OECD
Education Policy Perspectives
Directorate for Education and Skills
No. 77

Institutional missions and profiles in higher education in Lithuania

Co-funded by the European Union

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About this thematic policy brief

As part of its current reforms in the field of higher education, Lithuania's government aims to promote the development of a more diversified and efficient institutional landscape, in which universities and colleges can sharpen their profiles to align better with their individual strengths and the student populations and communities they serve. The ambition is to move beyond the current binary distinction between universities (institutions authorised to provide education from bachelor's degrees to doctorates) and colleges (which provide more professionally oriented programmes, traditionally at bachelor's level only) to allow and encourage a wider range of possible institutional profiles and promote greater complementarity between institutions.

The intention is that the process of institutional profiling should be accompanied by a new system of institutional agreements, established between individual higher education institutions (HEIs) and central government, which is being introduced as part of a wider package of higher education reforms. The intention at the time of writing is also that financial resources to support restructuring and profiling in the higher education sector will be made available from the European Union (EU) Recovery and Resilience Facility, which supports EU member state reforms implemented from 2020 until the end of 2026 (European Commission, 2022[1]).

This process of reform takes place in a context of significant challenges facing Lithuania's higher education system. Although Lithuania has achieved one of the highest rates of tertiary education attainment in the OECD, demographic change means that the population of young people who have traditionally entered higher education directly after school has declined over the last decade and will continue to decline in the decades to come. Falling demand for higher education from traditional student populations means that established HEIs need to adapt, through serving more diverse student populations, including adult learners, and, where necessary, re-scaling their operations. The case for change is particularly strong in Lithuania's professionally oriented college sector, where enrolment decline in recent years has been greater than in the university sector.

Against this backdrop, Lithuania's government asked the OECD to support it in analysing policy options to promote the development of a more diversified and efficient institutional landscape in higher education, with a particular focus on the public college sector. This thematic policy brief documents the findings from the policy advice project, which centred around a series of presentation and discussion sessions involving higher education stakeholders in Lithuania in 2021 and 2022. The brief initially provides a concise overview of the operating environment for HEIs in Lithuania and the existing institutional landscape. It then examines the approaches adopted to institutional differentiation and missions in higher education in other OECD higher education systems, before considering the rationale for reform in Lithuania and – informed by international examples – the policy options open to Lithuania to effect reform of its higher education landscape.

With financial support from the European Union, the brief was prepared in the OECD Secretariat by Simon Roy. Particular thanks go to Gintautas Jakštas, Vice-Minister for Higher Education, Science and Technology and Giedrė Pačėsienė, Head of Division for Higher Education at the Ministry of Education, Science and Sport, for their input to the brief and feedback on draft versions of the text.

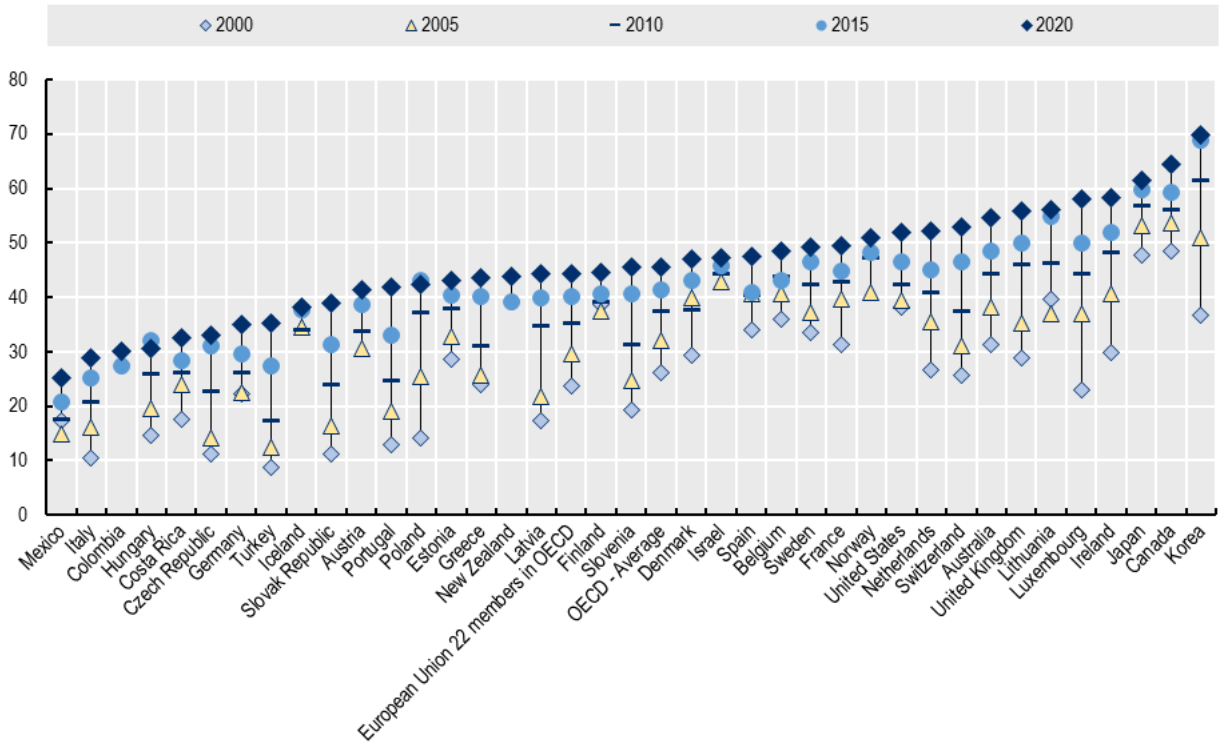
1 The operating environment for higher education in Lithuania

Overall demand for higher education in Lithuania will decline in the coming decades

Lithuania has one of the highest rates of tertiary education attainment in the OECD. As shown in Figure 1, in 2020, almost 60% of those aged 25-34 in Lithuania held a tertiary education qualification, compared to an average in OECD countries of 45%. After a period of near continual increases in the tertiary education attainment rate in this age group between 2000 and 2015, the attainment rate remained stable - at a very high level – between 2015 and 2020.

