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Education and Training Monitor 2018

The Education and Training Monitor 2018 was prepared by the European Commission's Directorate-General for Education, Youth, Sport and Culture (DG EAC), with contributions from the Directorate-General for Employment, Social Affairs and Inclusion and the Eurydice Network. DG EAC was assisted by the Education and Youth Policy Analysis Unit of the EU Education, Audiovisual and Culture Executive Agency; Eurostat; the European Centre for the Development of Vocational Training; and the Human Capital and Employment Unit in the Directorate for Innovation and Growth of the Commission's Joint Research Centre (JRC). The Members of the Standing Group on Indicators and Benchmarks were consulted during the drafting phase.

The manuscript was completed on 1 September 2018.
Additional contextual data can be found online (ec.europa.eu/education/monitor)

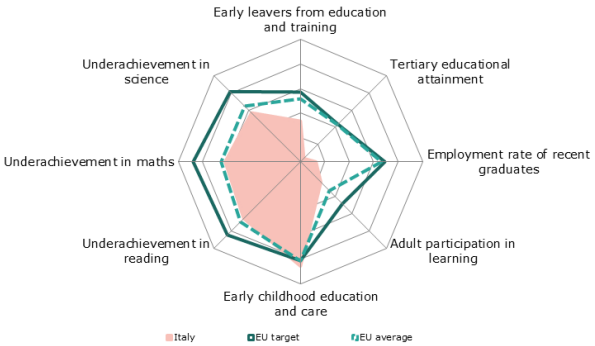
ITALY

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).

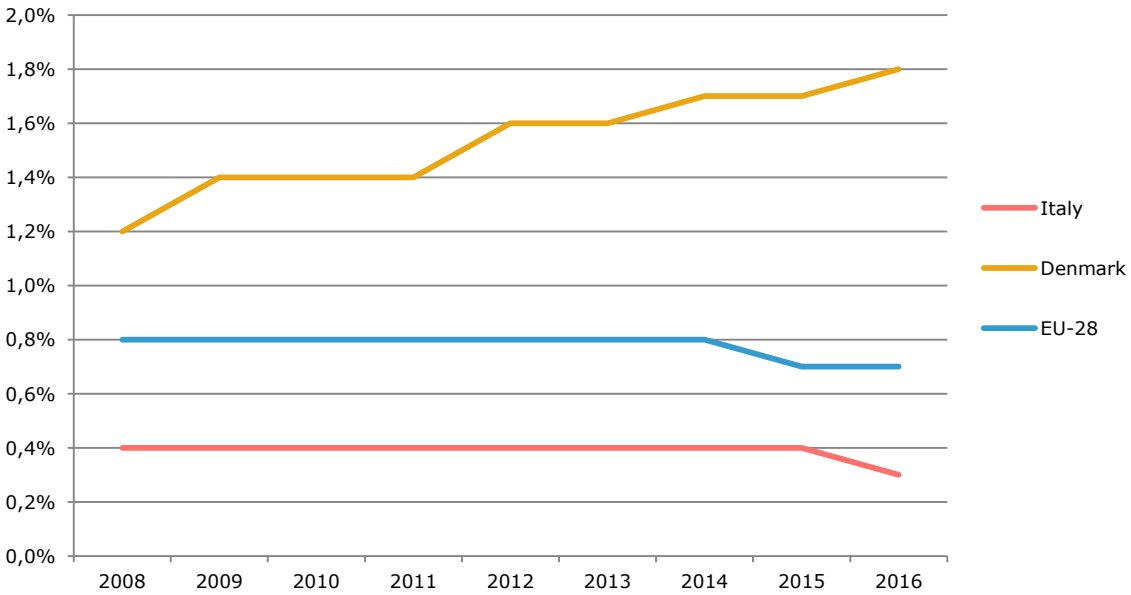
2. Highlights

- 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 2028[1] (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 EU[2]. 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 reform[3] 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 platform[4], 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,

[1] 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).
[2] Followed by Cyprus with 16.1 %.
[3] Law no. 107/15 of 13 July 2015.
[4] 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 turnover[5], leading to teacher shortages in the North as most application are for North-to-South transfers[6]. 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*)[7]. 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

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

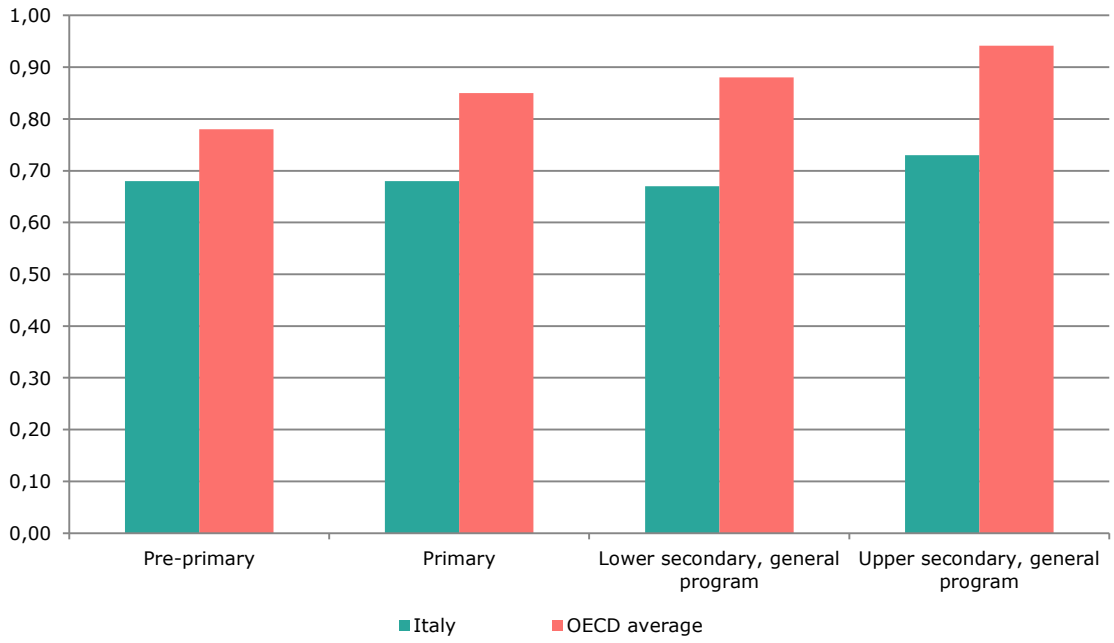
[6] Geographical mismatches mean that most teachers are from the South while most teaching posts are available in the North.

[7] 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 continue[8].

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,

[8] 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 felt[9]. 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 2017[10].

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

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

9. References

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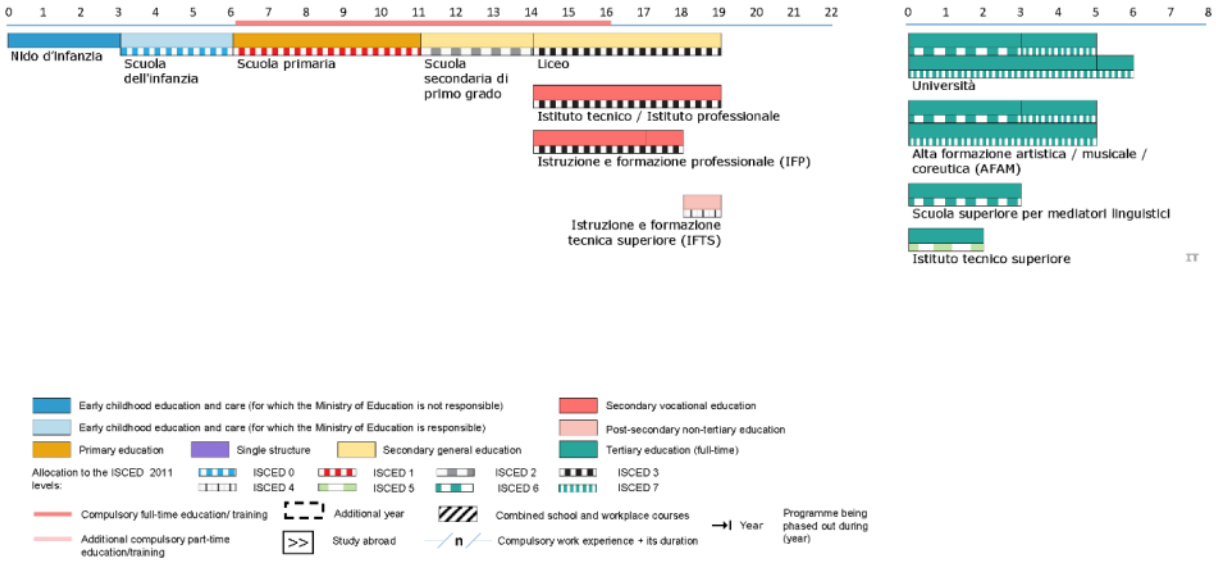
10. Annex I: Key indicator sources

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:
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LATVIA

1. Key indicators

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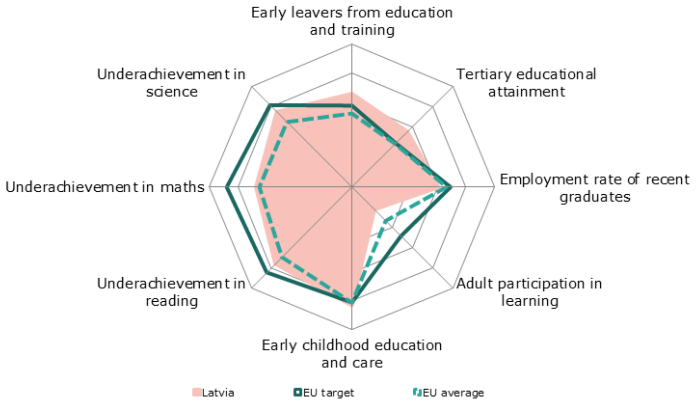
Other contextual indicators						
Education investment	Public expenditure on education as a percentage of GDP		5.9%	5.5% [16]	4.9%	4.7% [16]
	Expenditure on public and private institutions per student in € PPS	ISCED 1-2	€4 836	€5 061 [15]	€6 494 [d]	: [15]
		ISCED 3-4	€4 965	€5 446 [15]	€7 741 [d]	: [15]
		ISCED 5-8	€6 580	€7 608 [15]	€11 187 [d]	: [15]
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).

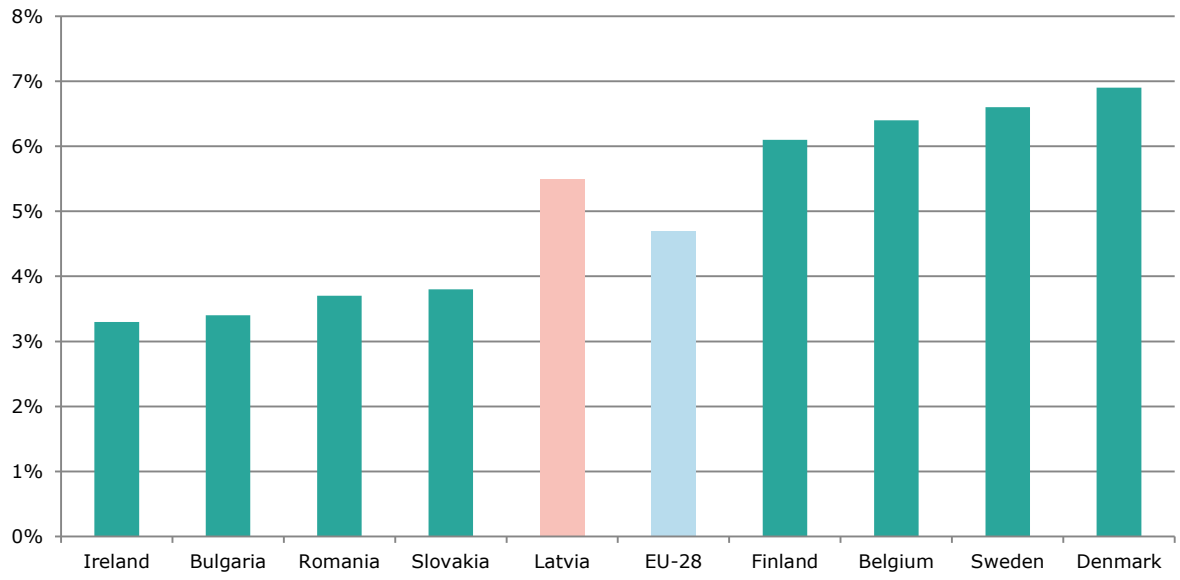
2. Highlights

- 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)[11].

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"[12]. Latvia's teachers' association

[11] 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.

[12] 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 children**13**. 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 to able implement the new curriculum in Latvian only. There is concern for the 25 % of students whose Latvian language proficiency in writing is not sufficient[14] 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.

[13] 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.

[14] 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.

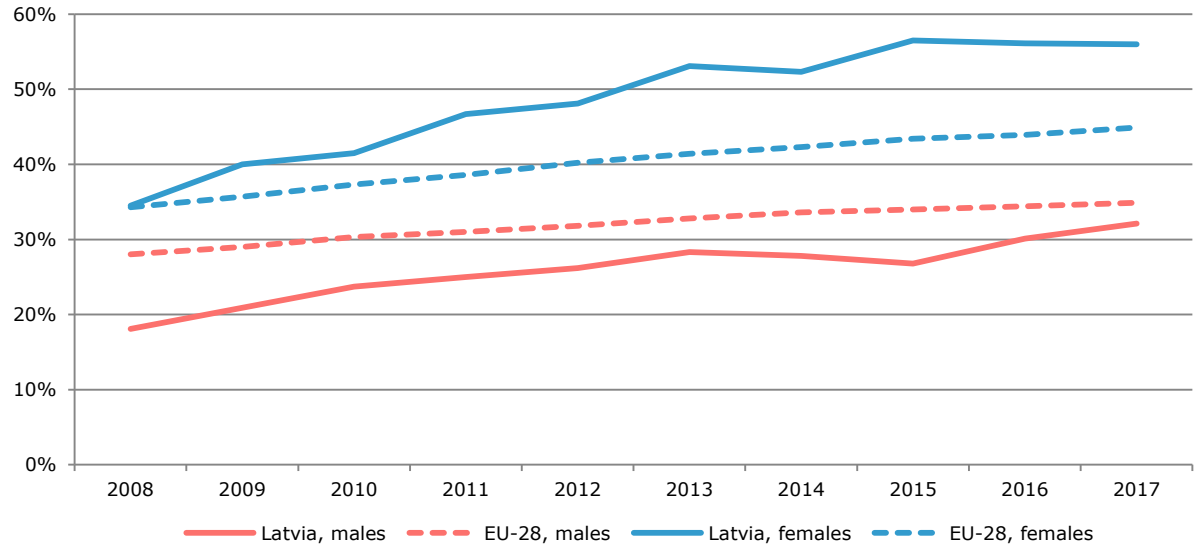
The Government has approved the law amendment to reform the special education schools network and close pedagogical correction programmes. The amendments to the General Education Law which came into force on July 18, 2018, recognise two types of special educational institutions: special schools (public 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_lfse_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 to produce data on employment of graduates, aggregated by study programmes and by institstution. 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 2017[15] 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.

