advice of the Education Council there has been an active policy to improve the situation (Government, 2018).

School outcomes have declined over the past 15 years. Students performed poorer at PIRLS¹⁵⁹ in 2016 than 15 years earlier. This is mainly due to a shrinking share of high performing students. One in three Dutch students reports no or little enjoyment in reading, the highest such share across the participating countries. Results in PISA¹⁶⁰ and TIMSS¹⁶¹ - for fourth graders - have also shown declining trends for mathematics and science. The share of students achieving the target level at the 2017 end-of-primary school tests has somewhat increased in mathematics — by 9 % — while it has dropped significantly — by 17 % — in reading (Inspectorate of Education, 2018).

Boys achieve at the same level as girls at the end of primary school, but girls outperform boys in secondary education. In the 2017 end-of-primary school test, boys achieved the same average score as girls (OCW, 2018). At secondary level, boys tend to drop out from school or stream to a lower educational track more often and complete secondary education later than girls. 43 % of the students attended a different track in their third year of secondary education from the one they were directed towards at the end of primary school. This happens more often to low performing boys, students with a non-Western migrant background and children of lower educated parents. Research shows that school failure and dropout is less frequent in schools offering several levels of secondary education in mixed intermediary classes (*brugklassen*) and suggests that tracking should be postponed to a later age (NRO, 2016).

Children of lower and higher educated parents are increasingly separated into different schools. The parental choice system in the Netherlands is contributing to creating more segregated schools (Ladd, Fiske and Ruijs, 2011) and strengthens the effects of residential separation (Inspectorate of Education, 2018). Schools are governed by independent boards, leaving local or higher-level policy makers with no operational authority to pursue the public goal of socioeconomic integration. The strongest factor in students' segregation is parents' educational attainment levels, followed by their income levels and immigrant status (Inspectorate of Education 2018).

In the face of expected teacher shortages the government has invested in initial teacher education and in teachers' salaries. The teacher shortage at primary schools is expected to be 4 100 full time equivalents by 2022. Although teachers' salaries in the Netherlands are above the OECD average, their pay at all levels lags behind similarly educated workers (OECD, 2017a). From 2018 the Dutch government invests EUR 270 million in salaries of teachers at primary schools. The Council for Primary Education (PO-Raad) and trade unions have reached a collective labour agreement on how this investment will be paid out to teachers. Net teaching time in primary school is relatively high, at 930 hours per year compared to the OECD average of 794 hours. In upper secondary education, teachers spend 750 hours teaching a year, almost 100 hours more than the OECD average (OECD, 2017a). In early 2018, trade unions, the Primary Education Council and the government signed the 'work pressure agreement' on reducing work pressure in primary education. This means that as of 2018/2019, primary schools will receive EUR 237 million extra for tackling excessive work pressure. In the 2021/2022 school year, funding for this purpose will be increased to EUR 430 million. This translates into EUR 35 000 extra for an average school in 2018/2019, and EUR 65 000 from 2021/2022 onwards. Schools are awarded funding on condition that teachers are

¹⁵⁹ The Progress in International Reading Literacy Study, PIRLS, has monitored trends in reading achievement in grade four since 2001.

¹⁶⁰ The Programme for International Student Assessment has measured 15-year-old students' performance on mathematics, science, and reading since 2000.

¹⁶¹ The Trends in International Mathematics and Science Study, TIMSS, has monitored trends in mathematics and science achievement in grades four and eight since 1995.

involved in the plans for how to use the funds. Tuition fees for the first 2 years of primary school teacher initial education were halved as of 2018/2019 to encourage enrolment.

The government provides guidance on teachers' obligations to reduce their administrative burden. Work pressure comes to some extent from the administrative burden on teachers. In November 2017 all primary schools received a booklet offering teachers guidance about what needs to be recorded for reporting purposes – and what does not. The booklet (*Ruimte in Regels*) explains what the law says, but also how much freedom teachers and schools have in how they fulfil their obligations. The government also extended its Removing Regulatory Obstacles programme (*Operatie Regels Ruimen*).

6. Modernising higher education

The revised Dutch higher education funding system is geared towards quality improvements. The 2018 sector agreements between the Ministry of Education, Culture and Science, the Association of Universities (VSNU) and the Association of Universities of Applied Sciences (Vereniging Hogescholen), respectively, define their joint priorities for the current government term. The agreements establish how the savings resulting from introducing the student loan system will be invested in educational quality. Furthermore, the agreements create commitment to accessibility; internationalisation; enhancing the impact of universities in research as well as reducing employee workload and the administrative burden linked to programme accreditation. Quality agreements are to be drafted by the higher education institutions themselves, with the involvement of students, teachers, stakeholders and decision-makers.

Several universities decided to cap enrolments. The share of international students continues to grow, especially at master level (28 %). In 2018 some 13 universities decided to reduce the number of students in certain study programmes, especially students from abroad (Dutch Review, 2018). They argue that while the student population is rising, the university budget has not increased over the past few years, resulting in less money per student. There has been a lot of concern about Dutch universities offering more courses in English than in Dutch especially at master's level: almost three-quarters of master's courses are in English.

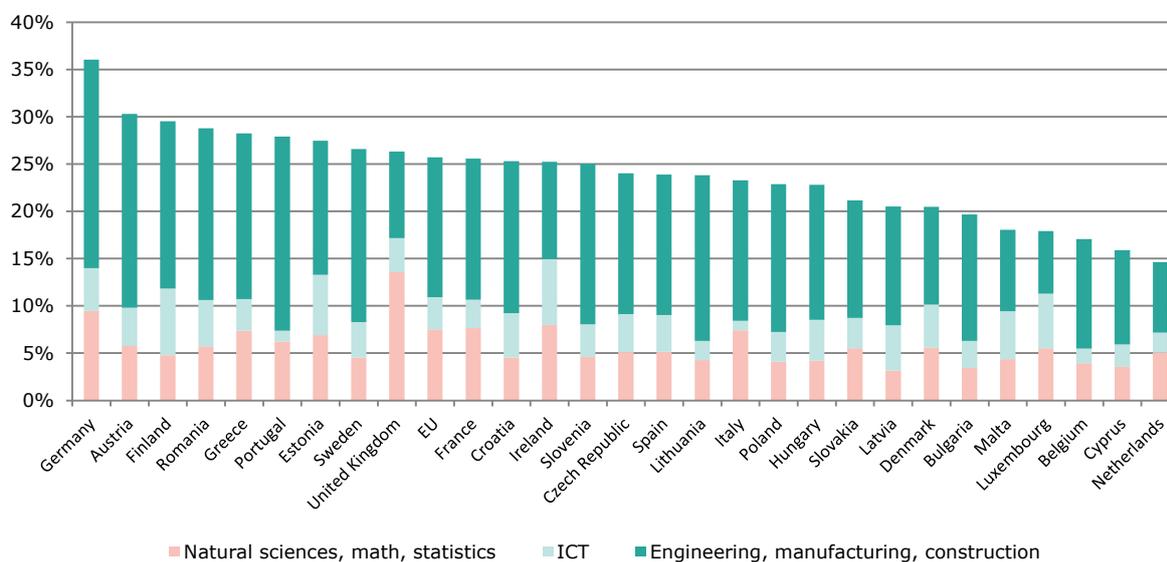
Dutch higher education institutions perform well by international comparison. The Netherlands is the only country in which the 53 institutions examined all reached at least 10 top group positions in the U-Multirank world ranking of universities and colleges. In particular, Dutch higher education institutions show a strong performance in the dimensions Teaching and Learning as well as in International Orientation. Five institutions are among the global top 25 universities in U-Multirank's 2018 edition in one or more of the top lists: Hogeschool Leiden, Eindhoven University of Technology, Katholieke Pabo Zwolle, Marnix Academie and Hanze University of Applied Sciences.

To increase access to higher education, tuition fees are halved for students entering higher education in the first year. The tuition fee for students entering higher education for the first time will be EUR 1 030 in 2018/2019 instead of EUR 2 060 as of 2018/2019. For students taking teacher training courses the fee is reduced for 2 years instead of 1. Enrolments increased in 2016/2017 for the fourth year in a row, including in short-cycle programmes. The increase is mainly due to the growing number of international students, who come mainly from the European Economic Area: 80 % at bachelor's and 65 % at master's level.

Short-cycle programmes were introduced to extend access to and diversify higher education. In October 2017 a new Act was adopted introducing associate degrees as a separate level of education, alongside the existing bachelor's and master's degrees. Before that, associate degrees had to be linked with a bachelor programme, which limited the supply. An associate degree course takes 2 years in higher professional education (hbo). It is particularly suited to graduates of a secondary vocational education programme (MBO-4) who want to study further but find a four-year bachelor's degree too challenging. In addition, the associate degree offers opportunities for continuing professional development and training for employees in the context of lifelong learning. Students may choose from 150 associate degree courses at government-funded institutions for higher professional education (hogescholen) and 60 further courses at privately run hogescholen as of 2018/2019.

Graduate employment rates improved in 2017. The tertiary educational attainment rate among 30-34 year-olds is 47.9 %. Only 5 % of higher professional graduates and 7 % of university graduates are unemployed within one and a half years of obtaining their diploma (Inspectorate of Education, 2018). As in many other OECD countries, the most popular field of education for new entrants to tertiary education in the Netherlands is business, administration and law (29 %) followed by health and welfare (16 %) and social sciences, journalism and information (12 %). Participation in science, technology, engineering and mathematics (STEM) fields is low: only 15 % of students graduated from these fields against an EU-average of 26 % (Figure 3). To increase the number of STEM graduates, the government initiated the National Technology Pact in 2013, and renewed it in 2016 for the period 2016-2020. The Pact brings together over 60 signatories from education, business and the government to promote technical training throughout the education system. The Pact identifies measures from primary to adult education which are implemented through regional coordination units.

Figure 3. Distribution of tertiary graduates by STEM field of study in 2016, as a proportion of total graduates



Source: DG EAC, based on Eurostat data. Online data code: [educ_uoe_grad02](#).

7. Modernising vocational education and training

An agreement between the secondary vocational education (mbo) sector and the government aims to improve quality in vocational education and training (VET). The agreement between the Ministry of Education and Research and the mbo-Council signed in February 2018 provides for a second round of agreements with each public VET school. The current 'cascade' funding will be phased out as it had negative effects on completion rates. The level of funding decreases in this system according to the duration of the enrolment of the student. While cascade funding was originally introduced to encourage the timely completion of studies, stakeholders have warned that it makes VET schools counter interested in assisting low-performing students in completing their studies. In the new system, funding will follow student numbers, irrespective of the number of years they have spent in their studies.

Box 2: European Social Fund (ESF) Project 'Own Strength' 2016-2018 Budget: EUR 3.5 million

'Own Strength' was carried out by the Municipality of Leeuwarden with the aim of making the labour market more inclusive. The project targets low-skilled single mothers over 30, who have little chance of finding a job or a training course that matches their individual situation. Within the project Friesland College provides a shortened version of two different training programmes at secondary education level within one year instead of two. The project received the ESF audience award in 2016.

8. Promoting adult learning

An agreement between the mbo sector and the government makes continuing VET more flexible for adults. Under the above mbo agreement, the provision will be better adjusted to adults' needs in terms of time, place and forms of learning. Adult participation in learning at 19.1 % is far above the EU average of 10.9 %. According to 2017 data (European Commission, 2018a)¹⁶², the Netherlands has the second highest share (79 %) of the population having at least basic digital skills in the EU. It also belongs to the top performers in terms of regular internet use.

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¹⁶² Digital Economy and Society Index (DESI) is a composite index that summarises relevant indicators on Europe's digital performance and tracks the progress of EU Member States in digital competitiveness.

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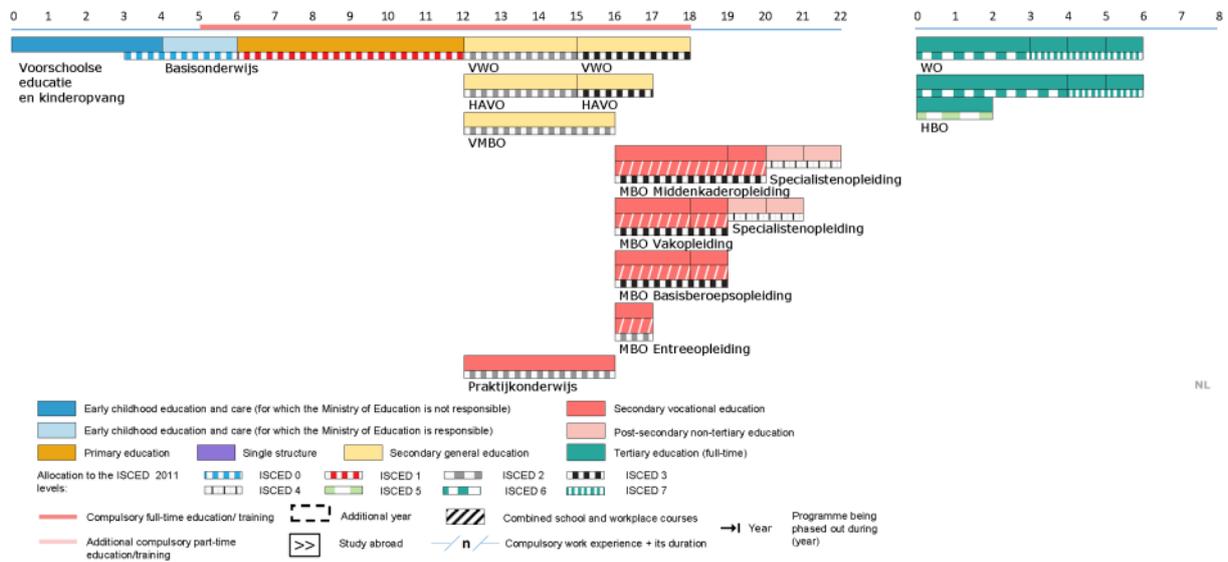
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10. Annex I: Key indicator sources

Indicator	Eurostat online data code
Early leavers from education and training	edat_lfse_14 + edat_lfse_02
Tertiary educational attainment	edat_lfse_03 + edat_lfs_9912
Early childhood education and care	educ_uoe_enra10
Underachievement in reading, maths, science	OECD (PISA)
Employment rate of recent graduates	edat_lfse_24
Adult participation in learning	trng_lfse_03
Public expenditure on education as a percentage of GDP	gov_10a_exp
Expenditure on public and private institutions per student	educ_uoe_fini04
Learning mobility: Degree mobile graduates	JRC computation based on Eurostat / UIS / OECD data
Credit mobile graduates	educ_uoe_mobc02

11. Annex II: Structure of the education system



Source: European Commission/EACEA/Eurydice, 2017. *The Structure of the European Education Systems 2017/18: Schematic Diagrams*. Eurydice Facts and Figures. Luxembourg; Publications Office of the European Union.

Comments and questions on this report are welcome and can be sent by email to:
 Livia RUSZTHY
livia.ruszthy@ec.europa.eu
 or
EAC-UNITE-A2@ec.europa.eu

POLAND



1. Key indicators

		Poland		EU average		
		2014	2017	2014	2017	
Education and training 2020 benchmarks						
Early leavers from education and training (age 18-24)		5.4%	5.0%	11.2%	10.6%	
Tertiary educational attainment (age 30-34)		42.1%	45.7%	37.9%	39.9%	
Early childhood education and care (from age 4 to starting age of compulsory primary education)		87.1% ¹³	93.1% ¹⁶	94.2% ¹³	95.3% ¹⁶	
Proportion of 15 year-olds underachieving in:	Reading	10.6% ¹²	14.4% ¹⁵	17.8% ¹²	19.7% ¹⁵	
	Maths	14.4% ¹²	17.2% ¹⁵	22.1% ¹²	22.2% ¹⁵	
	Science	9.0% ¹²	16.3% ¹⁵	16.6% ¹²	20.6% ¹⁵	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-8 (total)	75.6%	82.1%	76.0%	80.2%	
Adult participation in learning (age 25-64)	ISCED 0-8 (total)	4.0%	4.0%	10.8%	10.9%	
Learning mobility	Degree mobile graduates (ISCED 5-8)	:	0.9% ¹⁶	:	3.1% ¹⁶	
	Credit mobile graduates (ISCED 5-8)	:	: ¹⁶	:	7.6% ¹⁶	
Other contextual indicators						
Public expenditure on education as a percentage of GDP		5.3%	5.0% ¹⁶	4.9%	4.7% ¹⁶	
Education investment	Expenditure on public and private institutions per student in € PPS	ISCED 1-2	€5 165	€5 378 ¹⁵	€6 494 ^d	: ¹⁵
		ISCED 3-4	€4 244 ^d	€4 346 ^{15,d}	€7 741 ^d	: ¹⁵
		ISCED 5-8	€7 125	€7 658 ¹⁵	€11 187 ^d	: ¹⁵
Early leavers from education and training (age 18-24)	Native-born	5.4%	5.0%	10.4%	9.6%	
	Foreign-born	:	:	20.2%	19.4%	
Tertiary educational attainment (age 30-34)	Native-born	42.0%	45.6%	38.6%	40.6%	
	Foreign-born	61.6% ^u	62.1% ^u	34.3%	36.3%	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-4	65.6%	74.3%	70.7%	74.1%	
	ISCED 5-8	83.7%	89.2%	80.5%	84.9%	

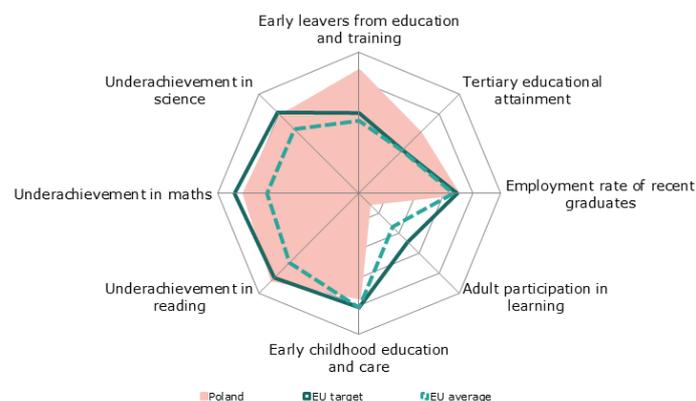
Sources: Eurostat (see section 10 for more details); OECD (PISA).

Notes: data refer to weighted EU averages, covering different numbers of Member States depending on the source; d = definition differs, u = unreliable, 12 = 2012, 13 = 2013, 15 = 2015, 16 = 2016.

On credit graduate mobility, the EU average is calculated by DG EAC on the available countries; on degree graduate mobility, the EU average is calculated by JRC over Eurostat and OECD data.

Further information can be found in the relevant section of Volume 1 (ec.europa.eu/education/monitor).

Figure 1. Position in relation to strongest (outer ring) and weakest performers (centre)



Source: DG Education and Culture calculations, based on data from Eurostat (LFS 2017, UOE 2016) and OECD (PISA 2015). Note: all scores are set between a maximum (the strongest performers represented by the outer ring) and a minimum (the weakest performers represented by the centre of the figure).

2. Highlights

- Poland invests heavily in education, but spending per pupil remains below the leading EU and OECD countries.
- The Polish education system is undergoing significant changes at every stage, from pre-school to higher education.
- Further changes in the teaching profession have been adopted recently.
- The structural changes introduced in September 2017 to primary and lower-secondary education have brought major organisational and financial challenges.
- In the majority of benchmarks set for 2020 Poland has good performance or fast development. The early school leavers, tertiary attainment and employment of recent graduates' benchmarks have already been reached. The ECEC and the proportion of low-achievers benchmarks are almost achieved, but there is still fairly limited participation in adult learning.

3. Investing in education and training

Poland continues to invest considerably in the education sector. According to Eurostat data, Poland spent 5.0 % of its GDP in 2016, above the EU-28 average of 4.7 %. Education represents 12.1 % of the public budget vs 10.2 % for the EU. Against the background of rapid economic growth over the last decade, education spending has significantly increased in absolute terms, growing from the equivalent of almost EUR 20.3 billion in 2012 to EUR 21 billion in 2016 at constant prices (Eurostat, 2018). However, the spending on higher education remains below the EU and OECD averages.

There is scope to catch up with the EU-15 and the leading OECD countries. According to the OECD's 'Education at a Glance' (OECD, 2017a), annual spending per student in Poland for all ISCED levels is significantly below the OECD average: USD 6 948 in purchasing power standard (PPS) vs USD 9 760 in PPS, but also below the EU average (USD 9 908 in PPS). For primary education, Poland is only slightly below the OECD and EU averages, but for secondary and tertiary education levels the spending gap increases significantly. Whereas spending per secondary student is generally higher than for primary level across the OECD, in Poland the opposite occurs i.a. reflecting the large number of small primary schools, mostly in rural areas (Jakubowski & Wiśniewski, 2017).

A new Law on the financing of education was adopted in late 2017. It includes measures for financing school education and changes related to the 'Teachers' Charter', which sets out teachers' statutory rights and obligations. Changes mainly concern pre-school and school subsidies and include: (i) adjustments to the methodology for calculating the state grant; (ii) management of the textbook subsidy; (iii) increased autonomy for school heads; and (iv) financial support to students from a disadvantaged socio-economic background (Eurydice 2018). This set of measures is expected to have a positive impact in the future. For instance, since April 2018, teachers' salaries have increased by 5 %, helping to reduce the gap between teachers' salaries in Poland and the OECD average for workers with a tertiary degree (OECD, 2017a).

Considerable changes to the Teacher's Charter come into force from September 2018. The new Act has introduced a number of measures on working time, professional advancement, pay and holidays. It links salary increases with teaching performance (based on periodical assessment) and seniority required for professional advancement. The weekly obligatory teaching workload has been unified for the following categories of teachers: pedagogues, speech therapists, psychologists and vocational counsellors, as well as pedagogical therapists, with the exception of teachers employed in psychological and pedagogical counselling centres. Their didactic work time is determined by the local school managing authority and cannot exceed 22 hours. For teachers holding qualifications in the field of special education employed to co-organize integration

education of disabled students or those at risk of social exclusion, this limit is 20 hours (Teachers' Charter).

Poland prioritises investment in ICT infrastructure for classrooms. Through the 'Interactive Whiteboard' programme, which supports school infrastructure and students' and teachers' ICT competences in 2017-2019, primary schools will be equipped with interactive whiteboards, projectors, speakers and interactive touch screen monitors. Teaching aids will be supplied to nearly 15 580 schools. The programme's budget is PLN 279 million (approx. EUR 66.5 million), of which PLN 224 million (approx. EUR 53.3 million) will be provided from the state budget. The project is funded up to 80 % by the central government and the remaining 20 % will come from the schools' own contribution — which is potentially problematic (Polish Government, 2018).

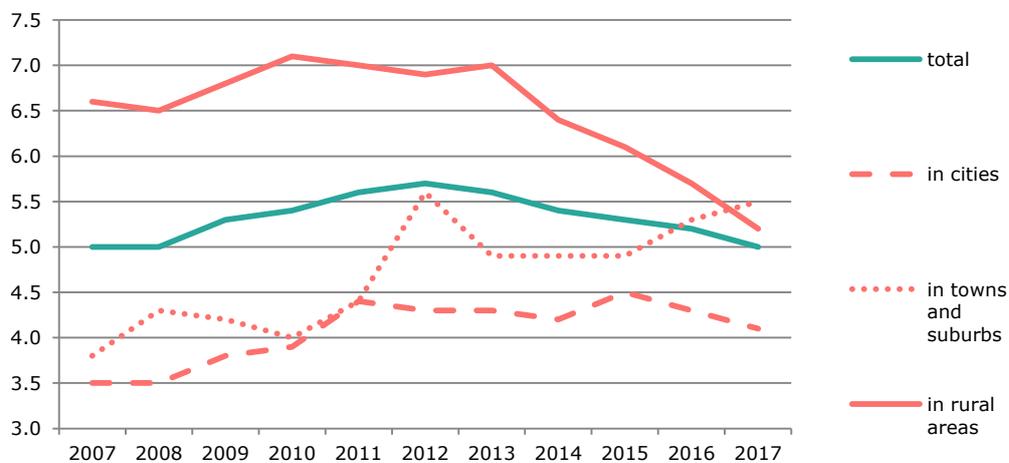
4. Citizenship education

There is compulsory but limited provision of citizenship education in Poland. According to a recent Eurydice report, citizenship education is taught in Poland as a separate subject at lower secondary level with a minimum of 16.5 hours of teaching time per year. This subject is continued in upper secondary education with a minimum of 7.5 hours a year. Otherwise, it is combined with cross-curricular activities and integrated in other subjects (Eurydice, 2018). In order to disseminate global education in schools and support teachers in teaching global education, the Ministry of National Education cooperates with other ministries and non-governmental organizations as part of the Agreement to support global education in Poland. The Ministry of National Education promotes an active and civic attitude among young people by organizing nationwide initiatives, cooperation with other entities and supporting ventures in the area of civic education. There is also a standardised examination in citizenship education in a form an optional subject at the matura examination.

5. Modernising school education

Poland has a low school dropout level. At half the EU average (5 % in 2017), Poland has one of the lowest rates of early school leaving (ESL) in the EU. The 2017 rate is the lowest of the past several years, but is still slightly above the Europe 2020 national target of 4.5 %. The Voluntary Labour Corps (Polish Ochotnicze Hufce Pracy, OHP) helps keeping the benchmark early school leaving at a very low level. Nevertheless, there are still significant geographical variations (see Figure 2), with higher ESL rates in rural areas. As in the rest of the EU, the ESL rate is higher among men than women. The current reform of vocational education may contribute to further reducing ESL, particularly among men, although the authorities acknowledge that as measures have only been in place since 2017/2018, it is still too early to assess the impact (Polish Government, 2018).. Poland had better results than other countries in the region in this respect (Jakubowski, Konarzewski, Muszyński, Smulczyk, & Walicki, 2017). In March 2018 the Polish Ombudsman concluded that recent structural changes (including the decision to phase out lower secondary schools) could have negative consequences in the future — such as school overcrowding — in particular during the 2019/2020 transition period (RPO, 2018). Following the signature of the new regulation on 30 January 2018, there have been substantial changes in the new core curriculum for post-primary schools, which will come into effect in the 2019/2020 school year from the first grade of general upper secondary (4 years) through to technical upper secondary (5 years) and stage II sectoral vocational school (2 years) (Eurydice, 2018)'.

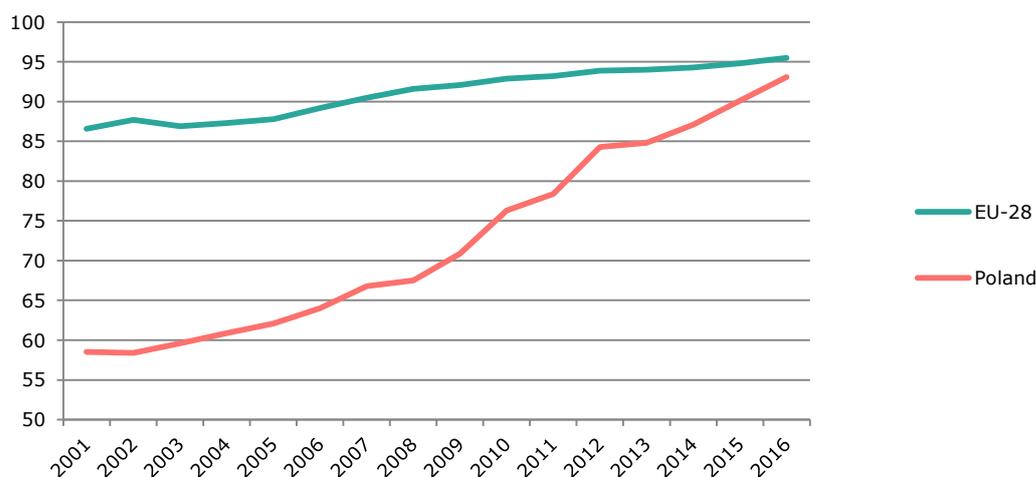
Figure 2. Early leavers from education and training (% of 18-24 year-olds) by degree of urbanisation, Poland (2007-2017)



Source: Eurostat, 2018. Online data code: [edat_lfse_30](#).

Participation in pre-school education has been rising constantly since 2001. The availability and affordability of childcare services in Poland have improved significantly over recent years and participation rates are quickly catching up with the rest of the EU. In 2016 (see Figure 3 below), almost 95 % of children aged 4+ attended early childhood education and care (ECEC) in Poland, almost reaching the EU-28 average after more than a decade of constant progress. However, access to ECEC for the youngest children remains very low. According to Eurostat data, less than 10 % of 2 year-olds were in ECEC in Poland in 2016. Additionally, little more were covered by early childhood development services coordinated by the Ministry of Family, Labour and Social Policy. Introducing a right to pre-school education for 3 year-olds from September 2017 is an important step for further improvement in this area. Increased government funding for ECEC facilities, often using EU structural funds, is also positive. The implementation of the 'Toddler+' (*Maluch+*) programme, which focuses on creating childcare facilities and care places for children under 3, is another welcome initiative (Polish Government, 2018).

Figure 3. Participation in ECEC as % of the age group between the age of 4 and the starting age of compulsory education in Poland (2001-2016)



Source: Eurostat, 2018. Online data code: [educ_uoe_enra10](#).

Certain gaps in ECEC access and provision remain. In its recent economic outlook for Poland, the OECD finds that whereas access to childcare is improving and is relatively good for 3-5 year-olds, it remains insufficient, in particular for the youngest children and in rural areas (OECD, 2018). Efforts are still needed to extend coverage, which will help parents to combine work and family life

and which can address the gaps in provision and standards between rural and urban areas. As of September 2017 local authorities responsible for pre-schools must guarantee places for all 3 year olds and older as part of a wider reform to improve ECEC throughout the country (Eurydice, 2018).

Progress has been made on special education needs but new rules on individualised support may prove problematic. An assessment of education for students with disabilities by the Supreme Audit Office found that the availability of inclusive education for such students has increased in recent years. The assessment emphasised the need to ensure that pupils receive the support to which they are entitled (NIK, 2017). On 9 August 2017, the Education Minister signed a new framework regulation on individualised teaching for students with special education needs (Eurydice, 2018). However, stakeholders — parents in particular — are concerned that these changes may reduce the level of integration of students with disabilities in mainstream education in the future (RPO, 2018).