Figure 1. Tertiary education attainment in Lithuania is comparatively high

Proportion of 25–34-year-olds with a tertiary qualification 2000-20

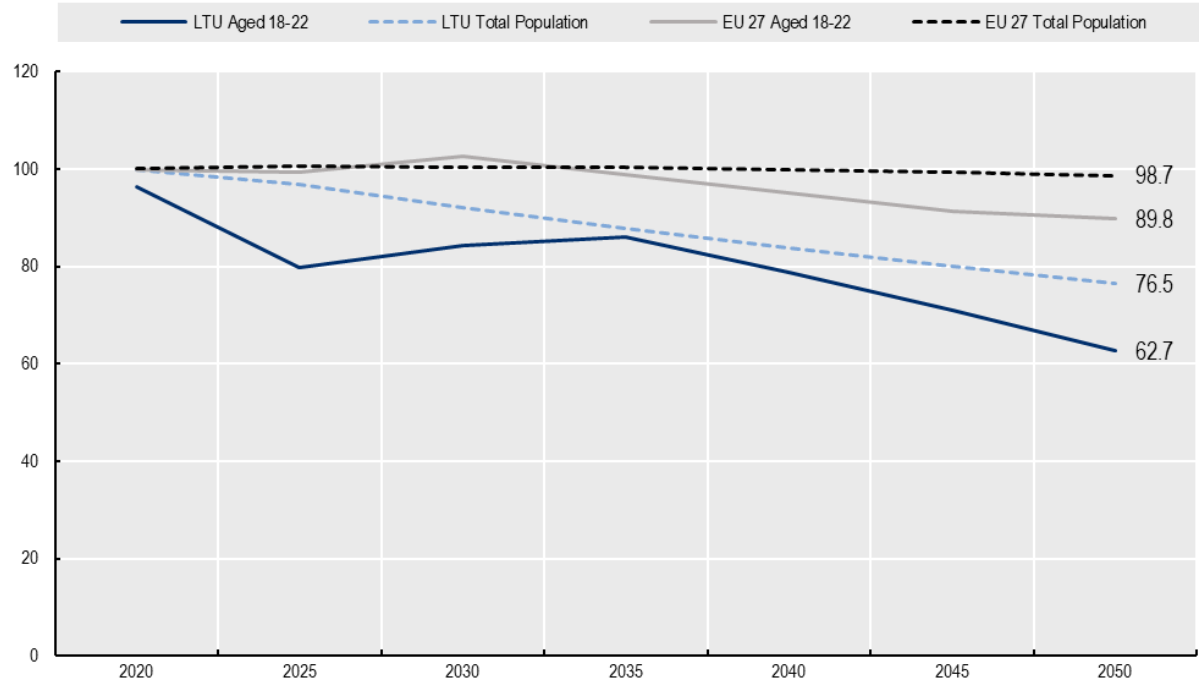


Source: Source: OECD (2021) Education at a Glance 2021: OECD Indicators https://doi.org/10.1787/b35a14e5-en.

Lithuania's population is ageing faster than the average of OECD or EU member countries. As shown in Figure 2, Eurostat's population projections suggest that the total population of the country will decline by almost one-quarter by 2050, as a result of falling birth rates and outward migration. This compares with a projected decline for the 27 EU member states as a whole of only 1.3%. Significantly for the higher education sector, the population of those aged 18 to 22 in Lithuania is projected to fall by 20% between 2020 and 2025 and by over 37% by 2050, compared to 2020. As Lithuania already has high rates of entry to higher education and completion of degrees, it is unlikely that participation rates will increase sufficiently to compensate for the decline in the total population of individuals of traditional student age. Demographic change will inevitably translate into declining demand for higher education among young age cohorts.

Figure 2. The population of traditional students in declining

EU and Lithuania, projected total population and population aged 18-22 2020-50 (2019 =100)



Note: LTU = Lithuania.
Source: Eurostat (2019[2]) EUROPOP 2019 (baseline) https://ec.europa.eu/eurostat/web/population-demography/population-projections/database (accessed on 27 April 2022).

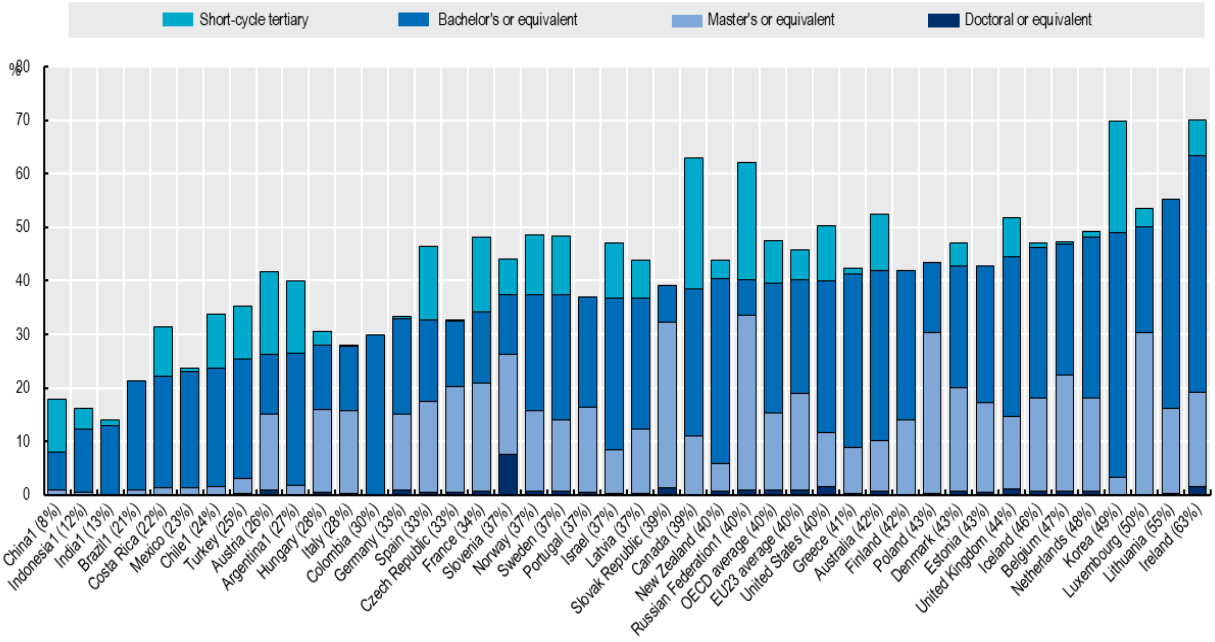
There is some scope to increase enrolment in short programmes, among adults and among international students