[15] 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 %.

9. References

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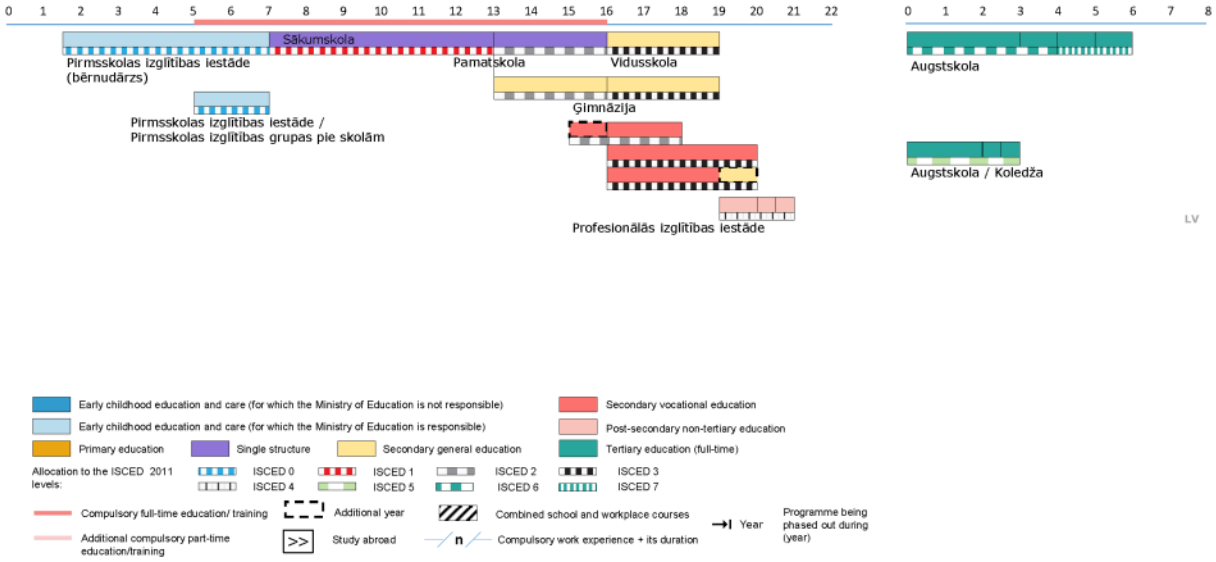
10. Annex I: Key indicator sources

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*
Learning mobility: 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.

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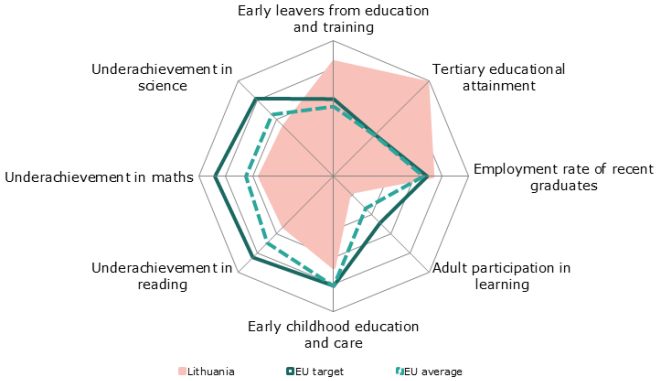
LITHUANIA

1. Key indicators

			Lithuania		EU average	
			2014	2017	2014	2017
Education and training 2020 benchmarks						
Early leavers from education and training (age 18-24)			5.9%	5.4%	11.2%	10.6%
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.

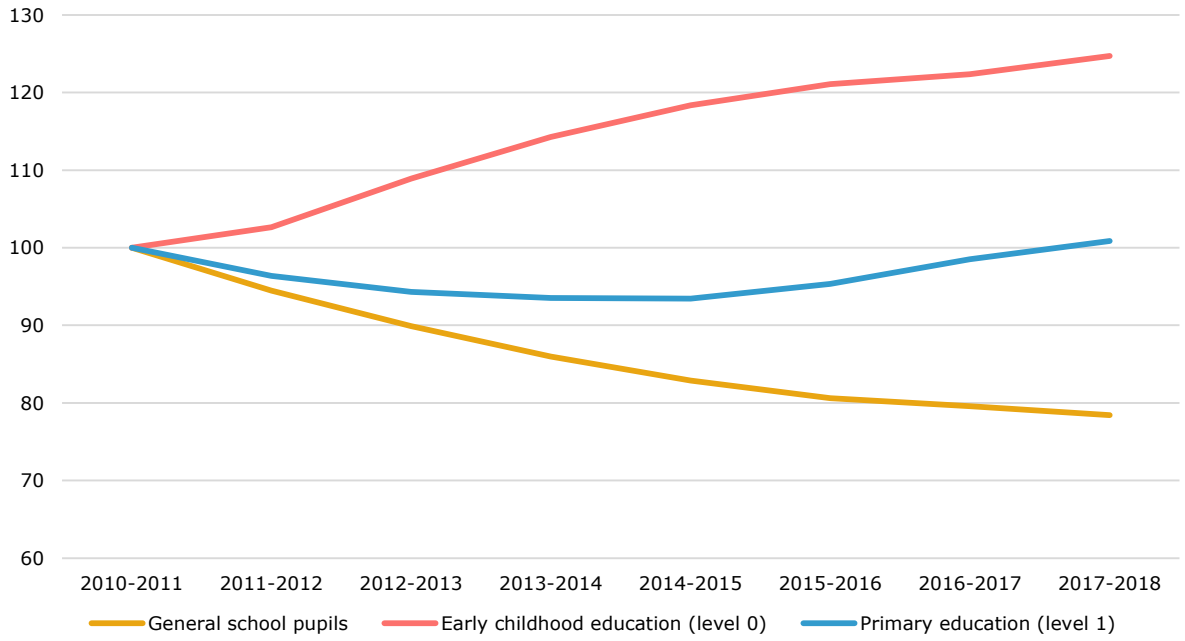
3. Investing in education and training

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 EU[16]. 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 period[17]. 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 %[18]. 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 four[19] (Figure 2). An immediate effect of these challenges was presented in an audit, which showed that approximately 30 % of audited schools[20], 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).

16 Eurostat [gov_10a_exp] and [nama_10_gdp].
17 Statistics Lithuania indicator 'Pupils and students by level of education'.
18 Statistics Lithuania indicator 'General school pupils'.
19 The decline in other Lithuanian regions ranged from 35.2 % in Taurage county to 17.1 % in Klaipeda county.
20 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 quality[21] (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 schools[22], 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 approach[23]. 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 approach[24]. 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 education, under

[21] 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.
[22] 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.
[23] Including Estonia and Finland.
[24] Estonia and Finland each recommend more than 50 hours per year.

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 (ICCS[25]) 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.

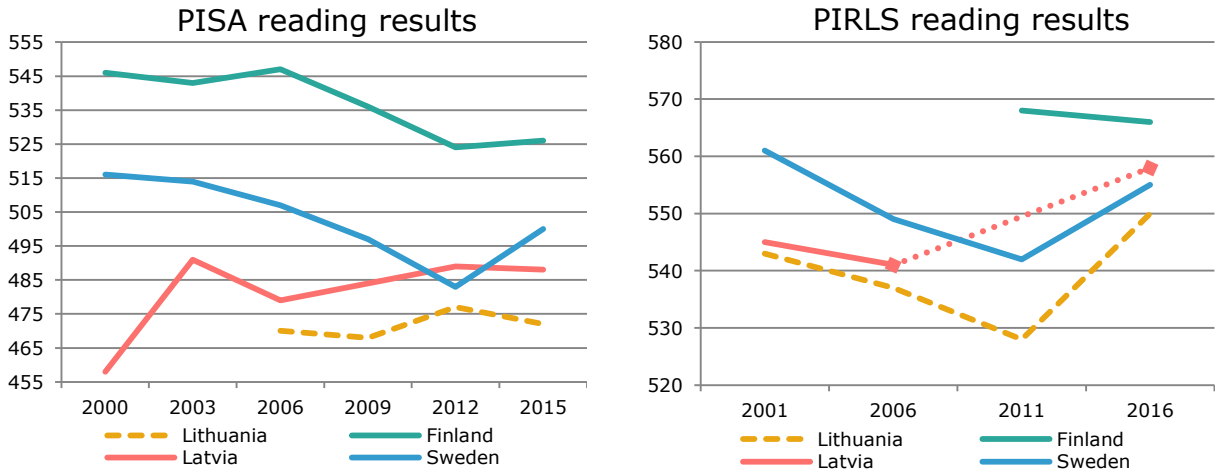
5. Modernising school education

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 1995[26] (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.

[25] 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.

[26] 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 2016[27], 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 2016[28]. 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 2017[29]). 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 hours[30] 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 retirement[31], 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

27 Eurostat data code educ_uoe_enra10.
28 Eurostat data code tps00179.
29 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.
30 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.
31 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 EU[32]). 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 2017[33]. In 2016, only 2.4 % of graduates in Lithuania were from abroad[34], 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

[32] Eurostat [edat_lfse_24].
[33] Statistics Lithuania indicator 'Pupils and students by level of education'.
[34] 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 %[35].

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 2017[36]. 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 %.

[35] Eurostat code [lfsa_ergaed].
[36] 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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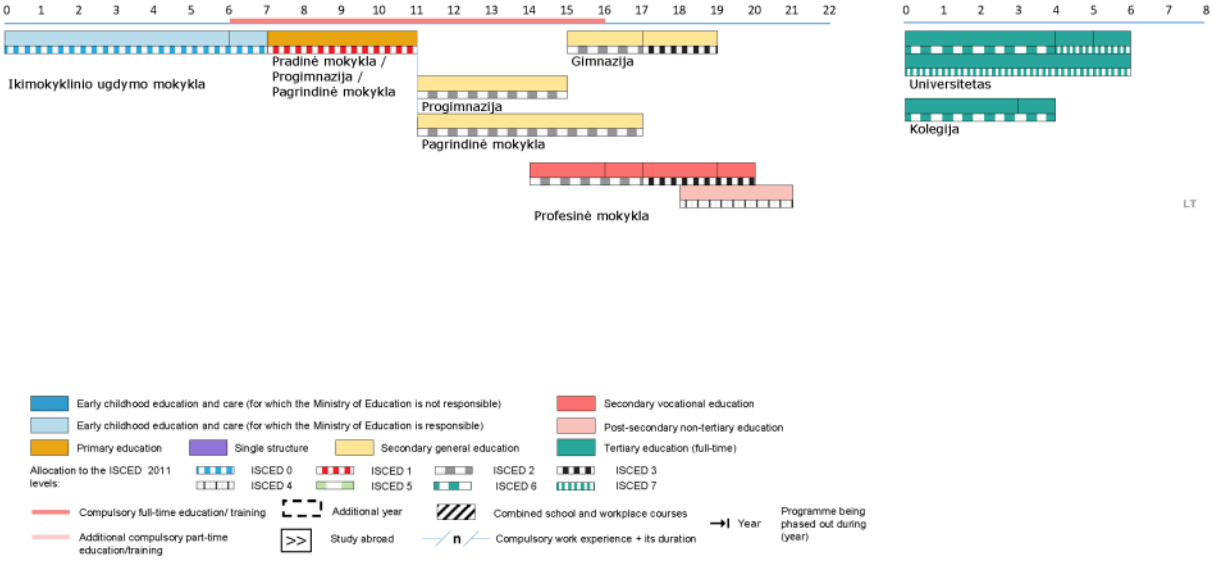
10. Annex I: Key indicator sources

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.

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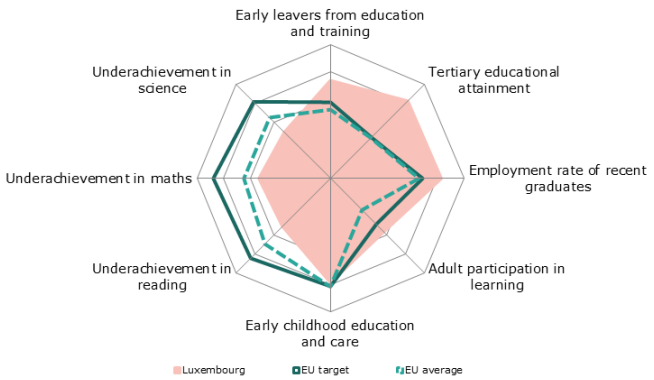
LUXEMBOURG

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						
Education investment	Public expenditure on education as a percentage of GDP		4.9%	4.8% [16]	4.9%	4.7% [16]
	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, 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).