6. Modernising higher education

The level of tertiary education attainment in Poland has rapidly increased and is now well above the EU average. Tertiary educational attainment in 2017 reached 45.7 %, exceeding Poland's Europe 2020 national target of 45 %. The level is higher for women than for men — a gap of 10.6 pps (similar to the EU average gap of 10 pps). However, according to a 2018 OECD Economic Survey for Poland there is ample room to improve the quality of higher education and research (OECD, 2018). The number of doctoral graduates per 1 000 population aged 25-34 is still low: 0.55 vs 1.07 for the EU. The 2018 national reform programme includes measures to improve higher education outcomes, e.g. in medical universities (Polish Government, 2018). Finally, more funding is available for Polish higher education institutions (HEIs) for teaching, international cooperation and management, i.e. through the integrated HEIs programme managed by the National Centre for Research and Development (NCBR), with an overall budget of almost PLN 1 billion (approx. EUR 240 million) (Eurydice, 2018).

Poland has adopted a comprehensive reform of the HE system. The Act on research, science and higher education (*Ustawa 2.0*) was approved by Parliament on 3 July 2018 and is expected to come into force on 1 October 2018 (Polish Government, 2018). Universities (public and non-public) will be divided into academic and professional schools and a new body for university governance — 'the university board' — will be created, with new competences including choosing the rector. Changes will also affect PhD students, as: (i) universities will be required to establish doctoral colleges; (ii) scholarships will be guaranteed for all PhD students; (iii) short-cycle studies will be introduced and; (iv) there will be a new Council of Scientific Excellence. The HE and science financing model will also change, with an evaluation of the quality of scientific activities conducted every 4 years by the Science Evaluation Committee at institutional level (Eurydice, 2018). A maximum yearly number of teaching hours for academic teachers, including lecturers, instructors and language teachers will be set at 360 hours instead of the current 540 hours. The set minimum number of hours will be abolished with responsibility passing to the HEI itself, increasing its autonomy (Eurydice, 2018). This is a major modernisation effort, which could bring about an important qualitative shift for the HE sector.

Scientific and research networks are being improved, as are opportunities for post-graduates. Legislation is being prepared to create an integrated, goal-oriented network of research institutes, whose activity will be coordinated by a central unit, the '*Centrum Łukasiewicz*'. The main objective of this body will be to carry out scientific research and development projects that are particularly important for: (i) implementing the national innovation policy; (ii) transferring knowledge; (iii) applying research results; and (iv) supporting economic development initiatives (MNiSW, 2018). The 'Implementation PhD' programme, which aims to develop cooperation between the scientific community and the economy is to be integrated in doctoral studies and will offer participants training opportunities in companies. The industrial doctorate has been implemented since academic year 2017/2018 via a dual system. The PhD student is employed by the company and has two tutors: one appointed by the company (or a public sector employer) and another in the public research unit (a faculty or a research institute of an A or A+ category) to ensure the quality of research (Polish Government, 2018).

There is more and more emphasis on practically oriented university studies. The 2018 NRP highlights that the new HE law includes a new model of tertiary education, with a better match of the skills of graduates and PhDs to labour market needs. In order to strengthen the cooperation of higher education institutions (HEIs) with the economic sector regarding study programmes, the act provides for two paths of study at a practice-oriented profile emphasising practical knowledge: mandatory six-month practical placements and dual-degree training (dual studies). Vocational HEIs will focus on providing both the local and the regional labour markets with the most sought-after specialists (Polish Government, 2018). As regards the Graduate Tracking System (ELA) the third wave of career monitoring was published in June 2018 encompassing graduates of 2014, 2015, 2016. In the coming years it will include the impact of first cycle studies, tracking PhD graduates, as well as students and doctoral students career path (Eurydice, 2018). Finally, in April 2018 The Ministry of Science and Higher Education and the National Centre of Research and Development announced a call for proposals within the EU Operational Programme Knowledge Education Development “The third mission of higher education institutions”.

Box 1: An initiative for Polish researchers living abroad

Polskie Powroty or ‘Polish Returns’ is the first pilot project by the newly established National Agency for Academic Exchange (*Narodowa Agencja Wymiany Akademickiej*, NAWA) which began operation in October 2017 and also took over the task of academic recognition for foreign degrees in February 2018.

A new pilot project launched by the Agency in March 2018 gives returning Polish researchers the possibility to set up their own research teams in Poland. Long-term financial support (36 to 48 months with financing up to PLN 2 175 000 (approx. EUR 520 000)) is offered. This financial support covers the salaries of returning researchers up to PLN 350 000 (approx. EUR 85 000) per year for a period of 4 years, as well as pay for the members of their teams. This gives Polish HEIs an opportunity to improve their research and innovation potential without substantial additional costs (Eurydice, 2018).

For more information: <https://nawa.gov.pl/naukowcy/polskie-powroty>

7. Modernising vocational education and training

Poland pursues its comprehensive vocational education and training (VET) reform from December 2016 and sees improvement in the employability of vocational graduates. The reform includes changes in vocational pathways, curricula, the financing system and greater employer involvement. First-stage sectoral or branch schools began operating in September 2017. They offer three-year programmes leading to a vocational certificate for qualification in a single occupation. Graduates of such schools can either enter the labour market or go on to second-stage schools, which offer two-year programmes for further study. Graduates of these schools can take the secondary school exam and go on to HE. In addition, as of 1 January 2019, the allocation of funds for initial VET will be based on factors including: (i) the demand for specific occupations in the region; (ii) the effectiveness of the education process; and (iii) training costs for specific jobs. The reform also makes it mandatory for schools to cooperate with employers when launching new courses and allows schools to open short-cycle training courses for adults (‘vocational skills courses’) (MEN, 2018). Finally, in January 2018 the Ministry of Education established an advisory body — the Council of Vocational Schools Directors — to support the reform (MEN, 2018a).

Although the number of employers that provide continued VET was higher in 2015 than in 2010, it is still well below the EU average. According to the CVTS 2015 data, 44.7 % of Polish companies provided vocational training to their employees (EU-28 average: 72.6 %), and 37.1 % of employees participated in this training (EU-28 average: 40.8 %). Most Polish companies regard technical, practical and job-specific skills to be the main competences needed for company development (Eurostat 2018a). In parallel to the VET reform, Poland continued to develop 15 Sector Skills Councils and the Polish Agency for Enterprise Development (PARP) also continued with a project co-financed by the European Social Fund (ESF) on this topic (Cedefop, 2018).

Box 2: Local Centres of Education and Development (*Lokalne Ośrodki Wiedzy i Rozwoju, LOWE*), financed from the national Operational Programme – Knowledge Education, Development

The project aims to reach parents and carers with low skills living in disadvantaged areas through their children, and to help these adults develop key competences to improve their prospects on the labour market.

LOWE are based on existing schools' infrastructure and human resources. The role of the school in the LOWE model is to identify the education needs of the local community, to develop methods and tools to work with adults, and to organise different forms of learning (e.g. educational and social projects, etc.).

In the pilot project the LOWE model will be tested in 15 locations, with each school receiving a grant of up to PLN 250 000 (approx. EUR 60 000). This project is being carried out by four institutions – two universities and two local government organisations that developed the basic concept. It is supported by the ESF¹⁶³.

For more information: <http://lowe.fundacjamis.org.pl/>

8. Promoting adult learning

Upskilling was stepped up but further efforts are needed to increase currently low adult participation in learning. The latter stood at 4% in 2017, compared to the EU average of 10.9%. Despite improvements over time, only 41.8% of low-qualified (ISCED level 0-2) Poles were employed in 2017, compared to the EU average of 55.6% (Eurostat, 2018c). However, the share of adults not having upper secondary attainment is among the lowest in EU countries. The Ministry of Education initiated an ESF project 'Chance – new opportunities for adults', which aims at identifying innovative ways to support low-skilled adults. The project will be implemented by the Foundation for the Development of the Education System in cooperation with the Educational Research Institute with a budget of approximately PLN 30 million (ca. EUR 7.2 million EUR) (MEN, 2018). In 2018 the Council addressed the following country specific recommendation to Poland: "*foster labour market relevant skills, especially through adult learning*" (Council of the European Union, 2018).

Sectoral skills councils were established in Poland since 2016 in the fields of health, construction, finances, tourism, fashion and innovative textiles, IT and automotive including electro mobility. Poland has also established a Program Council on Competences. Councils are financed from the state budget and their aim is to enhance cooperation between educational institutions and the labour market, so the competences possessed by employees meet employer's needs. Sectoral councils consist of representatives of different stakeholders: employers, employees, public institutions which has a significant influence on the sector's regulations (e.g. representative of the Ministry of Finance) and other. They will have an influence on how the public money for adult learning will be spent. The Program Council on Competences consists of experts who represent different ministries responsible for labour market, primary and vocational education, higher education, economy, employers and employees. It is a platform for dialog, cooperation and exchange of knowledge and its aim is to engage more employers in the system of identification and forecasting needed competences and supporting changes in the area of science, formal and non-formal education that help to diminish the skills gap¹⁶⁴. The role of the National Training Fund (NTF), established in 2014 is also very important in this context. Since 2016 Poland support employers and employees with a database on training services (Baza Usług Rozwojowych - BUR).

¹⁶³ In the 3 pilot projects implemented by 9 institutions (universities and NGOs) in the Knowledge Education Development Operating Programme the model of LOWE is tested in 50 locations. Altogether the projects amount to 14.4 mln zł. More information can be found on:

- <http://snhis.pwr.edu.pl/projekty/projekt-awk-nowe-oblicze-szkoly-jako-lowe>
- <http://lowe.oic.lublin.pl/>
- <http://lowe.fundacjamis.org.pl/>

¹⁶⁴ More on <http://power.parp.gov.pl/power212elektromobilnosc/sektorowe-rady-ds-kompetencji>

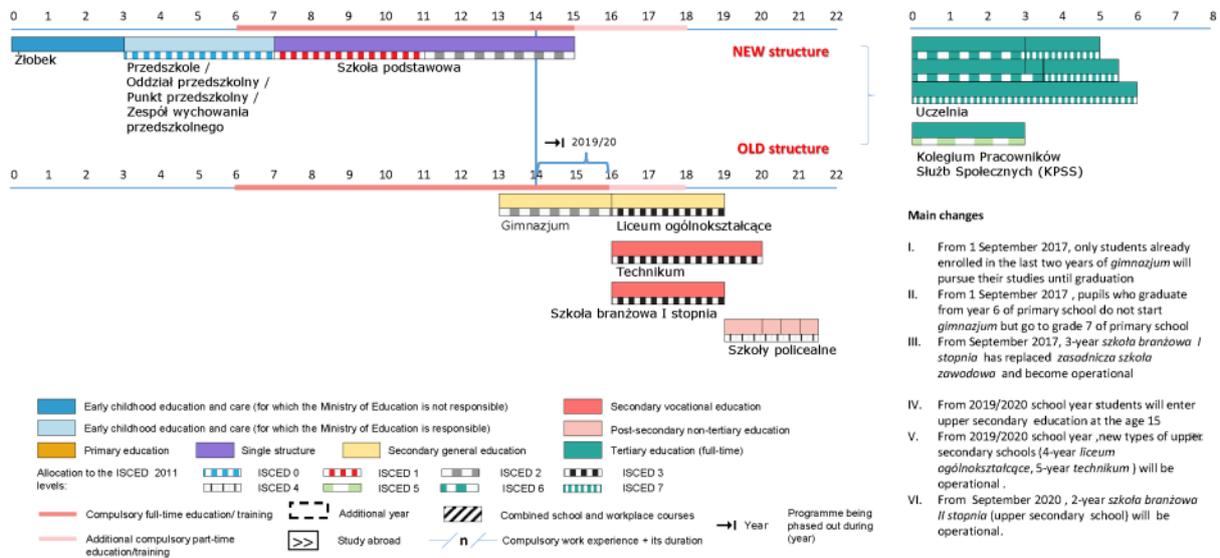
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10. Annex I: Key indicator sources

Indicator	Eurostat online data code
Early leavers from education and training	edat_lfse_14 + edat_lfse_02
Tertiary educational attainment	edat_lfse_03 + edat_lfs_9912
Early childhood education and care	educ_uoe_enra10
Underachievement in reading, maths, science	OECD (PISA)
Employment rate of recent graduates	edat_lfse_24
Adult participation in learning	trng_lfse_03
Public expenditure on education as a percentage of GDP	gov_10a_exp
Expenditure on public and private institutions per student	educ_uoe_fini04
Learning mobility: Degree mobile graduates	JRC computation based on Eurostat / UIS / OECD data
Credit mobile graduates	educ_uoe_mobc02

11. Annex II: Structure of the education system



Source: European Commission/EACEA/Eurydice, 2017. *The Structure of the European Education Systems 2017/2018: Schematic Diagrams*. Eurydice Facts and Figures. Luxembourg: Publications Office of the European Union.

Comments and questions on this report are welcome and can be sent by email to:

EAC-UNITE-A2@ec.europa.eu

PORTUGAL



1. Key indicators

		Portugal		EU average	
		2014	2017	2014	2017
Education and training 2020 benchmarks					
Early leavers from education and training (age 18-24)		17.4%	12.6%	11.2%	10.6%
Tertiary educational attainment (age 30-34)		31.3%	33.5%	37.9%	39.9%
Early childhood education and care (from age 4 to starting age of compulsory primary education)		93.5% ^{13,e}	92.5% ¹⁶	94.2% ¹³	95.3% ¹⁶
Proportion of 15 year-olds underachieving in:	Reading	18.8% ¹²	17.2% ¹⁵	17.8% ¹²	19.7% ¹⁵
	Maths	24.9% ¹²	23.8% ¹⁵	22.1% ¹²	22.2% ¹⁵
	Science	19.0% ¹²	17.4% ¹⁵	16.6% ¹²	20.6% ¹⁵
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-8 (total)	69.4%	80.7%	76.0%	80.2%
Adult participation in learning (age 25-64)	ISCED 0-8 (total)	9.6%	9.8%	10.8%	10.9%
Learning mobility	Degree mobile graduates (ISCED 5-8)	:	2.9% ¹⁶	:	3.1% ¹⁶
	Credit mobile graduates (ISCED 5-8)	:	7.7% ¹⁶	:	7.6% ¹⁶
Other contextual indicators					
	Public expenditure on education as a percentage of GDP	5.7% ^e	4.9% ¹⁶	4.9%	4.7% ^{16,e}
Education investment	Expenditure on public and private institutions per student in € PPS	ISCED 1-2	€5 340	:	€6 494 ^d
		ISCED 3-4	€6 630	:	€7 741 ^d
		ISCED 5-8	€8 688 ^d	:	€11 187 ^d
Early leavers from education and training (age 18-24)	Native-born	17.4%	12.5%	10.4%	9.6%
	Foreign-born	18.3%	13.9%	20.2%	19.4%
Tertiary educational attainment (age 30-34)	Native-born	31.0%	33.5%	38.6%	40.6%
	Foreign-born	34.2%	32.6%	34.3%	36.3%
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-4	65.2%	77.2%	70.7%	74.1%
	ISCED 5-8	73.6%	83.9%	80.5%	84.9%

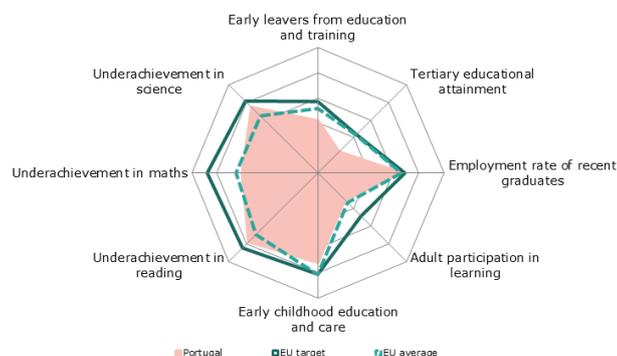
Sources: Eurostat (see section 10 for more details); OECD (PISA).

Notes: data refer to weighted EU averages, covering different numbers of Member States depending on the source; d = definition differs, e = estimate, 12 = 2012, 13 = 2013, 15 = 2015, 16 = 2016.

On credit graduate mobility, the EU average is calculated by DG EAC on the available countries; on degree graduate mobility, the EU average is calculated by JRC over Eurostat and OECD data.

Further information can be found in the relevant section of Volume 1 (ec.europa.eu/education/monitor).

Figure 1. Position in relation to strongest (outer ring) and weakest performers (centre)



Source: DG Education and Culture calculations, based on data from Eurostat (LFS 2017, UOE 2016) and OECD (PISA 2015). Note: all scores are set between a maximum (the strongest performers represented by the outer ring) and a minimum (the weakest performers represented by the centre of the figure).

2. Highlights

- Spending on education remains stable. Funding is not sufficiently linked to performance and is not flexible in response to challenges.
- Portugal is implementing a national strategy for citizenship education in all schools.
- Despite considerable improvement, Portugal still faces high levels of early school leaving and grade repetition. An ageing teacher population is a major challenge for the future.
- Participation in higher education is rising, particularly in the polytechnic sector. Graduate rates in ICT, natural sciences and mathematics are below the EU average.
- The country faces a major educational challenge with more than half the adult population at a low level of educational attainment.

3. Investing in education and training

Spending on education remains stable and is slightly above the EU-28 average. In 2016, general government expenditure on education was 4.9 % as a share of GDP and 10.8 % as a share of total government spending (EU averages were 4.7 % and 10.2 % respectively). Since 2015, spending has fallen by about 3 % in real terms, mainly for tertiary education. Secondary education takes the highest share of general government expenditure on education (35.4 %), followed by pre-primary and primary education (31.4 %) and higher education (12.9 %). The annual expenditure on Portuguese educational institutions per student is below the EU average.

Funding is not allocated on the basis of any comprehensive evaluation strategy and does not have flexibility to address specific challenges. Most public education funding goes to public or government dependent private schools. According to national data, over 90 % of expenditure is for salaries (IGeFE, 2018). Investment in education infrastructure is heavily dependent on EU financial support. Schools have very limited budgetary autonomy to respond to challenges. School funding is not related to any goals or assessment of results.

4. Citizenship education

Portugal is implementing a national education strategy for citizenship in public and private schools. Launched in September 2017, the strategy is addressed by the 'Autonomy and Curricula Flexibility' project, in line with the 'Student's Profile at the End of Compulsory Education' and by 'Core Curriculum Competencies/Essential Learning' (Roldão et al., 2017). 'Citizenship and Development' is a compulsory school subject in grades 5 to 9 of primary and lower-secondary education (Eurydice, 2017a). The principles, values and areas of competence covered aim to support the education and development of active citizens. Schools are guided by a local coordinator who teaches citizenship and equality and develops training activities on these subjects (Governo de Portugal, 2016a).

Box 1: A new national strategy for citizenship education

The national strategy for citizenship education (ENEC) arose out of the proposal presented in May 2016 by the national Working Group on Education for Citizenship. For the elaboration of the strategy, background documents from national institutions and international organisations such as the European Union, the European Council and UNESCO, were taken into account. The ENEC was implemented in public and private schools in the 2017/2018 school year.

Citizenship education covers several areas such as human rights, gender equality, interculturalism, sustainable development, institutions and democratic participation, consumer education, animal welfare and volunteering.

In pre-primary and primary education, citizenship is integrated transversally in the curriculum and is under the responsibility of the class teacher. It is defined by the national Council of Teachers in the Strategy for citizenship education in the school. In education and training courses for young people in primary and secondary education, the citizenship and development curriculum is developed with input from all disciplines and training components.

The training of teachers in the humanities is fundamental to developing the citizenship and development curriculum and better enables them to teach the course. Teacher training in citizenship and the use of tailored teaching methodologies also facilitate the process.

Source:

http://www.dge.mec.pt/sites/default/files/Projetos_Curriculares/Aprendizagens_Essenciais/estrategia_cidadania_original.pdf

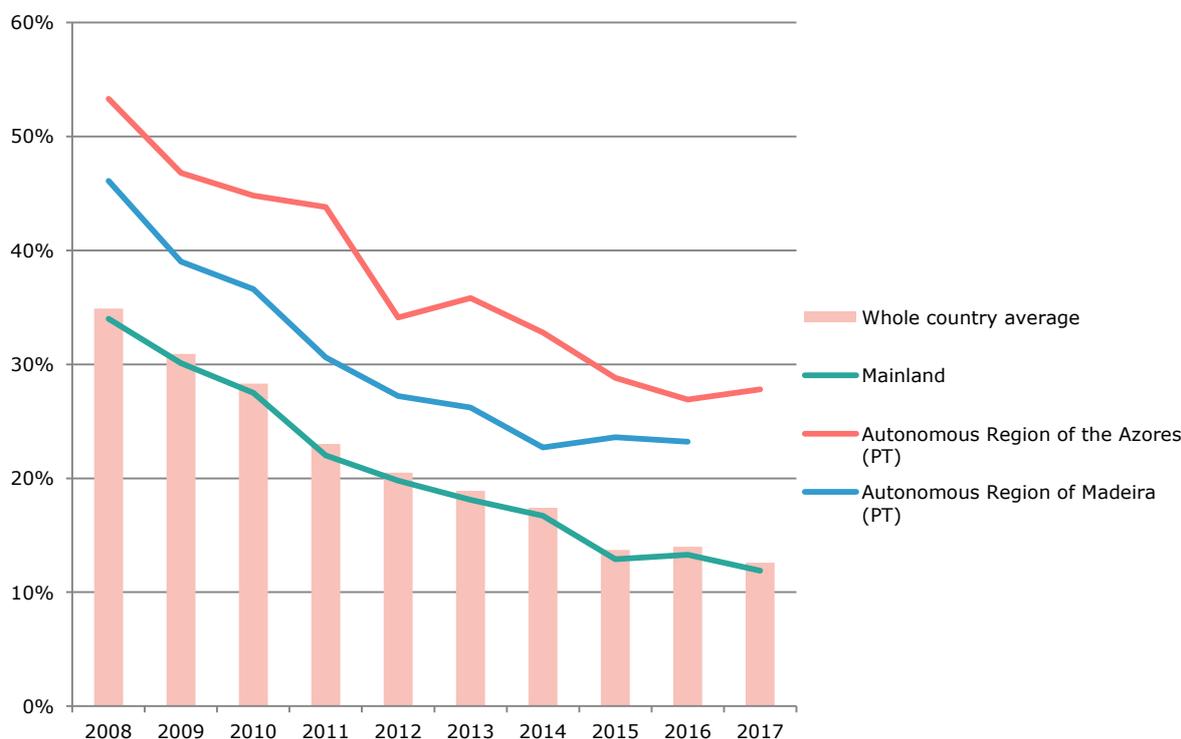
5. Modernising school education

Participation in pre-primary education for children 4 to 6 years old is decreasing, with Portugal moving away from the Education and Training 2020 benchmark of 95 %. In 2016, the ECEC participation rate was 92.5 %, below the European Union average (95.3 %). The participation rate for 4-year-olds decreased from 91.6 % in 2011/2012 to 90.1 % in 2015/2016 and for 5-year-olds from 97.9 % to 94.8 %. Among 3-year-olds, however, participation increased from 78 % to 79.9 % (DGEEC, 2018).

Participation in early childhood education and care is significantly influenced by household income. Only 36 % of children whose families are in the bottom third of the disposable income distribution are enrolled in formal early childhood care (OECD, 2017b). In 2015/2016, 47.6 % of children enrolled in pre-school education were in fully private or state dependent private establishments, well above the EU average of 25 % (DGEEC, 2018). From 2016 to 2018, 193 new public pre-school classrooms were opened. The government aims to extend the network to provide universal access for children ages 3 to 5 by 2019. It also intends to improve teacher training, within the scope of the new curricula guidelines for pre-primary education (Silva et al, 2016). Plans also include employing 500 more support staff in pre-schools in 2018/2019, ensuring a minimum of one assistant per classroom (Governo de Portugal, 2017a).

Portugal still struggles with early school leaving but is making headway to reduce it. Considerable progress has been made in the last decade in reducing the early school leaving rate (from 28.3 % in 2010 to 12.6 % in 2017; rates are, however, over 20 % in the autonomous regions of Madeira and Azores). This positive trend can be explained by, among other things, the increase in the compulsory school age up to the age of 18, the launch of the national programme for school success in 2016, along with the autonomy and curricular flexibility process (launched in 2017) and the gradual increase in parents' education levels. Nonetheless, 12.6 % of 18-24 year-olds who completed only lower secondary education are not enrolled in further education or training. Policy measures such as the government distribution of free schoolbooks and manuals to students in public primary schools are expected to further reduce school dropout, in particular among disadvantaged students. For the 2018/2019 school year, schoolbooks will also be free for students in lower secondary education, from the 1st to the 6th grades (Governo de Portugal, 2017a).

Grade repetition is high, with about one third of 15-year-olds having repeated at least one grade. The repetition rate varies across education levels and regions and is significantly higher in the Lisbon and southern regions than in the North and Centre (OECD, 2018). Policy measures to provide extra support to students at risk of failing and to increase the vocational education offer have helped to steadily reduce repetition rates in recent years (Conselho Nacional de Educação, 2015). A mentoring programme (*Programa de Tutorias no Ensino Básico*) to support students who have at least two retentions in their school career has been made a priority in 2018 (Governo de Portugal, 2016b). The 2018 State budget also envisages hiring 200 psychologists to improve student support. In addition, the government plans to gradually reduce the number of students per classroom in the first year of primary education and in the first and third years of lower secondary education.

Figure 2. Early leavers from education and training by NUTS 1 regions (2017)


Source: DG EAC elaboration based on data from Eurostat. Online data codes [edat_lfse_14](#) and [edat_lfse_30](#). The indicator is defined as the percentage of the population ages 18-24 with at most lower secondary education and who were not in further education or training during the last 4 weeks preceding the survey. The indicator is based on the EU Labour Force Survey.

Decentralisation of the school system and promotion of school autonomy remain priorities. During the 2017/2018 school year, 235 public and private schools and school clusters were involved in the implementation of an experimental programme of autonomy and partial curriculum flexibility in lower and upper secondary education (Governo de Portugal, 2017b). This project defines the principles and guidelines on how the schools, in an autonomous way, may develop, operationalise and assess the school curricula in lower and upper secondary education, so that students may successfully complete their 'profiles at the end of compulsory education' (Conselho Nacional de Educação, 2017; Governo de Portugal, 2017c). Adopted in 2017, the profile is based on a learning outcomes approach: it sets out a vision of what young people are expected to achieve at the end of secondary education (or up to age 18). It is complemented by core curricular competencies and essential learning (*Aprendizagens Essenciais*) guidance documents for each education level. In July 2018 a new Decree-Law (DL 55/2018) was published extending curriculum autonomy and flexibility to all Portuguese schools (Governo de Portugal, 2018).

Additional resources are needed to identify and support teaching for students with special educational needs (SEN). Education of students identified as SEN is almost exclusively provided in mainstream schools (88 %), and such students are fully integrated in regular classes. A network of 93 specialised resource centres for inclusion (*centros de recursos para a inclusão*) complements the specialised support to SEN students within schools, together with 25 ICT resource centres for special education. The quality of SEN education is hampered by insufficient resources and teaching skill gaps (OECD, 2018). There are regional and school-level variations in the proportion of identified SEN students. Providing enough special education teachers to meet the increasing demand is problematic. In 2017/2018, SEN students will benefit from the employment of an additional 1 500 non-teaching staff to support them (Governo de Portugal, 2017b).

The ageing teacher population will pose challenges. In the past 15 years, there has been a substantial ageing of the teacher population: currently Portuguese teachers are on average in their upper 40s (DGEEC, 2018). Only around 1 % of teachers are under 30 (DGEEC, 2018). When they reach 50, teachers benefit from a reduction in compulsory teaching hours (between 2 to 5 hours

depending on age and education level). The ageing teaching population is absent more often due to illness: there is an increase of 2.78 days of sick leave per annum per year of age. Absenteeism may mean an insufficient number of teaching staff to meet school needs. From 2009 to 2014, the number of people entering the teaching profession has been going down, but is now increasing (DGEEC, 2018). New binding contracts have been proposed to allow teachers who have had temporary contracts for three consecutive years to become permanent staff.

The career progression of teachers in the public sector has been reinstated. As a consequence of the economic crisis, teachers' salaries and progression through steps in the career ladder were frozen. Public funding for professional development also decreased. Teachers can now resume their progress up the career ladder. The Ministry of Education will decide every year how many teachers who have been evaluated with 'good' can reach the fifth and seventh seniority steps (out of a total of 10 steps).

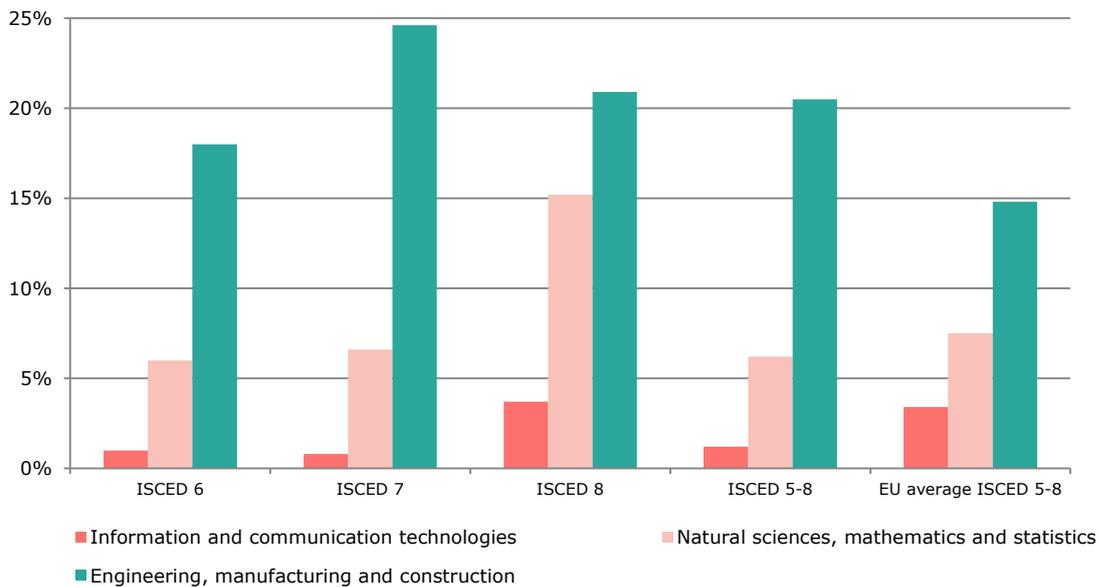
Portugal has improved foreign language teaching but challenges remain. Since 2016/2017, English is a compulsory subject for all students ages 8 to 15 (Eurydice, 2017b). A second foreign language (chosen between French, German and Spanish) is compulsory for all students from 12 to 15. From 15 to 17, only one foreign language remains compulsory for all students (which can be English, the second language students have learnt in lower secondary or a third language). From 17 to 18, foreign languages are optional. Pupils in vocational education and training (VET) have fewer years of second and third language education than in the general education path.