Unlike in a majority of OECD higher education systems, Lithuania's HEIs have not traditionally provided short-cycle study programmes, such as the associate degree or diploma programmes seen in other countries. As illustrated in Figure 3, such short-cycle tertiary programmes account for a substantial proportion of tertiary education graduates in many OECD systems, notably in Canada and Korea and, to a lesser extent, in European countries including France and Spain. In contrast, Lithuania has achieved its high level of tertiary education attainment through the award of bachelor's and master's degrees. Lithuanian legislation has allowed colleges to provide short-cycle programmes since 2018, but no such programmes were established until the academic year 2022/23. Given the proven value of short-cycle

qualifications in other OECD systems, expansion of short-cycle provision offers an opportunity for Lithuanian higher education to diversify its educational offering and, potentially, serve a broader population of students.

Figure 3. Lithuania has historically lacked short-cycle programmes at tertiary level

Share of 25–34-year-olds with tertiary education, by level of tertiary education (2019)



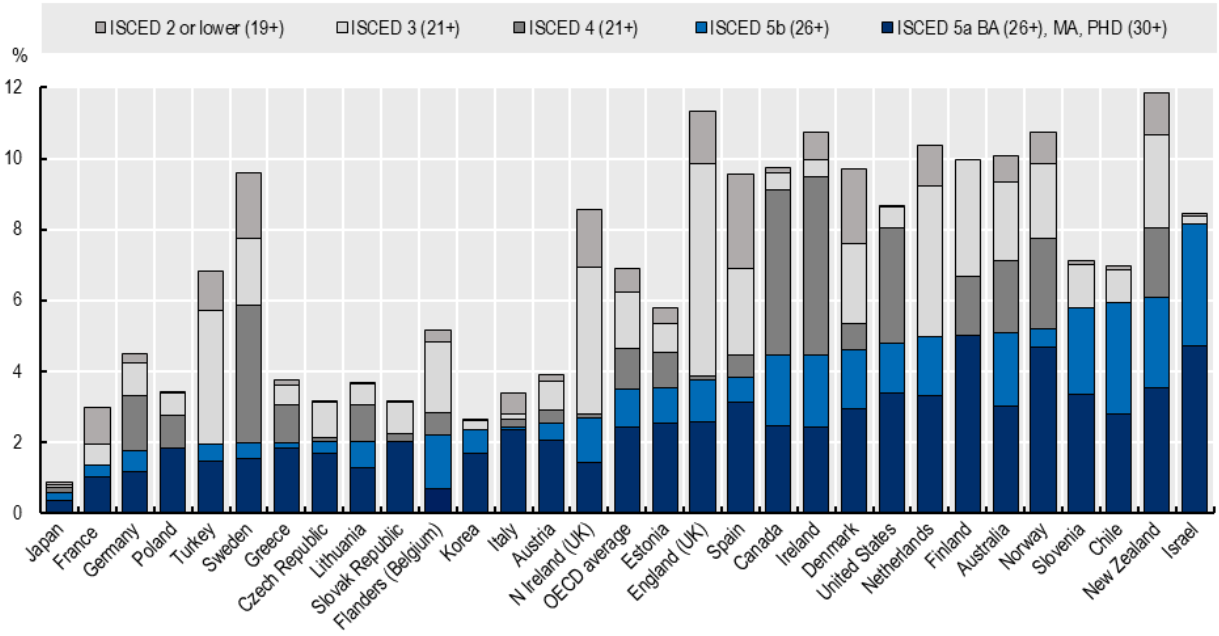
Note: Countries ranked in ascending order by level of tertiary education attainment at International Standard Classification of Education (ISCED) levels 6-8 (bachelor's degree to doctorate).
Source: OECD (2020) Education at a Glance 2020: OECD Indicators https://doi.org/10.1787/888934161919.

Shorter, more flexible programmes are particularly well suited to adult learners, who already have some experience of advanced education and training and experience gained in the labour market. Several OECD systems, including the Flemish Community of Belgium and the Netherlands, have introduced short-cycle programmes in higher education in recent years to serve adult learners, as well as new populations of young people transitioning from vocationally oriented pathways in upper secondary education. In addition, higher education providers in many OECD systems have begun to offer a variety of micro-credentials, which are even shorter and more flexible forms of learning offering, with a view to supporting upskilling and reskilling among adults, in particular.

As shown in Figure 4, based on data from the last edition of the OECD's Survey of Adult Skills (PIAAC), fewer than 4% of adults surveyed in Lithuania reported that they had engaged in formal learning in the previous 12 months and only around 2% stated that this was at tertiary education level. This compares with average proportions for participating OECD countries of around 7% for participation in formal learning and around 3% for participation in formal learning at tertiary education level. As in other OECD countries, there is thus scope to increase the role of HEIs in providing advanced learning for adult populations.