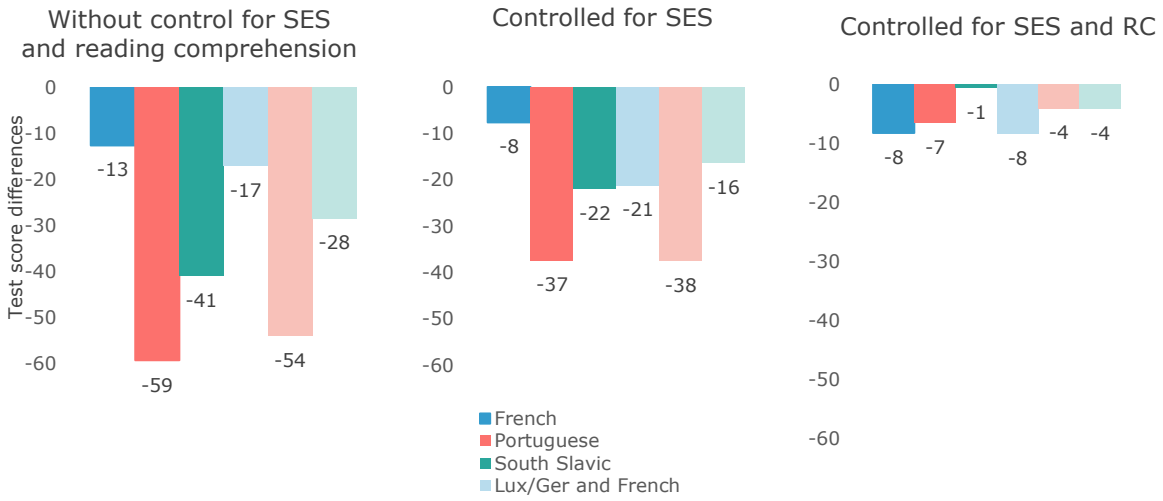
Despite a recent reform of the orientation process at the end of primary education, early use of tracks with little scope for change between levels limits equity in education. Students with lower socio-economic status are the most likely to fall behind in all subjects and to be oriented towards the technical 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 tests[37] do not reach the basic level in reading comprehension in German

[37] 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 profiles[38] 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-

[38] 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:

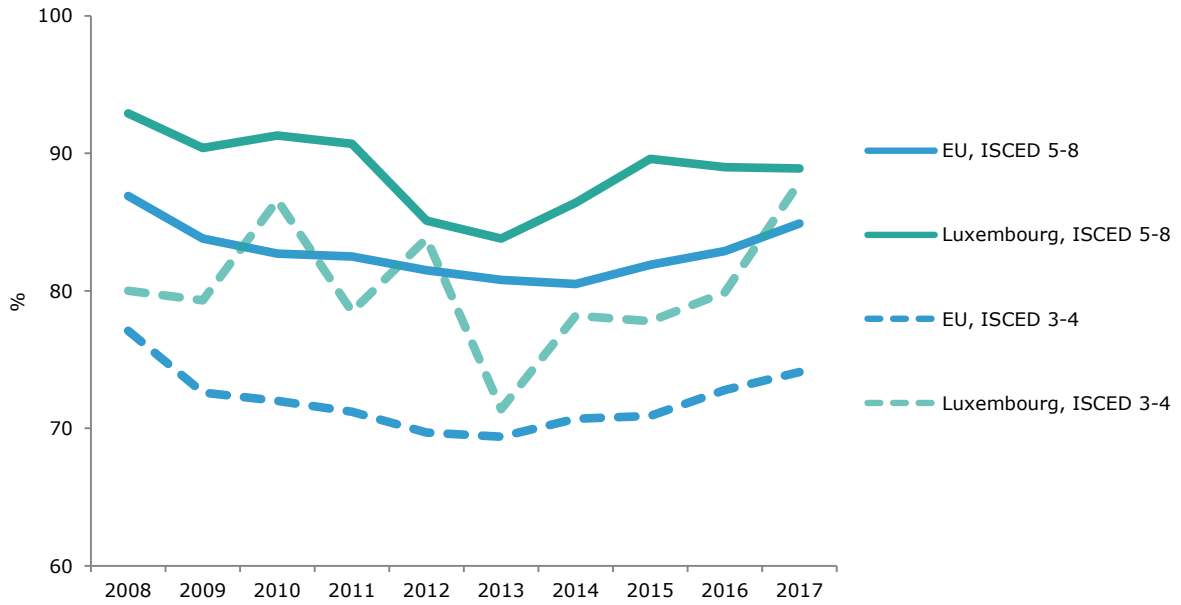
- an obligation to develop an overall action concept;
- keeping a logbook;
- continuing professional development for the socio-educational personnel; and
- undergoing external evaluation by regional officers.

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_lfse_24***.

New legislation strengthens the organisational autonomy of the University of Luxembourg. A new law[39] 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

[39] Proposal No 7132.

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.

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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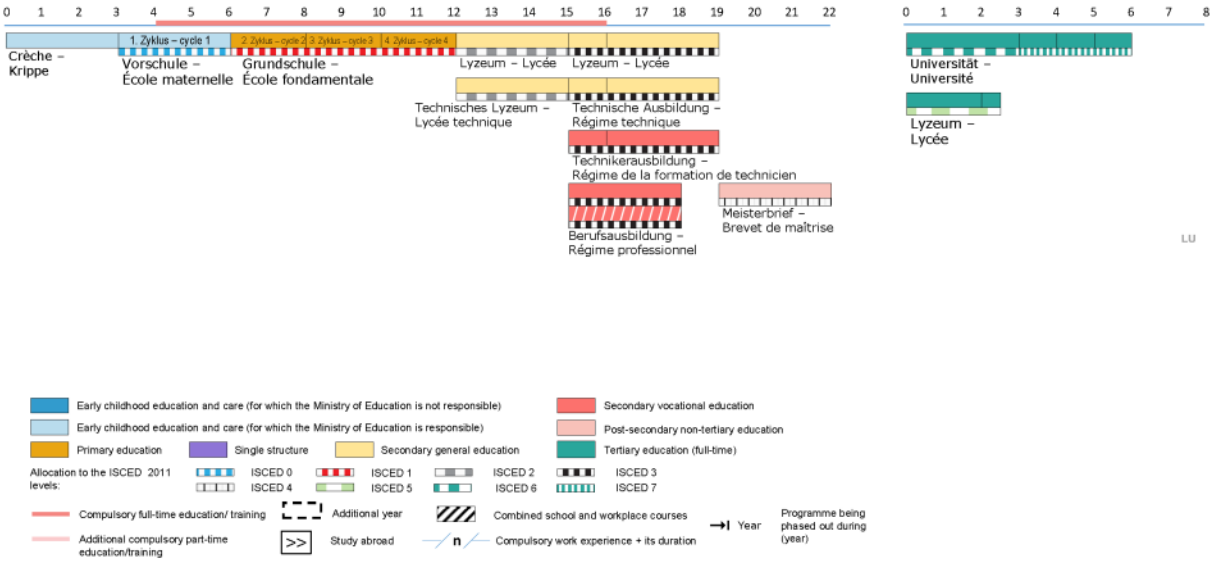
10. Annex I: Key indicator sources

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*
Learning mobility: 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.

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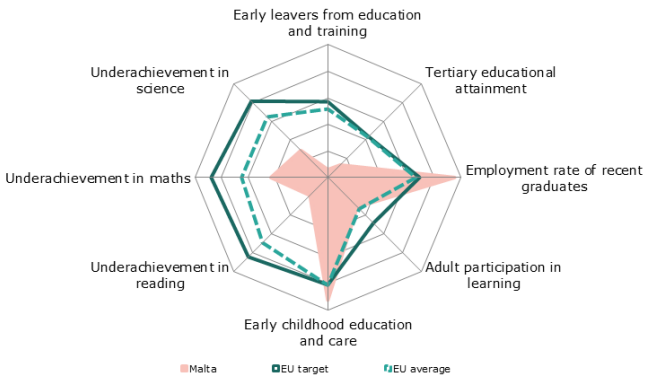
MALTA

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

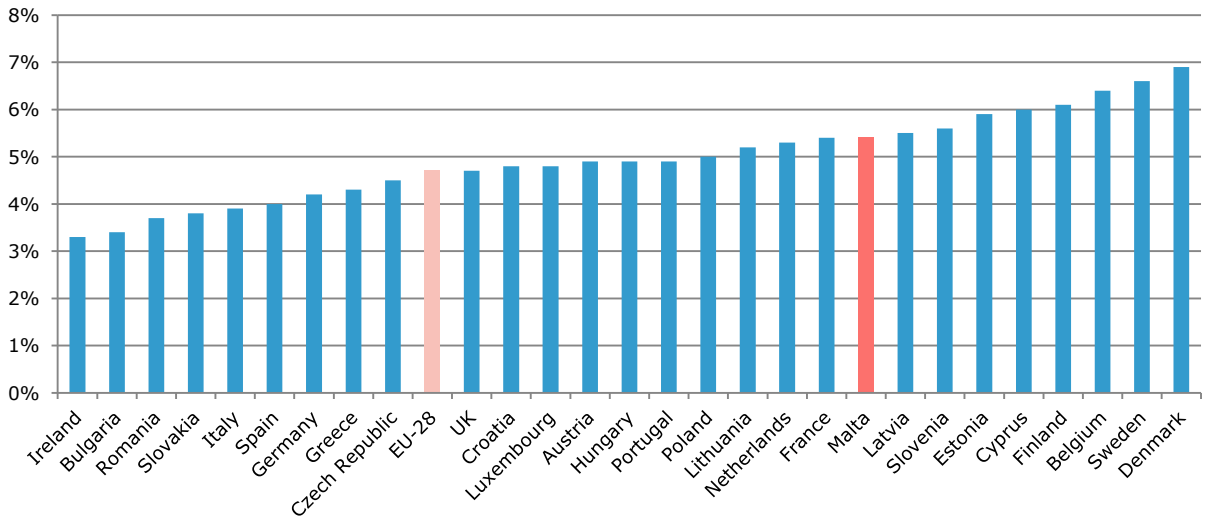
2. Highlights

- 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 education[40], 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)[41]. 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 average[42]. 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

[40] 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.
[41] Source: Eurostat, General government expenditure by function (COFOG) database.
[42] 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 teachers[43]. 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 system[44].

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 elections[45]. 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 1and 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)[46] was 9 points below the ICCS international average of 500, the second

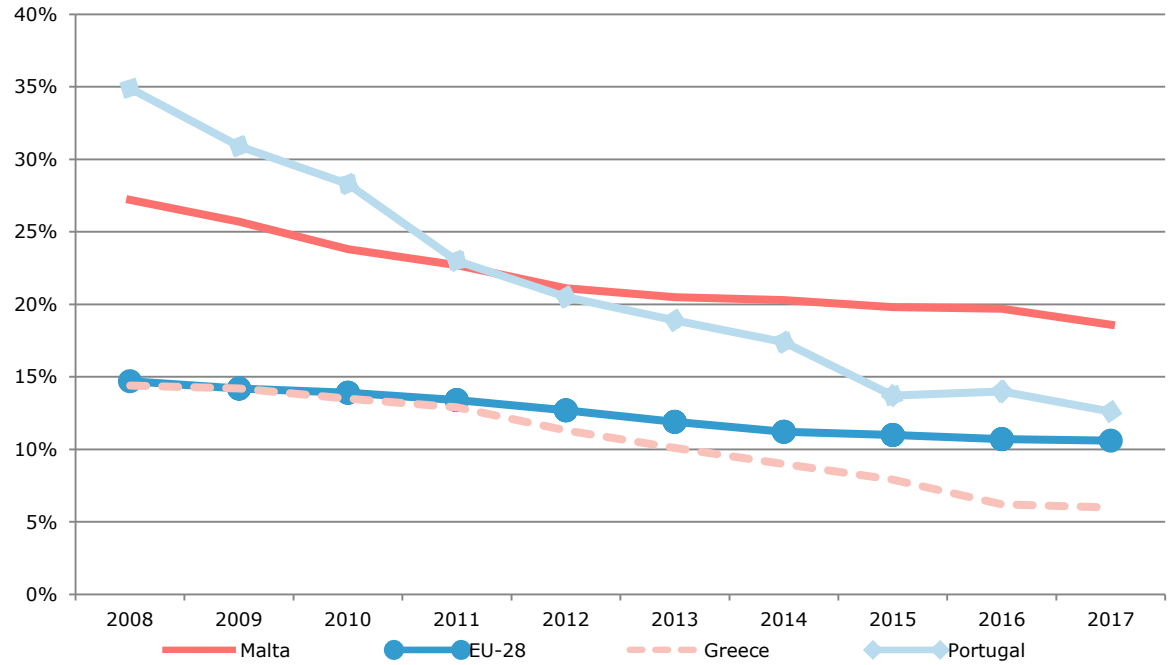
[43] The Reading Recovery (RR) is an accredited school-based literacy programme for the lowest-achieving children aged 5 to 6.
[44] Behind Luxembourg (+46.2 %) and Sweden (+27.3 %)
[45] Austria lowered the voting age in 2007.
[46] ICCS investigates the ways in which young people are prepared to undertake 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 Emplyment, 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_lfse_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 chidren 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 child[47]´ 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.

[47] 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 weere 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 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 Skills[48]´, 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 Commision for Further and Higher Education, which is responsible for validating non-formal and informal learning, signed memoranda of understanding (MOU) with Jobsplus and an

[48] This intiative 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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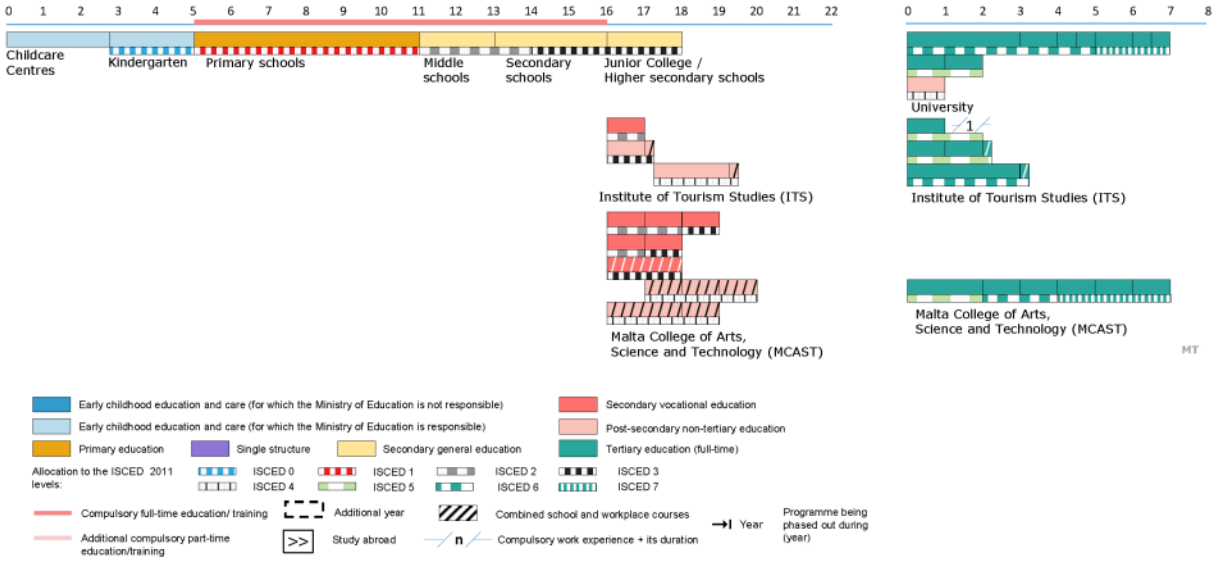
10. Annex I: Key indicator sources

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*
Learning mobility: 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.