6. Modernising higher education

Measures are being implemented to strengthen the attractiveness and completion rate in higher education. Portugal's tertiary educational attainment level among the 30-34 years old cohort (33.5 %) is still below the EU average (39.9 %). However, the employment rate of recent tertiary graduates (80.7 %) is close to the EU average (80.2 %). Measures to increase higher education enrolment include bolstering the social support mechanisms to students from disadvantaged backgrounds through a significant increase in scholarships, a social scheme for paying tuition fees in multiple instalments, and the implementation of a redefined '+Superior' programme to promote and support enrolment in less densely populated regions and in regions where demand is lower. Other measures seek to diversify the supply of courses, mainly in the polytechnic sector and for professional higher education courses, and to make Portugal more attractive to young graduates living abroad, in particular by offering research or teaching positions and more stable contracts to young PhD graduates.

Enrolment in higher education is growing. In its 2018 European Semester country-specific recommendation, the Council of the EU recommended that Portugal take measures '*to improve higher education uptake, namely in science and technology fields*' (Council of the European Union, 2018). Compared to 2016/2017, the number of students enrolled in public higher education increased in 2017/2018 by 10 % (reaching 73 000 new students). Enrolment in public higher education institutions located in regions with a lower population density increased by 13 % and in polytechnics by 20 %. Although it did not take part in the Commission's pilot project following the Council Recommendation on Graduate Tracking, Portugal is working on improving its own current tracking mechanism to monitor the employability of graduates and will participate in the Commission expert group on graduate tracking.

The number of graduates in ICT, the natural sciences and mathematics is lower than the EU average. The number of people per 1 000 inhabitants ages 20 to 29 holding science, technology, engineering and mathematics (STEM) degrees in Portugal (18.6) is roughly in line with the EU average of 19.1. However, in 2016 the share of total graduates in information and communication technologies (1.2 %) and in the natural sciences, mathematics and statistics (6.6 %) was well below the EU-28 average (3.5 % and 7.6 % respectively). To promote enrolment in information and communications technologies, electronics and physics, the government adopted a strategy in 2017 to increase the study places available in these areas. In 2017, around 40 % of the students newly enrolled in higher VET courses (*Cursos Técnicos Superiores Profissionais*) were in STEM areas.

Figure 3. STEM students as share of total number of students per ISCED (2015)


Source: Eurostat. Online data code: [educ_uoe_grad02](#).

Less than 10 % of Portuguese higher education graduates undertook credit mobility programmes in foreign countries. In 2016, 5 709 graduates in ISCED 5-8 spent 3 months studying abroad (7.6 % of total graduates). Of these, 90 % benefitted from EU mobility programmes such as Erasmus+, almost 70 % at Bachelor or an equivalent level.

Following the presentation in early 2018 of the OECD Review on higher education, science, technology and innovation systems, the government approved several legislative and policy initiatives. These include a number of new legal frameworks for degrees and diplomas, for access of international students to higher education and recognition of foreign degrees, and for research and academic centres involved in clinical research and space activities. To bring the scientific community closer to society, the government is drafting new legislation to promote science (*Proposta de Lei da Ciência*). The aim is to modernise the legal framework for research and development institutions, improve scientific and employment conditions and modernise the institutional structure.

Cooperation between universities and business is not sufficiently incentivised. Career progression still follows a rigid and pyramidal track mostly based on publications, which does not incentivise researchers to explore avenues of 'entrepreneurial research'. Firms in general do not recognise the added value of cooperation with higher education institutions. The lack of contractual standardisation of intellectual property rights hinders the economic exploitation of research results. The public sector still employs around two thirds of the available researchers in Portugal. New policy instruments to encourage the employment of PhDs in academic and non-academic sectors are noticeable, including through the public 'INTERFACE' programme launched in 2017 and the Scientific Employment Programme. The programmes have the ambition of supporting 300 new PhDs in interface centres, 500 new PhDs in businesses and 400 researchers to work on applied research.

7. Modernising vocational education and training

Portugal is gradually addressing the challenge of transparency and attractiveness of VET. The enrolment share in VET at upper secondary level (ISCED 3) dropped in 2016 to 41.0 % (45.0 % in 2015), below the EU average of 49 %. At the same time, the employment rate of recent VET graduates increased from 69.8 % in 2016 to 78.9 % in 2017, slightly above the EU average of 76.6 %. Some efforts have been made to tackle overlaps of VET programmes. This has been done mainly through the publication of the national credit system (applied only to double certification

programmes), the launch of the 'Qualifica' Programme and the implementation of *Passe Jovem* whose aim is to support the recognition and validation of non-formal learning acquired by young people ages 12 to 18. A youth pass certificate can be delivered when a minimum of 25 hours of activities is reached, including by accumulating interventions and experiences of shorter duration. This is expected to help young people searching for a job and to raise awareness of learning in a diversity of contexts. The initiative follows the EU recommendations and resolutions on validation of non-formal and informal learning and on key competences for lifelong learning.

Box 2: Qualifying and improving the employability of young people and adults

The *Escola Profissional de Aveiro* (EPA) has been a VET school for more than 25 years. It belongs to the non-profit education association of the Aveiro region: *Associação para a Educação e Valorização da Região de Aveiro* (AEVA) (North-West Portugal). The association has international partnerships in all EU countries, Portuguese-speaking African countries and Brazil.

AEVA-EPA is considered the biggest vocational school in Portugal. It promotes education and training — vocational, technological and professional — for young people and adults and covers initial and lifelong learning. The school provides training classes and training in real job contexts, in order to promote training in an 'employment' environment and to build employability at the end of each course. AEVA-EPA offers diverse apprenticeships, education and training and vocational courses.

AEVA-EPA has been supported by the European Social Fund (ESF), in particular by the various support programmes for education (currently in Portugal's Operational programme for human capital). Since 2014, AEVA-EPA has received about EUR 3 million in ESF funding for the qualification of young people.

EPA website: <http://www.epa.edu.pt/> AEVA website: <http://www.aeva.eu/>

8. Promoting adult learning

Portugal is facing a major skills challenge. In its 2018 European Semester country-specific recommendation, the Council of the EU recommended that Portugal take measures 'to increase the skills level of the adult population, including digital literacy, by strengthening and broadening the coverage of the training component in adult qualification programmes' (Council of the European Union, 2018). About 52 % of the adult population have low educational attainment levels (well above the EU average of 22.5 %). Adult participation in learning has slightly increased from 9.6 % in 2016 to 9.8 % in 2017 but remains below the EU average of 10.9 %. Portugal is implementing the action phase of its national skills strategy. The strategy lists recommendations under three headings: awareness of the value of skills and motivation for adult learning; access, quality and relevance; and governance and financing.

Knowledge of digital skills is still very low among the Portuguese population and there is a lack of ICT specialists. Only half of the population has basic digital skills and a quarter has no digital skills at all (27 %), far below the EU average (17 %). In the 2018 Digital Society Index (DESI), Portugal ranks 16th out of 28 EU Member States (European Commission, 2018). Low digital skills levels, particularly among the elderly and those with low levels of education or on low incomes, continue to pose the risk of digital exclusion. The share of professionals in total employment with specialised ICT skills reached 2.4 % in 2016, below the EU average of 3.7 %. However, the share of businesses employing ICT specialists is slightly above the EU average, at nearly 20 %. The INCoDe.2030 programme aims to tackle this skills shortage by improving digital competences, including digital literacy.

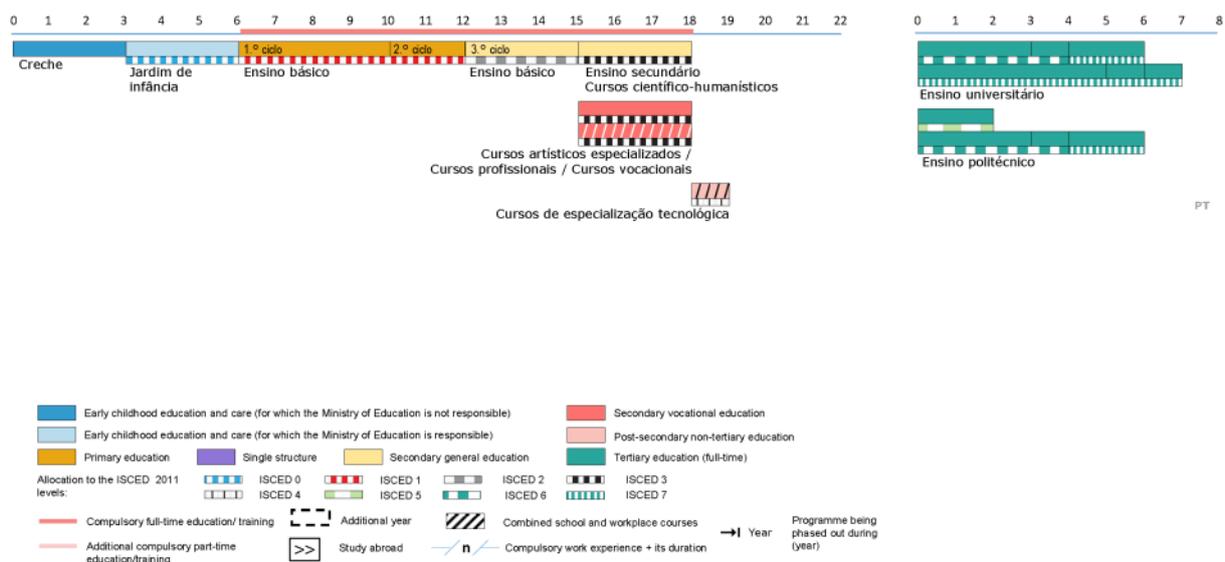
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10. Annex I: Key indicator sources

Indicator	Eurostat online data code
Early leavers from education and training	edat_lfse_14 + edat_lfse_02
Tertiary educational attainment	edat_lfse_03 + edat_lfs_9912
Early childhood education and care	educ_uae_enra10
Underachievement in reading, maths, science	OECD (PISA)
Employment rate of recent graduates	edat_lfse_24
Adult participation in learning	trng_lfse_03
Public expenditure on education as a percentage of GDP	gov_10a_exp
Expenditure on public and private institutions per student	educ_uae_fini04
Learning mobility: Degree mobile graduates	JRC computation based on Eurostat / UIS / OECD data
Credit mobile graduates	educ_uae_mobc02

11. Annex II: Structure of the education system



Source: European Commission/EACEA/Eurydice, 2017. *The Structure of the European Education Systems 2017/18: Schematic Diagrams*. Eurydice Facts and Figures. Luxembourg: Publications Office of the European Union.

Comments and questions on this report are welcome and can be sent by email to:
 Antonio GARCIA GOMEZ
antonio.garcia-gomez@ec.europa.eu
 or
EAC-UNITE-A2@ec.europa.eu

ROMANIA



1. Key indicators

		Romania		EU average		
		2014	2017	2014	2017	
Education and training 2020 benchmarks						
Early leavers from education and training (age 18-24)		18.1%	18.1%	11.2%	10.6%	
Tertiary educational attainment (age 30-34)		25.0%	26.3%	37.9%	39.9%	
Early childhood education and care (from age 4 to starting age of compulsory primary education)		86.4% ¹³	88.2% ¹⁶	94.2% ¹³	95.3% ¹⁶	
Proportion of 15 year-olds underachieving in:	Reading	37.3% ¹²	38.7% ¹⁵	17.8% ¹²	19.7% ¹⁵	
	Maths	40.8% ¹²	39.9% ¹⁵	22.1% ¹²	22.2% ¹⁵	
	Science	37.3% ¹²	38.5% ¹⁵	16.6% ¹²	20.6% ¹⁵	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-8 (total)	66.2%	76.0%	76.0%	80.2%	
Adult participation in learning (age 25-64)	ISCED 0-8 (total)	1.5%	1.1%	10.8%	10.9%	
Learning mobility	Degree mobile graduates (ISCED 5-8)	:	4.9% ¹⁶	:	3.1% ¹⁶	
	Credit mobile graduates (ISCED 5-8)	:	1.9% ¹⁶	:	7.6% ¹⁶	
Other contextual indicators						
Education investment	Public expenditure on education as a percentage of GDP	3.0%	3.7% ¹⁶	4.9%	4.7% ¹⁶	
	Expenditure on public and private institutions per student in € PPS	ISCED 1-2	€1 877	€2 047 ¹⁵	€6 494 ^d	: ¹⁵
		ISCED 3-4	€2 341	€2 741 ¹⁵	€7 741 ^d	: ¹⁵
		ISCED 5-8	€4 203	€5 054 ¹⁵	€11 187 ^d	: ¹⁵
Early leavers from education and training (age 18-24)	Native-born	18.2%	18.1%	10.4%	9.6%	
	Foreign-born	:	:	20.2%	19.4%	
Tertiary educational attainment (age 30-34)	Native-born	25.0%	26.3%	38.6%	40.6%	
	Foreign-born	:	:	34.3%	36.3%	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-4	57.2%	65.9%	70.7%	74.1%	
	ISCED 5-8	74.2%	87.4%	80.5%	84.9%	

Sources: Eurostat (see section 10 for more details); OECD (PISA).

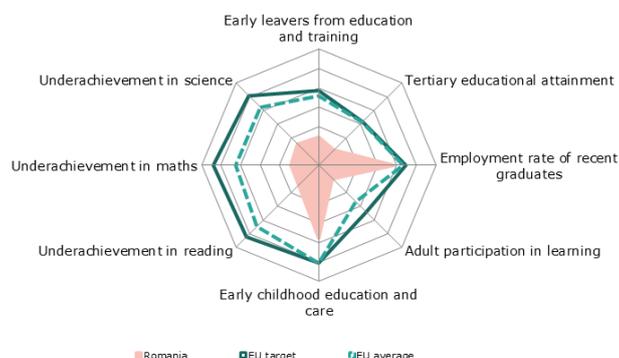
Notes: data refer to weighted EU averages, covering different numbers of Member States depending on the source;

d = definition differs, 12 = 2012, 13 = 2013, 15 = 2015, 16 = 2016.

On credit graduate mobility, the EU average is calculated by DG EAC on the available countries; on degree graduate mobility, the EU average is calculated by JRC over Eurostat and OECD data.

Further information can be found in the relevant section of Volume 1 (ec.europa.eu/education/monitor).

Figure 1. Position in relation to strongest (outer ring) and weakest performers (centre)



Source: DG Education and Culture calculations, based on data from Eurostat (LFS 2017, UOE 2016) and OECD (PISA 2015). Note: all scores are set between a maximum (the strongest performers represented by the outer ring) and a minimum (the weakest performers represented by the centre of the figure).

2. Highlights

- Romania is pursuing several initiatives to modernise its education system. However, implementation is advancing at different speeds, and measures to improve participation rates and the quality of education have not always been well correlated. Several initiatives promote citizenship education.
- Despite increasing in 2016, spending on education remains low, particularly for pre-school and school education. Both areas are important for an equal start in life and for tackling early school leaving, which remains problematic.
- Equity in education, the rural-urban gap and Roma inclusion remain key challenges, with consequences for inclusive growth and inequalities in society.
- Efforts are being made to improve vocational education and training (VET) and strengthen the links between businesses and universities, but overall the labour market relevance of education is still a challenge.
- The education system and the skill set of the workforce are not keeping up with the demands of a modern economy. The need for upskilling remains urgent. Participation in adult learning is very low, in particular among low-skilled people.

3. Investing in education and training

Spending on education increased in 2016, largely reflecting the retrospective recognition of teachers' salary rights. In 2016 general government expenditure on education (COFOG) increased in real terms by 18.4 % — the highest percentage increase in the EU. As a result, spending on education reached 3.7 % of GDP (+0.6 percentage points), although this is still one of the lowest levels in the EU (EU average: 4.7 %). As a proportion of total government expenditure, spending on education increased to 10.8 %, above the EU average (10.2 %). These increases are largely due to a court decision that retroactively recognised teachers' salaries¹⁶⁵ cut during the crisis (see Figure 2 – 'other spending'). The increase in compensation of employees, which includes teachers' salaries and social security contributions, reflects the 15 % payroll rise of December 2015 and the revision of the salary grid in August 2016¹⁶⁶.

Despite the 2016 increases, Romania still invests little in areas that are key to tackling early school leaving and ensuring an equal start in life. Spending for pre-primary and primary education is very low compared to the EU average (0.7 % vs 1.5 % of GDP in the EU-28). Spending in secondary education is also lower (1.5 % vs 1.9 % of GDP). By contrast, the proportion of spending for tertiary education is typically higher¹⁶⁷, reflecting policy priorities at national level. Evidence shows that a large part of income inequality can be tracked back to unequal starts, especially in countries that invest less in education, and particularly at the pre-primary level (WB, 2018). Equalising opportunities starting in early childhood, when the bulk of cognitive and socio-emotional skills are formed, can help improve the skills distribution of the population and prevent further inequalities linked to the arrival of new technology (ibid.).

Declining student numbers call for optimising spending while improving equity. From 2006 to 2016 the total number of students dropped by 17 %. The trend is expected to continue in line with the decrease in the general population (INS, 2016). Numbers dropped by 20 % in pre-schools, by 13 % in schools and by 48 % in tertiary education. The sharp decrease in tertiary education, particularly in private universities and in the fields of social sciences, business and law, is mainly explained by stricter quality assurance mechanisms, which resulted in fewer private

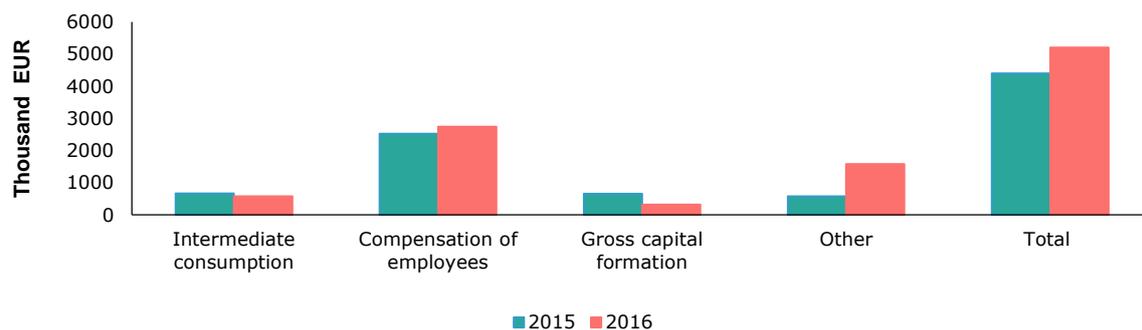
¹⁶⁵ Law 85/2016 introduced a gradual retroactive payment of salary differences for the period 2008-2011. Payments are made in instalments: 5 % in 2016, 10 % in 2017, 25 % in 2018, 25 % in 2019 and 35 % in 2020. Retired teachers and those who retired in 2016 received the full amount. Because general government expenditure on education records expenditure on accrual basis, the full amount of retrospective salary differences was recorded in 2016.

¹⁶⁶ Salaries of teachers in higher education, including the salary differences stemming from Law 85/2016, are recorded under basic funding in higher education, recorded under 'other transfers'.

¹⁶⁷ 1 % vs EU-28: 0.7 % of GDP in 2016.

university programmes and lower passing rates at the baccalaureate; it also reflects high levels of emigration. Romania is preparing a strategy to modernise educational infrastructure (MEN, 2018) to guide investment from national and EU funds¹⁶⁸ and address significant efficiency and equity challenges: 10 % of schools are overcrowded (particularly in urban areas), while 60 % are underutilised (especially in rural areas). School transportation services are overall insufficient and inadequate, while accessibility worsens as students advance through the school system. 38 % of schools in rural areas have outside toilets, without running water or sewage (7 % in urban areas) and only 20 % have a library (60 % in urban areas). Several universities do not possess sufficient accommodation facilities (ibid). To improve efficiency and equity of spending on education, Romania will undergo the OECD review of school resources.

Figure 2. General government spending on education in Romania



Source: DG EAC, based on Eurostat statistics on general government spending. Online data code: [gov_10a_exp](#).

4. Citizenship education

Romania has several initiatives promoting citizenship education. In Romania citizenship education is taught either as a compulsory subject (in the fourth, fifth, eighth and ninth grades) or integrated into various optional subjects, e.g. education for society, European education, intercultural education. In July 2017 the Ministry of Education signed a cooperation protocol with key judicial institutions on providing judicial education in schools. There is a national programme of one-week extra-curricular activities. Citizenship education is not provided in initial vocational education and training (IVET). According to self-reporting by school principals in the OECD Programme for International Student Assessment (PISA) 2015, 43 % of Romanian 15 year-olds study in schools that offer chess clubs, 84 % in schools offering ICT clubs and 37 % in schools that organise science competitions.

5. Modernising school education

Early school leaving remains problematic. At 18.1 % in 2017, the rate of early leavers from education and training (ages 18-24) remains one of the highest in the EU. It is significantly above the EU average (10.6 %) and the national target for 2020 (11.3 %). The rate is alarmingly high in rural areas (27.1 %) and among the Roma (77 %, FRA). A recent study (UNICEF, 2017) suggests that the high rate of early leavers from education and training is likely to persist. Although dropout rates in primary and lower secondary have decreased, particularly in rural areas, the proportion of out-of-school children has increased. Enrolment rates in upper secondary education suggest that one in four students either does not continue to upper secondary (after the eighth grade) or drops out after completing compulsory education (tenth grade). The study notes that despite policies to improve the quality of education in the last decade, interventions were insufficiently correlated, and the link with increasing participation rates remains weak. Most measures are focused on addressing social barriers to school participation and less on increasing the quality of education on offer in schools (ibid). Romania is currently developing an early warning mechanism to identify children at risk of dropping out. European Social Fund (ESF)-funded projects to attract motivated teachers to

¹⁶⁸ Under the European Regional Development Fund (2014-2020) EUR 352 million were earmarked for investments in infrastructure at all levels of education. Project applications to calls published indicate a high demand.

disadvantaged schools and tackle dropout rates have started¹⁶⁹ to be implemented, albeit with a delay. Although the timing of second-chance options for adult learners has been made more flexible, the design of such options remains unattractive.

Participation in early childhood education and care (ECEC) is improving, but remains low.

In 2016 the participation of children aged between 4 and the compulsory school age of 6 increased slightly to 88.2 %, still below the Education and Training 2020 benchmark of 95 %. The implementation of a cash-conditional coupon to increase the participation of disadvantaged children in ECEC continued. However, the project has still to reach its target participation of 110 000 (the equivalent of almost one in five children in kindergarten). In 2018 there were 47 000 children in the programme, but only a few had not been to kindergarten before. This suggests that its impact on enrolment rate is marginal, despite improving attendance rates. The curriculum for crèches is being revised with ESF support to improve the quality of education. The proportion of children aged less than 3 in formal childcare is improving (17.4 % in 2016), but is still low (EU average: 32.9 %), including due to lack of facilities.

Roma inclusion in education remains a major challenge. Roma are disproportionately at risk of dropping out and few Roma children attend kindergarten: 38 % in 2016 (FRA, 2016). Coupled with the concentration of Roma in disadvantaged schools, this situation reinforces the cycle of exclusion. Dropout among Roma can also be explained by high levels of poverty, limited parental participation in education and lower qualifications of teachers in predominantly Roma schools. In 2016 Romania adopted an anti-segregation roadmap and revised legislation by expanding the focus from Roma to a wider set of target groups (i.e. children with disabilities, from rural areas and from disadvantaged backgrounds). The responsibilities of school inspectorates and of the quality assurance agency (ARACIP) to monitor segregation were expanded accordingly. However, monitoring activities were hampered by significant delays in developing the monitoring methodology.

The combination of low educational outcomes and equity challenges persists. PISA 2015 showed that almost 40 % of Romanian 15 year-olds (the future workforce) do not have a minimum level of basic skills, while socio-economic background significantly affects students' performance. In addition, the rural-urban gap in education remains striking. The index of socio-educational risk (Human Catalyst, 2018) shows that financially disadvantaged schools are concentrated particularly in poor and marginalised areas, including in Roma communities. In addition, an increasing number of weaker students, often from disadvantaged backgrounds, are not sitting the national evaluation at the end of the eighth grade (ibid.¹⁷⁰). Despite recent efforts, quality assurance in school education remains largely focused on compliance and not on increasing standards (EC, 2018). Implementation of the competence-based curriculum is under way, but is incomplete. Only 52 % of young people aged 16-19 have basic or above basic digital skills (EU-28: 83 %). To improve the situation, coding and technology classes were introduced starting from the fifth grade, complementing those offered in high schools. Despite the recent measures taken, the weak performance of the education and training system risks limiting growth prospects in the long run (ibid.). In this context, the 2018 European Semester country-specific recommendations call on Romania to *'improve the provision of quality mainstream education, in particular for Roma and children in rural areas'* (European Council, 2018).

Box 1: 'CRED: Relevant Curriculum, Open Education for all'

CRED is a project financed by the ESF to support the ongoing curricular reform. The project aims to facilitate the understanding of the new competence-based student-centred curriculum and modernise teaching practices. Almost half of teachers in primary and lower secondary education (55 000 teachers) will be trained in how to teach the new curriculum and how to adapt teaching to the specific needs of students, including students at risk of dropping out. Open educational resources for classroom activities will be developed. In addition, CRED will finance the development of key competences through innovative projects involving 2 500 students. The project has a total budget of EUR 42 million and will be implemented between November 2017 and November 2021.

¹⁶⁹ 122 projects for 'School for all' (EUR 146 million) and 27 projects for 'Motivated teachers in disadvantaged schools' (EUR 21 mil).

¹⁷⁰ The 'Brăila phenomenon'.

The teaching profession faces challenges. A recent review (OECD, 2017) shows that entry requirements to teacher education programmes are low and that students' motivations for entering the programme are not checked systematically. The high fail rates at the *definitivat* and the tenure exam suggest that using such tests as the main method of screening is less efficient than having high entry standards to initial teacher education. Programmes offer limited practical training and there is as yet no functioning programme in place for mentoring teachers in the first stages of their careers. Regular teacher assessment over the course of a career is not connected to continuing professional development. Despite efforts to provide teachers with continuous professional development that meets their needs, courses are not always free of charge or accredited. In addition, career paths are not seen as motivating enough (ibid), while the current merit-based allowance insufficiently supports work with students from disadvantaged backgrounds (EC, 2018.).

6. Modernising higher education

Despite improvement, tertiary educational attainment remains one of the lowest in the EU and achieving significant increases in the medium term is difficult. Tertiary educational attainment increased to 26.3 % in 2017 (up 0.7 percentage points compared to 2016), almost reaching the national Europe 2020 target of 26.7 %. Despite having doubled over the past decade, the rate remains one of the lowest in the EU (EU-28: 39.9 %). Evidence suggests that substantial leaps will be difficult to achieve in the medium term. In fact, estimations (Romania Court of Accounts, 2015) show that tertiary attainment is likely to decrease after 2020, reflecting continued high early school leaving in the school system and low enrolment rates for 19-23 year-olds, which is the age group most likely to be in university (35.8 % in 2016, down from 57 % in 2009). To improve the transition to higher education, authorities are implementing the 'Romanian Upper Secondary Project' (ROSE), which aims to improve pass rates in the baccalaureate exam (which students have to pass in order to continue to university) and retention in the first year of higher education. The project targets 271 typically underperforming high schools (almost 1 in 5 high-schools), providing them with grants for pedagogical and extra-curricular activities, coaching and mentoring. In 2018 pass rates were still low at 67.7 % and calculated based on actual participation in the test, which means that the rate was decoupled from the actual size of the student cohort and from dropout and non-participation rates.

Quality and labour market relevance of higher education are still faced with challenges. The employment rate of recent tertiary graduates continued to increase in 2017, supported by strong economic growth. At 87.4 %, the rate is one of the highest in the EU (EU-28: 84.9 %). However, skills shortages exist for medium- to high-skilled jobs in engineering, machinery, IT and services (EC, 2018). Although the proportion of graduates in science, technology, engineering and mathematics (STEM) is above the EU-average (see Figure 3), the number of STEM graduates is low due to low participation in higher education: there are 14.4 graduates in STEM for every 1 000 people aged 20-29, compared to an EU average of 19.1, and the number of new graduates in science and engineering for every 1 000 people aged 25-34 is decreasing¹⁷¹. Emigration after graduation adds to skills shortages. Employers report that students and graduates entering the labour market often lack key socio-emotional skills¹⁷² and possess sufficient, though overly theoretical, academic skills (WB, 2018). Only 40 % of students in Romania report being satisfied with the organisation of studies and the timetable, study facilities and the quality of teaching (EUROSTUDENT, 2018). Some steps were taken to improve the internationalisation of higher education.

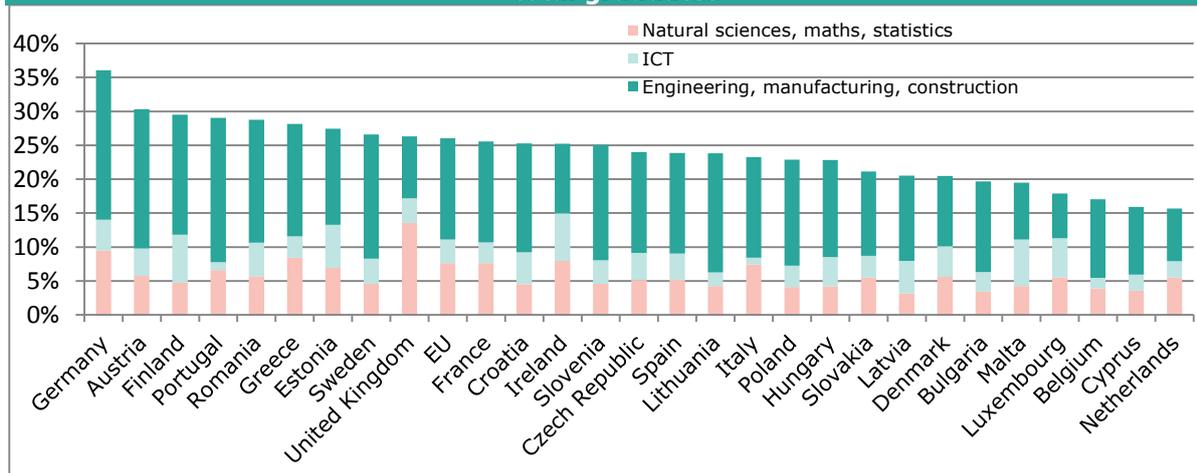
Some measures aim to address quality and labour market relevance. The legal framework for external evaluation was revised. Specifically, all universities are required to have a code of ethics for professional and academic integrity, and to report annually on implementation of the code. This includes measures to prevent and eliminate plagiarism. In addition, universities are expected to revise their educational offer regularly by taking into account employers' views, and students' expectations and satisfaction with studies (ARACIS, 2018). However, the reaccreditation of doctoral schools mandated by law is postponed until October 2019. With the support of the ESF, Romania is developing a tool to monitor university graduates' transition to the labour market. The

¹⁷¹ 10.9 in 2016, compared to 15.9 in 2013.