Figure 4. Adult participation in higher education has been low in recent years

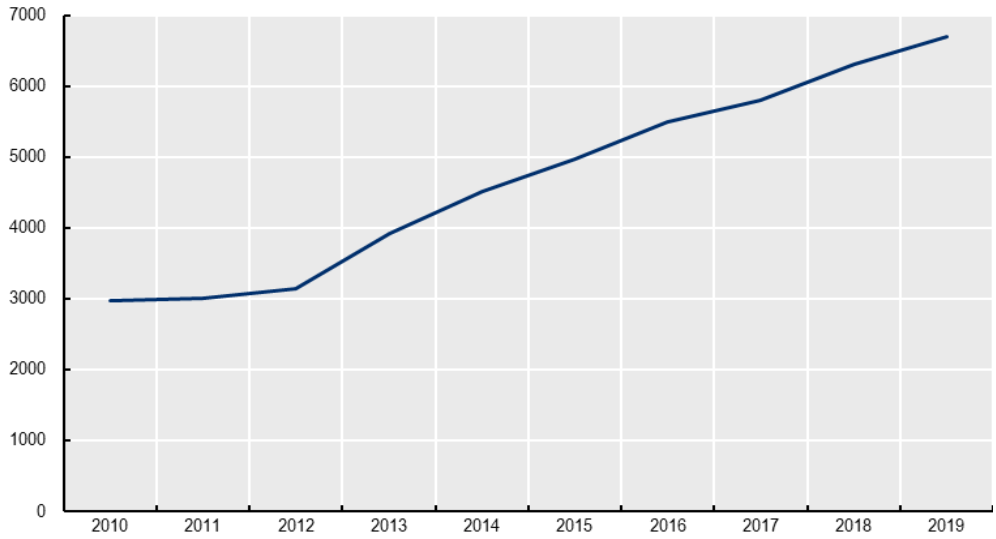
Adults reporting that they have engaged in formal learning at the indicated level of provision in the last 12 months in PIAAC 2012 and 2015



Note: Ages from which participation is considered "adult learning" are indicated in brackets.
Source: OECD (2018), OECD calculations based on Survey of Adults Skills database (PIAAC) (2012, 2015), www.oecd.org/skills/piaac (accessed 6 June 2023).

Figure 5. The number of international students has been increasing

Number of international students in higher education in (all ISCED levels) Lithuania 2010-19



Note: International students are those who received their prior education in another country and are not residents of their current country of study.
Source: OECD (2021) Education at a Glance 2021: OECD Indicators https://doi.org/10.1787/b35a14e5-en.

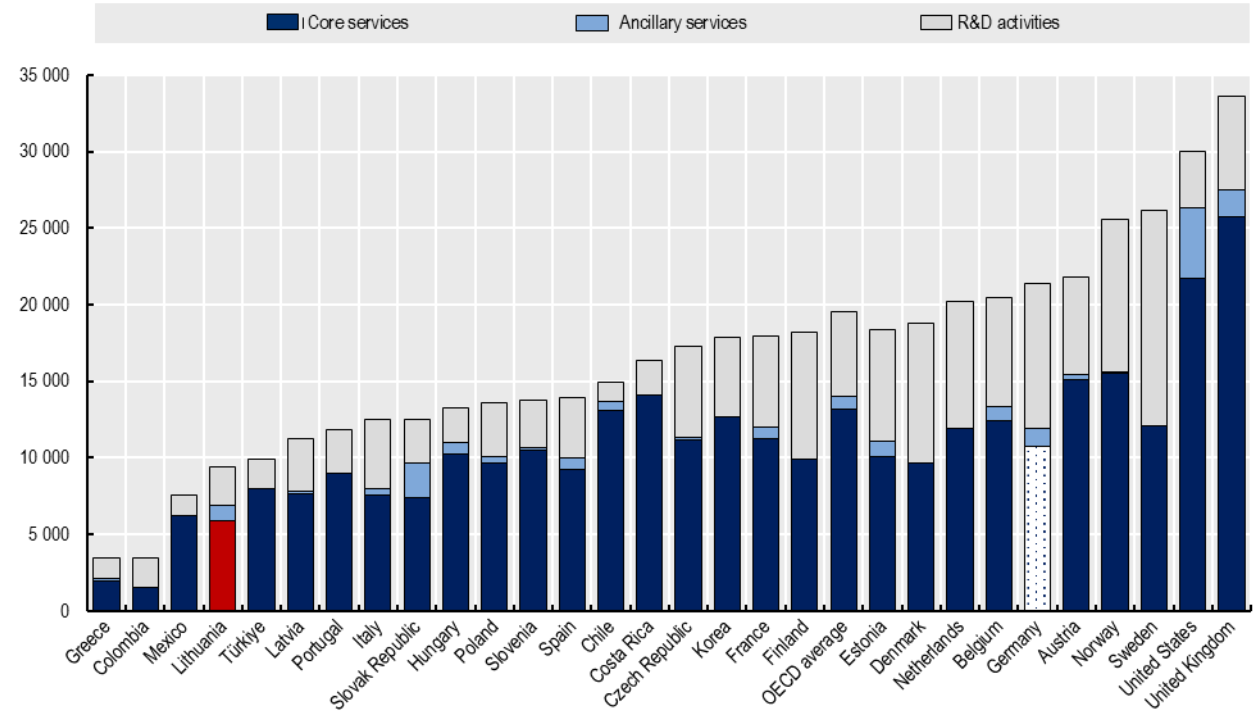
Finally, additional demand for study places in higher education in Lithuania might be expected to come from international students. As shown in Figure 5, the number of international students in Lithuania more than doubled between 2012 and 2019. However, the capacity of the system to attract further international students depends on its ability to offer high-quality programmes in internationally spoken languages, as well as broader factors, such as study opportunities in international students' home countries. The COVID-19 pandemic has also illustrated how unpredictable events can disrupt flows of international students.