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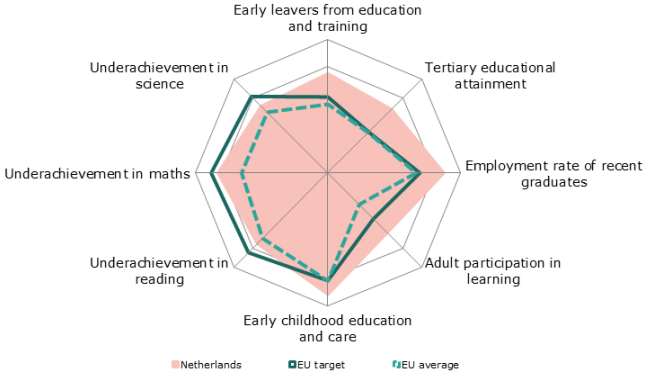
NETHERLANDS

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%

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

- 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-born[49].

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 Survey[50] built their diplomas up to higher education — meaning that they moved up gradually through the system of vocational education.

[49] Eurostat edat_lfs_9912.
[50] 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 Approach[51], 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.

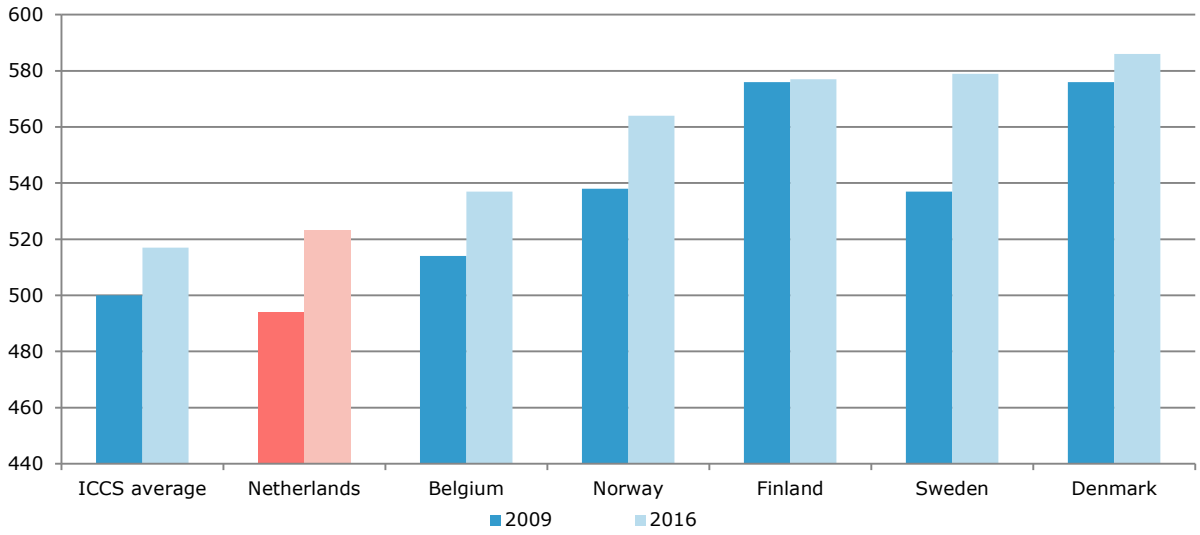
For refugees with secondary education, the main objective of the Amsterdam Approach is to help them acquire a basic qualification. Refugees between the ages 18 and 28 are guided towards an education path. This includes bridging classes that allow refugees to start their bachelor's degree. The training 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.

[51] 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 2016[52]

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 2014-2017[53]. 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

[52] 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).

[53] 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 PIRLS[54] 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 PISA[55] and TIMSS[56] - 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

[54] The Progress in International Reading Literacy Study, PIRLS, has monitored trends in reading achievement in grade four since 2001.
[55] The Programme for International Student Assessment has measured 15-year-old students' performance on mathematics, science, and reading since 2000.
[56] 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.

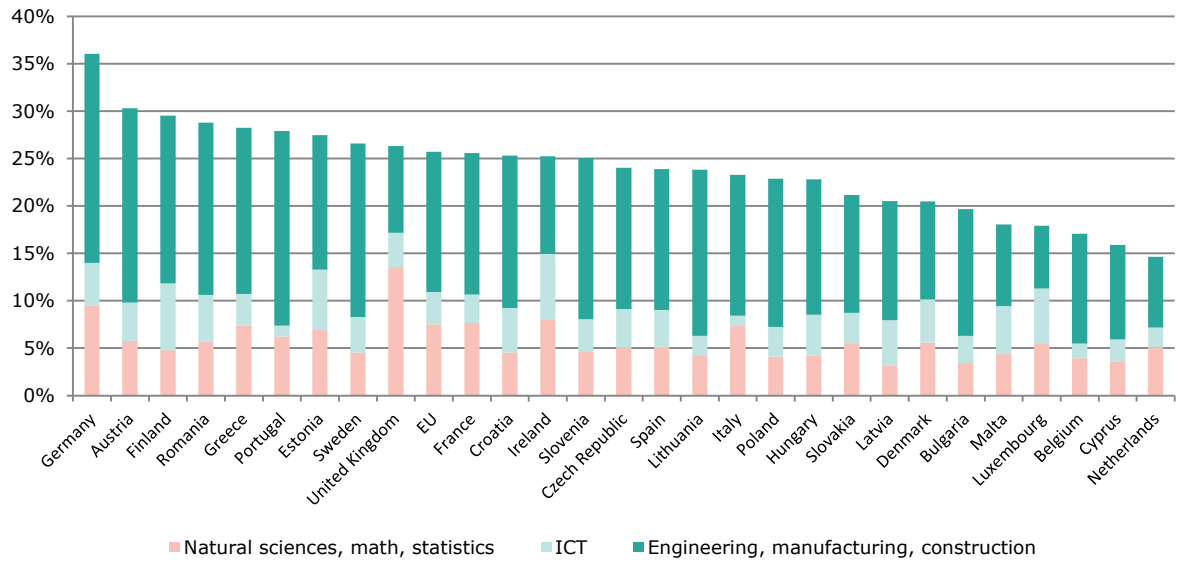
Dutch higher education institutions perform well by international comparison. The Netherlands is the only country in which the 53 institutions examined all reached at least 10 top group positions in the U-Multirank world ranking of universities and colleges. In particular, Dutch higher education institutions 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)[57], 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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[57] 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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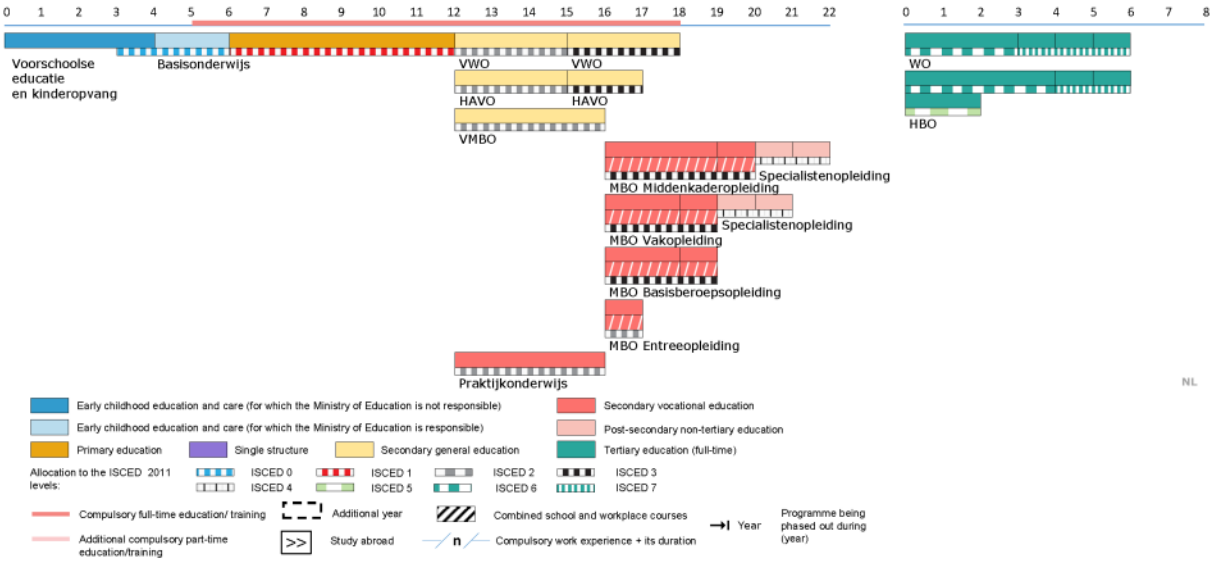
10. Annex I: Key indicator sources

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.

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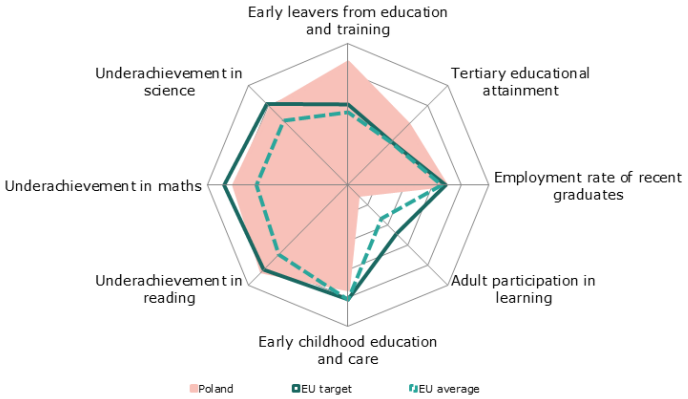
POLAND

1. Key indicators

			Poland 2014	Poland 2017	EU average 2014	EU average 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						
Education investment	Public expenditure on education as a percentage of GDP		5.3%	5.0% [16]	4.9%	4.7% [16]
	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, 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).

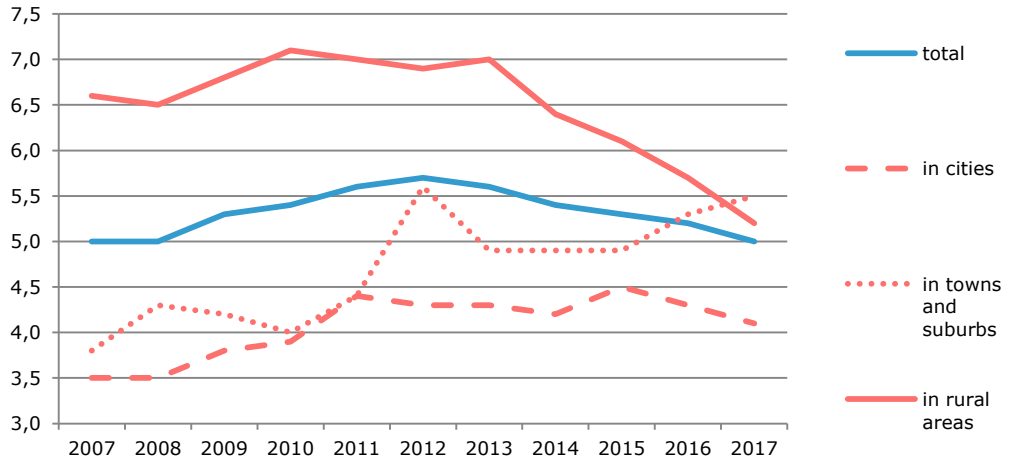
4. Citizenship education

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)'.

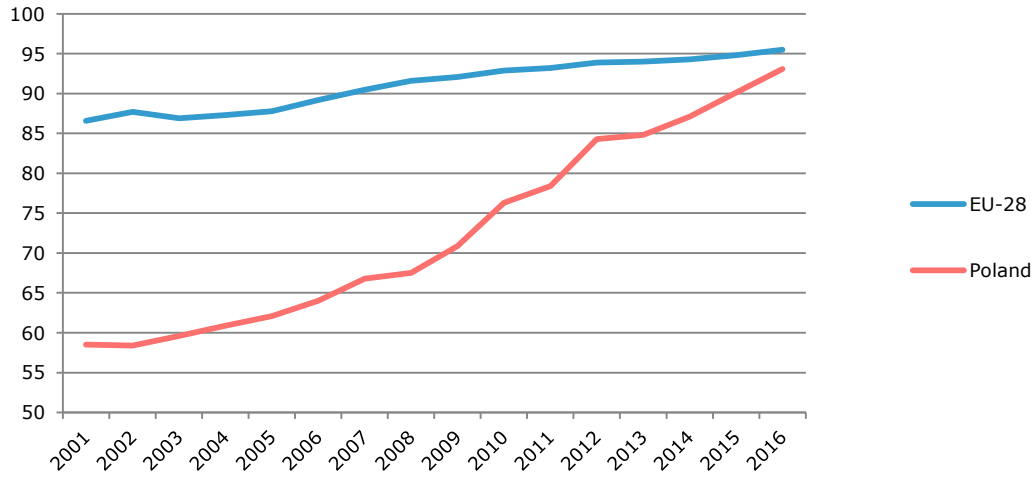
Figure 2. Early leavers from education and training (% of 18-24 year-olds) by degree of urbanisation, Poland (2007-2017)



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 ESF[58].

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 gap[59]. 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).