¹⁷² Motivation, empathy, tolerance, self-management, problem-solving, teamwork, communication, learning to learn, accountability, planning, engagement, commitment.

graduate tracking tool also aims to analyse how employers' needs are matched by the higher education offer, including at regional level. For the moment the tool is not used at the national scale. Romania is also undergoing a review of higher education from the perspective of entrepreneurship, links with the labour market and innovation (i.e. the OECD HEInnovate review). The review will be finalised during the first half of 2019. ESF also supports entrepreneurship among doctoral students.

Figure 3. Distribution of tertiary graduates by STEM fields in 2016, as a proportion of total graduates



Source: DG EAC, based on Eurostat statistics. Online data code: [educ_uae_grad02](#).

7. Modernising vocational education and training

The labour market relevance of vocational education and training (VET) is still a challenge, but new initiatives seek to improve the situation. Implementation of dual VET has started (see Box 2) and the curriculum for upper secondary education, including VET, is under revision. Other recent measures include the development and updating of professional qualifications and of professional training standards with the aim of increasing quality and labour market relevance. Despite these measures, efforts and investment are insufficient to adapt the educational offer to the needs of the economy, in particular to increase the quality of vocational courses in a wide number of sectors. Incentives for employers to hire apprentices increased. This is expected to improve take-up of apprenticeships, even though their actual cost is higher and SMEs have difficulties in covering it. At the same time, the administrative burden on employers is too high to make apprenticeships truly attractive, while the links with employers and local labour market needs remain rather weak. Skills shortages reported in skilled manual professions are partially due to the low development of VET: the skills of VET graduates are regarded as outdated because of outdated equipment and teaching methods (WB, 2018).

Box 2: Dual VET reform

Dual VET was launched in 2017. It is organised at the initiative of interested companies based on a partnership contract between schools and employers and individual training contracts for students. In September 2017, 2 412 students (the equivalent of 8 % of students in professional schools) were enrolled in the first year of dual VET at European Qualifications Framework (EQF) level 3. 106 dual classes in 68 schools were organised, in cooperation with 227 companies. Authorities expect over 5 000 to enrol in 2018 and expect to see increasing interest from VET schools and companies (NRP, 2018). The next step will be to set up the methodology for conducting entrance examinations to dual VET at EQF levels 4 and 5.

8. Promoting adult learning

Participation and access to adult learning remain very low despite the need for upskilling and reskilling of the workforce. Participation in adult learning was 1.1 % in 2017, significantly below the EU average of 10.9 %. The population's digital skills are improving but remain among the lowest in the EU: in 2017, only 29 % of the population possessed at least basic digital skills (compared to the EU average of 57 %). The skills of the workforce are inadequate for the needs of a modern economy (WB, 2018). As in many other countries, in Romania the automation of production processes is driving the demand for higher levels of cognitive skills (ibid). According to the Continuing Vocational Training Survey, 26.7 % of Romanian companies (EU-28: 72.6 %) provided vocational training to their employees in 2015, and 21.3 % of employees participated in this training (EU-28: 40.8 %). In 2015 most Romanian businesses indicated that the main skills needed for the development of their business were team-working skills, technical skills, practical skills and job-specific skills.

Some steps were made to address the EU Council Recommendation on upskilling pathways, yet challenges remain. The methodology for profiling jobseekers by the public employment service was improved. Key competences courses for low-skilled jobseekers were included in the national public employment service plan, and the occupational classification was amended to target 'unqualified workers' in order to provide them with a qualification level 1. Remaining challenges include outreach to inactive adults; the limited offer for non-formal education and training; the restrictive access to vocational qualifications programmes for low-qualified people; insufficient evidence-base and coordination between stakeholders; monitoring, quality assurance and staff training. The current evaluation of skills on which training programmes are based relies on past vacancies. This does not sufficiently take into account the rapidly changing needs of the economy (Cedefop, 2017). The Romanian national qualifications framework was referenced to the European Qualifications Framework (EQF) in April 2018. It includes all levels (eight) and types of qualifications in formal education and training, but implementation is still at an early stage (Cedefop, 2018c). Considering these challenges, the 2018 country-specific recommendations also call on Romania to improve upskilling.

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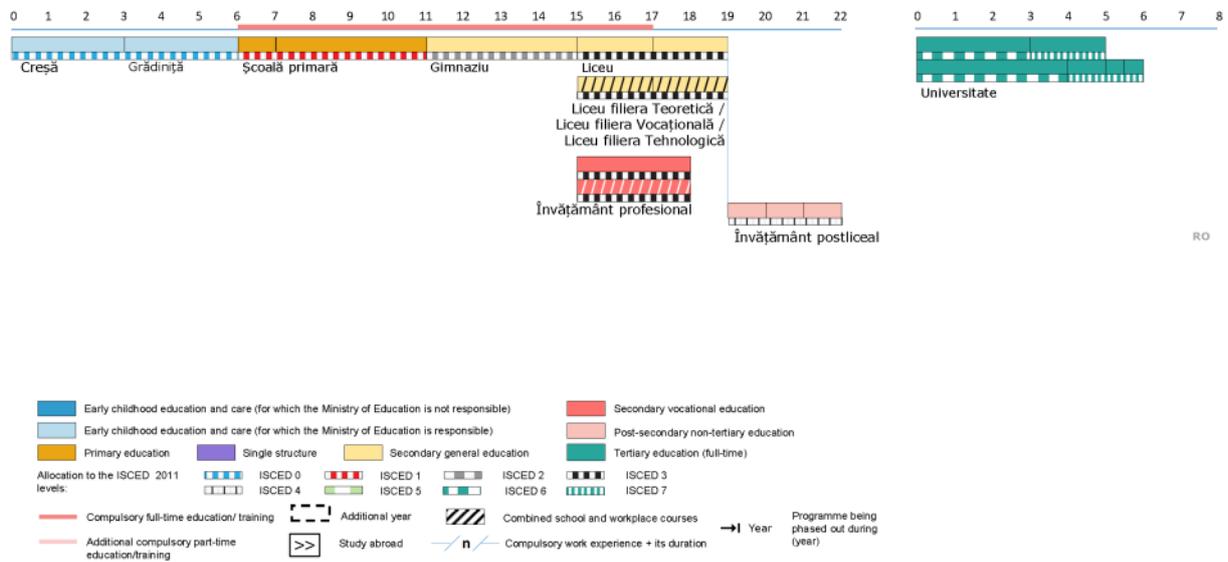
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10. Annex I: Key indicator sources

Indicator	Eurostat online data code
Early leavers from education and training	edat_lfse_14 + edat_lfse_02
Tertiary educational attainment	edat_lfse_03 + edat_lfs_9912
Early childhood education and care	educ_uoe_enra10
Underachievement in reading, maths, science	OECD (PISA)
Employment rate of recent graduates	edat_lfse_24
Adult participation in learning	trng_lfse_03
Public expenditure on education as a percentage of GDP	gov_10a_exp
Expenditure on public and private institutions per student	educ_uoe_fini04
Learning mobility: Degree mobile graduates	JRC computation based on Eurostat / UIS / OECD data
Credit mobile graduates	educ_uoe_mobc02

11. Annex II: Structure of the education system



Source: European Commission/EACEA/Eurydice, 2017. *The Structure of the European Education Systems 2017/18: Schematic Diagrams*. Eurydice Facts and Figures. Luxembourg; Publications Office of the European Union.

Comments and questions on this report are welcome and can be sent by email to:
 Alexandra TAMASAN
alexandra.tamasan@ec.europa.eu
 or
EAC-UNITE-A2@ec.europa.eu

SLOVAKIA



1. Key indicators

		Slovakia		EU average		
		2014	2017	2014	2017	
Education and training 2020 benchmarks						
Early leavers from education and training (age 18-24)		6.7%	9.3%	11.2%	10.6%	
Tertiary educational attainment (age 30-34)		26.9%	34.3%	37.9%	39.9%	
Early childhood education and care (from age 4 to starting age of compulsory primary education)		77.4% ¹³	76.5% ¹⁶	94.2% ¹³	95.3% ¹⁶	
Proportion of 15 year-olds underachieving in:	Reading	28.2% ¹²	32.1% ¹⁵	17.8% ¹²	19.7% ¹⁵	
	Maths	27.5% ¹²	27.7% ¹⁵	22.1% ¹²	22.2% ¹⁵	
	Science	26.9% ¹²	30.7% ¹⁵	16.6% ¹²	20.6% ¹⁵	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-8 (total)	72.7%	81.5%	76.0%	80.2%	
Adult participation in learning (age 25-64)	ISCED 0-8 (total)	3.1%	3.4%	10.8%	10.9%	
Learning mobility	Degree mobile graduates (ISCED 5-8)	:	11.9% ¹⁶	:	3.1% ¹⁶	
	Credit mobile graduates (ISCED 5-8)	:	0.1% ¹⁶	:	7.6% ¹⁶	
Other contextual indicators						
Public expenditure on education as a percentage of GDP		4.1%	3.8% ¹⁶	4.9%	4.7% ¹⁶	
Education investment	Expenditure on public and private institutions per student in € PPS	ISCED 1-2	€4 606	€4 960 ¹⁵	€6 494 ^d	: ¹⁵
		ISCED 3-4	€4 894	€5 379 ¹⁵	€7 741 ^d	: ¹⁵
		ISCED 5-8	€8 290	€11 987 ¹⁵	€11 187 ^d	: ¹⁵
Early leavers from education and training (age 18-24)	Native-born	6.7%	9.3%	10.4%	9.6%	
	Foreign-born	:	:	20.2%	19.4%	
Tertiary educational attainment (age 30-34)	Native-born	26.7%	34.3%	38.6%	40.6%	
	Foreign-born	:	:	34.3%	36.3%	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-4	68.3%	80.7%	70.7%	74.1%	
	ISCED 5-8	76.7%	82.1%	80.5%	84.9%	

Sources: Eurostat (see section 10 for more details); OECD (PISA).

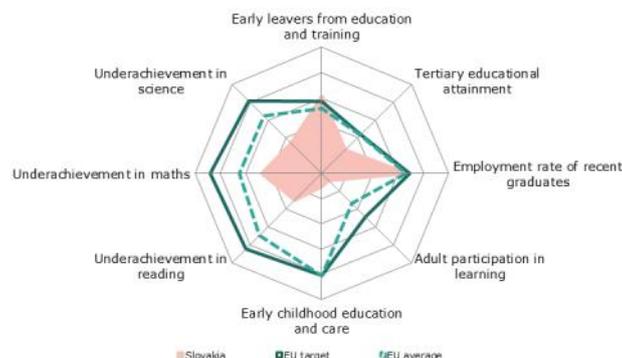
Notes: data refer to weighted EU averages, covering different numbers of Member States depending on the source;

d = definition differs, 12 = 2012, 13 = 2013, 15 = 2015, 16 = 2016.

On credit graduate mobility, the EU average is calculated by DG EAC on the available countries; on degree graduate mobility, the EU average is calculated by JRC over Eurostat and OECD data.

Further information can be found in the relevant section of Volume 1 (ec.europa.eu/education/monitor).

Figure 1. Position in relation to strongest (outer ring) and weakest performers (centre)



Source: DG Education and Culture calculations, based on data from Eurostat (LFS 2017, UOE 2016) and OECD (PISA 2015). Note: all scores are set between a maximum (the strongest performers represented by the outer ring) and a minimum (the weakest performers represented by the centre of the figure).

2. Highlights

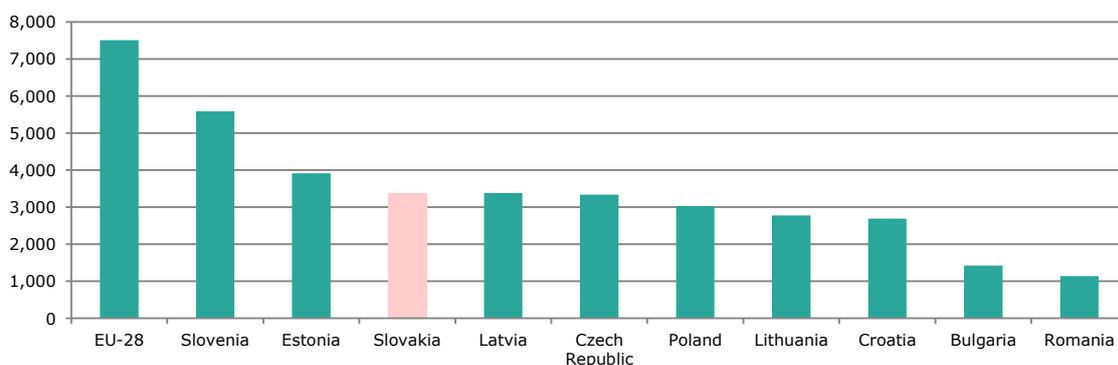
- There are big disparities in educational attainment levels: socio-economic background strongly influences students' performance.
- Despite continued economic growth, investment in education is well below OECD and EU averages. A new education strategy and an increase in financing have recently been proposed.
- Higher education needs to be modernised and acquire a more international dimension.
- Despite gradual improvement, the status of teachers and trainers is still relatively low – particularly with regard to pay.
- There is room for scaling up civics education in schools.

3. Investing in education and training

Overall spending on education remains low but per student spending is broadly comparable with other central European countries. Spending declined between 2014 and 2016 as a share of GDP, as increases in nominal education spending failed to keep pace with brisk growth in the wider economy. In 2016, according to data on general government expenditure by function (COFOG), Slovakia spent 3.8 % of its GDP on education (EU average: 4.7 %). This is lower than in Czech Republic (4.5%), Hungary (4.9%) or Poland (5.0%). Spending on education as a share of the total public budget is as well below the EU average at 9.3 %, vs 10.2 % in 2016. However, in terms of spending per pupil in purchasing power standard (PPS) for 2014 (see Figure 2 below), Slovakia's profile is very similar to other central European countries, like the Czech Republic and Poland, but is still significantly below the EU-28 average (Eurostat, 2018).

Due to sustained economic growth there is scope to substantially increase spending on education and training in the future. Although the 2018 national reform programme acknowledges the insufficient wages of Slovakia's teachers compared to their peers and the relatively low general investment in education compared to the OECD average, no substantial improvement has been proposed (Slovak Government, 2018). The Slovak economy is now strong enough to offer more resources for the remuneration of teachers. Planned pay rises of 10% in 2019 and 2020 are almost two times higher than forecasted increases of average salary across the economy. This is a positive development, but it needs to be sustained also after 2020. EU structural and investment funds (ESIF) provide considerable support for education, but their impact on their ground remains to be seen. More positively, on 11 May 2018 the government announced a new investment in student housing (EUR 50 million over 2 years), which was i.a. called for by the Supreme Audit Office of Slovakia (MoE, 2018).

Figure 2. Annual expenditure on educational institutions per pupil in EUR PPS for 2014 (total institutions, ISCED 1-2 levels).



Source: Eurostat, 2018. Online data code: [educ_uae_fini04](#).

The current administrative set-up makes efficient coordination difficult. Education funding is very complex in Slovakia, with public education spending managed by: (i) the Education Ministry at a rate of 35.7 %; (ii) the Ministry of the Interior (Eurydice, 2018) responsible for 30.5 %; and (iii) the self-governing bodies (regions and municipalities) managing the remaining 33.8 %. In addition to funding, the Ministry of the Interior and its regional offices across the country also lays down important regulations on school life. In this context, Slovakia has recently made efforts to rationalise education spending and increase its efficiency. In 2017, the Ministry of Finance and the Ministry of Education carried out a spending review with the support of the European Commission's Structural Reform Support Service and the IMF: the government subsequently adopted a final report in October 2017 (Ministry of Finance, 2017). Implementation of the measures is supported by an independent monitoring government unit, which will prepare a monitoring report, to be published together with the 2019 state budget.

Slovakia has adopted a new 'national reform programme for education'. In accordance with the 2016 government manifesto, the Education Minister announced the '*National development programme for education*' (2018-2027), based on an inclusive and equitable educational model, which sets out clear education measures and indicates the financing needed. On 25 May 2018 the Minister presented it to the public, and later on the related two-year action plans, comprising substantial additional funding for the next budgetary period. The document the Minister presented is certainly a step in the right direction, with an increase in spending on education. However, it falls well short of the education community's expectations (Ministry of Education (MoE), 2018¹⁷³). The strategy was approved by the government on 27 June 2018.

4. Citizenship education

Comprehensive guidelines steer citizenship education. Guidelines on the content and organisation of citizenship education are set out in a policy manual addressed to schools each year by the MoE. The guidelines, which were substantially changed in 2015/2016, cover issues such as human rights, children's rights, discrimination, national minorities and foreigners, and set out detailed directions and proposals for action (MoE, 2017). The Ministry also changed the national curricula (known as 'state educational programmes'), on which schools' educational guidelines are based (MoE, 2017). The curricula aim 'to increase the attention and to ensure education ... aimed at effective and targeted prevention of racism, xenophobia, anti-Semitism, extremism and other forms of intolerance' (MoE, 2017).

There is more evidence-based policy making for citizenship education in schools. In the 2016/2017 school year, the State School Inspection (SSI) conducted a survey in cooperation with the Slovak Academy of Science (SAS) and the Comenius University to investigate the relationship between knowledge gained in relevant secondary school subjects and secondary school students' attitudes towards democratic values (SSI, 2017). A new scientific project by the SSI and the SAS, called 'Interventions to mitigate prejudices against stigmatised minorities' is currently under way and is helping develop new instruments for teachers. Nevertheless, schools feel that teaching support measures to enhance critical thinking and cyber and media literacy are still lacking (SAS, 2018).

5. Modernising school education

The early school leaving (ESL) rate has risen gradually over the years. The latest figures show that ESL has risen to 9.3 % in 2017 up from 7.4 % in 2016. While still below the EU-2020 headline target (10 %), it is well above the national target of 6 %. While Roma-specific data is not available, the fact that eastern Slovakia (which has a high share of Roma), has an ESL rate of 14.7 % for 2016 vs 4.7 % in western Slovakia, suggests the problem is most pronounced in the Roma population (Eurostat, 2018). In 2018 and 2019 a Spending Review is being undertaken to improve policies targeted on the inclusion of Groups at Risk of Poverty and Social Exclusion¹⁷⁴. Slovakia needs to take more targeted action to address low educational performance including ESL among disadvantaged students in general, and among the Roma in particular. A new programme combining vocational education and training (VET) and completion of ISCED 2 level is being

¹⁷³ <https://www.minedu.sk/ministerka-skolstva-predstavila-vychodiska-pre-narodny-program-rozvoja-vychovy-a-vzdelavania/>

¹⁷⁴ More on <https://goo.gl/WAERBY>

developed and should be introduced to target potential dropouts from basic schools from the next school year onwards (Slovak Government, 2018).

There are still many gaps in early childhood education and care (ECEC) provision. In 2016, the ECEC participation rate was 76.5 % — well below the EU-28 average of 95.3 % — and it has not improved since 2013. Consequently, the 2016 government manifesto mentioned above set a target of 95 % enrolment for children aged 4+ by 2020. National enrolment data also reveal a gap between the west and the east of Slovakia, with the country's lowest rates in two eastern regions: 72.84 % in Košice (lowest rate) and 81.31 % in Prešov (second lowest) (Slovak Government, 2018). However, Slovakia has further modernised its legislation on ECEC and is expanding childcare facilities. Act No 448/2008 on social services was amended again at the end of 2017. The main change is the mandatory registration of nurseries and other service providers by 30 June 2018 (Eurydice, 2018). In addition, nearly 10 000 places could be created in the current ESIF programming period, which would cover the unmet demand; between 8 000 and 10 000 children are not able to attend pre-school due to place shortages.

Enrolment in ECEC is lowest in districts with the highest share of socially disadvantaged people. To increase enrolment — particularly of children from less well-off families — free kindergarten places are being expanded to cover all children from socio-economically deprived families from September 2018 (Slovak Government, 2018). This measure is welcomed by Roma activists and by the Government Plenipotentiary for Roma Communities, who estimates that only one third of Roma children are currently enrolled in kindergartens. In 2018, Slovakia received a country-specific recommendation under the European Semester to 'Improve the quality and inclusiveness of education, including by increasing the participation of Roma children in mainstream education from early childhood onwards' (Council of the European Union, 2018¹⁷⁵).

Insufficient results in recent national tests point to significant educational disparities. The MoE tested primary school students (fifth grade) in mathematics and Slovak language. Test results confirmed large differences between Slovakia's most and least developed regions. Students achieved a national average of 64.7 % in the mathematics test and 62.8 % in Slovak language and literature. The country's worst results were recorded in the regions of Košice, Prešov and Banská Bystrica. In contrast, students from Bratislava scored the highest. The test scores of students from disadvantaged groups were approximately half as high as their peers from socially advantaged backgrounds (MoE, 2017). Finally, Slovak pupils ranked far below the average in the OECD Programme for International Student Assessment (PISA) collaborative problem solving survey published recently (OECD, 2017).

There are some measures to foster equity and inclusion, but they fall short of an overall approach. Key initiatives to improve school performance include: (i) the European Social Fund (ESF) funded project 'School open to all' which aims for inclusive education and better competences of staff in primary schools and kindergartens as well as specialised institutions that offer pedagogical and psychological support to schools; (ii) the 'More successful in basic school' scheme, which aims for a greater integration of pupils with special educational needs in mainstream education; and (iii) a project supporting extra-curricular activities in primary schools (Eurydice, 2018). Finally, there is still an on-going EU-law infringement procedure over the segregation of Roma children in education.

Despite gradual salary increases, the teaching profession remains fairly unattractive. Teachers' wages, despite recent increases, remain particularly uncompetitive in western Slovakia, especially in Bratislava. Trade unions have also demanded an increase in the currently very low wages for all categories of school auxiliary and support staff. The new government manifesto commitment could ensure that wages increase gradually, but they would still remain below the original goal that teachers' should receive the equivalent of 80 % of salaries of graduates with a tertiary qualification by 2020. The 2018 national reform programme states that teacher 'wages are among the lowest in the OECD, although the gap has diminished in the years 2016 and 2017 by raising teachers' salaries'. The government is planning to increase teacher salaries by 10% in 2019 and 10% in 2020. Also, in line with the Government Manifesto, it is planned that the salary of teachers at the beginning of their career should be increased by 9.5% in 2019. Finally, the MoE is drafting a new act on teaching staff to replace the current rules on qualification requirements, career paths and continuing professional development (Eurydice, 2018).

¹⁷⁵ More on <http://data.consilium.europa.eu/doc/document/ST-9449-2018-INIT/en/pdf>

Box 1: Education in language schools – action plan for 2017-2020

The MoE of the Slovak Republic recently published an action plan (*Akčný plán*) which describes individual measures for language education.

The plan encompasses the following key strands:

- modernisation of educational programme for language schools;
- standardisation of the state language examination;
- revision of the language education certificate;
- amendment of MoE Decree No 321/2008 on language schools.

For more information: https://www.minedu.sk/data/files/7342_akcny_plan_2017_2020.pdf

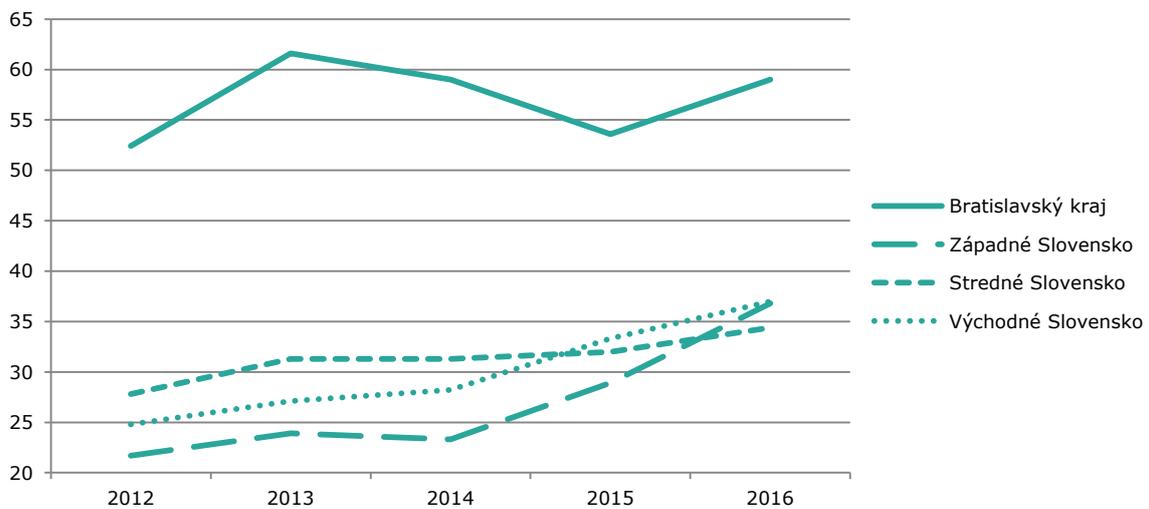
Digital education is important in light of ongoing technological changes, a lack of ICT specialists and a generally low level of digital skills. The National Union of Employers and the IT Association of Slovakia have called for better digital education. Two notable initiatives are underway:

- 1) The national ESF-supported project 'IT Academy – Education for the 21st Century' (*IT Akadémia – vzdelávanie pre 21. storočie*), which aims to prepare young people for the needs of a knowledge-based society and jobs in ICT, kicked off in November 2017. At least 300 primary schools, 200 secondary schools, and 5 universities participate. The project is a model of cooperation between schools and ICT businesses, as each activity is supported by a specialist from an IT company.
- 2) The national digital skills and jobs coalition began work in September 2017, mobilising public and private bodies as well as the non-profit sector to improve the population's digital skills (Eurydice, 2018).

6. Modernising higher education

The level of tertiary attainment is steadily growing in Slovakia and catching up fast with the rest of the EU. In 2017, the national tertiary graduation rate was 34.3 % vs the EU average of 39.3 %. The gap between Slovakia and the EU-28 average has been narrowing over time, from 15.3 pps in 2007 to only 5.6 pps a decade later. However, there are still very high regional disparities (see Figure 3), in particular between Bratislava and the rest of the country. The Supreme Audit Office found in a recent report that there was a major under funding of public higher education institutions (HEIs), in particular for infrastructure, notably student housing (NKU, 2018). Slovakia is considering a new policy initiative and in 2017-2018, with the European Commission's support, it carried out peer counselling on the possible future reform of the governance structure of HEIs, with peers from Austria, Estonia, Ireland, Poland and the European University Association. Also, the introduction of short-cycle, professionally oriented degrees is strongly advocated by business and calls from employers to implement 'professional bachelor's' programmes are growing stronger. In a related development, Volkswagen and the Slovak University of Technology completed the first semester of a newly designed 'professional' bachelor's programme specialising in the automotive industry. This is a four-year programme with 1 full year of in-company training.

Figure 3. Population aged 30-34 by educational attainment level (at ISCED 5-8) for Slovakia NUTS 2 regions in % for 2012-2016.



Source: Eurostat, 2018. Online data code: [edat_lfse_12](#).

The Slovak parliament approved an amendment to the Higher Education Act and a new law on quality assurance in higher education¹⁷⁶. The law on quality assurance of HE introduces: (i) a completely new system of accreditation which will be managed by the independent Slovak Accreditation Agency for Higher Education; (ii) a simplified procedure for recruiting associate professors and foreign professors; (iii) a new system for evaluating the research and creative activities of universities; (iv) a reduction in the number of universities or university degrees; and (v) a new 'interdisciplinary studies' bachelor's programme for students who have not yet decided on their future career path. Students will also have an option to extend their fee-free study period by 1 extra year if they take part in an internship abroad or in the Erasmus+ programme (Eurydice, 2018).

7. Modernising vocational education and training

Slovakia continues to improve the quality and relevance of VET to labour market needs, notably by removing obstacles to a wider roll-out of the dual scheme. The outcomes of secondary VET continue to improve, with the employment rate of recent VET graduates reaching 81.6 % in 2017, well above the EU average of 76.6 %. The main policy development in VET was the amendment of the 2015 VET Act, which entered into force in September 2018. The amendment introduces incentives to support school-company cooperation. For example, to encourage schools and companies, including SMEs, to cooperate in the dual scheme: (i) the financial cuts to schools, resulting from the shift of practical education to companies, have been abolished; and (ii) administrative requirements related to companies' readiness (premises, equipment and staff) to offer practical education have been waived. Furthermore, curricula for dual and non-dual learners have been unified to enable companies to adjust the provision of practical skills to their needs.

Changes with regard to training staff include: (i) the introduction of a 'head instructor' position to improve instructors' performance and cooperation between school and company; (ii) a clarification of the distinction between educational counsellors and career guidance counsellors; and (iii) granting a day off to teachers working as educational counsellors to improve guidance, staff cooperation and cooperation between schools and companies. The amendment to the above-mentioned VET Act has further introduced: (i) 'entrance quotas' prescribing the number of students in individual fields of study on the basis of regional labour market needs; (ii) the right of the MoE to amend the decisions of the country's self-governing regions on quotas; and (iii) direct funding from the state budget for companies offering the requisite number of training hours.

¹⁷⁶ More on <http://www.rokovania.sk/Rokovanie.aspx/RokovanieDetail/963>

Box 2: An ESF-funded project is providing students with professional experience

The National Institute of Vocational Education has set up a 'dual VET education' system to increase the chances of employment for future graduates, whereby students can take up an apprenticeship in a professional environment.

In the 2017/2018 school year, 998 students and 380 employers were involved. The aim is for 700 trained instructors to teach 12 000 students by 2020. Instructors are of key importance to the project's success as they are responsible for quality of the training given to students.

The project, which is based on a similar model used in Austria and Germany, was recommended by foreign chambers of commerce and industry associations in Slovakia. The project is co-financed by the ESF.