Resource constraints create additional challenges for higher education in Lithuania

As shown in Figure 6, total expenditure per full-time-equivalent (FTE) student in public HEIs in Lithuania, expressed in US dollars converted for purchasing power parity (PPP) is less than half of the average level in public and government-dependent private HEIs in OECD countries. This level of resourcing, which is among the lowest in OECD countries with available data, creates additional constraints for public HEIs in Lithuania and further increases the importance of using scarce resources efficiently.

Figure 6. Per-student spending on public higher education institutions in Lithuania is comparatively low

Expenditure per FTE student by destination of funds in United States Dollars (USD) expressed in Purchasing Power Parity (PPP) in public and government-dependent HEIs, 2018



Note: "Core services" refers to all expenditure excluding expenditure officially allocated to research and development or ancillary services (such as student accommodation, catering or other student services).
Source: OECD (2022), Educational expenditure by source and destination, https://stats.oecd.org/ (Accessed on 6 July 2022).

2 The profile of higher education institutions in Lithuania

Lithuania is home to a diverse set of public and private HEIs with university status

In the academic year 2021/22, there were 11 public HEIs and five private HEIs with university status in Lithuania. Table 1 presents an overview of these institutions, along with the level of undergraduate enrolment in 2021/22, an indicator of disciplinary specialisation (the Herfindahl Index) and, to capture research activity, enrolment in doctoral programmes and the share of R&D expenditure as a share of total current expenditure. The Herfindahl Index measures the degree to which institutions are specialised, where the share of undergraduate students per discipline is used to calculate an index running from 1 (when all students are in the same field) to 0 (when the students are – theoretically – equally distributed across all fields) (Wagner-Schuster, 2016[3]). This index score makes it possible to distinguish generalist institutions with extensive provision across multiple fields, from "focused" and "specialised" institutions where enrolment in more concentrated in a few fields.

Table 1. A basic profile of universities in Lithuania

Institution	Legal status	Undergraduate enrolment * (2021/22)	Herfindahl Index	Level of specialisation (Herfindahl)	Enrolment at ISCED 8 * (2021/22)	Share R&D expenditure in total current expenditure (2016) **
Vilnius University	Public	16 800	0.04	Generalist	786	49%
Vilnius Gediminas Technical University	Public	6 212	0.07	Generalist	181	33%
Lithuanian University of Health Sciences	Public	5 870	0.24	Focused	251	26%
Vytautas Magnus University	Public	5 231	0.06	Generalist	259	40%
Kaunas University of Technology	Public	5 224	0.06	Generalist	332	42%
Mykolas Romeris University	Public	3 070	0.32	Specialised	176	26%
Klaipėda University	Public	1 689	0.07	Generalist	79	51%
Vilnius Academy of Arts	Public	1 282	0.31	Focused	43	21%
ISM University of Management and Economics	Private	1 079	0.29	Focused	29	13%
Lithuanian Sports University	Public	1 038	0.26	Focused	56	29%
European Humanities University	Private	737	0.25	Focused	-	No data
Lithuanian Academy of Music and Theatre	Public	725	0.45	Specialised	42	13%

Institution	Legal status	Undergraduate enrolment * (2021/22)	Herfindahl Index	Level of specialisation (Herfindahl)	Enrolment at ISCED 8 * (2021/22)	Share R&D expenditure in total current expenditure (2016) **
LCC International University	Private	692	0.24	Focused	-	No data
Kazimiero Simonaviciaus University	Private	433	0.34	Specialised	-	3%
General Jonas Zemaitis Military Academy of Lithuania	Public	353	0.25	Focused	-	No data
Branch of the University of Białystok - Faculty of Economics and Informatics	Private	194	0.33	Specialised	-	2%

Note: Enrolment data are for first cycle and integrated studies. Herfindahl Index specialisation levels are based on the 33% and 66% quantile of the Herfindahl Index for universities (for universities the threshold values are 0.24 and 0.31).
Source: * Strata, (2022[4]) Institutional KPIs (Key Performance Indicators), https://rodikliai.strata.gov.lt/?lang=en&kpi_type=ilevel&kpi_group=1 (accessed on 27 April 2022) and ** European Tertiary Education Register (ETER) https://www.eter-project.com/#/search (accessed on 27 April 2022).

Based on the basic data presented in Table 1, it is possible to distinguish three groups of HEI with university status in Lithuania:

1. **Research-intensive, generalist universities.** This category includes the three traditional comprehensive universities in the core cities of Vilnius, Kaunas (Vytautas Magnus) and Klaipėda and the technical universities in Vilnius and Kaunas. Although, as would be expected, the two technical universities have a higher degree of disciplinary specialisation than Vilnius University, the country's largest institution, their wide coverage of scientific and engineering disciplines leads to a relatively low Herfindahl Index score. The five universities in this category together hosted 71% of doctoral students enrolled in Lithuanian HEIs in 2021/22 and, in 2016[1], research expenditure accounted for over one-third of total current expenditure in all cases. By international standards (see below), Klaipėda University is a small institution to be classified as a generalist university, although the institution fulfils a regional development role in providing research-based higher education in Lithuania's third-largest urban area.
2. **Moderately research-intensive, focused or specialised universities.** This is a group of six institutions. They undertake education and research in health sciences, artistic and creative fields, sports science, in fields relevant to the training of high-level military personnel and, in the case of Mykolas Romeris University, law and the social sciences. With the exception of the Military Academy, all these institutions are engaged in research and doctoral training but are characterised by lower research-intensity than the generalist universities, in particular – and for legitimate reasons – in the case of the arts-focused institutions.
3. **Private university institutions with low research intensity.** The five private university-level institutions in Lithuania are all categorised as focused or specialised institutions, using the Herfindahl Index score. None of these institutions provide education in the natural sciences. These institutions have comparatively limited post-bachelor's provision. Of the private universities, only ISM University of Management and Economics has some level of PhD training and modest research expenditure, which accounts for a significantly lower proportion of current expenditure than in public institutions.