[58] 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/

[59] More on http://power.parp.gov.pl/power212elektromobilnosc/sektorowe-rady-ds-kompetencji

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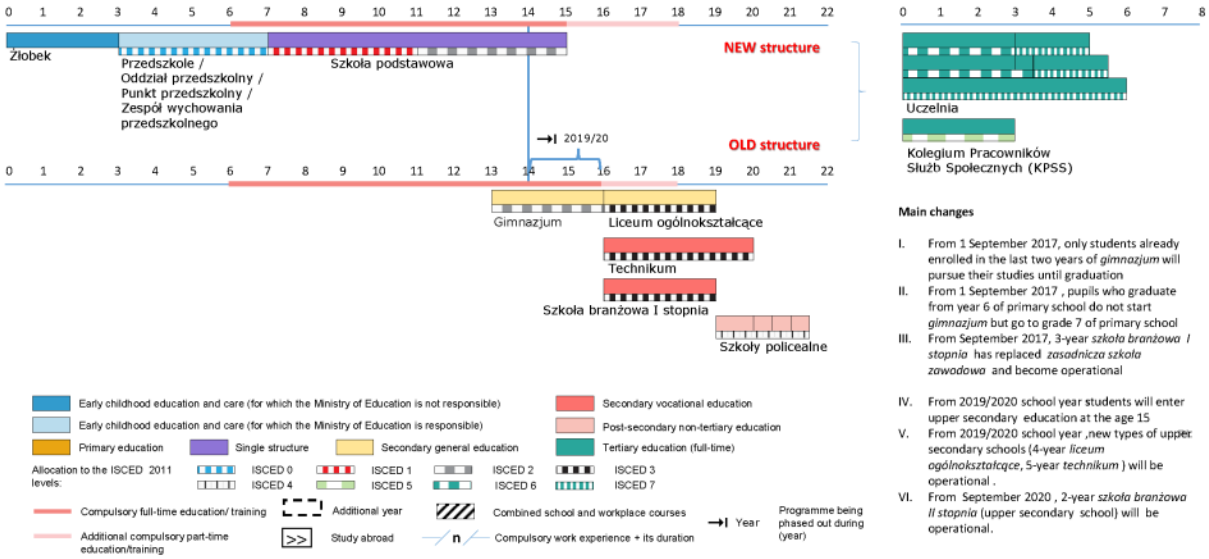
10. Annex I: Key indicator sources

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

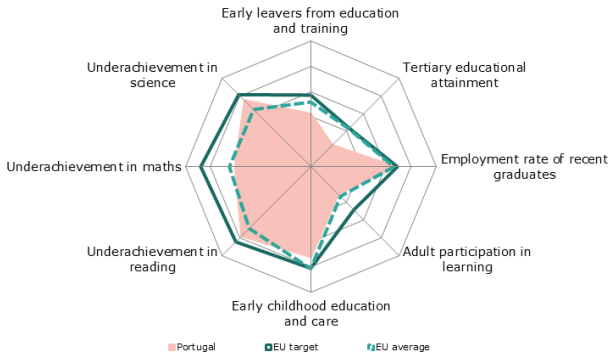
PORTUGAL

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						
Education investment	Public expenditure on education as a percentage of GDP		5.7% [e]	4.9% [16]	4.9%	4.7% [16,e]
	Expenditure on public and private institutions per student in € PPS	ISCED 1-2	€5 340	: [15]	€6 494 [d]	: [15]
		ISCED 3-4	€6 630	: [15]	€7 741 [d]	: [15]
		ISCED 5-8	€8 688 [d]	: [15]	€11 187 [d]	: [15]
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, 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, inter-culturalism, 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

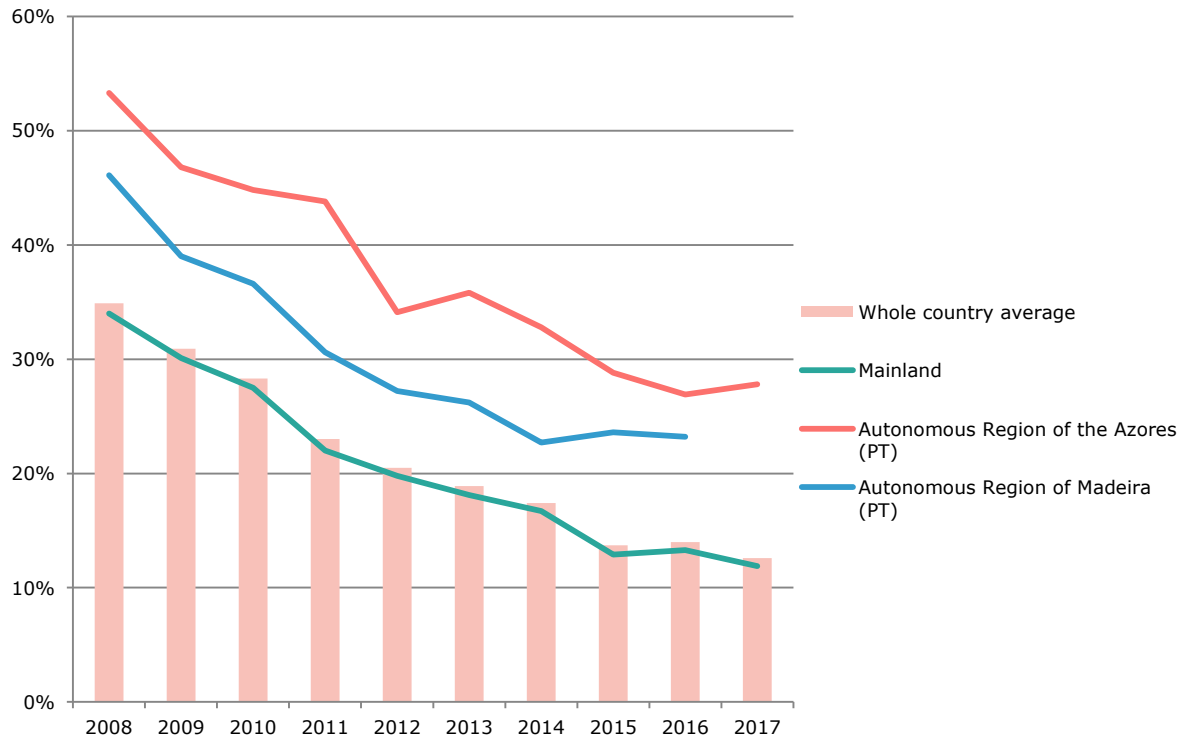
Participation in pre-primary education for children 4 to 6 years old is decreasing, with Portugal moving away from the Education and Training 2020 benchmark of 95 %. In 2016, the ECEC participation rate was 92.5 %, below the European Union average (95.3 %). The participation rate for 4-year-olds decreased 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-yea- 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.

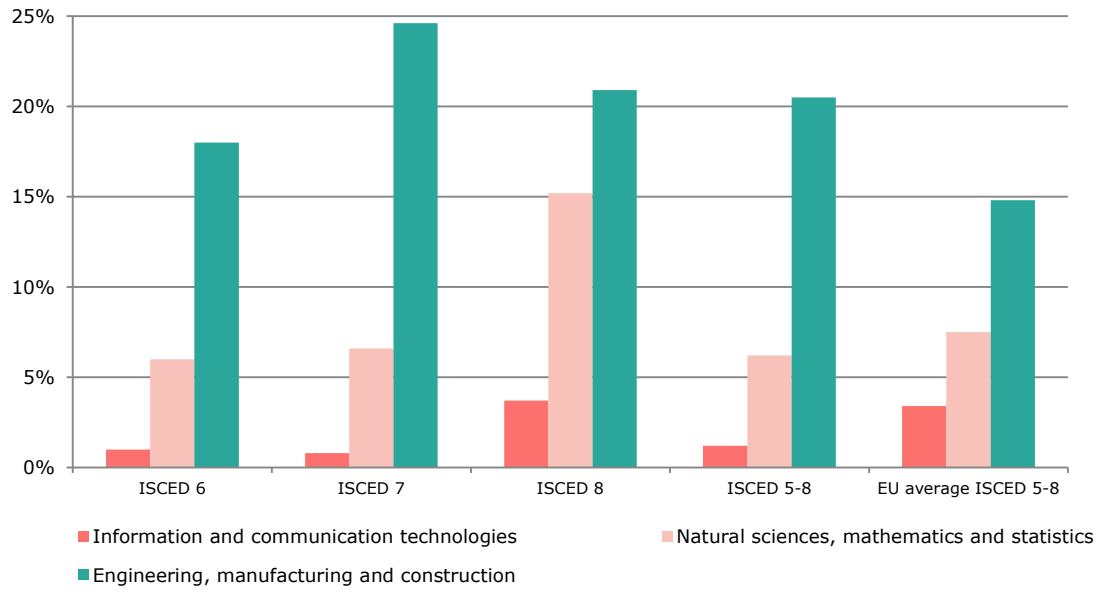
6. Modernising higher education

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' Programe 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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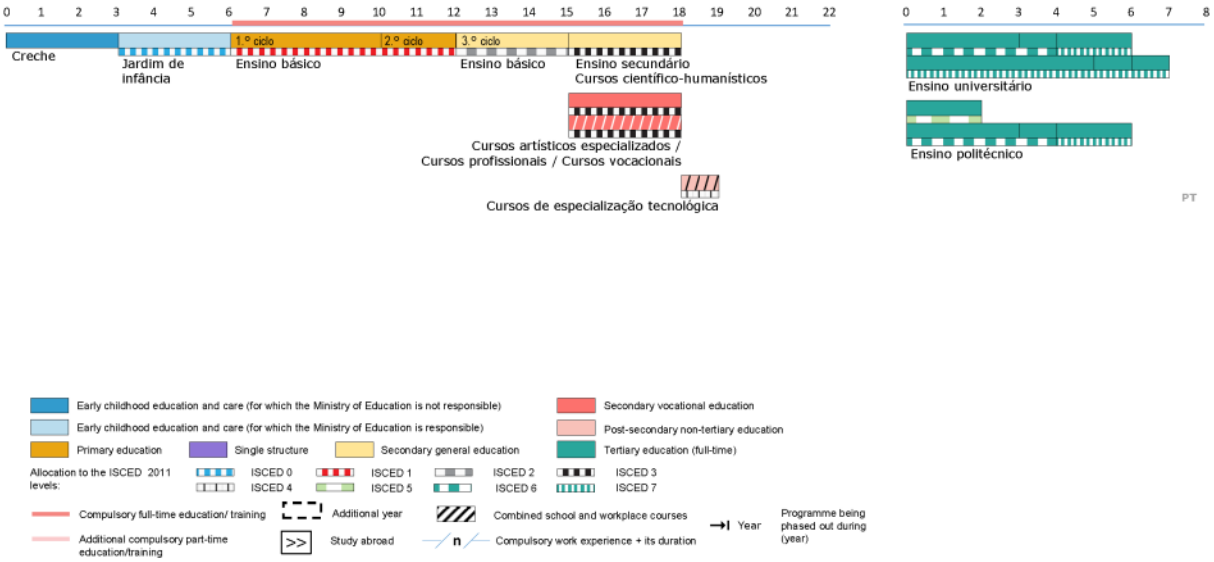
10. Annex I: Key indicator sources

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_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*
Learning mobility: 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.

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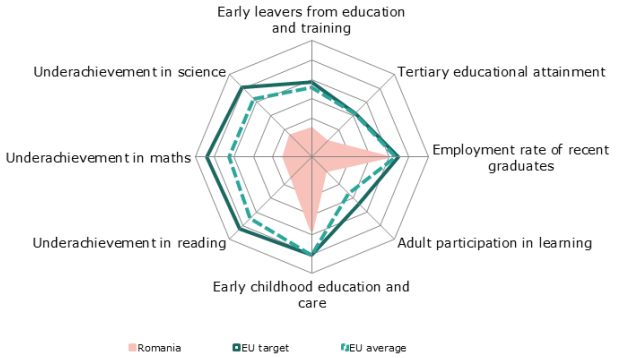
ROMANIA

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' salaries[60] 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 2016[61].

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 higher[62], 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

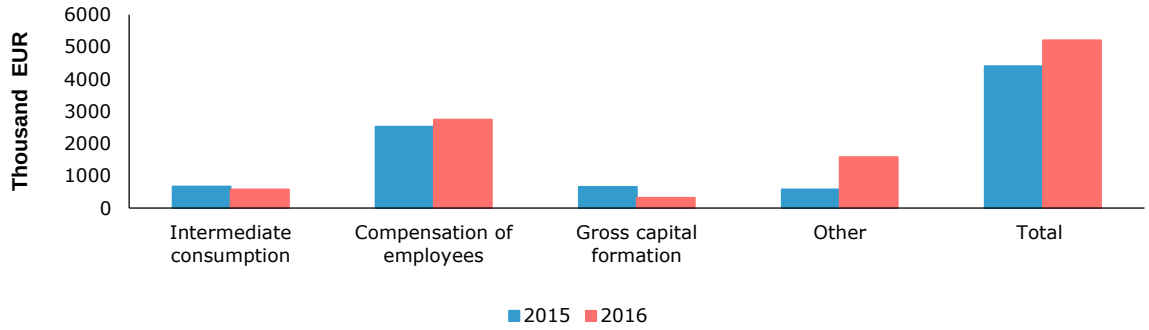
[60] Law 85/2016 introduced a gradual retroactive payment of salary differences for the period 2008-2011. Payments are made in instalments: 5 % in 2016, 10 % in 2017, 25 % in 2018, 25 % in 2019 and 35 % in 2020. Retired teachers and those who retired in 2016 received the full amount. Because general government expenditure on education records expenditure on accrual basis, the full amount of retrospective salary differences was recorded in 2016.

[61] 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'.

[62] 1 % vs EU-28: 0.7 % of GDP in 2016.

university programmes and lower passing rates at the baccalaureate. Romania is preparing a strategy to modernise educational infrastructure (MEN, 2018) to guide investment from national and EU funds[63] 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 disadvantaged schools and tackle dropout rates have started[64] to be implemented, albeit with a

[63] 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.

[64] 122 projects for 'School for all' (EUR 146 million) and 27 projects for 'Motivated teachers in disadvantaged schools'

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.[65]). 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.

(EUR 21 mil).

65 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 additional, 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.