For more information: <http://www.dualnysystem.sk/TlacovaSprava.aspx?ArticleId=53>

8. Promoting adult learning

New evidence from the Adult Education Survey (AES) and continuing vocational training survey (CVTS) puts Slovak adult learning in a new perspective. At 56.8 % in 2015, participation in workplace training was well above the EU average of 40.8 % (CVTS) and the participation of adults in education and training in 2016 was slightly above the EU average — 46.1 % vs 45.1 % (AES). At the same time, according to the Labour Force Survey (LFS), at 3.4 % in 2017 Slovakia has one of the lowest adult learning rates in the EU. A possible explanation for this inconsistency might be that only a narrow range of activities is caught by the LFS. In addition, the reference period is shorter (4 weeks vs 1 year for AES and CVTS). In parallel with the shortage of skilled workers, Slovakia is also faced with an insufficient employment rate of low-qualified people (38.8 % in 2017 — the second lowest in the EU). However, the share of low-qualified workers was 8.6 % in 2017 — the fourth lowest in the EU. The unused potential of this group is clearly a barrier to further economic growth and inclusion. Targeted measures for upskilling and re-skilling consistent with the Council Recommendation on upskilling pathways could help to integrate low-qualified people in the labour market.

Targeted ESF funding is earmarked to support lifelong learning. A multi-million euro national project to roll out a system to recognise duly validated non-formal and informal learning achievements is currently being prepared and will be launched before the end of 2018. Its success will depend on the degree of practical cooperation between the MoE, the Ministry of Labour and Employment Offices on all key project activities. Slovakia has carried out institutional reform in the field of adult learning and has transferred the responsibilities for lifelong learning and adult learning governance from the National Lifelong Learning Institute to the State Institute of Vocational Education. A major reason for the change is to concentrate all European VET-related projects in one place.

Several measures should help increase the flexibility and responsiveness of the education and training system. The Slovak national qualification network was referenced to the EQF in October 2017 and the referencing report was approved by the government in November 2017. This sets out a comprehensive framework covering all levels (eight in total) and types of qualifications in formal education and training, including a sub-framework of occupational qualifications (Cedefop, 2018b). In addition, Cedefop is providing Slovakia with guidance and technical advice on how to improve its governance of skills, as well as anticipation and matching. This work started in 2017 and includes identifying country-specific challenges, bottlenecks and policy solutions for achieving an effective skills governance system (Cedefop, 2018a).

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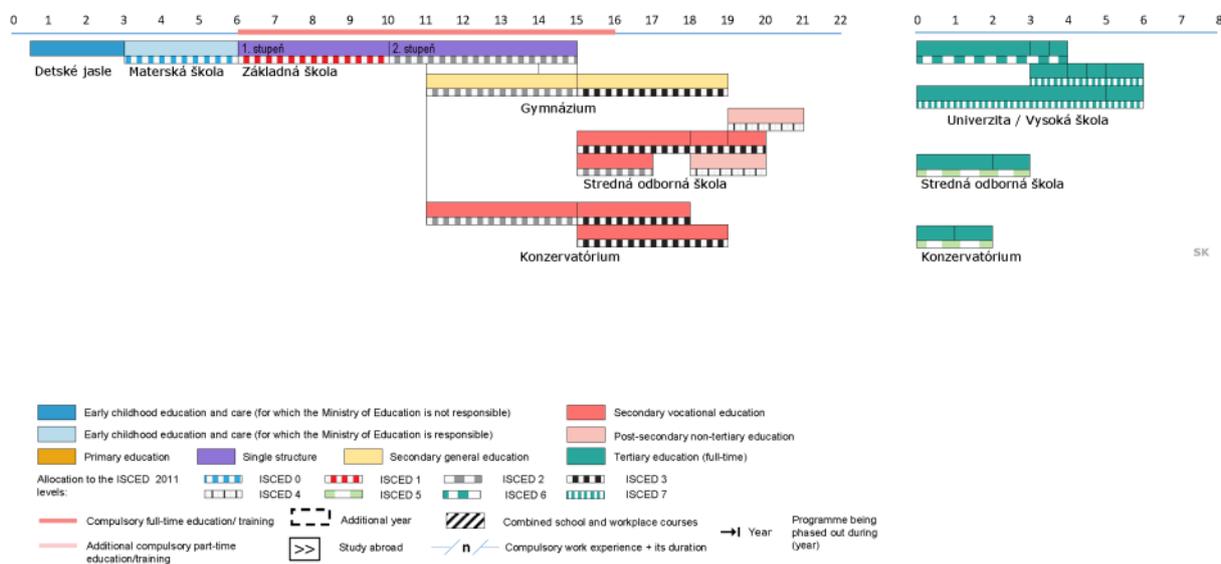
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10. Annex I: Key indicator sources

Indicator	Eurostat online data code
Early leavers from education and training	edat_lfse_14 + edat_lfse_02
Tertiary educational attainment	edat_lfse_03 + edat_lfs_9912
Early childhood education and care	educ_uae_enra10
Underachievement in reading, maths, science	OECD (PISA)
Employment rate of recent graduates	edat_lfse_24
Adult participation in learning	trng_lfse_03
Public expenditure on education as a percentage of GDP	gov_10a_exp
Expenditure on public and private institutions per student	educ_uae_fini04
Learning mobility: Degree mobile graduates	JRC computation based on Eurostat / UIS / OECD data
Credit mobile graduates	educ_uae_mobc02

11. Annex II: Structure of the education system



Source: European Commission/EACEA/Eurydice, 2017. *The Structure of the European Education Systems 2017/18: Schematic Diagrams*. Eurydice Facts and Figures. Luxembourg: Publications Office of the European Union.

Comments and questions on this report are welcome and can be sent by email to:

EAC-UNITE-A2@ec.europa.eu

SLOVENIA



1. Key indicators

		Slovenia		EU average		
		2014	2017	2014	2017	
Education and training 2020 benchmarks						
Early leavers from education and training (age 18-24)		4.4%	4.3%	11.2%	10.6%	
Tertiary educational attainment (age 30-34)		41.0%	46.4%	37.9%	39.9%	
Early childhood education and care (from age 4 to starting age of compulsory primary education)		89.4% ¹³	90.9% ¹⁶	94.2% ¹³	95.3% ¹⁶	
Proportion of 15 year-olds underachieving in:	Reading	21.1% ¹²	15.1% ¹⁵	17.8% ¹²	19.7% ¹⁵	
	Maths	20.1% ¹²	16.1% ¹⁵	22.1% ¹²	22.2% ¹⁵	
	Science	12.9% ¹²	15.0% ¹⁵	16.6% ¹²	20.6% ¹⁵	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-8 (total)	70.1%	81.6%	76.0%	80.2%	
Adult participation in learning (age 25-64)	ISCED 0-8 (total)	12.1%	12.0%	10.8%	10.9%	
Learning mobility	Degree mobile graduates (ISCED 5-8)	:	1.8% ¹⁶	:	3.1% ¹⁶	
	Credit mobile graduates (ISCED 5-8)	:	0.0% ¹⁶	:	7.6% ¹⁶	
Other contextual indicators						
Education investment	Public expenditure on education as a percentage of GDP	6.0%	5.6% ¹⁶	4.9%	4.7% ¹⁶	
	Expenditure on public and private institutions per student in € PPS	ISCED 1-2	€7 115	€6 824 ¹⁵	€6 494 ^d	: ¹⁵
		ISCED 3-4	€5 665	€5 533 ¹⁵	€7 741 ^d	: ¹⁵
		ISCED 5-8	€8 860	€8 971 ¹⁵	€11 187 ^d	: ¹⁵
Early leavers from education and training (age 18-24)	Native-born	4.0%	4.2%	10.4%	9.6%	
	Foreign-born	13.5% ^u	:	20.2%	19.4%	
Tertiary educational attainment (age 30-34)	Native-born	43.4%	49.3%	38.6%	40.6%	
	Foreign-born	17.0% ^u	24.1% ^u	34.3%	36.3%	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-4	62.6%	79.8%	70.7%	74.1%	
	ISCED 5-8	74.3%	82.4%	80.5%	84.9%	

Sources: Eurostat (see section 10 for more details); OECD (PISA).

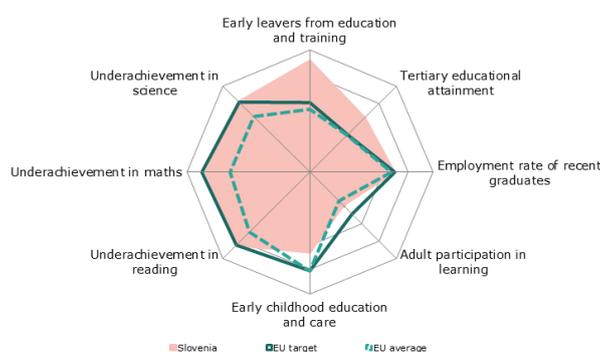
Notes: data refer to weighted EU averages, covering different numbers of Member States depending on the source;

d = definition differs, u = unreliable, 12 = 2012, 13 = 2013, 15 = 2015, 16 = 2016.

On credit graduate mobility, the EU average is calculated by DG EAC on the available countries; on degree graduate mobility, the EU average is calculated by JRC over Eurostat and OECD data.

Further information can be found in the relevant section of Volume 1 (ec.europa.eu/education/monitor).

Figure 1. Position in relation to strongest (outer ring) and weakest performers (centre)



Source: DG Education and Culture calculations, based on data from Eurostat (LFS 2017, UOE 2016) and OECD (PISA 2015). Note: all scores are set between a maximum (the strongest performers represented by the outer ring) and a minimum (the weakest performers represented by the centre of the figure).

2. Highlights

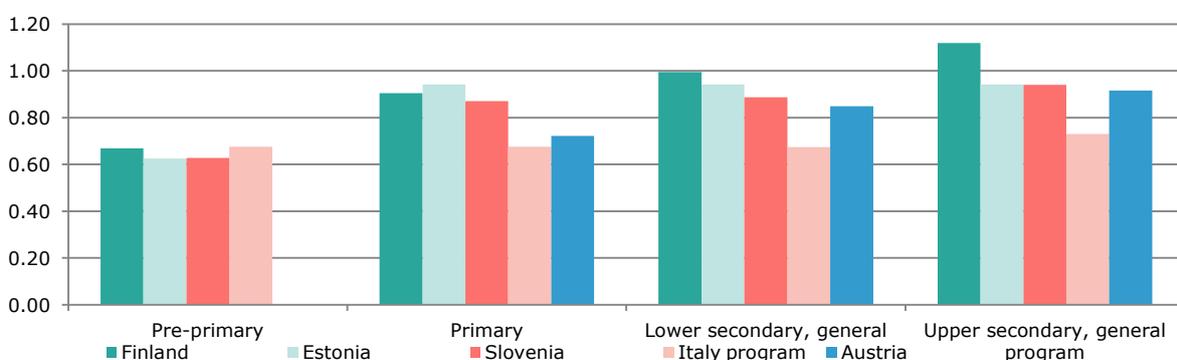
- Despite budgetary reductions since 2012, Slovenia still invests more in education and training than the EU average.
- Slovenia has a well-developed framework of citizenship education, which results in high civic knowledge and well-developed attitudes among Slovenian pupils and students.
- Slovenia continues to perform well in preventing early leaving from education and training, and is introducing reforms to increase the participation rate in early childhood education and care.
- Reform of the financing of tertiary education has been successfully implemented, but wider reforms were delayed due to elections.
- Following the adoption of the Apprenticeship Act in 2017, piloting of apprenticeships started in the 2017/2018 school year.

3. Investing in education and training

Slovenia invests more in education and training than the EU average. General government expenditure on education remained above the EU average in 2016, as a share both of GDP (5.6 %) and of total general government expenditure (12.4 %). The total spending on education and training as a share of GDP decreased by 0.8 percentage points between 2012 and 2016, or 4.9 % in real terms¹⁷⁷. The decline, which matches the wider trend in the EU, affected all education sectors broadly equally and left the relative distribution of funding between education sectors similar to that in 2012.

As a share of GDP, teachers' salaries in Slovenia were comparable to those in its peers but declined from the 2009 high. Large teachers' strikes took place in Slovenia in 2018 over the negotiation of new salary packages. In 2015, the basic gross statutory salary of Slovenian teachers in primary and secondary schools ranged from 91.5 % to 146.4 % of GDP (Eurydice, 2016). Expressed in purchasing power parity, salaries remained below those of 2009 despite a slight increase between 2014 and 2016 (ibid.). In 2015, teachers' salaries as a share of other Slovenian full-time workers with tertiary education ranged from 63 % in pre-primary education to 94 % in upper secondary general education (OECD, 2017). This share is higher than that of Slovenia's neighbours, but similar to that of other countries with high scores in the international studies of pupils' skills (Figure 2). An analysis by the Slovenian Eurydice Office showed the pupil-to-teacher ratio in Slovenia was broadly similar to that of its peers, except in primary education where it was slightly higher, and in lower secondary education where it was lower (Eurydice Slovenia, 2018).

Figure 2. Actual salaries of teachers relative to earnings for full-time, full-year workers with tertiary education in 2015



Source: OECD, Education at a Glance 2017: OECD Indicators, Table D3.2a.

¹⁷⁷ Eurostat [gov_10a_exp] and [nama_10_gdp].

4. Citizenship education

Citizenship education is provided both as a separate and integrated subject and is organised into a coherent delivery system. Slovenia provides citizenship education both integrated into other compulsory subjects and as a separate subject — 1 of 10 EU Member States with this approach. Citizenship education is taught as a separate subject in lower secondary education for 17.7 hours per year, which is around the average time allocation among 16 Member States with a similar structure¹⁷⁸. Even though no particular competences for citizenship education are taught in initial teacher education¹⁷⁹, Slovenia joins six other EU countries in promoting competences related to citizenship education through placements during the initial teacher training, an induction phase and/or mentoring for all subject teachers¹⁸⁰ (Eurydice, 2017). Additionally, future school heads must take part in a training programme on implementing citizenship education through school culture governance, which includes topics such as human rights education and people in organisations (ibid.). Continuing professional development activities are also offered for teachers.

The civic knowledge of Slovenian students is high and has improved between 2009 and 2016. In the ICCS, Slovenian students scored above the average of the 24 countries surveyed (532 vs 517 points)¹⁸¹, an increase of 16 points compared to 2009. In line with the other countries studied, gender and socio-economic status had a considerable effect on students' knowledge: girls scored better than boys (by 35 points) and students with lower socio-economic status scored lower than their peers with a higher status (by 48 points). The solid citizenship competences of Slovenian pupils are also demonstrated by their participation in community activities. 87 % of teachers report taking part in cultural activities with their classes, the highest among the countries surveyed (IEA 2017, Table 6.13). Slovenian students also participated significantly more often than their peers in environmental activities (70 %) and in activities supporting underprivileged people (49 %), although they had fewer opportunities than other countries to take part in multicultural activities within the local community. Despite these solid results, Slovenian pupils were less likely than their peers in the ICCS study to volunteer in the community or join a youth organisation affiliated with a trade union or a political party (IEA 2017, Table 4.13).

Box 1: Both students and teachers are involved in school governance

Elements of participatory governance have been a part of public education system in Slovenia for decades. Teachers can nominate and vote to elect their heads of school, approve the work plan for each school year and plan each year's curriculum. In the most recent comprehensive curricula reform, teachers were involved in the preparations of and discussions on official curricula. They are also involved in decision-making on promotions of school employees and on several other school activities. Given the important role of school autonomy in educational quality and outcomes (see Volume 1), these organisational factors help explain Slovenia's strong overall performance.

Students participate in discussions on school regulations and quality of teaching. Every year they discuss a selected topic in their class and the regional and national school parliament. In upper secondary education, student representatives are on the school board and participate in the decision-making process in cooperation with teacher, parent and state representatives. These representatives then become members of the parliament of the School Student Organisation of Slovenia (SSOS), which aims to improve students' contribution to a better school environment and their influence on the curriculum (Eurydice, 2017).

¹⁷⁸ Estonia and Finland each recommend more than 50 hours per year.

¹⁷⁹ Additionally, teachers with a degree in philosophy, geography, sociology, politics are deemed qualified to teach the separate subject of citizenship education in primary school.

¹⁸⁰ Both the induction period and professional mentoring of traineeships for professionals in education' must include content related to the promotion of democracy among students, as well as respect for human diversity and multiculturalism (ibid.).

¹⁸¹ In ICCS 2016 the civic knowledge scale was set to a metric with a mean of 500 (the average score of countries participating in ICCS 2009).

5. Modernising school education

Slovenia is one of the EU leaders in preventing early leaving from education and training.

With a rate of only 4.3 % of early leaving from education and training in 2017, Slovenia continues to perform well above the EU average (10.6 %) and the Europe 2020 target. Rural areas were more successful in preventing early school leaving than towns and suburbs (2.0 % vs 5.8 %). The National Examinations Centre — the body in charge of school-leaving exams in Slovenia, carried out a study in 2017 on the link between socio-economic status and performance in primary and secondary school in both high- and low-stakes exams. The results showed significant differences in secondary school pupils' performance, as well as their enrolment decisions, based on their socio-economic status and their distribution in classes within schools (Cankar et al., 2017). While this is in line with the findings of other international studies, the Slovenian study also found that the socio-economic impact in primary school grows over time (the study was conducted in the sixth and ninth grade, which are both part of primary school in Slovenia)¹⁸².

Participation in early childhood education and care has been improving slowly but remains below the 2020 target.

At 90.9 %, Slovenia had a lower rate than the EU average (95.3 %) of children between the age of 4 and the start of compulsory education participating in early childhood education and care (ECEC). While on an upward trend, participation has risen by only 3.2 % between 2009 and 2016¹⁸³. Slovenia has set a strategic goal of a 100 % participation rate in the year before primary school. To this end, in 2017 the legislation was amended to introduce fully state-funded 240-hour programmes for 5 year-olds who had not attended ECEC before. As an incentive specifically targeting parents with a lower socio-economic background, the programmes will be free at the point of delivery. Additionally, a new system will be introduced in 2019 for early childhood support for special needs children from birth until they start primary school, which will include support to families.

Slovenia introduced a series of innovative measures to support migrant integration in education and training.

As in most EU countries, in Slovenia children with a migrant background have worse education results than their peers. They are more likely to leave education and training early (15.6 % vs 4.4 % in 2016¹⁸⁴) and perform worse in international studies of basic skills¹⁸⁵. Following intense public discussion during 2015 and 2016, Slovenia launched a series of targeted reforms. The 2017 amendments to the Gimnazije Act and the Vocational Education Act focused on integrating secondary school-aged migrants into education by: (i) including the Slovenian language in second language lessons; (ii) giving lessons in native languages; and (iii) training teachers in multiculturalism. A website was set up with information for school management, teachers, parents and other interested parties on various aspects of the integration of migrants¹⁸⁶ (MIZS, 2018). Furthermore, a project on 'Enhancing social and civic competences of educational staff (2016-2021)' focuses on empowering experts to successfully integrate migrant children, pupils and students and majority-culture children through programmes of professional training (Government of the Republic of Slovenia, 2018).

Box 2: Innovative projects support Slovenia's system of teacher preparation

Initial teacher education takes place at the Faculties of Education of the Universities in Ljubljana, Maribor and Koper, and — in the context of subject-specific majors — at other faculties of these universities. Enrolment in the programmes has remained stable and sufficient for the renewal of the teaching staff. The same institutions that provide initial teacher education are also in charge of most further education in the subject. This type of education and training corresponds with the demands of the Ministry of Education and of teachers' associations and is financed from public funds. Continuing professional development is also a pre-condition for teachers to keep their jobs and progress in their careers.

¹⁸² The country-specific findings are particularly valuable in targeting interventions — such as through the EU funds — to improve equity.

¹⁸³ Eurostat [educ_uae_enra10].

¹⁸⁴ Eurostat [edat_ifse_02], the indicator compares the performance of foreign-born children to those born in Slovenia. Due to small sample sizes, the reliability of the indicator is limited.

¹⁸⁵ 30.6 % of second-generation pupils were low performers in science in OECD's 2015 PISA study, vs 12.6 % of non-migrant students (OECD, 2016).

¹⁸⁶ Including materials on Slovenian as a second language, produced with the help of the ESF.

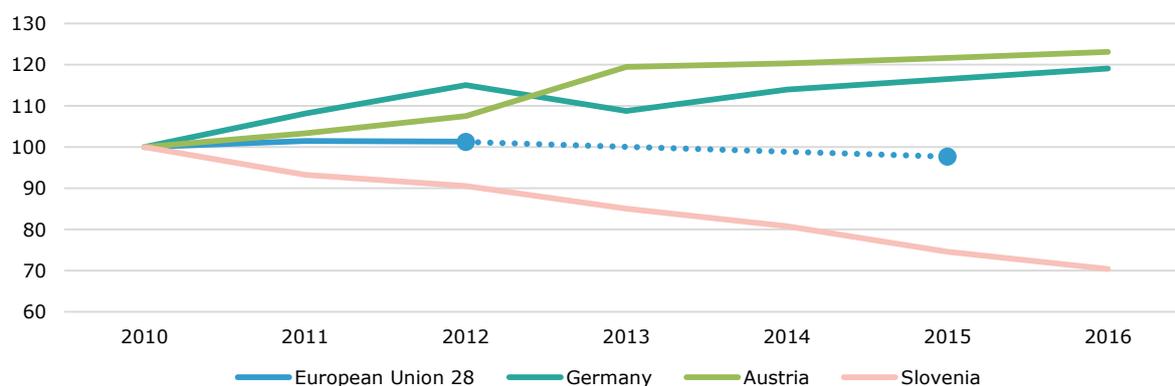
Slovenia makes use of the European Social Fund (ESF) to improve initial teacher education. A 2017 call “Innovative and flexible forms of teaching and learning in pedagogic study programs” provided EUR 1.3 million, 80 % of which was from the ESF, to co-finance activities in higher education study programmes which prepare future primary and secondary teachers for didactic use of ICT in learning and teaching. To promote careers in education and training for first-time job seekers, Slovenia publishes annual calls for first-time employment in education and training for people up to 29 years-old. The relevant projects invested EUR 9.8 million between 2015 and 2018, 80 % co-funded by the ESF. In 2018 alone, the projects funded the new employment of young education and training professionals in 74 institutions in Slovenia. After a successful completion of their initial employment period and the end of EU-supported funding, the new educators and trainers have an option to remain in their positions in regular employment.

6. Modernising higher education

Slovenia has achieved its target for tertiary educational attainment, but a wide gap remains between men and women. Slovenia has continued to increase the rate of tertiary educational attainment among its 30-34 year-olds, reaching 46.4 % in 2017. This is above both the national Europe 2020 target of 40 % and the 2017 EU average of 39.9 %. However, Slovenia had the highest gender gap in the EU, with only 34.7 % of men aged 30-34 having a tertiary degree in 2017 vs 58.8 % of women¹⁸⁷. Similar to the other EU Member States with a large gap, efforts to address the issue are limited. Employment rates of graduates aged 20-34 in the 1-3 years following their completion of tertiary education have continued to improve, reaching 82.4 % in 2017 (84.9 % in the EU¹⁸⁸). The inclusiveness of Slovenia’s tertiary education system also improved, with the Eurostudent Vi survey showing a 5 % increase in the share of students from lower socio-economic backgrounds between 2013 and 2016 (Hauschildt et al., 2018).

The sharp decline in student numbers could affect the efficiency of the tertiary education system. With a decline of over 30 % between 2010 and 2016¹⁸⁹, Slovenia saw the sharpest fall in student numbers in the EU. While the decrease is partly due to the success of reforms that address fictitious enrolment in tertiary education¹⁹⁰, the extent of the drop is significant compared with the unweighted average decrease in the EU of just over 3 % in the same period (Figure 3). This has created some challenges in tertiary education efficiency and spurred some of the financing reforms outlined below. However, the decline is expected to level off in the coming period, given that the number of children aged 6-18 increased by 2.4 % between 2010 and 2017.

Figure 3. Number of tertiary education students 2010-2016 (index: 2010 = 100)



Source: Eurostat. Online data code: *educ_uoe_enrt01* (from 2013) and *TPS00062* (to 2012).

¹⁸⁷ Eurostat [edat_ifse_03].

¹⁸⁹ Eurostat [tps00062] and [educ_uoe_enrt01].

¹⁹⁰ Due to favourable access to the labour market and other forms of student support, there was historically a strong incentive to enrol fictitiously, change institutions or delay graduation. The introduction of an information management system in 2012 helped reduce this.

Higher education financing has been successfully reformed but wider reforms were put on hold. The planned reforms to tertiary education financing were completed with the negotiation and signature of funding agreements between the government and higher education institutions. Under the new system, tertiary education institutions in Slovenia have three funding streams: (i) a guaranteed basic fund; (ii) a variable fund linked to performance on pre-determined indicators; and (iii) a development fund based on contracts signed between universities and the Ministry. A comprehensive reform to tertiary education legislation — aiming to address rules on public service in tertiary education, employees' rights and responsibilities, and the rights of students — was delayed due to parliamentary elections. More widely, Slovenia aims to improve the quality and relevance of its tertiary education by investing in (with support from the ESF): (i) the international mobility of its students and staff; (ii) students' practical skills; (iii) cooperation with the wider community; and (iv) tracking of graduates.

7. Modernising vocational education and training (VET)

Following the adoption of the Apprenticeship Act in 2017, apprenticeships started to be piloted in the 2017/2018 school year to ensure closer cooperation with businesses and help the transition of young people to the labour market. Apprentices will spend at least 50 % of their vocational programme at a training with an employer in a company, and are entitled to pay and social security in line with labour regulations. The pilot is part of an ESF project entitled 'Reform of Vocational upper secondary education', run by the Institute of the Republic of Slovenia for VET (Center za poklicno izobraževanje - CPI) in four vocational programmes: metalworker-toolmaker, stonecutter, carpenter, and gastronomic and hotel services. Although 200 apprentices were expected to participate in the pilot, only about 50 students are taking part. In the 2018/2019 school year the pilot will be extended to an additional four programmes (glassmaker, papermaker, painter - letterhead, machine mechanic) and with 72 new students in upper secondary VET and the participation of new companies, and schools (European Centre for the Development of Vocational Training (Cedefop) ReferNet, 2018a).

In parallel, the government adopted amendments to the Vocational Education Act in November 2017. The Act, which entered into force in September 2018: (i) determines the procedure for verifying learning places; (ii) establishes a register of learning places at national level; and (iii) introduces a certificate which provides detailed, uniform and internationally comparable information to employers on vocational qualifications, in line with the Europass Certificate Supplement. Other amendments to the Act focus on the migrants and aim to ensure their integration into the secondary education and training system. There is currently no legal obligation to track vocational graduates, but it is part of the national quality assurance indicators. Projects promoting VET in the 2016-2020 period are financed with European funds. Participation of upper secondary students in VET has increased from 65.9 % in 2013 to 70.4 % in 2016 (EU average: 49 %). The employment rate of recent upper secondary VET graduates, at 80.8 % in 2017, is above the EU average of 76.6 %.

8. Promoting adult learning

Population ageing accentuates the need to increase participation in adult learning, in particular for the low-skilled. Participation in adult learning was at 12 % in Slovenia in 2017, above the EU average of 10.9 %. However only 2.9 % of low-skilled people participated in education and training vs the EU average of 4.3 %. Moreover, the employment rate of the low-skilled in Slovenia was 49.7 % in 2017, below the EU average of 55.6 %. According to the Continuing Vocational Training Survey of 2015, 84.1 % of Slovenian companies (EU average: 72.6 %) provided vocational training to their employees and 58.3 % of employees participated in this training (EU average: 40.8 %). In 2015, most Slovenian companies identified teamwork and customer handling as the most important skills for business development. With regard to digital skills, 54 % of the population possessed at least basic skills in 2017 (EU average: 57 %). Younger generations benefit from digital content and digital skills being included in the formal education curricula from primary school to university level. The Slovenian Digital Coalition, which brings together a broad range of stakeholders, aims to address the existing gaps in digital skills in the labour market through adult learning actions targeting the population groups not covered by the

formal education process (specifically, adults above 45 years of age, those with lower education attainment and the rural population) (European Commission, 2018).

While projects aimed at upskilling employees continue to be rolled out, the new Adult Education Act adopted in January 2018 sets 'guidance for low-skilled adults' as a public service. A variety of services for adults, such as consultation, mentoring, and training of educators will, through the new law, be complemented with a public service comprising a primary school for adults and counselling. This gives adult education a special legal position in the Slovenian education and training framework. The Act also re-established a public network of bodies to provide training to raise the educational attainment levels of less qualified and other vulnerable groups of adults through formal and non-formal programmes, in line with the objectives of the Council of the EU's Recommendation on upskilling pathways. The target groups include unemployed people aged 50+ and elderly low-qualified employees lacking key competences and job-specific skills. Another promising project — 'Development of programmes for upskilling in continuing vocational education and training 2017-2022' (the 'PINPIU' project) aims to develop formal VET programmes for upskilling employees, especially those in small companies which are less likely to participate in continuing VET. This will help them respond to changing needs in the labour market. CPI coordinates the project preparing 20 pilot programmes in cooperation with employers and training providers (Cedefop ReferNet, 2018b).

Slovenia has entered the second phase of its national skills strategy. The project, which started in 2015, is carried out in cooperation with the OECD. The current phase includes preparing an action plan (expected for the end of 2018) for a new system of knowledge and skills-development through lifelong learning measures. In 2018, Slovenia received a country-specific recommendation to 'increase employability of low-skilled and older workers through lifelong learning and activation measures' (Council of the European Union, 2018).