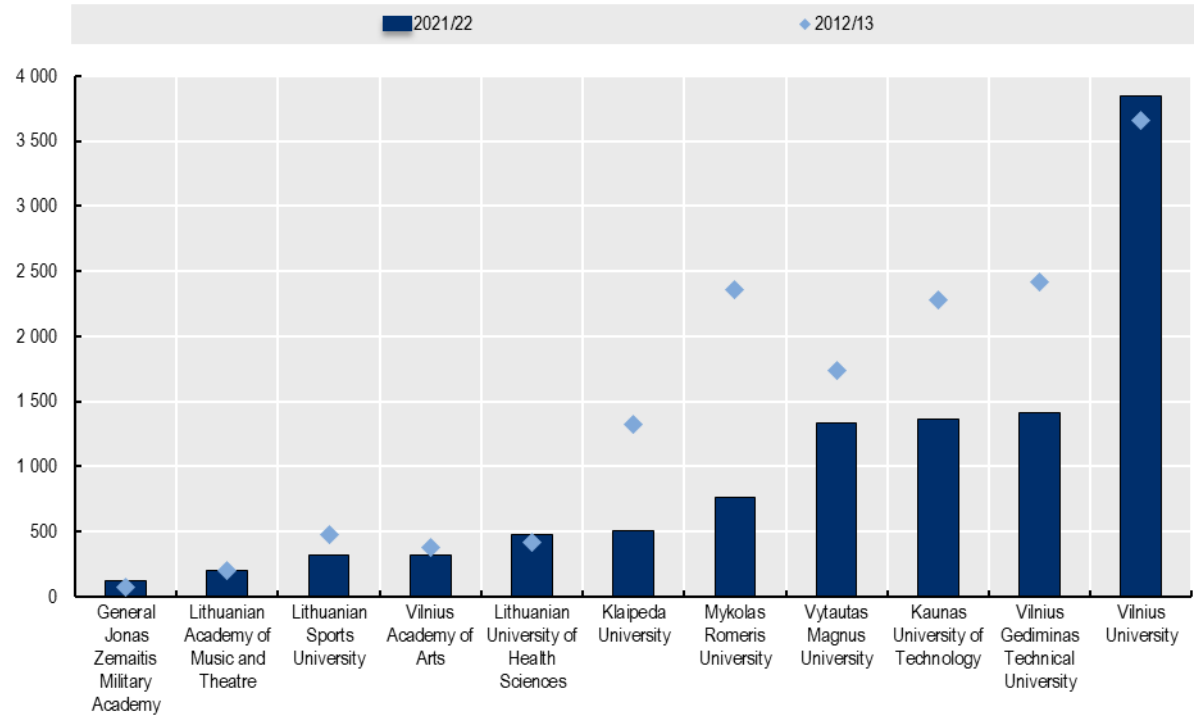
[1] The most recent year for which European Tertiary Education Register (ETER) data are available at the time of writing.

New undergraduate enrolments in public universities in Lithuania have declined in the last decade, although trends vary significantly between institutions

Reflecting the demographic trends discussed above, which are already being felt in the education system, total new undergraduate admissions to public universities in Lithuania declined by 30% between the academic years 2012/13 and 2021/22. As illustrated in Figure 1, while new undergraduate admissions increased or remained broadly stable between 2012/13 and 2021/22 at Vilnius University, the Lithuania University of Health Sciences, the nation's public military academy and the Lithuanian Academy of Music and Theatre, admissions fell in other universities. Undergraduate admissions fell in the same 10-year period by over 40% at Vilnius Gediminas Technical University and over 60% at Klaipėda University and Mykolas Romeris University.

Figure 1. Trends in admissions to undergraduate programmes in public universities

Admissions to first-cycle study programmes in public universities 2012/13 to 2021/22



Source: Strata (2022[4]), Institutional KPIs (Key Performance Indicators), https://rodikliai.strata.gov.lt/?lang=en&kpi_type=ilevel&kpi_group=1 (accessed on 27 April 2022).

Professionally oriented colleges in Lithuania also vary considerably in terms of size and focus

In 2021/22, Lithuania was home to 12 public and seven private non-university HEIs with "college" status. As shown in Table 2, the landscape of college institutions in Lithuania is even more diverse than that of universities. Although the data on the research expenditure of colleges in the European Tertiary Education Register (ETER) database are less complete than for universities (ETER, 2016[5]), the data presented in Table 2 nevertheless make it possible to distinguish four broad categories of college-level institution:

1. **Larger, generalist public colleges**: these are the three largest public colleges in the three core cities of Vilnius, Kaunas and Klaipėda, with undergraduate enrolment in 2021/22 of over 2 500. These institutions offer a broad range of professionally oriented subjects at bachelor's level. In line with the legal framework in Lithuania, none of the colleges currently offers post-graduate education and the level of research activity in Vilnius and Kaunas colleges is limited. In contrast, the level of reported research expenditure at Klaipėda College is comparatively high. These also institutions style themselves in English as "universities of applied science", although, as discussed in more depth later in this policy brief, they correspond only partially to the definition of UAS used in other European higher education systems, owing to the lack of post-graduate provision and generally limited engagement in applied research.
2. **Medium-sized, generalist public colleges**: the three public colleges in the smaller cities of Utena, Panevezys and Šiauliai, all had an undergraduate enrolment of between 1 300 and 1 600 in 2021/22. Available spending data suggest there may also be pockets of research activity within this group of institutions (such as in Šiauliai State College), but research-intensity is generally low.
3. **Smaller, focused or specialised public colleges**: a further six, smaller-scale public colleges have a range of profiles, including specialisation in fields such as design, maritime affairs, forestry and environmental engineering, or a focus on a comparatively narrow set of subjects. There are also likely to be pockets of research activity in the specialised institutions in this group (the Kaunas College of Forestry and Environmental Engineering is one example).
4. **Focused and specialised private colleges**: this diverse group of institutions encompasses a range of private institutions that operate within specific market segments in Lithuania. These institutions vary from the comparatively large "College of Social Science" (enrolling over 4 500 students) to Kolping College (enrolling just 300 students). Data coverage for research expenditure for this group of institutions is poor. While there is evidence of a limited level of research activity in some institutions in this group, the overall level of research-intensity is likely low.