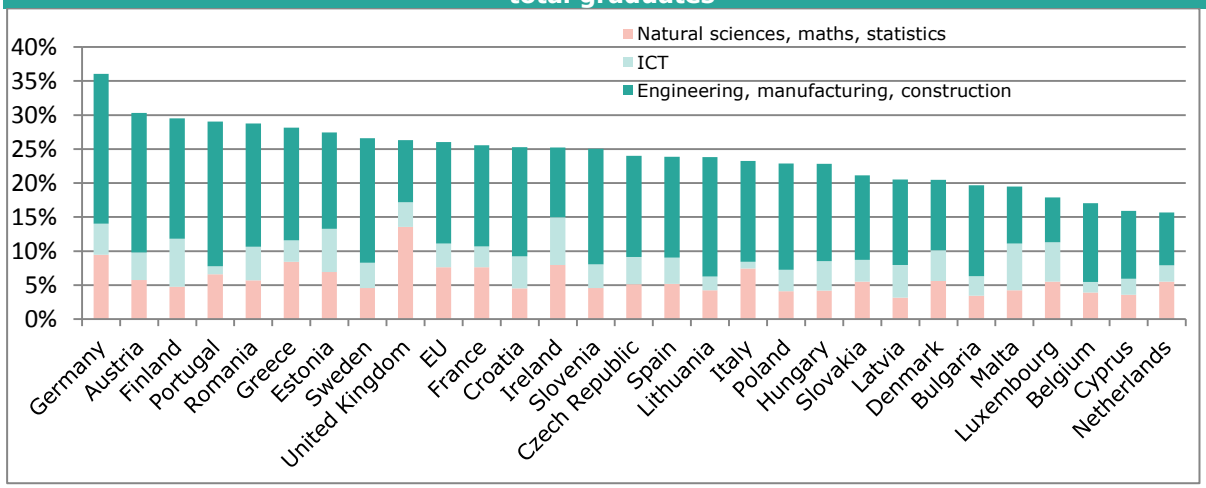
Quality and labour market relevance of higher education are still faced with challenges. The employment rate of recent tertiary graduates continued to increase in 2017, supported by strong economic growth. At 87.4 %, the rate is one of the highest in the EU (EU-28: 84.9 %). However, skills shortages 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 decreasing[66]. Emigration after graduation adds to skills shortages. Employers report that students and graduates entering the labour market often lack key socio-emotional skills[67] 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

[66] 10.9 in 2016, compared to 15.9 in 2013.
[67] 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_uoe_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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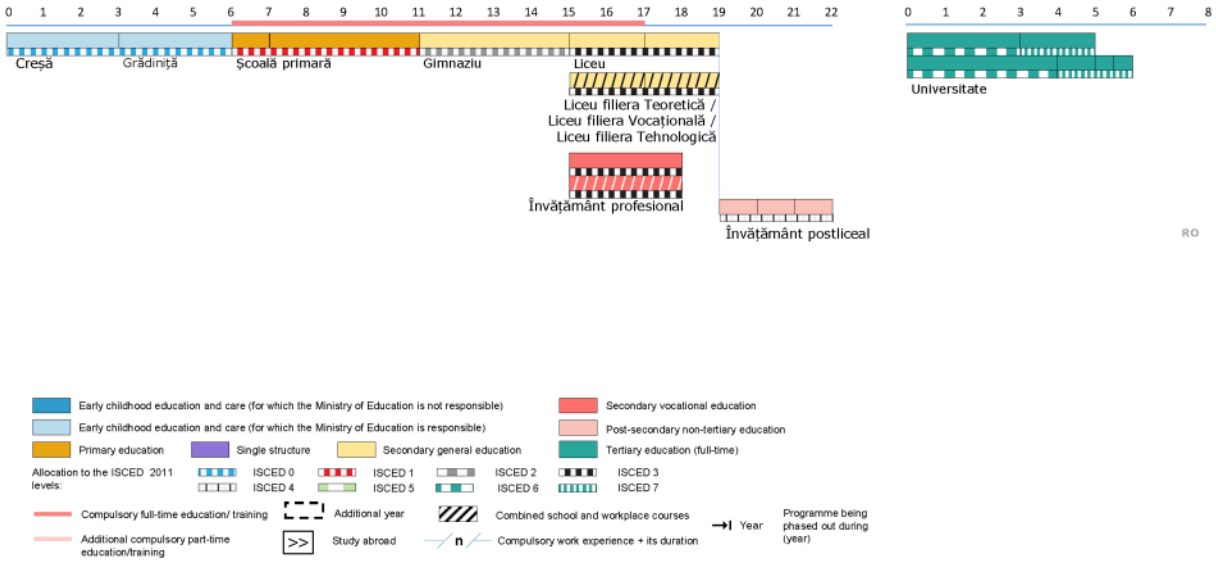
10. Annex I: Key indicator sources

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.

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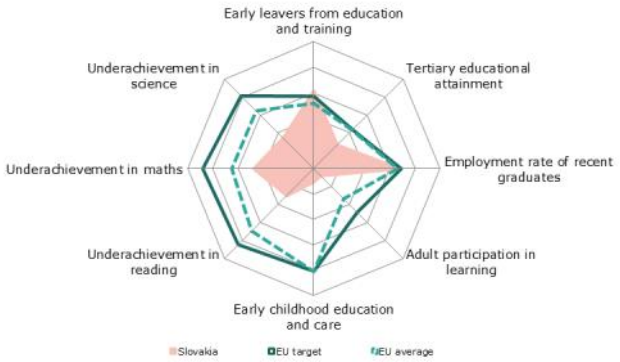
SLOVAKIA

1. Key indicators

			Slovakia 2014	Slovakia 2017	EU average 2014	EU average 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						
Education investment	Public expenditure on education as a percentage of GDP		4.1%	3.8% [16]	4.9%	4.7% [16]
	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

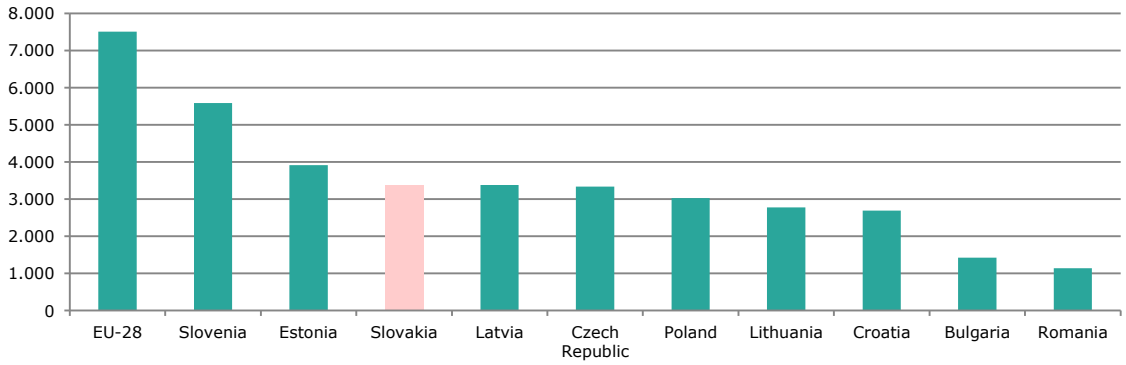
- There are big disparities in educational attainment levels: socio-economic background strongly influences students' performance.
- Despite continued economic growth, investment in education is well below OECD and EU averages. A new education strategy and an increase in financing have recently been 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_uoe_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), 2018[68]). 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 Exclusion[69]. 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

[68] https://www.minedu.sk/ministerka-skolstva-predstavila-vychodiska-pre-narodny-program-rozvoja-vychovy-a-vzdelavania/
[69] 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, 2018[70]).

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).

[70] 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:

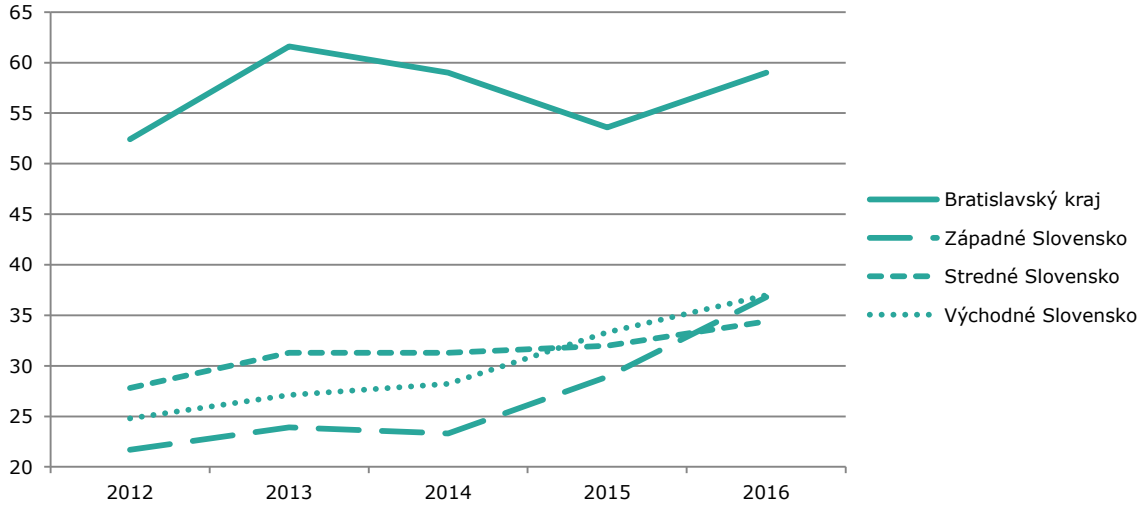
1) The national ESF-supported project 'IT Academy — Education for the 21st Century' (*IT Akadémia — vzdelávanie pre 21. storočie*), which aims to prepare young people for the needs of a knowledge-based society and jobs in ICT, kicked off in November 2017. At least 300 primary schools, 200 secondary schools, 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 education[71]. 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.

[71] 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 acquirements 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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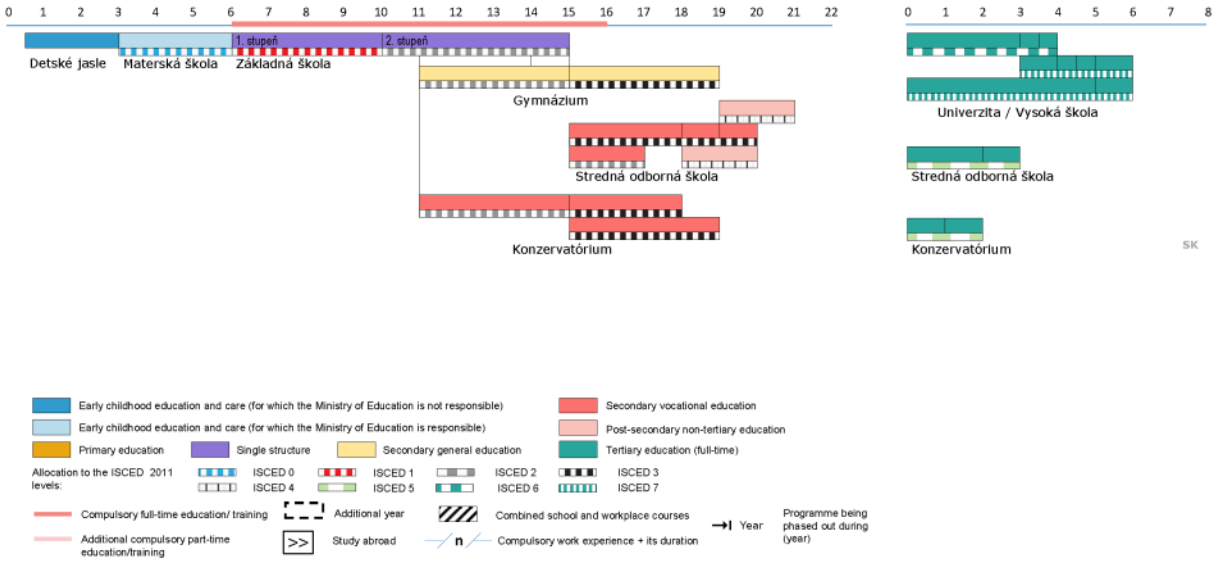
10. Annex I: Key indicator sources

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:

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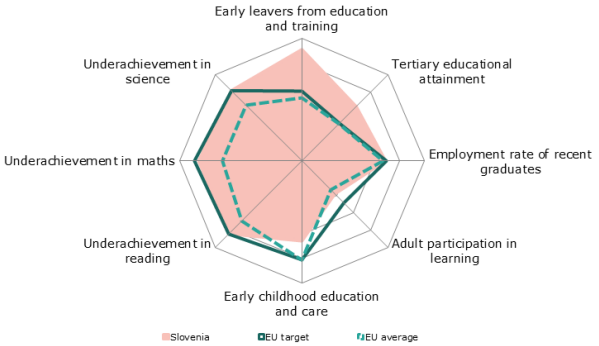
SLOVENIA

1. Key indicators

			Slovenia 2014	Slovenia 2017	EU average 2014	EU average 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, 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

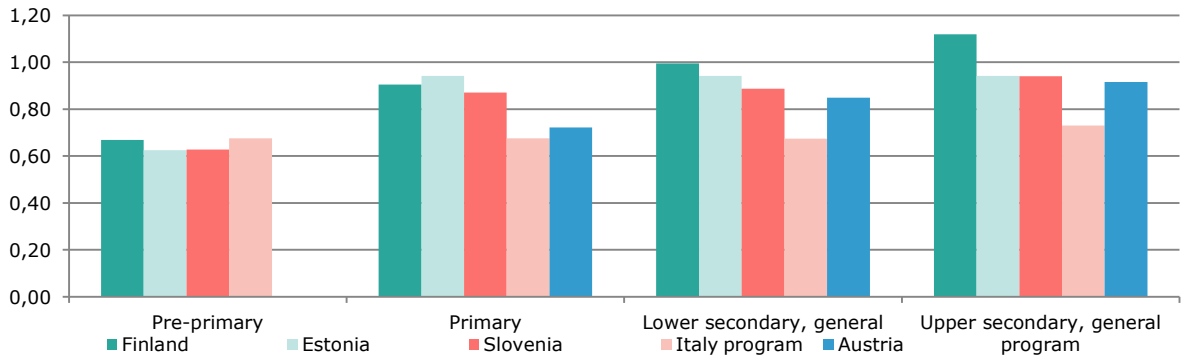
- Despite budgetary reductions since 2012, Slovenia still invests more in education and training than the EU average.
- Slovenia has a well-developed framework of citizenship education, which results in high civic knowledge and well-developed attitudes among Slovenian pupils and students.
- Slovenia 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 terms[72]. 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.

[72] 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 structure[73]. Even though no particular competences for citizenship education are taught in initial teacher education[74], 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 teachers[75] (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)[76], 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).

73 Estonia and Finland each recommend more than 50 hours per year.
74 Additionally, teachers with a degree in philosophy, geography, sociology, politics are deemed qualified to teach the separate subject of citizenship education in primary school.
75 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.).
76 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)[77].

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 2016[78]. 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 2016[79]) and perform worse in international studies of basic skills[80]. 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 migrants[81] (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.

77 The country-specific findings are particularly valuable in targeting interventions — such as through the EU funds — to improve equity.
78 Eurostat [educ_uoe_enra10].
79 Eurostat [edat_lfse_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.
80 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).
81 Including materials on Slovenian as a second language, produced with the help of the ESF.