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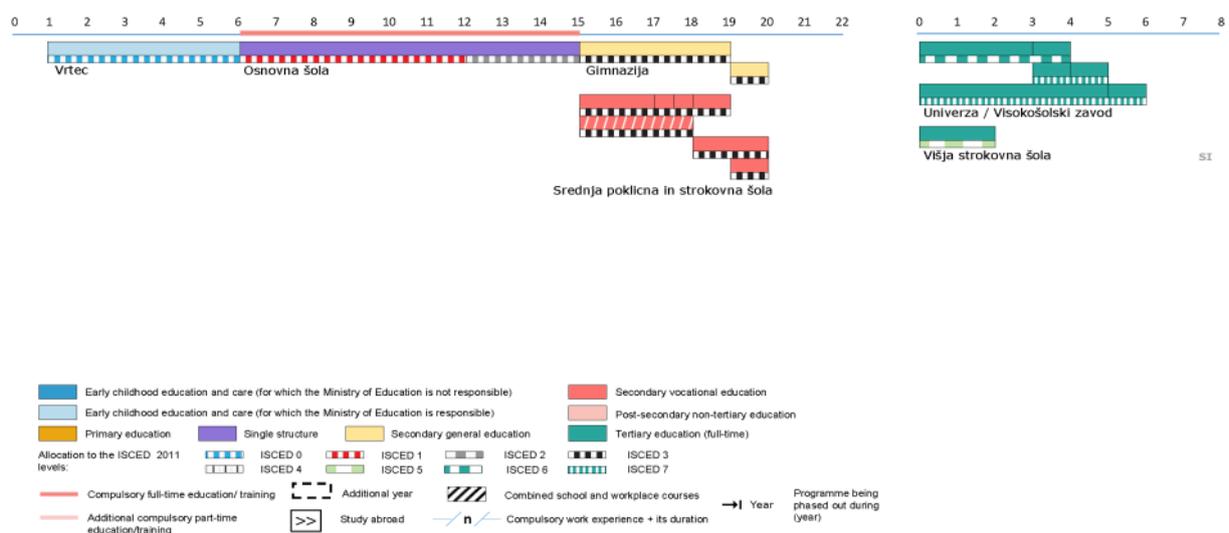
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10. Annex I: Key indicator sources

Indicator	Eurostat online data code
Early leavers from education and training	edat_lfse_14 + edat_lfse_02
Tertiary educational attainment	edat_lfse_03 + edat_lfs_9912
Early childhood education and care	educ_uoe_enra10
Underachievement in reading, maths, science	OECD (PISA)
Employment rate of recent graduates	edat_lfse_24
Adult participation in learning	trng_lfse_03
Public expenditure on education as a percentage of GDP	gov_10a_exp
Expenditure on public and private institutions per student	educ_uoe_fini04
Learning mobility: Degree mobile graduates	JRC computation based on Eurostat / UIS / OECD data
Credit mobile graduates	educ_uoe_mobc02

11. Annex II: Structure of the education system



Source: European Commission/EACEA/Eurydice, 2017. *The Structure of the European Education Systems 2017/18: Schematic Diagrams*. Eurydice Facts and Figures. Luxembourg: Publications Office of the European Union.

Comments and questions on this report are welcome and can be sent by email to: EAC-UNITE-A2@ec.europa.eu

SPAIN



1. Key indicators

		Spain		EU average		
		2014	2017	2014	2017	
Education and training 2020 benchmarks						
Early leavers from education and training (age 18-24)		21.9%	18.3%	11.2%	10.6%	
Tertiary educational attainment (age 30-34)		42.3%	41.2%	37.9%	39.9%	
Early childhood education and care (from age 4 to starting age of compulsory primary education)		97.1% ¹³	97.3% ¹⁶	94.2% ¹³	95.3% ¹⁶	
Proportion of 15 year-olds underachieving in:	Reading	18.3% ¹²	16.2% ¹⁵	17.8% ¹²	19.7% ¹⁵	
	Maths	23.6% ¹²	22.2% ¹⁵	22.1% ¹²	22.2% ¹⁵	
	Science	15.7% ¹²	18.3% ¹⁵	16.6% ¹²	20.6% ¹⁵	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-8 (total)	65.1%	71.9%	76.0%	80.2%	
Adult participation in learning (age 25-64)	ISCED 0-8 (total)	10.1%	9.9%	10.8%	10.9%	
Learning mobility	Degree mobile graduates (ISCED 5-8)	:	1.4% ¹⁶	:	3.1% ¹⁶	
	Credit mobile graduates (ISCED 5-8)	:	7.7% ¹⁶	:	7.6% ¹⁶	
Other contextual indicators						
Education investment	Public expenditure on education as a percentage of GDP	4.1%	4.0% ^{16,p}	4.9%	4.7% ¹⁶	
	Expenditure on public and private institutions per student in € PPS	ISCED 1-2	€5 465	€5 837 ¹⁵	€6 494 ^d	: ¹⁵
		ISCED 3-4	€6 391	€6 925 ¹⁵	€7 741 ^d	: ¹⁵
		ISCED 5-8	€9 170	€9 350 ¹⁵	€11 187 ^d	: ¹⁵
Early leavers from education and training (age 18-24)	Native-born	18.9%	15.6%	10.4%	9.6%	
	Foreign-born	37.8%	31.9%	20.2%	19.4%	
Tertiary educational attainment (age 30-34)	Native-born	46.5%	45.6%	38.6%	40.6%	
	Foreign-born	26.9%	26.2%	34.3%	36.3%	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-4	54.7%	57.9%	70.7%	74.1%	
	ISCED 5-8	68.6%	76.6%	80.5%	84.9%	

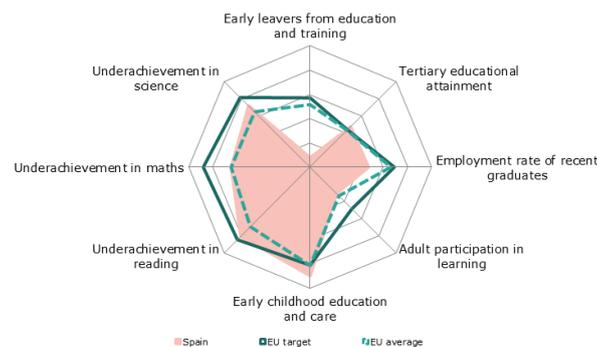
Sources: Eurostat (see section 10 for more details); OECD (PISA).

Notes: data refer to weighted EU averages, covering different numbers of Member States depending on the source; d = definition differs, 12 = 2012, 13 = 2013, 15 = 2015, 16 = 2016.

On credit graduate mobility, the EU average is calculated by DG EAC on the available countries; on degree graduate mobility, the EU average is calculated by JRC over Eurostat and OECD data.

Further information can be found in the relevant section of Volume 1 (ec.europa.eu/education/monitor).

Figure 1. Position in relation to strongest (outer ring) and weakest performers (centre)



Source: DG Education and Culture calculations, based on data from Eurostat (LFS 2017, UOE 2016) and OECD (PISA 2015). Note: all scores are set between a maximum (the strongest performers represented by the outer ring) and a minimum (the weakest performers represented by the centre of the figure).

2. Highlights

- Spending on education remains stable, but is below the EU average. The 2018 budget increases funding for study grants.
- There are regional differences in how citizenship education is provided. While the subject is not compulsory across the country, there is an increasingly strong focus on training teachers in how to address challenges such as racism and xenophobia.
- While there is good progress in reducing early school leaving, rates still vary between regions. The problem of grade repetition persists.
- In higher education, there are high rates of initial dropout and slow progress in completing bachelor's studies. The qualification mismatch remains high and there are strong skills imbalances.
- The 2015 vocational education and training (VET) reform is still under way, with new initiatives introduced on dual VET schemes, access to VET and expansion of higher VET to address low participation and low employment rates. Measures in adult learning have focused on ensuring that both employed and unemployed adults upgrade their skills and acquire new ones.

3. Investing in education and training

Spending on education remains stable, but is below the EU average. Although there was a slight increase in the share of total public spending on education in 2016 (to 9.5 %) it decreased slightly as a share of GDP (to 4.0 %). Both remain below the EU average (10.2 % and 4.7 % respectively). Education spending has not yet recovered to the pre-crisis level of 2009, (Ministry of Education, Culture and Sport, 2018). The biggest share of total government spending goes towards pre-primary and primary education (39.2 %), followed by secondary education (37.5 %) and tertiary education (14.1 %). Education expenses incurred by families increased by 34 % between 2009 and 2015 (National Institute of Statistics, 2017). As private expenditure goes towards extracurricular activities and supplementary tuition, the rise of such spending may negatively affect educational equity.

Spending on education has been the subject of strong political discussions in the context of the Social and Political Pact in education. Left-wing parties are pushing for an increase in spending to 5 % of GDP, while the centre-right parties would prefer incremental yearly rises to reach 4.7 % GDP by 2025. Views differ on whether budget commitments should be expressed as a percentage of GDP or as spending per student. The possible political and social agreement on education, noted in last year's Monitor, has not happened and its future is unclear in the context of the new Government.

The budget for study grants has increased in 2018. The general budget for 2018 sets out a 3.5 % increase in the amount allocated to study grants, which had been practically frozen since 2014. Grants for compulsory education can cover meals, transport, school books and manuals. In higher education (HE), they can also cover fees, foreign language studies, traineeships and students mobility activities¹⁹¹. The majority of grants are paid to HE students (50.1 %), 27.8 % of grants are for post-compulsory education (medium-level VET and general upper secondary education) and 22.1 % are for early childhood education and care (ECEC), primary education and lower secondary education.

¹⁹¹ Erasmus+ internships, short stays, exchange programmes and master studies abroad.

4. Citizenship education

Citizenship education is taught as a cross-curricular theme integrated into other compulsory subjects at each ISCED level of general education (Eurydice, 2017a). In the basic curriculum, the subjects 'civic and social values' and 'ethical values' are offered as an optional alternative to religion (Catholic) nationwide. The latest figures (for both public and private schools) show that in the 2015/2016 school year 'civic and social values' was chosen by around 33 % of primary students while 46 % of secondary students chose 'ethical values' (Ministry of Education, Culture and Sport, 2018). Citizenship is not included in VET curricula. Some Spanish regions (known as 'autonomous communities') complement citizenship education or even include it as a separate compulsory subject. In Andalusia, Aragon, the Canary Islands and Cantabria, 'citizenship education and human rights' is offered in addition to 'civil and social values'. Furthermore, in late 2017 a political agreement was reached — in the context of the Social and Political Pact on education — to introduce 'human rights and civic and constitutional values' as a new subject in school curricula.

Measures to fight racism and xenophobia include teachers' training on civic and intercultural values, initiatives to fight anti-Semitism and courses on the Islamic religion.

The National Institute of Education and Training Technologies for Teachers provides online citizenship courses. Several autonomous communities offer complementary training to teachers on topics such as inclusive education and gender equality (Extremadura), sexual, family and gender diversity, democracy and coeducation (Valencia), and intercultural respect and equity education (Madrid). Measures are also being taken to fight against anti-Semitism and to better integrate Islamic communities into the education system - the Ministry of Education, the Federation of Jewish Communities of Spain and some Jewish foundations are in discussions with a view to signing I agreements. Islamic religion courses are offered in schools in some autonomous communities (Andalusia, Aragon, Canary Islands, Castile and León, Valencia, and the Basque Country) and in the autonomous cities of Ceuta and Melilla. . Since 2015-2016, the Ministry of Education has implemented the National Strategic Plan on School Life, which promotes values to stimulate democratic citizenship, solidarity, tolerance, equity, respect, justice, and eliminate all kinds of discrimination.

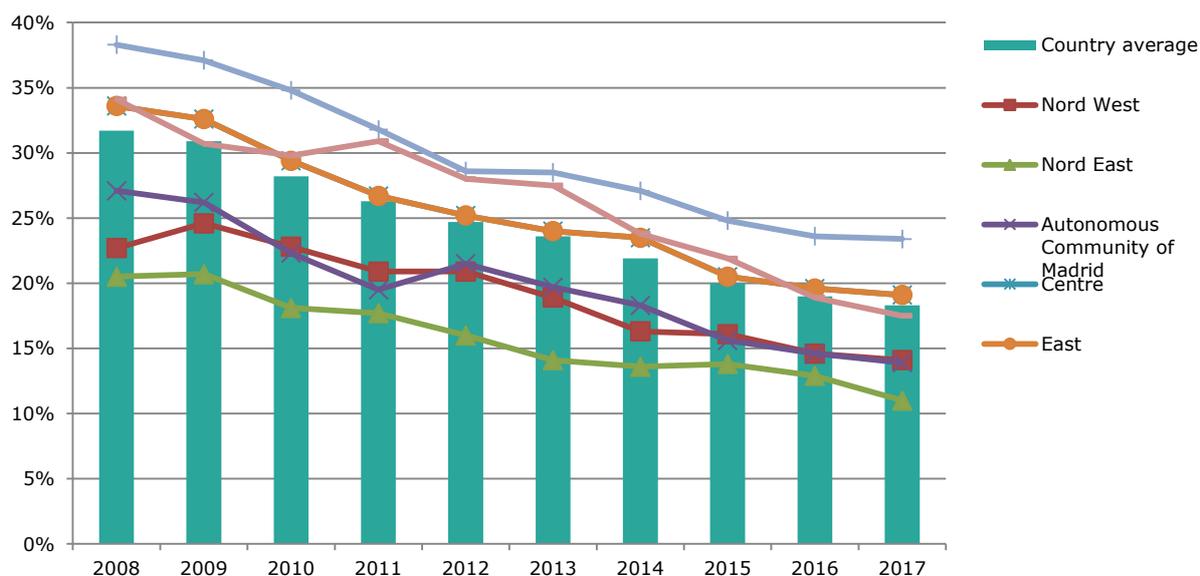
5. Modernising school education

Spain performs well in early childhood education and care, but lacks nationally harmonised standards on quality and on the availability of public pre-schools. Preschool education is free from 3 to 6 and taught by graduate teachers. There is a national framework curriculum. The ECEC enrolment rate from age 4 to the starting age of compulsory education (97.3 %) exceeds the 'Education and Training 2020' target (95 %). For 2 year-old children, the 55 % enrolment rate is also above the EU average (OECD, 2017a). According to the latest data, 67.4 % of children aged 3-6 attend public centres, whereas for children aged 0-3 the percentage is 46 % (Ministry of Education, Culture and Sport, 2018). In 2017, the State School Council recommended that the Ministry of Education harmonise and establish basic minimum requirements in ECEC centres. In addition, the State School Council has called for an increase in the number of public pre-school places for children aged 0-3 and stressed the need for agreements with local authorities and other administrations to meet demand.

Spain is making very good progress in reducing early school leaving (ESL). The ESL rate has decreased progressively (23.6 % in 2013, 20 % in 2015 and 18.3 % in 2017). If the trend continues, Spain will have reached the national target of 15 % by 2020. The progress made since 2008 is particularly high in autonomous communities such as Rioja (-24.2 pps), Murcia (-17.5 pps) and the Canary Islands (-16.6 pps). In contrast, in Andalusia, the Balearic Islands, Castile-La Mancha, Valencia and the Region of Murcia the ESL rate remains above 20 %. In Cantabria and the Basque Country the rate is below 10 % (Ministry of Education, Culture and Sport, 2018). The level of parents' educational attainment, students' socio-economic status, migrant background and gender all strongly influence ESL rates. A further explanation for high ESL rates in certain regions could be the high demand for low-skilled workers in sectors such as tourism and construction.

Grade repetition rates are not improving. The 'suitability rate'¹⁹² of students decreases as their age increases (Ministry of Education, Culture and Sport, 2017a). At 15 years-old it is only 63.9 %, whereas at 8, 10, 12 and 14 years-old is 93.7 %, 89.5 %, 85.3 % and 71.7% respectively. The grade repetition rate is very high: 12.3 % students repeat the first grade of lower secondary school; 10.7 % the second grade; 11 % the third grade; and 9.5 % the fourth grade. In 2018, Spain received a country-specific recommendation to 'reduce early school leaving and regional disparities in educational outcomes, in particular by better supporting students and teachers' (Council of the European Union, 2018).

Figure 2. Early leavers from education and training by NUTS 1 regions (2017)



Source: DG EAC, based on data from Eurostat. Online data codes: *edat_ifse_14* and *edat_ifse_30*. The indicator is defined as the percentage of the population aged 18-24 with at most lower secondary education and who were not in further education or training during the 4 weeks preceding the survey. The indicator is based on the EU Labour Force Survey. NB: NUT 1 regions for Spain correspond to the following Autonomous communities: North West: Galicia, Asturias and Cantabria; North East: Basque Country, Navarre, Rioja and Aragon; Centre: Castile and León, Castile-La Mancha and Extremadura; East: Catalonia, Valencia and Balearic Islands; and South: Andalusia, Region of Murcia, and the autonomous cities of Ceuta and Melilla.

The teaching profession, including means of entering the profession, needs reform. There is a high number of non-permanent teaching staff in the Spanish education system. On average, 1 out of 4 teachers is temporary (the range is 14-32 % across regions). The 2006 Royal Decree that determines access to the teaching profession was slightly amended in 2018 to favour the recruitment as permanent staff of temporary teachers. Around 130 000 new permanent teachers are expected to be recruited by 2020 and 200 000 by 2022.

Less than half of students learn a second foreign language, with significant variation between the autonomous communities. A first foreign language (mainly English) is compulsory from age 6, but students start learning earlier (3 or 4 years-old) in some regions (Eurydice, 2017b). From 12-18 years-old (11 in some regions) all school children can opt for a second foreign language, most commonly French. On average, 43.3 % of lower secondary students opt for a second foreign language, with much higher rates in some autonomous communities (68.5 % in Galicia, 66.9 % in the Canary Islands and 62.2 % in Asturias). For some autonomous communities (Canary Islands, Cantabria, Galicia and the Region of Murcia), the second foreign language is compulsory from age 10 or 12. The share of upper secondary school students who study a second foreign language also varies widely — from 64 % in Andalusia to below 25 % in the other autonomous communities. All students in autonomous communities with a co-official language must learn that language and VET students must also learn one foreign language for at least 10 years (Ministry of Education, Culture and Sport, 2017a).

¹⁹² Suitability rate ('tasa de idoneidad' in Spanish) refers to the percentage of students who are enrolled in the course that theoretically corresponds to their age.

Box 1: The prize-winning Second Chance Schools for young people¹⁹³

The Second Chance Schools (E20) of Gijón's City Council (Asturias region, north of Spain) support young people aged 14-25 with insufficient skills and/or associated difficulties (absenteeism, ESL, poor family support, health problems, non-EU migrants, etc.). The programmes also support organisations that work with such young people.

These schools try to adapt to the needs of these young people, offering practical training activities. The activities aim to develop soft skills and abilities essential for young people to return to education or to get jobs. Areas of assistance include:

- educational support: secondary education, English, Spanish for foreigners;
- career and job orientation;
- artistic activities (crafts, theatre, creative writing, dance);
- health (cooking, sport, yoga, personal image, social skills);
- citizen participation; and
- ICT (computer, audio-visual and radio).

Courses are tailored to the needs of each individual and are under constant review.

The project is co-financed by the European Social Fund (ESF), which finances the wages of social educators, tutors, mediators and teachers. The City Council hires unemployed people in the areas of socio-cultural animation, social integration, social education and teaching (physical education and sport, primary education, English, etc.). Some of these people work in the second chance schools programme.

For more information: <https://empleo.gijon.es/page/3872-escuela-de-segunda-oportunidad>

6. Modernising higher education

Spain has a high early dropout rate and many students are slow to complete their degrees (Ministry of Education, Culture and Sport, 2017b). Spain's rate of tertiary educational attainment (41.2 %) is consistently high and above the EU average (39.9 %). However, the employment rate of recent tertiary graduates (76.6 %) is below the EU average (84.9 %). The dropout rate in the first year of bachelor's programmes is 21.8 % (25 % for men and 19 % for women). Furthermore, 8.3 % of students change degrees (9.9 % of men and 6.9 % of women). Similarly, the 'suitability rate'¹⁹⁴ is very low, with only 34.9 % of students graduating after 4 years of study (the normal length of a bachelor's degree). For master's degrees, the dropout rate is comparably low (13.3 %) and only 2 % change their course once started. The suitability rate is 72.7 % for one-year master's programmes and 70.5 % for two-year programmes.

University students benefit from a generous public grant policy. The Ministry of Education provides 70 % of all public grants, which are awarded according to certain academic and economic criteria (Ministry of Education, Culture and Sport, 2017c). While 26.5% of students receive a grant for the entire (4-year) term of the bachelor's degree, in the first year up to 40% receive one.

Less than 10 % of Spanish higher education graduates participate in mobility programmes abroad. In 2016, almost 33 500 graduates at ISCED 5-8 spent 3 months studying abroad (7.6 % of all graduates). Of these, 87 % participated in EU mobility programmes such as Erasmus+, 58 % of them at bachelor's level or equivalent. The main destination countries were other EU countries (80 % of graduates).

¹⁹³ This project won first prize in the category 'technologies and work with young people from education and training in order to promote innovation and inclusion' in the Global Junior Challenge (organised by the 'Fondazione Mondo Digitale') in October 2017 in Rome (<http://2017.gjc.it/en/node/2387>).

¹⁹⁴ The 'suitability rate' measures the share of students who graduate in the normal amount of time allocated for the course.

The qualifications mismatch in Spain remains high and there are significant skills imbalances. In 2015, 19.2 % of Spanish workers were underqualified for their jobs, 22.4 % were overqualified and a further 34.6 % were mismatched, i.e. employed in a different field from that which they had studied (OECD, 2015). Several studies are being conducted to measure skills imbalances. The OECD's 2017 'Getting Skills Right' report has suggested a number of policies to prevent skills imbalances, targeting skills development and investment for individuals and employers. These include on-the-job learning, getting employers involved in dual higher VET¹⁹⁵, encouraging them to participate in curricula design, and offering them financial incentives to promote apprenticeship schemes. All Autonomous Communities, and also the Ministry of Education, have implemented specific programs to develop dual VET. In 2018, Spain received a country-specific recommendation in the context of the European Semester to 'increase cooperation between education and businesses with a view to mitigating existing skills mismatches' (Council of the European Union, 2018).

The role and challenges of higher education institutions (HEIs) in addressing skills mismatches have been examined in a number of studies. The 2016 barometer on higher education by the Knowledge and Development Foundation (CYD, 2016) highlights the main challenges in this respect. The findings stress the need to: (i) strengthen university-business collaboration on research and technology; (ii) provide more internship opportunities in companies for students and graduates; and (iii) develop university graduates' key competences such as management, teamwork, problem-solving, analytical and language skills. In addition, the 2017 barometer by the Spanish Observatory for University Employability and Employment (OEEU, 2018) notes that the competences most necessary for work (problem-solving, adaptability and resilience) are in general those encouraged by universities during master's studies. Furthermore, according to the OEEU survey: (i) 65 % of masters students consider their latest job to be very much related to their field of study; (ii) 85 % are in jobs that match their qualifications; and (iii) 7 out of 10 students are quite or very much ready to look for a job.

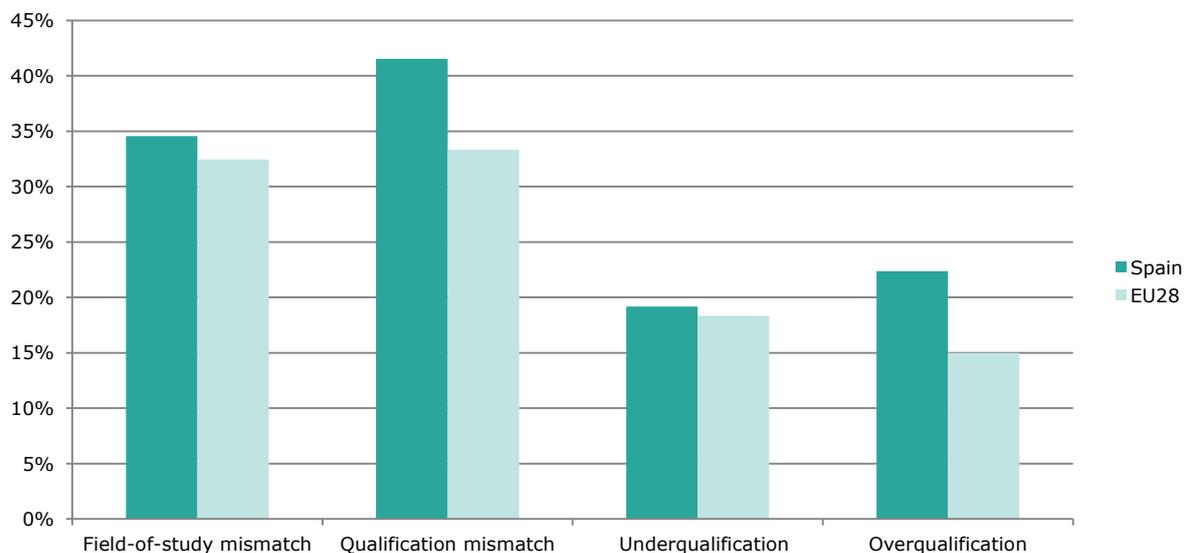
Box 2: Fostering university-business cooperation, mainly with SMEs

In 2017, Santander Bank, CRUE (Conference of Principals of Spanish Universities), and CEPYME (the association of SMEs in Spain) signed an agreement for the seventh call of the well-established 'Scholarships Santander-CRUE-CEPYME Practices in Companies' programme. During 2018, scholarships for paid internships in Spanish SMEs will be offered to 5 000 university students in Spain thanks to a EUR 2 250 000 investment by Santander Bank. So far, 25 915 university students have had their first work experience in 15 837 SMEs and half of them continued working with the company. Similarly, CRUE and Gas Natural Fenosa signed a two-year agreement at the end of 2017 to offer university students extracurricular hands-on experience at the company.

For more information: <https://www.bancosantander.es/es/universidades/becas/crue-cepyme>; <http://www.crue.org/Comunicacion/Noticias/Firma%20convenio%20pr%C3%A1cticas%20Crue-Gas%20Natural%20Fenosa.aspx>

¹⁹⁵ Higher vocational education and training performed in two learning places: at an enterprise and at the vocational school.

Figure 3. Field-of-study and qualification mismatches (2015)



Source: DG EAC, based on data from OECD. The indicator is based on the EU Labour Force Survey. The EU average is missing data from some countries. This dataset uses the following definition of mismatch: qualification mismatch arises when workers have an educational attainment that is higher or lower than that required by their job. If their education level is higher than that required by their job, workers are classified as overqualified; if the opposite is true, they are classified as underqualified. Field-of-study mismatch arises when workers are employed in a different field from the one they specialised in.

7. Modernising vocational education and training

Spain continues to implement the 2015 VET reform and has new initiatives to further develop dual VET, improve access and expand higher VET. At 35 % in 2016, the share of upper secondary Spanish students (ISCED 3) in VET is still far below the EU average (49 %). The employment rate of recent upper secondary VET graduates dropped from 61.3 % in 2016 to 58.5 % in 2017 and is well below the EU average of 76.6 %. The newly approved 2017-2020 employment activation strategy aims to improve the VET system, particularly in dual training. In addition, in 2017, the Ministry of Education allocated EUR 392 million to regional measures for new initial VET programmes (developed under the 2015 VET Reform).

A new regulation to access VET studies is being prepared. In 2017, the government tabled a new Royal Decree on access and admission to VET. This aims to establish a basic framework and harmonised criteria in all regional educational administrations for the entrance exams for the three VET levels (basic, intermediate and higher). The allocation of places in intermediate VET programmes (where demand is higher than availability) will be as follows: 50 % to 75 % for compulsory secondary education graduates; 10 % to 40 % for basic VET graduates; and 10 % to 30 % for students who pass an admission test for VET. For higher VET programmes, the target allocation of places is: 50 % to 70 % for students with a baccalaureate certificate; 0 % to 40 % for intermediate VET graduates; and 10 % to 30 % for students who have passed an entrance exam for higher VET (or other higher qualifications). The proposed Decree also sets out the criteria for assessment, competence requirements, learning standards and content and learning outcomes. The text has already undergone consultation since September 2017 and, if approved, will be implemented as of the 2018/2019 academic year.

The higher VET catalogue has been updated. In 2017, the government updated the catalogue of higher level vocational qualifications in collaboration with its social partners. This version of the catalogue aims to better match the relevance and transparency of vocational and professional training with the needs of the labour market. This is important for comparing the qualifications attained across regions and their relevance for the available jobs.

8. Promoting adult learning

Measures on adult learning have focused on ensuring that both employed and unemployed adults upgrade their skills and acquire new ones. Adult participation in learning rose slightly from 9.4 % in 2016 to 9.9 % in 2017 but is still below the EU average of 10.9 %. In 2017, 56 % of people aged 25-64 possessed basic or above basic overall digital skills (EU average: 59 %). According to the Continuing Vocational Training Survey, in 2015, 55.4 % of employees participated in on the job training (EU average: 40.8 %). In 2015, the majority of Spanish companies considered teamwork, customer service skills and technical, practical and job-specific skills to be the most important skills for business development. SEPE, Spain's national public employment service has started the process to put in place nationwide training programmes to improve professional skills in line with technological change and digital transformation, thereby improving the performance and employability of adults. The call covers digital skills identified by Joint Sectoral Commissions. One of the pillars of the forthcoming national digital strategy ('Estrategia para una España inteligente') is likely to be entitled 'Citizenship, Education and Digital Employment' and would focus on the need to improve the digital skills, competences and ICT training of individuals in general and of people in the workforce (Ministry of Economy and Business, 2017).

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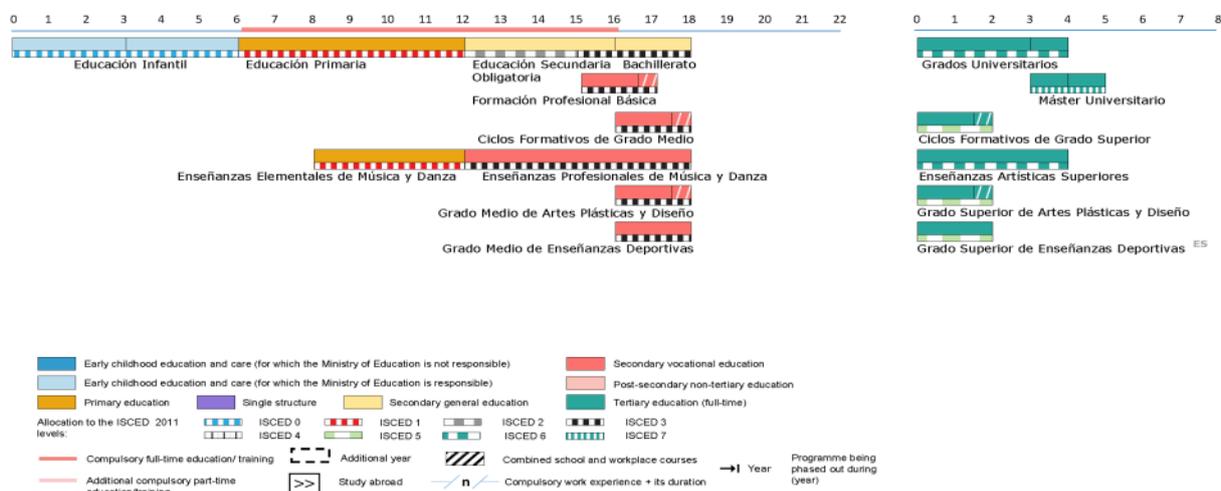
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10. Annex I: Key indicator sources

Indicator	Eurostat online data code
Early leavers from education and training	edat_lfse_14 + edat_lfse_02
Tertiary educational attainment	edat_lfse_03 + edat_lfs_9912
Early childhood education and care	educ_uae_enra10
Underachievement in reading, maths, science	OECD (PISA)
Employment rate of recent graduates	edat_lfse_24
Adult participation in learning	trng_lfse_03
Public expenditure on education as a percentage of GDP	gov_10a_exp
Expenditure on public and private institutions per student	educ_uae_fini04
Learning mobility: Degree mobile graduates	JRC computation based on Eurostat / UIS / OECD data
Credit mobile graduates	educ_uae_mobc02

11. Annex II: Structure of the education system



Source: European Commission/EACEA/Eurydice, 2017. *The Structure of the European Education Systems 2017/18: Schematic Diagrams*. Eurydice Facts and Figures. Luxembourg: Publications Office of the European Union.