Table 2. A basic profile of colleges in Lithuania

Institution	Legal status	Undergraduate enrolment * (2021/22)	Herfindahl Index	Level of specialisation (Herfindahl)	Share R&D expenditure in total current expenditure (2016) **
Vilnius College	Public	6 087	0.07	Generalist	3%
Kaunas College	Public	5 030	0.05	Generalist	4%
College of Social Sciences	Private	4 621	0.18	Focused	1%
Klaipėda State College	Public	2 498	0.07	Generalist	20%
Vilnius College of Technologies and Design	Public	1 702	0.13	Focused	No data
Utena College	Public	1 601	0.10	Generalist	No data
Panevezys College	Public	1 313	0.09	Generalist	3%
Šiauliai State College	Public	1 304	0.08	Generalist	11%
Kaunas Technical College	Public	1 088	0.22	Focused	2%
Lithuania Business College	Private	1 058	0.29	Focused	No data
Kaunas College of Forestry and Environmental Engineering	Public	897	0.36	Specialised	18%
Vilnius Business College	Private	896	0.39	Specialised	No data
International School of Law and Business	Private	749	0.53	Specialised	23%
Alytus College	Public	706	0.25	Focused	No data
Lithuanian Maritime Academy	Public	648	0.32	Specialised	No data
Marijampole College	Public	531	0.15	Focused	No data

Institution	Legal status	Undergraduate enrolment * (2021/22)	Herfindahl Index	Level of specialisation (Herfindahl)	Share R&D expenditure in total current expenditure (2016) **
St. Ignatius of Loyola College	Private	450	0.22	Focused	No data
Vilnius College of Design	Private	386	0.62	Specialised	No data
Kolping College	Private	300	0.51	Specialised	17%

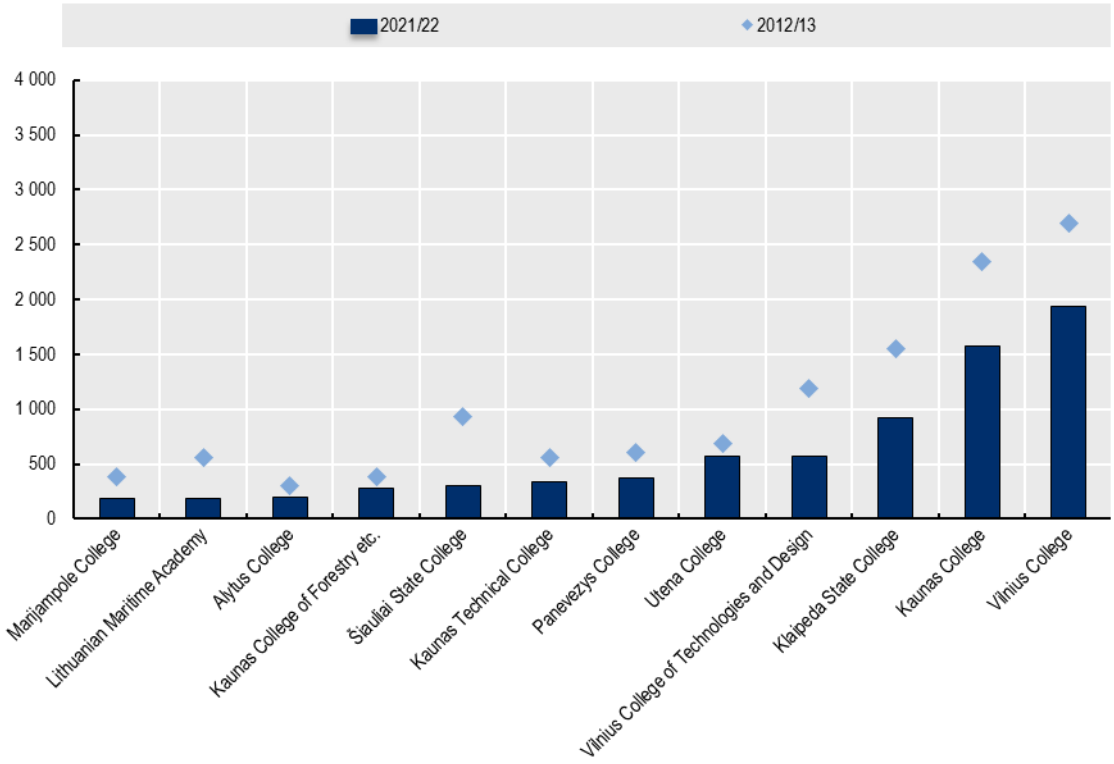
Note: Enrolment data are for first cycle. Herfindahl Index specialisation levels are based on the 33% and 66% quantile of the Herfindahl Index for universities (for colleges the threshold values are 0.13 and 0.29).
Source: * Strata, (2022[4]) Institutional KPIs (Key Performance Indicators), https://rodikliai.strata.gov.lt/?lang=en&kpi_type=ilevel&kpi_group=1 (accessed on 27 April 2022) and ** European Tertiary Education Register (ETER) https://www.eter-project.com/#/search (accessed on 27 April 2022).

New enrolments in public colleges have declined by almost 40% in the last decade, with all colleges experiencing enrolment decline

While some public universities, including the nation's largest, experienced an increase in undergraduate admissions in the decade to 2021/22, all Lithuania's public colleges experienced a decline in admissions. Overall, new admissions to first-cycle programmes in public colleges decreased by 38% between the academic years 2012/13 and 2021/22. The smallest decline in admissions – of 17% – was at Utena College, while Šiauliai State College, Vilnius College of Technologies and Design, the Lithuanian Maritime Academy and Marijampole College all saw new first-cycle admissions decline by over 50% in the same period.