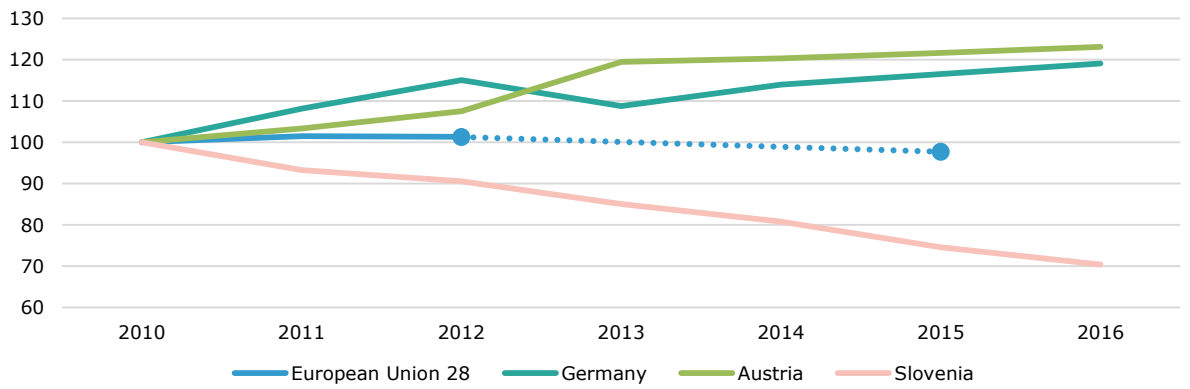
Slovenia makes use of the European Social Fund (ESF) to improve initial teacher education. A 2017 call "Innovative and flexible forms of teaching and learning in pedagogic study programs" provided EUR 1.3 million, 80 % of which was from the ESF, to co-finance activities in higher education study programmes 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 women[82]. 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 EU[83]). 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 2016[84], 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 education[85], 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).

82 Eurostat [edat_lfse_03].
84 Eurostat [tps00062] and [educ_uoe_enrt01].
85 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 an 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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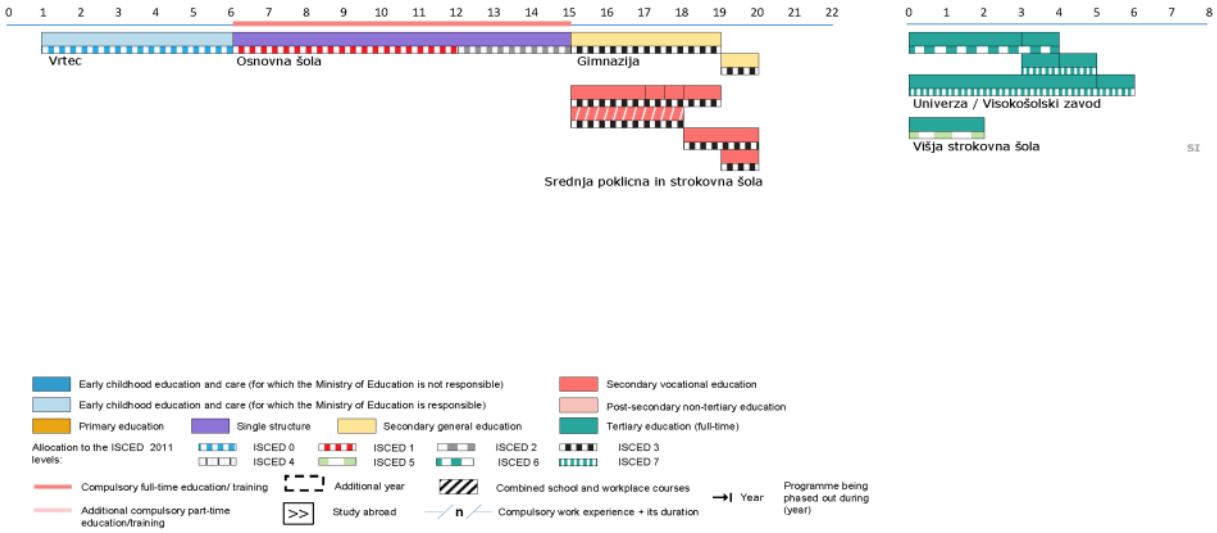
10. Annex I: Key indicator sources

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:
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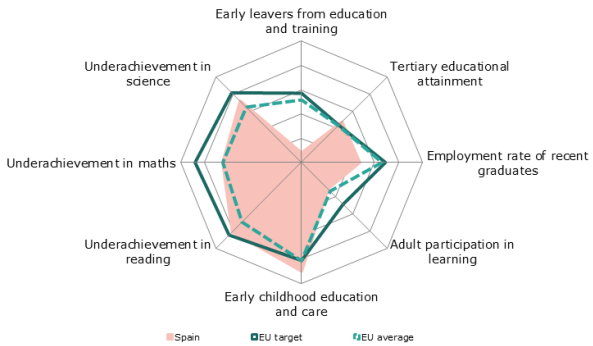
SPAIN

1. Key indicators

			Spain 2014	Spain 2017	EU average 2014	EU average 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 activities[86]. 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.

86 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 l 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.

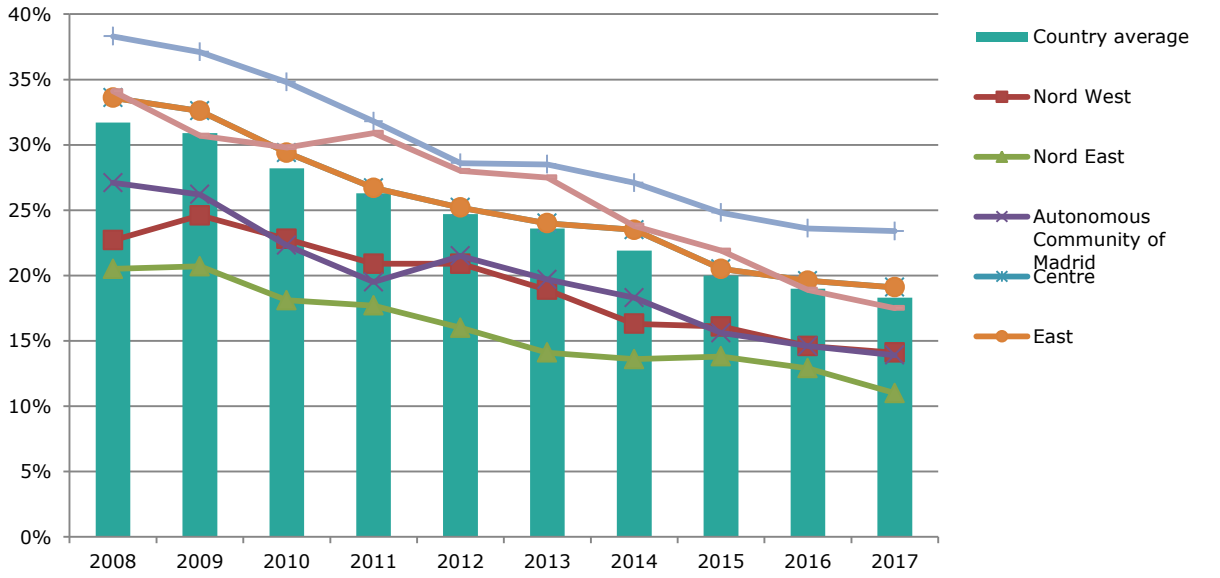
5. Modernising school education

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[87]' 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_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 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).

[87] 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 people[88]

The Second Chance Schools (E2O) of Gijon'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[89]' 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).

[88] 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).

[89] 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 VET[90], 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.

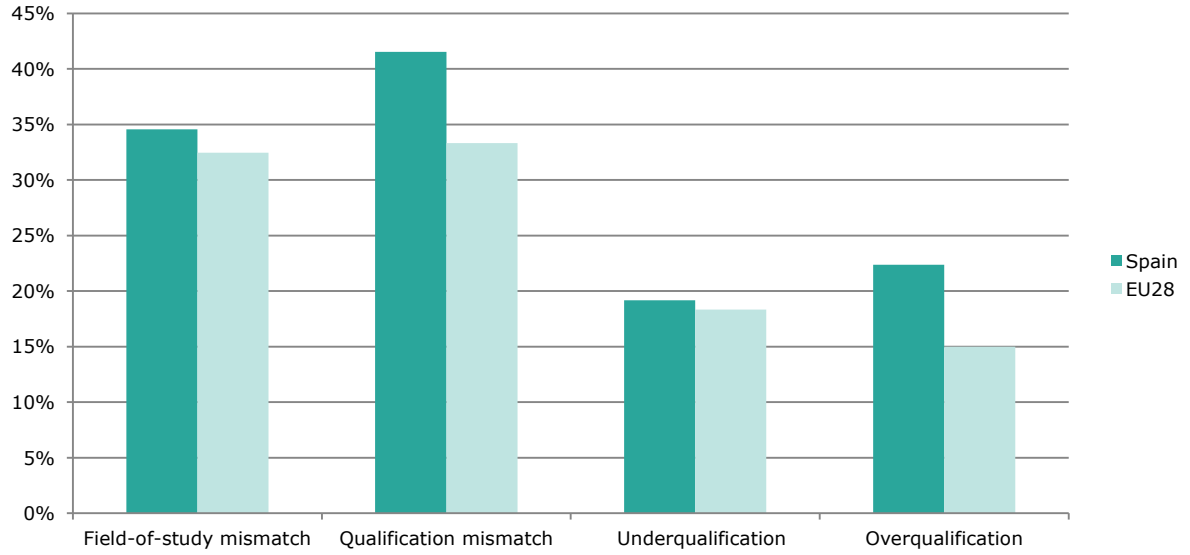
Box 2: Fostering university-business cooperation, mainly with SMEs

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

[90] 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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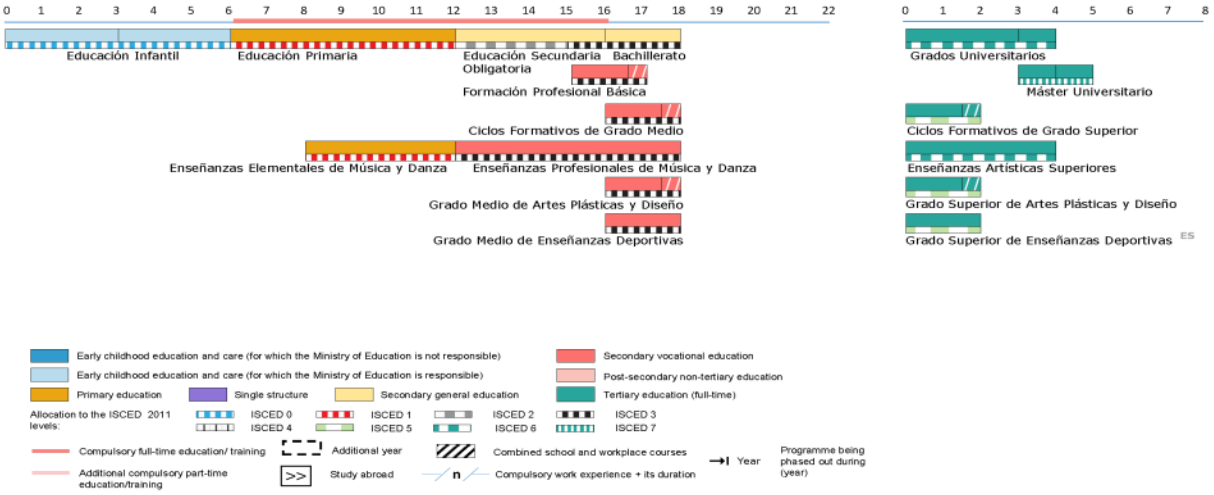
10. Annex I: Key indicator sources

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.

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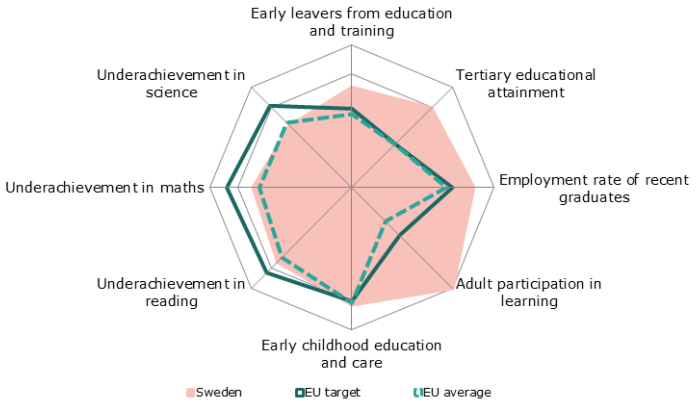
SWEDEN

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 %[91] 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 operated[92]: 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

[91] Children enrolled in pre-schools increased by 4 % in 2012-2016.
[92] 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)[93], 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 %[94]. 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).

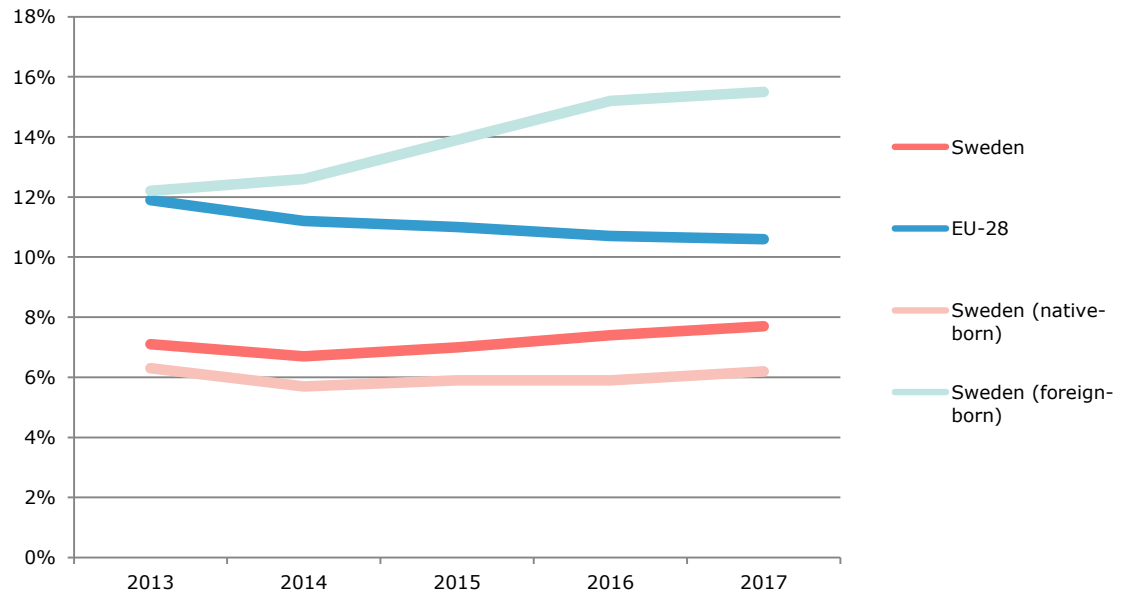
5. Modernising school education

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).

[93] 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).

[94] 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 system[95], 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).