Comments and questions on this report are welcome and can be sent by email to:
Antonio GARCIA GOMEZ
antonio.garcia-gomez@ec.europa.eu
or
EAC-UNITE-A2@ec.europa.eu

SWEDEN



1. Key indicators

		Sweden		EU average		
		2014	2017	2014	2017	
Education and training 2020 benchmarks						
Early leavers from education and training (age 18-24)		6.7%	7.7%	11.2%	10.6%	
Tertiary educational attainment (age 30-34)		49.9%	51.3%	37.9%	39.9%	
Early childhood education and care (from age 4 to starting age of compulsory primary education)		95.9% ¹³	95.6% ¹⁶	94.2% ¹³	95.3% ¹⁶	
Proportion of 15 year-olds underachieving in:	Reading	22.7% ¹²	18.4% ¹⁵	17.8% ¹²	19.7% ¹⁵	
	Maths	27.1% ¹²	20.8% ¹⁵	22.1% ¹²	22.2% ¹⁵	
	Science	22.2% ¹²	21.6% ¹⁵	16.6% ¹²	20.6% ¹⁵	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-8 (total)	85.0%	88.3%	76.0%	80.2%	
Adult participation in learning (age 25-64)	ISCED 0-8 (total)	29.2%	30.4%	10.8%	10.9%	
Learning mobility	Degree mobile graduates (ISCED 5-8)	:	4.1% ¹⁶	:	3.1% ¹⁶	
	Credit mobile graduates (ISCED 5-8)	:	10.2% ¹⁶	:	7.6% ¹⁶	
Other contextual indicators						
Education investment	Public expenditure on education as a percentage of GDP	6.6%	6.6% ¹⁶	4.9%	4.7% ¹⁶	
	Expenditure on public and private institutions per student in € PPS	ISCED 1-2	€8 069	€8 273 ¹⁵	€6 494 ^d	: ¹⁵
		ISCED 3-4	€8 044	€8 285 ¹⁵	€7 741 ^d	: ¹⁵
		ISCED 5-8	€17 675	€18 240 ¹⁵	€11 187 ^d	: ¹⁵
Early leavers from education and training (age 18-24)	Native-born	5.7%	6.2%	10.4%	9.6%	
	Foreign-born	12.6%	15.5%	20.2%	19.4%	
Tertiary educational attainment (age 30-34)	Native-born	51.6%	51.5%	38.6%	40.6%	
	Foreign-born	45.6%	51.2%	34.3%	36.3%	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-4	79.7%	84.4%	70.7%	74.1%	
	ISCED 5-8	90.8%	91.7%	80.5%	84.9%	

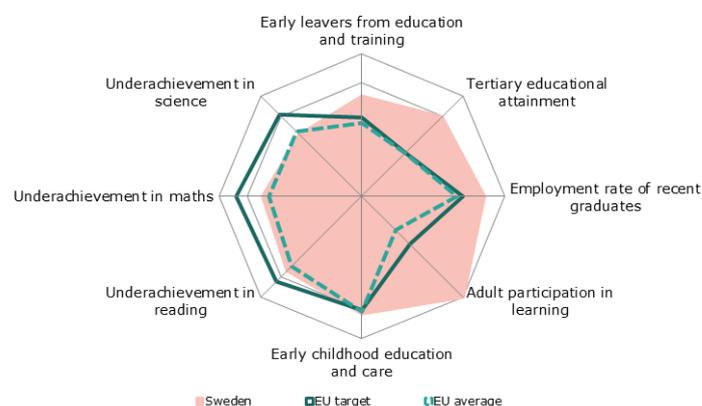
Sources: Eurostat (see section 10 for more details); OECD (PISA).

Notes: data refer to weighted EU averages, covering different numbers of Member States depending on the source; d = definition differs, 12 = 2012, 13 = 2013, 15 = 2015, 16 = 2016.

On credit graduate mobility, the EU average is calculated by DG EAC on the available countries; on degree graduate mobility, the EU average is calculated by JRC over Eurostat and OECD data.

Further information can be found in the relevant section of Volume 1 (ec.europa.eu/education/monitor).

Figure 1. Position in relation to strongest (outer ring) and weakest performers (centre)



Source: DG Education and Culture calculations, based on data from Eurostat (LFS 2017, UOE 2016) and OECD (PISA 2015). Note: all scores are set between a maximum (the strongest performers represented by the outer ring) and a minimum (the weakest performers represented by the centre of the figure).

2. Highlights

- Sweden invests heavily in education, with general government expenditure on education among the highest in the EU.
- Students' participation in democratic processes, civic skills and knowledge of values are among the highest in international comparisons.
- The basic skills proficiency of the younger generation has improved but growing inequality in the school system and teacher shortages are a concern.
- Sweden has one of the highest tertiary educational attainment rates and one of the highest employment rates of recent tertiary graduates in the EU.
- Sweden's high-performing adult learning and continuing training systems continue to be modernised.

3. Investing in education and training

Sweden is among the countries that invest most in education. General government expenditure on education was among the highest in the EU in 2016, as a proportion both of GDP (6.6 %) and of total general government expenditure (13.4 %). Education expenditure, at constant prices, increased by 17 % during 2012-2016. Compulsory education (age 7-16) saw the highest increase, by 28 %, while expenditure on pre-school education increased by 19 %¹⁹⁶ and on tertiary education by 8 %. Although overall expenditure on upper secondary education (age 17-19) has fallen by 6 % since 2012, expenditure per pupil has increased by 15 % (Statistics Sweden, 2017).

Sweden invests more in tertiary education than the EU average. Total expenditure on the higher education sector, including research, the costs of government managing agencies and study support to students, corresponds to 1.53 % of GDP. The largest proportion of funding (80 %) comes from public sources. Private funding is mainly in the form of additional funding for research (SHEA, 2018b).

Sweden operates a school choice system whereby funding follows the student. The organisation and financing of pre-school, compulsory and upper secondary education is fully decentralised to municipalities. All schools are publicly funded regardless of whether they are municipally or independently operated¹⁹⁷: private providers receive subsidies equivalent to the local municipality's spending per municipal school student. Independent schools cannot charge fees or select students based on ability, but they are allowed to operate for profit. The funding mechanism should account not only for the number of students enrolled but also their needs based on socio-economic background. However, there are major variations between municipalities in how they allocate resources (OECD, 2016 and Swedish Agency for Public Management, 2016).

The government increasingly tries to steer municipalities through specifically allocated grants. In 2017, the total direct central government investment in education was SEK 15 billion (EUR 1.46 billion), representing about 15 % of school funding, allocated in the form of over 70 different grants. This wide range of grants seems inefficient because it shifts the focus from the needs of the school system as a whole to the details of the system. Administering the grants is disproportionately complicated and puts pressure on smaller municipalities. Merging the range of grants into one, which each education provider can apply for based on local needs and socio-economic conditions, could be a way forward (National Audit Office, 2017).

Sweden's youth population is expected to grow further in the coming 10 years. Between 2010 and 2016, the number of pupils in compulsory school increased by 16 %, from 886 000 to over 1 million. By 2028, the number of children and young people is expected to grow by 231 000, including 73 000 more pupils in upper secondary school. This is due both to the large number of newly arrived students in recent years and an increase in the number of Swedish-born children. One in three children born in the next 10 years is expected to have a foreign-born mother and one

¹⁹⁶ Children enrolled in pre-schools increased by 4 % in 2012-2016.

¹⁹⁷ Over the years, independent schools have increased their share of enrolments. In 2016/2017, one in seven compulsory school students and more than one in four upper secondary students attended independent schools.

in four students in upper secondary education to be foreign-born (Statistics Sweden, 2018). The rapid increase in the school population is likely to put pressure on the resources of municipalities and of the whole school system.

4. Citizenship education

Citizenship education plays a central role in the school system. Sweden's fundamental democratic values are described in the two main governing documents, the Education Act and the school curricula. Both state that democratic values and students' democratic participation should be as central to their education as knowledge of the different subjects. Democratic values include: the inviolability of human life, individual freedom and integrity, the equal value of all people, gender equality and solidarity. Children should acquire knowledge of how a democratic society functions and their views should be heard. Values are a common thread when teaching is planned and implemented, and they underpin all school activities. Students are given formal democratic influence through student councils, where they learn how democratic decision-making works in practice (NAE, 2016). Teachers and school heads can call on online course packages on collaborative learning, critical thinking, media literacy and democratic values (Eurydice, 2017).

Swedish students have strong civic skills. According to the 2016 International Civic and Citizenship Education Study (ICCS) by the International Association for the Evaluation of Educational Achievement (IEA)¹⁹⁸, Swedish eighth grade students have excellent civic skills and a very good understanding of concepts related to citizenship and democracy (comparable countries are Denmark, Taiwan and Finland). Their average score of 579 points is 62 points above the average for the 20 participating countries. Sweden is also one of the countries where performance improved most since the previous 2009 survey: the proportion of students with the highest level of skills has increased from 40 % to 58 %¹⁹⁹. However, gender and students' socio-economic and migration background have an important impact. Girls perform better than boys, while the gap between socially advantaged and disadvantaged students is on average 120 points; between Swedish-born and foreign-born students it is 71 points. Swedish students' answers to questions on values show that they are more supportive than those of any other country of equal opportunities for women and men and of giving migrants the same rights and opportunities as to others (NAE, 2017a and IEA, 2017).

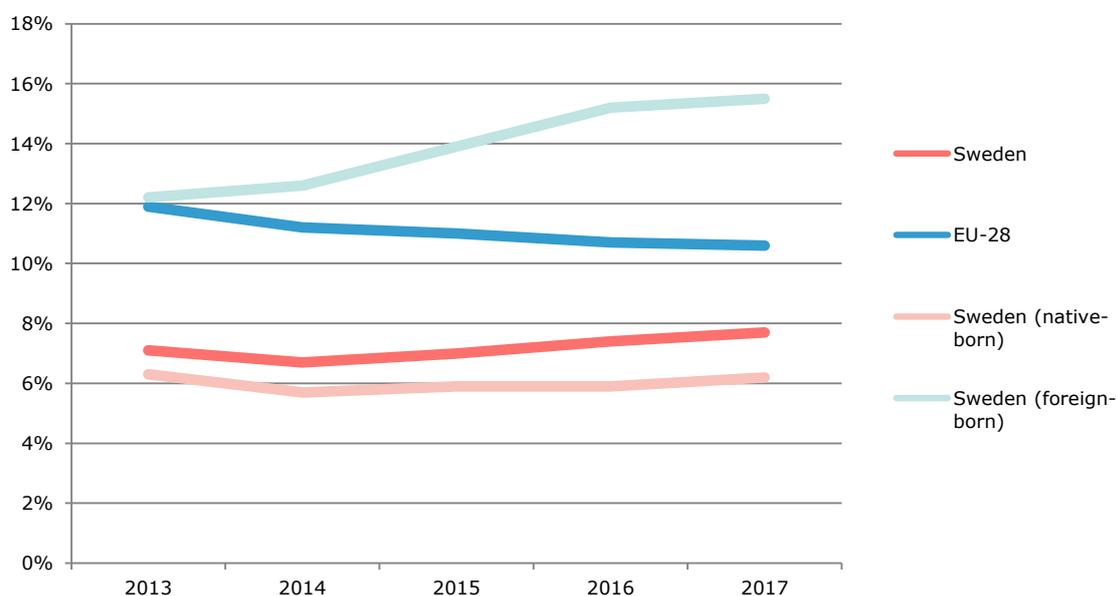
Classroom atmosphere is vital in determining students' level of civic skills. High expectations imposed on schools, both in the Education Act and the syllabus, and the cross-curricular approach both in general and vocational education, all contribute to the good results. An open classroom atmosphere, where teachers encourage discussion and allow students to express their opinions, has an important impact on students' civic skills — three times bigger than keeping up with the news, for instance (NAE, 2010). Teachers in Sweden also value working in classrooms where diversity is seen as an asset, as this creates a better learning environment (NAE, 2004).

5. Modernising school education

Sweden's early school leaving (ESL) rate is relatively low but challenges for municipalities remain. The ESL rate is below the EU average (7.7 % vs 10.6 % in 2017), although it has increased since 2014 and there is a growing difference between native-born students (6.2 %) and those born abroad (15.5 %) (Figure 2). Since 1 January 2015, municipalities are required to keep records of young people under the age of 20 who have not completed upper secondary school and are not in education, and to provide them with tailor-made support. Over 75 000 young people were registered and eligible to benefit from such support in the first half of 2017. The majority, 59 %, were men and one in three was newly arrived. However, three quarters of municipalities offered fewer than half of the young people at least one programme; 70 municipalities — one in four — have offered a measure to fewer than 10 % of them. 'Introductory programme' at upper secondary level is the most common measure, designed to help students bridge the gap to the labour market or further education (NAE, 2017c).

¹⁹⁸ ICCS reports on students' knowledge related to concepts of citizenship, equity, decision-making and civic self-image. In ICCS 2016 the civic knowledge scale was set to a metric with a mean of 500 (the average score of countries participating in ICCS 2009).

¹⁹⁹ 58 % of students are at the highest 'level A' and only 5 % of students are in the two lowest proficiency levels, 'level D' and 'below level D'.

Figure 2. Proportion of early leavers from education and training in 2017 (%)


Source: Eurostat (LFS, 2017). Online data codes: [edat_lfse_02](#) and [edat_lfse_14](#).

Early childhood education and care (ECEC) has undergone a quality review. Participation rates are high: 95.6 % from age 4. ECEC is well developed, with a curriculum balancing academic and socio-emotional development, reflecting parental opinions and expectations and addressing respect for cultural values. A revised curriculum is expected to enter into force in autumn 2019, clarifying ECEC's educative role and seeking to improve quality. While teaching will be strengthened, the emphasis will remain on playful and cooperative learning (NAE, 2018b). From autumn 2018, 'pre-school class' is a mandatory part of the compulsory school system²⁰⁰, with more teaching content to better prepare children for their first school year.

Basic skills attainment has improved. According to the OECD's 2015 Programme for International Student Assessment (PISA) survey, student performance improved significantly in mathematics and reading compared to 2012, and remained broadly stable in science. On average 11.4 % of 15 year-olds are low achievers in all three domains, lower than the EU average of 12.3 %. Girls and boys perform similarly in science and mathematics, but in reading twice as many boys (24 %) as girls (12 %) are low achievers, a wider gap than the EU average. The proportion of top performers has increased: in 2015, 3.9 % of 15 year-olds were top performers in all three subjects, just above the EU average of 3.7 %. The literacy skills of Swedish fourth-graders (age 10) have also improved, according to IEA's 2016 Progress in International Reading Literacy Study (PIRLS). Students' reading comprehension of both factual text and literature is equally good and their proficiency is back at the 2001 level, Sweden's best ever performance. As in PISA, girls significantly outperform boys (NAE, 2017b).

The National Digitisation Strategy for the school system should enable all children to develop adequate digital skills by 2022. The digital skills of the Swedish population are already among the best in the EU and continue to improve. In 2017, 77.2 % of 16-74 year-olds had at least basic digital skills, well above the 57.2 % EU average. Among 16-24 year-olds the proportion was 89.5 %. The digitisation strategy for compulsory and upper secondary schools focuses on understanding digital tools and media, digitisation's impact on society and individuals, ensuring critical and responsible behaviour, problem solving and translating ideas into action using digital technology (Government, 2017). To implement the strategy, a revised curriculum entered into force on 1 July 2018. Programming is taught through mathematics and digital skills in general through mathematics, civics, Swedish and technology (DESI, 2018).

²⁰⁰ The amendment of the Education Act (2010:800) entered into force on 1 January 2018.

Inequalities are growing in Sweden's school system. The growing impact of socio-economic background on students' performance is shown in PISA 2015. The performance gap between foreign-born and native-born students is wide and increasing, reflecting changes in the composition of the foreign-born student population. A higher proportion of recent migrants are older and those who migrated after the age of 7 have increasingly come from countries with weaker school systems. Parents' socio-economic status paired with the neighbourhood of residence is strongly associated with the size of the performance gap. Increased sorting of pupils between schools since the 1990s has also contributed to growing inequalities; other factors such as class size or teachers' formal qualifications seem to be less important (Grönqvist et al., 2017). To reduce inequalities, the government is allocating to municipalities an additional SEK 1 billion (EUR 104 million) in 2018, SEK 3.5 billion (EUR 365 million) in 2019 and SEK 6 billion (EUR 627 million) in 2020. The additional funding is weighted by pupils' socio-economic background, as recommended by the Swedish School Commission (SOU, 2017).

The growing teacher shortage coupled with a high proportion of unqualified teachers is a major concern. The teacher shortage, mostly in pre-schools and compulsory schools, is largely due to demographics. To meet the growing demand, in the coming 5 years 77 000 teachers will need to be recruited; by 2031 the total will be 187 000 full-time teachers and pre-school teachers. However, based on current patterns, only about 145 000 will graduate by 2031, leaving a shortfall of over 40 000 (NAE, 2017d). As already one in four new university students is studying to be a teacher, other options need to be explored. These include faster employment of teachers with a foreign qualification, employing retired teachers, closer collaboration between teachers and schools in the same municipality and more effective use of distance education (SALAR, 2018). In addition, the proportion of unqualified teachers has hardly changed in recent years despite stricter requirements by the legislator²⁰¹. In 2017/2018, close to 30 % of teachers in compulsory schools and 20 % of teachers in upper secondary schools taught without qualification; the highest rate was among those teaching Swedish as a second language (NAE, 2018a). To make the profession more attractive, the government continues to support teachers' continuing professional development and to increase the financial incentives to enrol.

Box 1: Cooperation for the Best School possible

'Cooperation for the Best School possible' ('*Samverkan för bästa skola*') is Sweden's most significant government initiative to tackle inequalities. The National Agency for Education works closely with schools to improve their teaching and ultimately the learning outcomes of pupils. Support is targeted at schools that face the most severe challenges in providing high quality teaching and where a high proportion of pupils do not complete their education. The schools, identified by the National Agency for Education and the Swedish School Inspectorate, are offered tailor-made support that is practice-oriented, based on evidence and experience and is accompanied by teachers' professional development. Scientific advice is provided by a group of universities led by the University of Stockholm. A development plan with responsibilities, milestones, attainment targets and evaluation is agreed between the Agency and the school provider.

The initiative, launched first in compulsory and upper secondary schools in 2015, has been broadened and from 2017 pre-schools can also participate. The Agency estimates that the programme will reach 71 school providers, 245 schools and 57 pre-schools in 2018, and 110 school providers, 305 schools and 102 pre-schools by the end of 2019. The programme cost over SEK 64 million (EUR 6.2 million) in 2016 before it was increased.

Surveys show that the programme is highly valued and school heads believe that it will lead to more collaborative learning among teachers, better school outcomes for pupils and improved equity between and within schools. More information is at <https://www.skolverket.se/skolutveckling/samverkan-for-basta-skola>

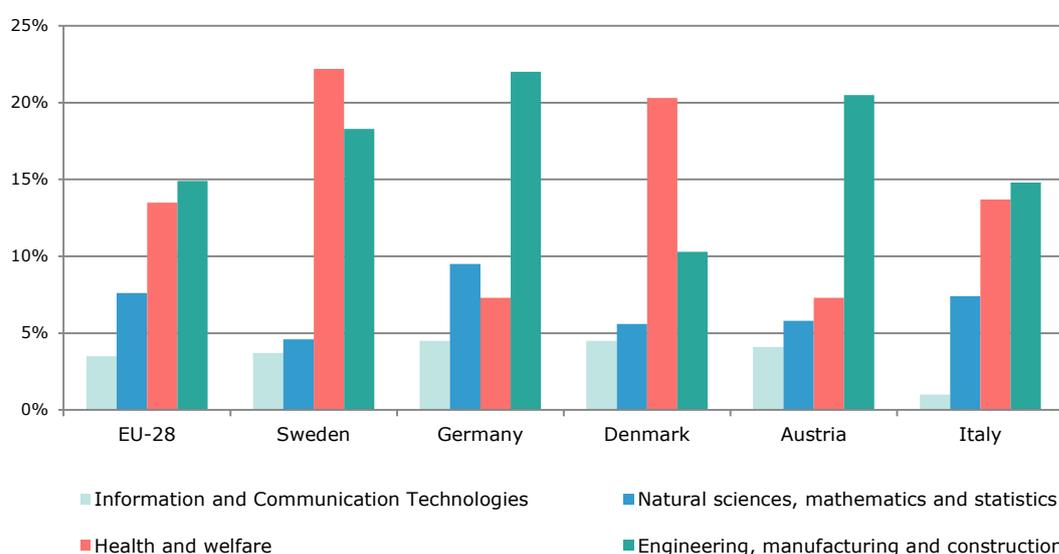
²⁰¹ Since 2011, teachers should be 'accredited' in the subjects they teach and since autumn 2016 unqualified teachers can neither have permanent employment contracts nor grade their pupils.

6. Modernising higher education

Sweden's tertiary educational attainment rate is at an all-time high. 51.3 % of 30-34 year-olds completed tertiary education, above both the EU average of 39.9 % and the national Europe 2020 target of 45-50 %. The upward trend is slowing, however, as entrants fell from their 2009/2010 peak of 107 000 to 86 000 in 2016/2017. The proportion of foreign-born students²⁰² is rising: in 2016/2017, 24 % had a foreign background compared to 18 % 10 years ago (SHEA, 2018c). The total of foreign students, including fee-paying ones, has also started to increase, following a heavy drop in 2011/2012 when tuition fees were introduced for students from outside the EU/EEA and Switzerland. In doctoral programmes more than one in three students enrolled come from abroad, and the majority leave once they have obtained their degree. The average age of university entrants has traditionally been high but the proportion of entrants aged 21 or less has grown to 50 %. Similarly, graduates are also younger than 10 years ago, with a median age of 26.7 years in 2016/2017 (SHEA, 2018b).

The employment rate of recent tertiary graduates is among the highest in the EU. In 2017, 91.7 % of graduates aged 20-34 were employed, above the EU average of 84.9 %²⁰³. While they enjoy good labour market outcomes, their earnings premium over non-graduates are the lowest in OECD and EU countries (OECD, 2017). Study programmes in health and engineering, which guarantee practically full employment, are the most preferred options. The proportion of graduates in the other STEM fields — natural sciences, mathematics and statistics, and information and communications technology (ICT) — is, on the other hand, at or below the EU average (Figure 3). In particular the insufficient supply of ICT graduates could become a bottleneck for Sweden's economy. A doctoral degree, especially in engineering and technology, leads to a good job: over 80 % of those with a PhD have a well-paid job 3 years after obtaining the degree (SHEA, 2018a).

Figure 3. Proportion of graduates by programme orientation (ISCED 5-8)



Source: Eurostat. Online data code: [educ_uoe_grad02](#).

The government is investing in broadening participation. Between 2015 and 2021, around 100 000 new study places will be financed in higher education, higher vocational education and adult vocational education as part of the government's 'Knowledge Boost' initiative. The government has also increased students' study support. From 1 July 2018, students in full-time studies can receive up to SEK 11 300 (EUR 1 178) per month, in a combination of a study grant and a study loan. Since 2017 a new quality assurance system is in place, developed by the

²⁰² Foreign background refers to individuals who were born outside Sweden and those who were born in Sweden but whose parents are both foreign-born; foreign students coming to study in Sweden are not included.

²⁰³ People aged 20-34 who left tertiary education between one and three years before the reference year.

Swedish Higher Education Authority in conjunction with the sector. A government inquiry into the governance and financing of higher education is tasked with developing a system that allows more people from disadvantaged backgrounds to enter higher education and to strengthen links between research, study programmes and society. Another ongoing inquiry is working on a proposal for a national strategy for internationalisation of higher education.

7. Modernising vocational education and training

Despite efforts to make vocational education and training (VET) more attractive, participation by upper secondary students has declined (from 47 % in 2013 to 37 % in 2016, against the EU average of 49 %). By contrast, the employment rate of recent upper secondary VET graduates, at 87.8 % in 2017, is well above the EU average of 76.6 %. The government is addressing proposals made by the Upper Secondary School Investigation (SOU, 2016) with the aim that all young people begin and complete upper secondary education. Upper secondary VET should become more attractive and the first choice for more students. To this end, the National Agency for Education has reviewed several upper secondary programmes to better align them with the needs of the jobs market.

8. Promoting adult learning

Sweden has continued to modernise its high-performing adult learning and continuing training systems, including by dividing programmes into separate modules. Participation in learning by adults aged 25-64 is the highest in the EU and still growing: in 2017, 30.4 % compared to the EU average of 10.9 %. According to the Continuing Vocational Training Survey, in 2015, 93.1 % of Swedish companies (well above the EU average of 72.6 %) provided vocational training to their employees and 52.2 % of employees participated in training (above the EU average of 40.8 %). The majority of Swedish companies said the main skills needed for developing the business are customer handling skills and technical, practical and job-specific skills. A 2016 initiative introduced 'vocational packages' for adults. These are intended to be clusters of courses constituting building blocks that can be transferred and accumulated towards a full qualification. In 2017, the measure was extended to 'introductory programmes' targeting young people, many of them newly arrived migrants, who are not eligible to enter an upper secondary 'national' VET programme. Since 2017, municipalities are required to form a consortium with at least two other municipalities when they apply for state grants in adult education. The objective is to increase cooperation between municipalities, both in planning and delivery, to secure a broad supply matching the needs in the region.

Box 2: 'InVäst' improves the integration of newly arrived migrants

'InVäst' — 'Integration Western Sweden' (2016-2019) aims to build municipalities' capacity to receive and integrate newly arrived adults. By raising municipal employees' awareness and level of competences, the project will improve migrants' living conditions and quality of life.

The areas of focus are:

1. Language as a key to active participation in society

To improve Swedish Tuition for Immigrants (SFI), the staff of 40 schools teaching Swedish to the newly arrived will receive help, including organisational management and collaborative learning, in developing migrants' competences. A web-based platform with tutorials is under development.

2. Knowledge assessment

To ensure that newly arrived adults receive the right training, support material has been developed on how to assess both formal and informal knowledge and competences acquired in the country of origin. A reference group has been tasked with gathering best practices on knowledge assessment.

3. Forums

To improve intercultural knowledge and encourage exchange of ideas, meetings are organised for employees of organisations participating in the project. Discussions focus on how to communicate between languages and cultures, how to prevent racism and how to integrate

migrants into the world of work.

'InVäst' is implemented by the Gothenburg Region Association of Local Authorities, in cooperation with the regions of Skaraborg, Borås and Halland. It is co-financed by these regions and the European Social Fund. With a budget of over SEK 18 million (EUR 1.75 million), it will reach over 1 200 participants.

More information is at
<https://www.grkom.se/toppmenyn/dettajobbargrmed/skolutbildning/nyanlandaslarande/invastintegrationvastsverige.4.624218c15ea17395f51aea6.html>

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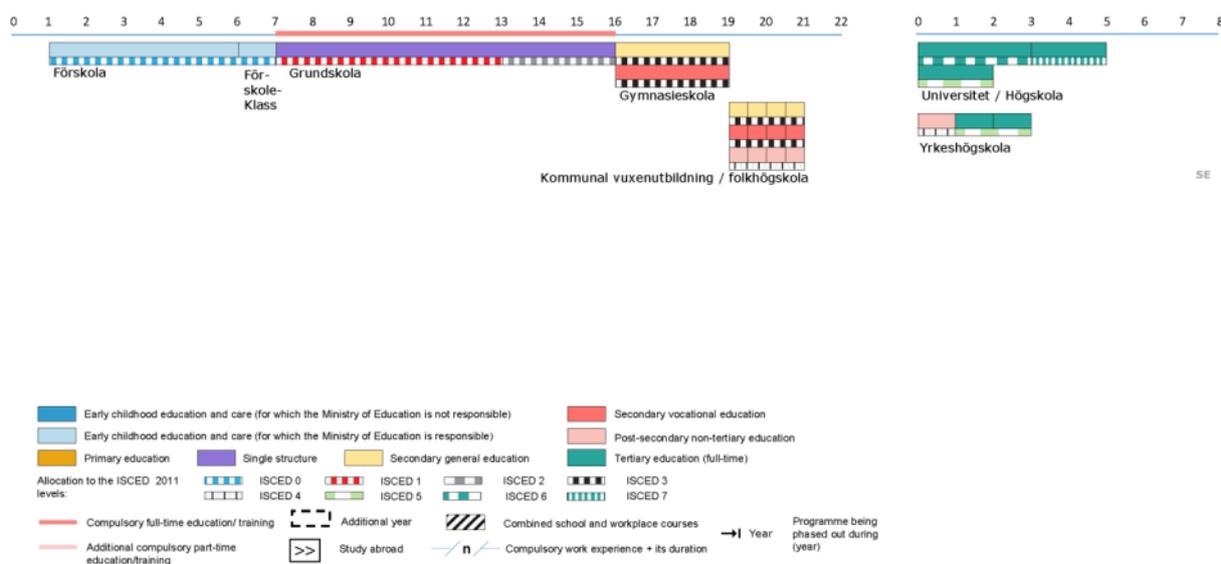
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10. Annex I: Key indicator sources

Indicator	Eurostat online data code
Early leavers from education and training	edat_lfse_14 + edat_lfse_02
Tertiary educational attainment	edat_lfse_03 + edat_lfs_9912
Early childhood education and care	educ_uae_enra10
Underachievement in reading, maths, science	OECD (PISA)
Employment rate of recent graduates	edat_lfse_24
Adult participation in learning	trng_lfse_03
Public expenditure on education as a percentage of GDP	gov_10a_exp
Expenditure on public and private institutions per student	educ_uae_fini04
Learning mobility: Degree mobile graduates	JRC computation based on Eurostat / UIS / OECD data
Credit mobile graduates	educ_uae_mobc02

11. Annex II: Structure of the education system



Source: European Commission/EACEA/Eurydice, 2017. *The Structure of the European Education Systems 2017/18: Schematic Diagrams*. Eurydice Facts and Figures. Luxembourg: Publications Office of the European Union.