[95] 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 legislator[96]. 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

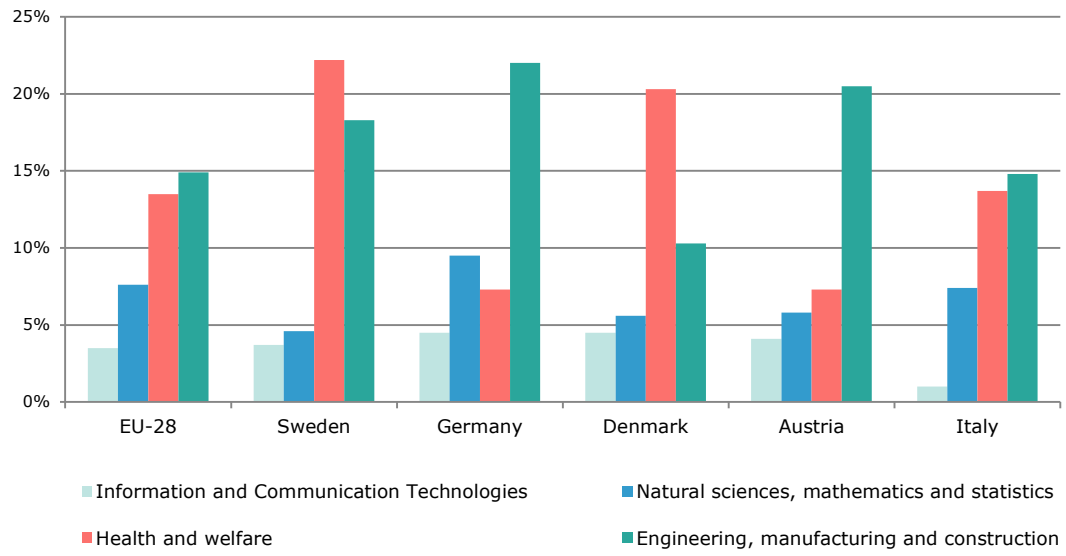
[96] Since 2011, teachers should be 'accredited' in the subjects they teach and since autumn 2016 unqualified teachers can neither have permanent employment contracts nor grade their pupils.

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 students[97] 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 %[98]. 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

[97] 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.
[98] 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/skolautbildning/nyanlandaslarande/invastintegrationvastsverige.4.624218c15ea17395f51aea6.html

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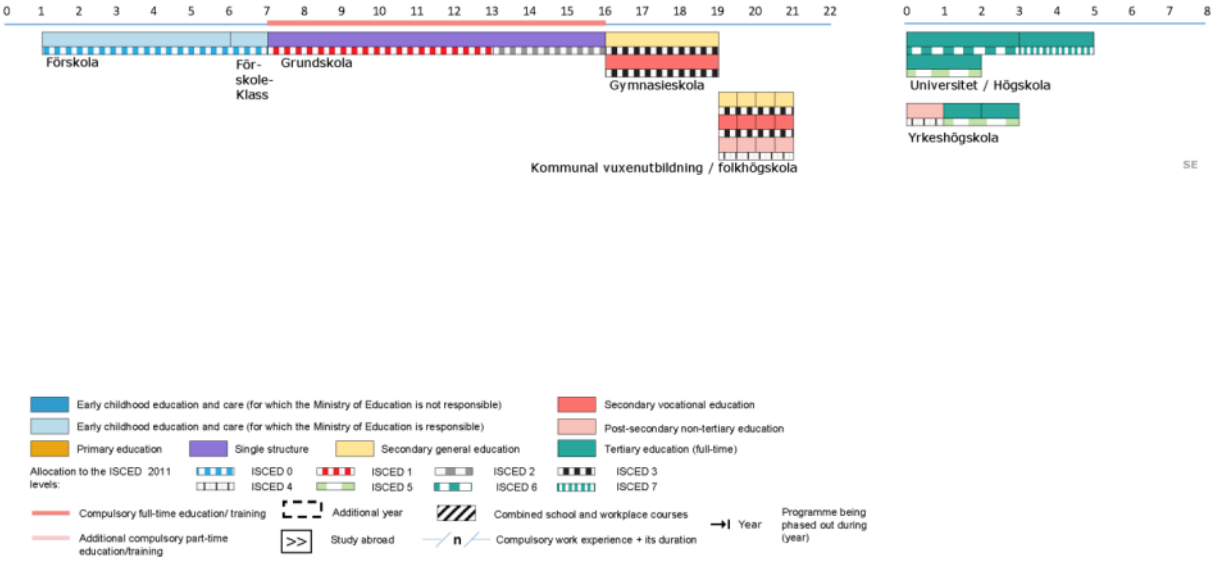
10. Annex I: Key indicator sources

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
Learning mobility: 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.

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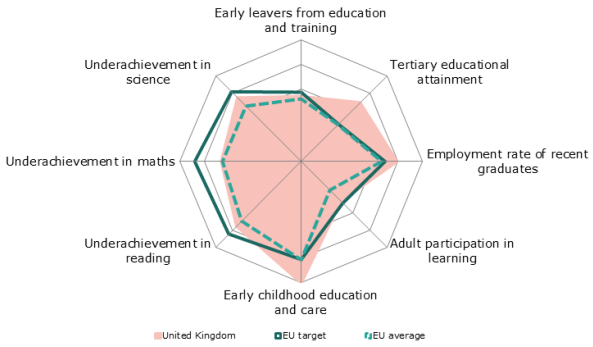
UNITED KINGDOM

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	: [15]	€6 494 [d]	: [15]
		ISCED 3-4	€9 130	: [15]	€7 741 [d]	: [15]
		ISCED 5-8	€18 019	: [15]	€11 187 [d]	: [15]
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.

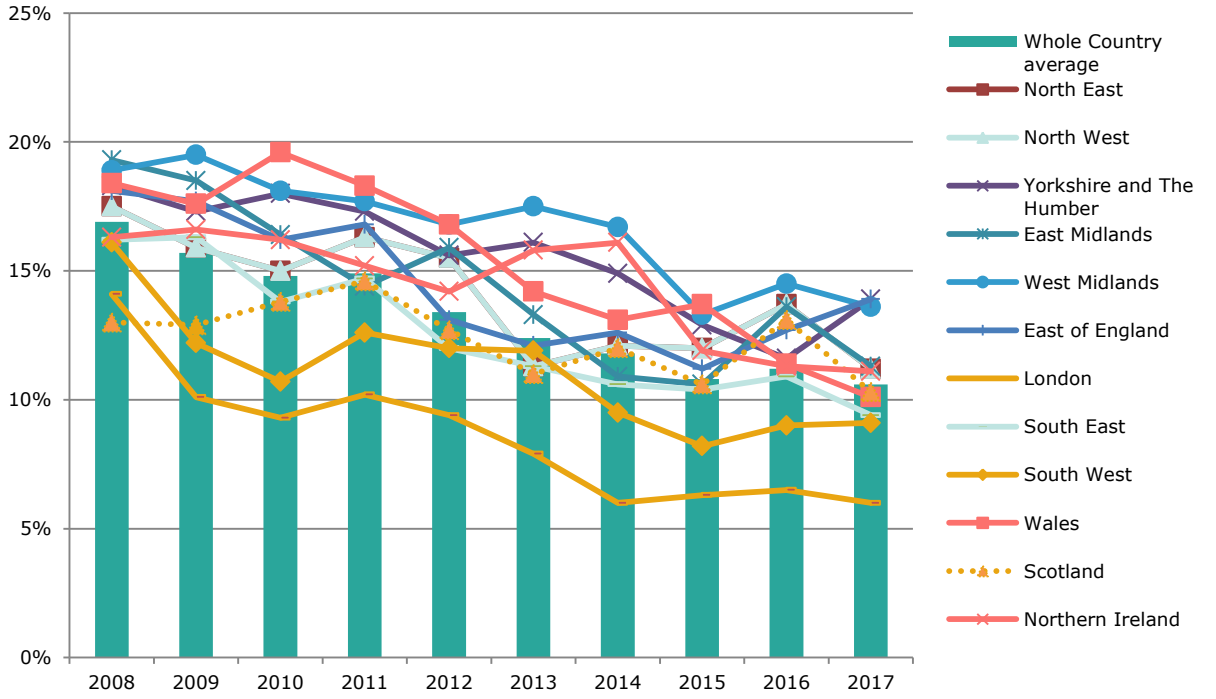
5. Modernising school education

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 %[99], 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

[99] 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).

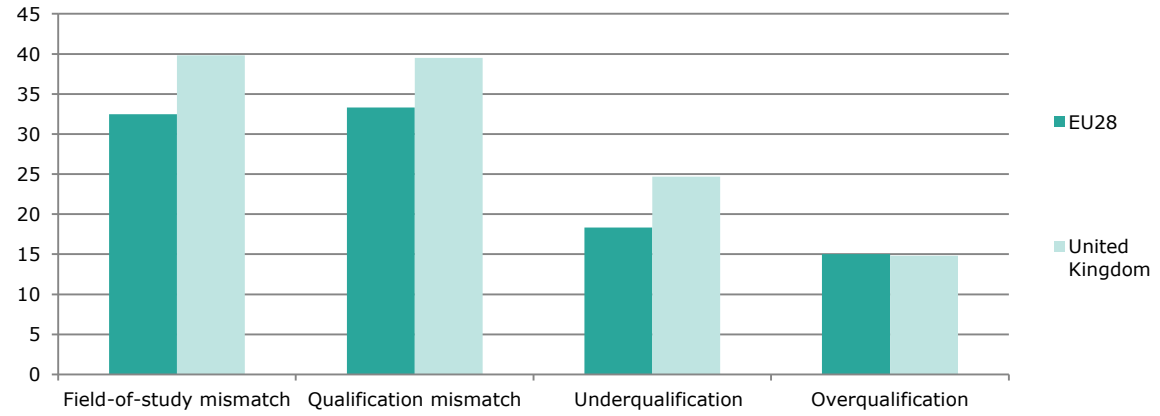
Only around 3 % of tertiary education graduates undertook credit mobility programmes in foreign countries during their studies. In 2016, 24 586 graduates in ISCED 5-8 spent at least 3 months studying abroad (3.2 % of total graduates), below the EU average (around 9 %). Among them, 50 % profited from 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 panels[100] **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 Fund[101] 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 Commission[102] 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 ongoing[103]**.** 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.

100 https://www.instituteforapprenticeships.org/about/route-panels/.
101 http://www.sfc.ac.uk/web/FILES/councilpapers_25 082 017/SFC 17-62-college-innovation.pdf.
102 https://beta.gov.wales/tertiary-education-and-research-commission-wales
103 http://www.anic.ac.uk/uploads/documents/FE%20 means%20success/FE%20 Means%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 element[104].

England has initiated a Flexible Learning Fund[105] and a National Retraining Scheme[106]. 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 Fund[107] 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 potential[108]. 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.

104 https://www.gov.uk/government/publications/uk-digital-strategy
105 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
107 https://beta.gov.scot/news/flexible-workforce-development-fund/
108 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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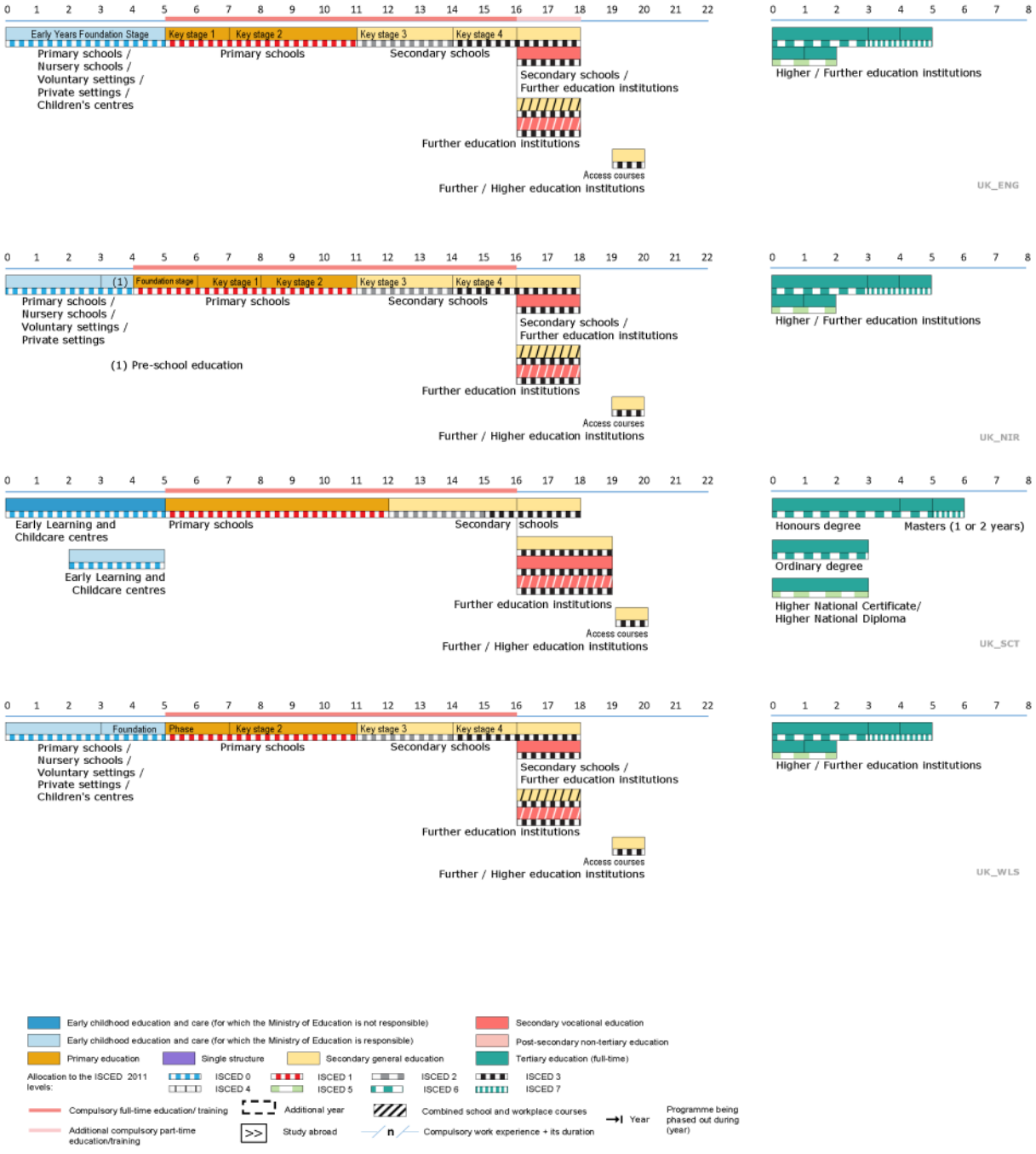
10. Annex I: Key indicator sources

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.

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