Comments and questions on this report are welcome and can be sent by email to:
 Monika KEPE-HOLMBERG
Monika.Kepe@ec.europa.eu
 or
EAC-UNITE-A2@ec.europa.eu

UNITED KINGDOM



1. Key indicators

		United Kingdom		EU average		
		2014	2017	2014	2017	
Education and training 2020 benchmarks						
Early leavers from education and training (age 18-24)		11.8%	10.6%	11.2%	10.6%	
Tertiary educational attainment (age 30-34)		47.7%	48.3%	37.9%	39.9%	
Early childhood education and care (from age 4 to starting age of compulsory primary education)		98.2% ^{13,d}	100.0% ¹⁶	94.2% ¹³	95.3% ¹⁶	
Proportion of 15 year-olds underachieving in:	Reading	16.6% ¹²	17.9% ¹⁵	17.8% ¹²	19.7% ¹⁵	
	Maths	21.8% ¹²	21.9% ¹⁵	22.1% ¹²	22.2% ¹⁵	
	Science	15.0% ¹²	17.4% ¹⁵	16.6% ¹²	20.6% ¹⁵	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-8 (total)	83.2%	86.6%	76.0%	80.2%	
Adult participation in learning (age 25-64)	ISCED 0-8 (total)	16.3%	14.3%	10.8%	10.9%	
Learning mobility	Degree mobile graduates (ISCED 5-8)	:	0.7% ¹⁶	:	3.1% ¹⁶	
	Credit mobile graduates (ISCED 5-8)	:	3.4% ¹⁶	:	7.6% ¹⁶	
Other contextual indicators						
Education investment	Public expenditure on education as a percentage of GDP	5.0%	4.7% ¹⁶	4.9%	4.7% ¹⁶	
	Expenditure on public and private institutions per student in € PPS	ISCED 1-2	€8 616	:	€6 494 ^d	:
		ISCED 3-4	€9 130	:	€7 741 ^d	:
		ISCED 5-8	€18 019	:	€11 187 ^d	:
Early leavers from education and training (age 18-24)	Native-born	12.2%	10.8%	10.4%	9.6%	
	Foreign-born	9.4%	9.5%	20.2%	19.4%	
Tertiary educational attainment (age 30-34)	Native-born	45.5%	45.9%	38.6%	40.6%	
	Foreign-born	53.9%	54.7%	34.3%	36.3%	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-4	78.5%	79.7%	70.7%	74.1%	
	ISCED 5-8	86.2%	89.7%	80.5%	84.9%	

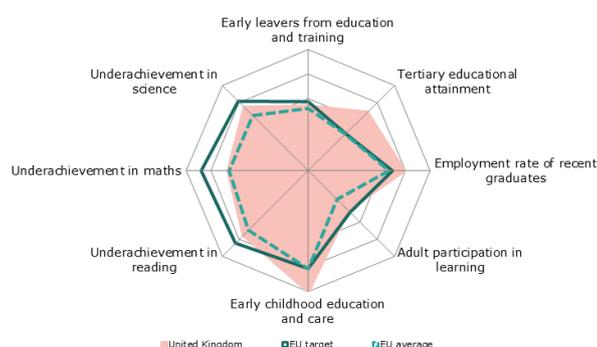
Sources: Eurostat (see section 10 for more details); OECD (PISA).

Notes: data refer to weighted EU averages, covering different numbers of Member States depending on the source; d = definition differs, 12 = 2012, 13 = 2013, 15 = 2015, 16 = 2016.

On credit graduate mobility, the EU average is calculated by DG EAC on the available countries; on degree graduate mobility, the EU average is calculated by JRC over Eurostat and OECD data.

Further information can be found in the relevant section of Volume 1 (ec.europa.eu/education/monitor).

Figure 1. Position in relation to strongest (outer ring) and weakest performers (centre)



Source: DG Education and Culture calculations, based on data from Eurostat (LFS 2017, UOE 2016) and OECD (PISA 2015). Note: all scores are set between a maximum (the strongest performers represented by the outer ring) and a minimum (the weakest performers represented by the centre of the figure).

2. Highlights

- Spending on education remains above the EU average, but dropped in 2016 compared to 2015. Recent budget cuts may threaten the sustainability of education provision.
- Citizenship education is integral part of the curriculum but is only compulsory in England.
- Statistics show improvements in education outcomes, but the teaching agenda seems to be oriented more toward core subjects. Serious concerns persist over training, recruiting and retaining the required excellent teachers.
- Challenges in higher education concern inclusiveness, student wellbeing and outward mobility.
- The UK has continued its substantial reforms related to apprenticeships, continuing vocational education and training (VET) and the promotion of excellence in science, technology, engineering and mathematics and VET.

3. Investing in education and training

Government expenditure on education decreased in 2016 compared to 2015, but remains in line with the EU average. Education spending as a share of GDP dropped from 5.1 % in 2015 to 4.7 % in 2016 (equal to the EU average). Similarly, as a share of total government expenditure it went down from 12 % in 2015 to 11.2 % in 2016 (still above the EU average of 10.2 %). The most significant budget cuts occurred in higher education, which dropped from 7.1 % to 4.8 % of total general government expenditure. The highest share of government spending on education is on secondary education (48.3 %), followed by pre-primary and primary education (24.2 %).

Financial pressures are visible in the different UK administrations. In England, an increasing number of schools, both local-authority-maintained and academies (publicly funded independent state schools), are in deficit (BBC, 2018; Burns, 2018; Kreston, 2018), and are finding it increasingly difficult to remain financially sustainable. The education budget in Northern Ireland dropped by GBP 24 million in 2017/2018 compared to the year before. This required reductions, for example, in a funding programme targeted at disadvantaged schools (Meredith, 2017). The Welsh Government announced new investment plans for education focused on upgrades and maintenances for further education institutions and medium-terms plans for higher education estate rationalisation (Welsh Government, 2017a).

4. Citizenship education

Citizenship education is covered by the national curricula but with a high degree of discretion in how it is taught. England, Wales and Northern Ireland have their own national curricula that sets out teaching requirements for citizenship which address politics, parliament and government, the legal system, how the economy functions, the role of the media, human rights, and European and international relations. Teachers use topical political and social issues to help pupils develop key skills of research, discussion and debate, as well as to represent the views of others, think critically, evaluate and reflect. Citizenship is a compulsory separate subject in England for grades 7 to 11 in publicly funded schools except academies (Eurydice, 2017a). The government provides also non-compulsory programmes of study for citizenship in primary education. The same approach is applied for students taking VET courses as for those taking general education courses. Schools have full autonomy on how to deliver citizenship education, as long as the content is covered.

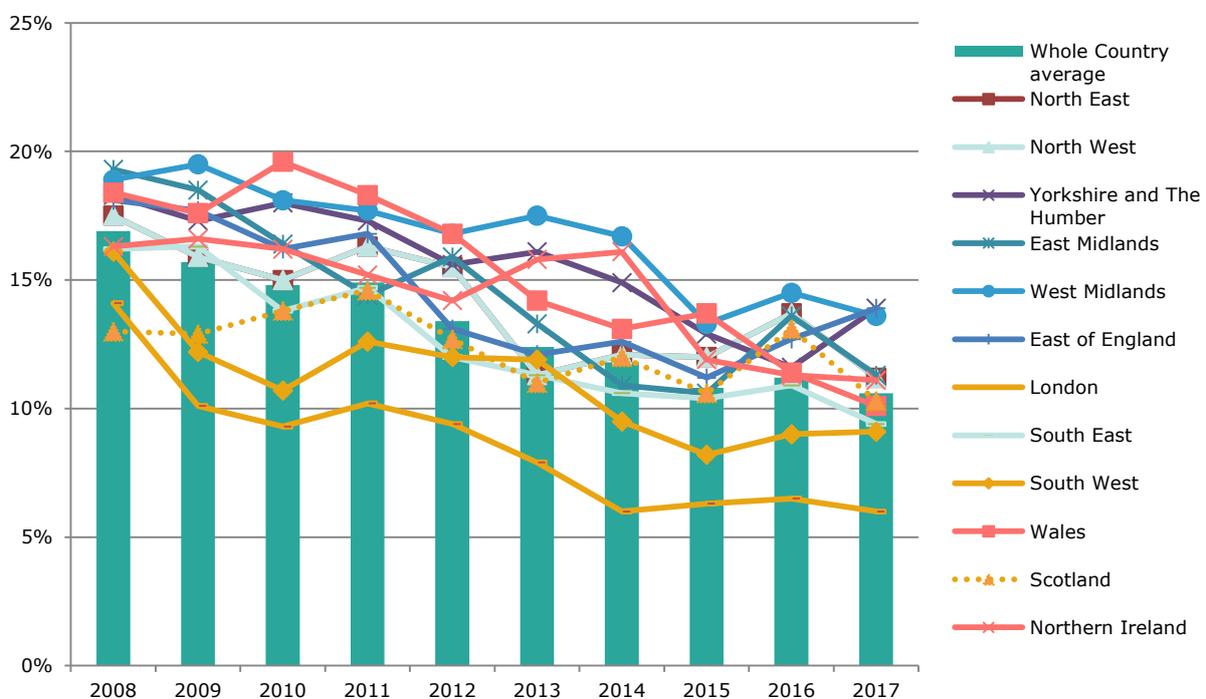
5. Modernising school education

Participation in early childhood education and care (ECEC) is virtually universal, but rollout of the planned provision of 30 hours free childcare raises questions about the funding and capacity to deliver. A survey of nursery providers in England found that free

provision of 30 hours of care is often subject to supplementary charges for some services, such as food (Richardson, 2018). The feasibility of achieving universal provision in Scotland has been questioned by Audit Scotland on the basis of current infrastructure, staffing and funding. Overall, quality of ECEC is judged to be high, but lower in private or voluntarily managed institutions than in public ones (Melhuish & Garduiner, 2017). A parents' survey (Saunders, 2017) from England, Wales and Scotland highlighted several advantages for a child in attending nursery facilities, but 86 % of respondents admitted that the reason for using childcare (such as a private nursery or childminder) for children under the age of five was to enable parents to work, and only 12 % said it was because it is of benefit to the child.

The rate of early leavers from education and training is close to the education and training 2020 benchmark of 10 %, but with significant regional variations. The UK average rate dropped from 14.9 % in 2011 to 10.6 % in 2016, the same as the EU average. However, rates differ at regional level from 6 % to 13.9 %. Unlike in other EU countries, the early school leaving rate is lower among students born abroad (9.5 %) than those born in the UK (10.8 %). Boys are more likely to leave school early (12.1 % in 2016) than girls (9 % in 2016).

Figure 2. Early leavers from education and training by NUTS 1 regions (2017)



Source: DG EAC, based on data from Eurostat. Online data codes: *edat_lfse_14* and *edat_lfse_30*. The indicator is defined as the percentage of the population aged 18-24 with at most lower secondary education and who were not in further education or training during the last 4 weeks preceding the survey. The indicator is based on the EU Labour Force Survey.

The conversion of local-authority-maintained schools to independent academies in England continues. As of early 2018, the National Audit Office estimated that 35 % of state-funded schools were academies, most of which had previously been local authority funded. However, progress in converting underperforming schools has been slower than anticipated.

School absenteeism is growing. This applies in particular to the unauthorised absence rate, mainly due to families taking holidays during school terms (DFE, 2018a). There is concern at the lack of knowledge and quality assurance in relation to unregistered schools, to a large part faith-based, in England and in relation to home schooling in Wales (Titheradge, 2018). The latest report from the Office for Standards in Education, Children's Services and Skills (OFSTED) indicates that in England over 80 % of education providers at all education levels are rated as good or outstanding, and broadly confirms the view that educational outcomes are improving (OFSTED, 2017). However, timetables appear to be over-focused on national English and mathematics tests, which risk to have narrowed curricula excessively.

Concerns persist over how to train, recruit and retain excellent teachers. The excessive workload, coupled with poor salary and employment conditions are usually cited as reasons why teachers are leaving the profession. In England, the government announced in 2017 initiatives for training and retaining teachers and proposed new working arrangements in schools (DFE, 2017a). However, the target for recruitment to initial teacher education has not been achieved for the last 5 years. The House of Commons Public Accounts Select Committee has requested action plans to address the problem of retaining teachers and the variations in quality of teaching across the country (Commons, 2018a). In Wales, the government launched new incentives for recruitment to initial teacher education (Welsh Government, 2017b). In Scotland, additional funds have been made available to train new teachers and a new strategy to recruit talented people into teaching science, technology, engineering and mathematics (STEM) subjects has been announced (Scottish Government, 2017).

There are divergent approaches across the UK to teaching foreign languages in school (Eurydice, 2017b). In England, a foreign language is a compulsory subject from age 7-14. From 14-16 students may learn a language as an optional subject. There is no common core curriculum for students aged 16-18. All students both in general and VET education paths learn one foreign language for the same number of years. In Wales and Northern Ireland the same learning scheme applies as England, except that students start learning a foreign language from age 11. All students in Wales have to learn Welsh from age 5-16 and Irish in Irish-speaking schools in Northern Ireland. In Scotland, there is not a statutory curriculum and local authorities have the autonomy to devise their own curricular models, within which at least one modern language is an entitlement for all pupils. The Scottish government is currently promoting that young people learn two languages in addition to English (first foreign language from 5 years old and the second at the age of 9).

Box 1: Language learning in Scotland: a 1+2 approach

In 2012, Scottish ministers set an ambitious and challenging agenda for future language learning and teaching in Scotland's schools. The report 'Language learning in Scotland: a 1+2 approach' brought forward far-reaching recommendations by the Languages Working Group, with the purpose of establishing a new model for learning and teaching languages in Scottish schools for years to come. It described a framework for language learning in Scotland based on the mother tongue + 2 additional languages model recommended by the European Union and adopted in many countries in Europe and beyond.

In 2018, a teaching resource has been designed to help practitioners implement the 1+2 approach to language learning. The Scottish government's policy, Language learning in Scotland: a 1+2 approach, is aimed at ensuring that every child has the opportunity to learn a modern language (known as L2) from early primary education (P1) until the end of the broad general education (S3). Additionally, each child is entitled to learn a second modern language (known as L3) from P5 onwards. The policy should be fully implemented across Scotland by August 2021.

Additional information can be found in the [report on the 1+2 approach](#) and on the [Scottish government's website](#).

6. Modernising higher education

Widening participation in tertiary education is negatively impacted by student loans and course fees. The UK tertiary educational attainment rate has increased continually since 2002. In 2017 it reached 48.3 %²⁰⁴, one of the highest in the EU, well above the EU-28 average of 39.9 % and the EU benchmark for 2020. The likelihood of a young person participating in tertiary education by age 30 is very high and continues to increase: national estimates for 2015-16 place it at 49 %, up 1.4 % in a year (DFE, 2017b). There is a gender difference of roughly 12 % in favour of females, which is similar to other EU countries. While students from disadvantaged backgrounds are now more likely to participate in higher education, they remain underrepresented and they are

²⁰⁴ The proportion of the population aged 30-34 having completed tertiary or equivalent education.

most present in lower-ranked HE providers (NAO, 2017). At elite universities such as Oxford, more than 80 % of students are from families of parents with top professional and managerial jobs (Richardson, 2017). In Scotland, where there are no tuition fees, 19 universities have committed to widening access by implementing the 15 recommendations in the November 2017 'Widening access' report, with the aim of ensuring that 20 % of entrants to degree programmes come from deprived backgrounds (US, 2017). In Wales, tuition fees have been capped at a maximum of GBP 9 000 a year (EUR 10 200) and in February 2018 the Welsh government announced a new package of financial support for students, through a mix of non-repayable grants and loans (Welsh Government, 2018).

Several measures are being put in place to reduce student debt and make tertiary education more accessible. In 2016, it was reported that 40 % of graduates with loans still outstanding had failed to make a payment, indicating the risk surrounding the future repayment rates (Hale, 2017). The possibility of reducing the interest rate of student loans was explored. The Prime Minister announced in October 2017 that, for graduates who started university after 2012, the salary threshold which they have to pass to start repaying loans would be raised (from GBP 21 000 to GBP 25 000 equivalent to EUR 23 800 and EUR 33 700 respectively) (Belfield et al., 2017). In December 2017, the government proposed introducing two-year 'accelerated' undergraduate degrees to shorten the time required to obtain a degree and, in consequence, to reduce student debt. This corresponds to an overall saving in tuition fees and on one year of living costs (Coughland, 2017).

Mental health and wellbeing of students is a matter of concern. Levels of mental illness, mental distress and low wellbeing among students in higher education are increasing, and are high relative to other sections of the population (Thorley, 2017). Over 15 000 students declared they had mental health problems and 134 suicides happened in 2015 (Chaffin, 2018). Almost 9 in 10 first year students have difficulties coping with social or academic aspects of university life, and a large proportion say that the transition from school to university is a source of stress, with almost 6 in 10 reporting that it is difficult for them to cope (48 % among males and 67 % among females) (UPP, 2017). A new study by the Institute for Public Policy Research (Thorley, 2017) found that nearly five times as many students as 10 years ago disclosed a mental health condition to their university. Demand for university mental health services is growing. A recent publication by Universities UK has highlighted the need for student mental health to be a strategic priority, embedded across all university activities (West, 2018).

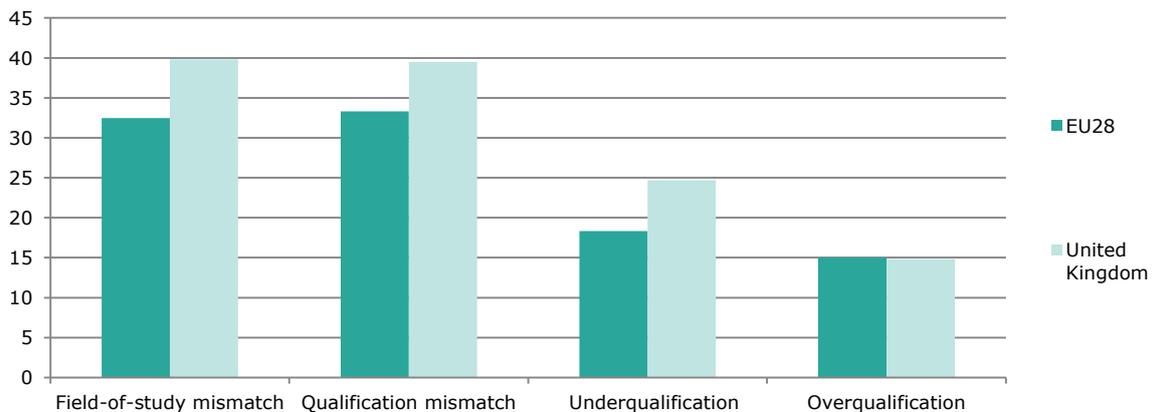
Only around 3 % of tertiary education graduates undertook credit mobility programmes in foreign countries during their studies. In 2016, 24 586 graduates in ISCED 5-8 spent at least 3 months studying abroad (3.2 % of total graduates), below the EU average (around 9 %). Among them, 50 % profited from EU mobility programmes such as Erasmus+, almost 92 % at bachelor level or equivalent. The main destination countries were EU-28 Member States (55 % of graduates).

The potential impact of Brexit on higher education research and teaching is being raised. The British Academy pointed out a number of 'risk-list' subjects, as well as the possible consequences of new immigration controls under consideration (BA, 2017). The House of Commons Science and Technology Select Committee expressed concerns on the impact of Brexit on UK research capabilities (Commons, 2018b).

7. Modernising vocational education and training

The UK has continued its substantial reforms related to apprenticeships, continuing VET, promotion of STEM and VET excellence. In 2018 the Council of the EU adopted the following country-specific recommendation to the UK: '*address skills and progression needs by setting outcome targets for the quality and the effectiveness of apprenticeships and by investing more in the upskilling of those already in the labour force*' (Council of the European Union, 2018). There has been a noticeable increase in participation of learners in upper secondary VET across the UK (from 35.8 % in 2011 to 52.1 % in 2017, partly reflecting changes in methodology for collecting the enrolment data). The Industrial Strategy White Paper contains a number of new initiatives (UK Government, 2017a). Mismatches in field-of-study and qualification remain above the EU average.

Figure 3. Field-of-Study and Qualification mismatches (2015)



Source: DG EAC, based on data from OECD. The indicator is based on the EU Labour Force Survey. Qualification mismatch means workers who have an educational attainment that is higher (over-qualified) or lower (underqualified) than that required by their job. Field-of-study mismatch means workers who are employed in a different field from what they have specialised in.

In England, the Institute of Apprenticeships has established route panels²⁰⁵ to promote industry participation and provide strategic coherence. A new Careers Strategy was initiated, putting emphasis on STEM industry engagement with school students, providing specialist support for long-term unemployed, and proposing that every school and college should have a dedicated careers leader (UK Government, 2017b, c).

In Scotland, the STEM strategy is being implemented. It aims to ensure a highly educated and skilled population equipped with STEM skills, knowledge and capability, with links to policy-making (Scottish Government, 2017). The strategy provides a new emphasis on career pathways within STEM sectors and successful partnerships between schools and employers. A GBP 500 000 (EUR 567 500) College Innovation Fund²⁰⁶ was established for the 2017/2018 academic year. The Fund will assist the integration and contribution of the college sector in the innovation landscape.

Wales has put forward some proposals covering vocational higher education, training and research. Proposals exist to create a new Tertiary Education and Research Commission²⁰⁷ to oversee the higher and further education sector, setting out how it will regulate the post-compulsory education and training sector and have responsibility for funding research and innovation. There will be protection of the interests of learners, and ensuring that vocational and academic routes are equally valued. Wales has also expanded its 'A million Welsh speakers' strategy to include a work-based learning element (Welsh Government, 2017c).

In Northern Ireland, the college hubs initiative is ongoing²⁰⁸. It aims to designate centres of expertise (hubs) in specific occupational areas to lead on development and delivery of education and training. Virtual learning environments will be used as well as potential guest lecturing across colleges.

Box 2: ESF in the UK: Sparking interest in science and engineering

STEMCymru, a project based in Wales, sought to enthuse young people about science and engineering by offering them practical, exciting, hands-on work-place experiences. For example, 11-19 year-olds from Welsh schools and colleges got the chance to design a Formula One car, harnessing digital manufacturing technologies. Their drawings were converted to models which were tested against other teams at race tracks.

²⁰⁵ <https://www.instituteforapprenticeships.org/about/route-panels/>.

²⁰⁶ http://www.sfc.ac.uk/web/FILES/councilpapers_25_082_017/SFC_17-62-college-innovation.pdf.

²⁰⁷ <https://beta.gov.wales/tertiary-education-and-research-commission-wales>

²⁰⁸ <http://www.anic.ac.uk/uploads/documents/FE%20means%20success/FE%20Means%20Success%20E-zine%20No%202.pdf>

In another initiative, 16 to 18 year-old students were paired up with staff from manufacturing companies to work on real engineering projects. Around 7 000 young people took part in this project. About 55 % of them said that they were more likely to study technical subjects as a result of their experiences with STEMCymru.

<http://www.stemcymru.org.uk/>

8. Promoting adult learning

A number of initiatives and measures have been launched to encourage adult participation in learning to support upskilling and reskilling. According to the Continuing Vocational Training Survey, in 2015 only 30.4 % of UK employees participated in training provided by their employers (compared to EU-28 average of 40.8 %). The majority of UK enterprises indicated that the main skills needed to develop the enterprise are soft skills and technical/practical/job-specific skills. In terms of basic digital skills, the UK performs well above average in the EU: 71 % of the population had at least basic digital skills in 2017 as compared to the EU average of 57 %. Nevertheless, the UK faces some digital skills gaps. A Digital Strategy was published in March 2017, which includes a strong skills element²⁰⁹.

England has initiated a Flexible Learning Fund²¹⁰ and a National Retraining Scheme²¹¹. The GBP 10 million Flexible Learning Fund aims to encourage lifelong learning and target adults who are either in paid work or looking to return to the labour market following an absence, and those with low skills levels. The aim of the new National Retraining Scheme is to test innovative approaches to help adults' upskill and reskill, in line with the objectives of the Council Recommendation on Upskilling Pathways. Starting in 2018, the National Retraining Scheme worth GBP 64 million (EUR 72.6 million) will initially target skills shortages in the digital and construction skills sectors. A total of GBP 30 million (EUR 34 million) will be invested to test the use of artificial intelligence and innovative education technology in online digital skills courses.

In Scotland, a one-year pilot Flexible Workforce Development Fund²¹² has been launched. Its aim is to enable Scotland's employers to make training and skills development available to their staff, addressing knowledge gaps and improving productivity. It was made available from September 2017 to organisations across the private, public and third sectors that are subject to the UK Government's Apprenticeship Levy. Individual organisations are able to apply for up to GBP 10 000 (EUR 11 350).

In Wales, an Additional learning needs bill has been set up. It will enable the support of learners with additional learning needs through their education journey and ensure all learners can achieve their full potential²¹³. It contains 11 main aims that will be backed up by a wider programme of reforms, measures, subordinate legislation and an Additional Learning Needs Code, which will sit alongside the bill. Implementation should last 3 years, with completion expected by the end of 2023.

²⁰⁹ <https://www.gov.uk/government/publications/uk-digital-strategy>

²¹⁰ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/656_055/Flexible_Learning_Fund_-_Specification_for_proposals.pdf
<https://www.gov.uk/government/publications/industrial-strategy-the-foundations/industrial-strategy-the-5-foundations>;
<https://www.gov.uk/government/publications/industrial-strategy-building-a-britain-fit-for-the-future>

²¹² <https://beta.gov.scot/news/flexible-workforce-development-fund/>

²¹³ <https://beta.gov.wales/additional-learning-needs-and-education-tribunal-wales-act>; <http://www.legislation.gov.uk/anaw/2018/2/contents/enacted>

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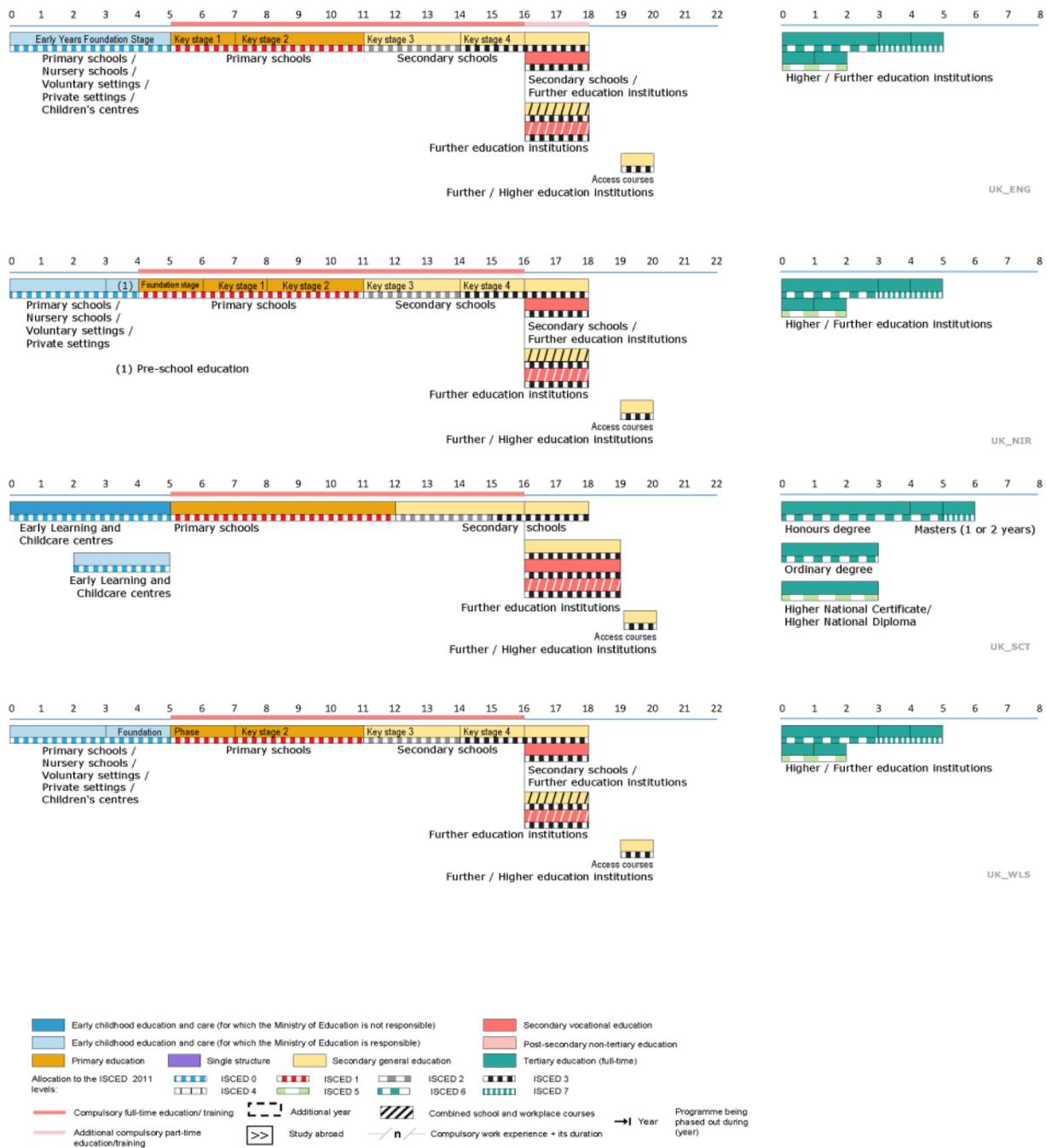
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10. Annex I: Key indicator sources

Indicator	Eurostat online data code
Early leavers from education and training	edat_lfse_14 + edat_lfse_02
Tertiary educational attainment	edat_lfse_03 + edat_lfs_9912
Early childhood education and care	educ_uae_enra10
Underachievement in reading, maths, science	OECD (PISA)
Employment rate of recent graduates	edat_lfse_24
Adult participation in learning	trng_lfse_03
Public expenditure on education as a percentage of GDP	gov_10a_exp
Expenditure on public and private institutions per student	educ_uae_fini04
Learning mobility: Degree mobile graduates	JRC computation based on Eurostat / UIS / OECD data
Credit mobile graduates	educ_uae_mobc02

11. Annex II: Structure of the education system



Source: European Commission/EACEA/Eurydice, 2017. *The Structure of the European Education Systems 2017/18: Schematic Diagrams*. Eurydice Facts and Figures. Luxembourg: Publications Office of the European Union.

Comments and questions on this report are welcome and can be sent by email to:
 Antonio GARCIA GOMEZ
antonio.garcia-gomez@ec.europa.eu
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