Figure 2. Trends in admissions to undergraduate programmes in public colleges

Admissions to first-cycle study programmes in public colleges 2012/13 to 2021/22



Source: Strata (2022[4]), Institutional KPIs (Key Performance Indicators), https://rodikliai.strata.gov.lt/?lang=en&kpi_type=ilevel&kpi_group=1 (accessed on 27 April 2022).

3 Institutional differentiation in OECD higher education systems

As a basis for considering options for reforming the landscape of non-university higher education provision in Lithuania, it is helpful to consider how the HEIs are differentiated in other OECD higher education systems and how the missions and profiles of institutions of non-university institutions are defined in different systems.

Six broad types of HEIs can be distinguished in OECD higher education systems

OECD higher education systems categorise HEIs – and define their missions – in different ways. Table 3 provides an overview of the six most important categories of HEI encountered in OECD higher education systems. While institutions in some OECD systems will combine characteristics from different categories, the typology presents the most common institutional configurations in terms of disciplinary specialisation, level of education provided and engagement in research. As such, it provides a helpful reference point for considering Lithuania's higher education landscape.

Variations of the comprehensive research university (type 1 in Table 3), combining instruction in academic fields, research and service to society, exist in all OECD member countries. In the Lithuanian context, the three generalist, research universities noted earlier (Vilnius University, Vytautas Magnus University and Klaipėda University) correspond most closely to this model. As in Lithuania, several OECD higher education systems, including Germany or the Netherlands, are also characterised by the co-existence of comprehensive universities, operating across a wide range of disciplines, and "technical universities", focusing primarily on the natural sciences and engineering fields. Other research-intensive HEIs operating in a more restricted range of disciplinary areas (that can be classified as "focused" or "specialised" universities) are found in many OECD higher education systems, including in fields such as the visual and performing arts, economics and political science, medicine or agriculture. In Table 3, these focused and specialised university institutions are categorised as type 2, although, as in Lithuania, the boundary between comprehensive and technical universities in terms of subject specialisation is often blurred.

Particularly from the 1960s onwards, many OECD countries established non-university HEIs to offer advanced professionally oriented education and training. Such institutions frequently developed from existing vocational or technical colleges, which had not been considered part of the higher education system (OECD, 2020[6]). Polytechnics, institutes of technology, community colleges, universities of applied science, or other forms of non-university institution exist alongside research universities in most OECD systems, most often leading to a broadly binary categorisation of HEIs. In some systems, HEIs are categorised into more than two main groups, as in Denmark, where both business academies (*erhvervsakademier*) and university colleges (*professionshøjskoler*) exist alongside universities. In contrast to the still dominant binary model, a minority of higher education systems in OECD countries, including Australia, Norway, Sweden, and the United Kingdom have moved away from binary systems to unified systems, where all HEIs have the same formal status (and are typically referred to as universities or university colleges in English).

The missions and profiles of non-university institutions vary considerably between higher education systems in OECD member countries, notably in terms of the level and form of education offered and the extent to which the institutions engage in research. Owing to their professional focus and the fact that training for some regulated professions (lawyers, doctors, dentists, veterinarians, etc.) is provided in universities, non-university institutions tend to operate programmes in a narrower set of disciplinary areas than research universities.

It is possible to distinguish three broad models of non-university institutions:

- Institutions that provide exclusively or primarily sub-bachelor's education programmes and have no significant research function (type 6 in Table 3). Community colleges in US higher education systems are a prime example of this model, providing primarily vocational certificate programmes and two-year associate degree programmes, which can allow transfer to bachelor's programmes in four-year universities. In some US states, community colleges are legally organised as campuses of a single community college "system", in some cases – such as California – closely coordinated with the public university system (OECD, 2020[7]).
- Institutions that primarily offer professionally oriented bachelor's programmes, potentially alongside sub-bachelor's programmes, but do not offer post-graduate-level education, such as master's programmes (type 5 in Table 3). Lithuania's colleges fit into this category, as do university colleges in the Flemish and French Communities of Belgium and in Denmark. The Belgian and Danish institutions in this category have responsibility for practice-oriented research linked to the areas of professional practice in which they operate, although research activity is typically limited (see below for a more detailed discussion of research missions in non-university institutions).
- Non-university institutions that, in addition to undergraduate programmes, offer master's programmes in professional fields and have greater responsibilities for undertaking applied research, usually in cooperation with external partners (types 3 and 4 in Table 3). This is the case of universities of applied science in Austria, Finland and the Netherlands, polytechnics in Portugal and technological universities in Ireland, for example. In some higher education systems, such as Portugal, nursing or engineering schools, are established as specialised forms of this institution type.

In a small minority of OECD higher education systems, most notably Ireland, legislation also allows non-university HEIs to offer doctoral training in fields where they are judged through quality assurance and accreditation systems to have the capacity to do this. In Ireland, where the institutes of technology are transforming themselves into technological universities, 630 PhD candidates (6.6% of total PhD enrolment in Ireland) were enrolled in the technological university and institute of technology sectors in the 2020/21 academic year (HEA, 2022[8]). In Portugal, polytechnics are also formally permitted to offer PhD programmes in collaboration with universities, when they host or participate in research groups assessed to have the highest quality ratings in the periodic institutional research evaluations coordinated by the Foundation for Science and Technology (FCT). The first such programme, in the field of digital manufacturing, was launched in 2020/21 through cooperation between the Polytechnic of Leiria and the University of Minho (Politécnico de Leiria, 2020[9]). At the time of writing, the Portuguese Parliament is – at the initiative of a parliamentary political formation outside the government – examining the possibility of extending the rights of polytechnics to award PhDs (Observador, 2022[10]).

Table 3. Differentiation of institutional missions and profiles in higher education

Characteristics	1. **Comprehensive research university**	2. **Specialist / focused research university**	3. **Comprehensive university of applied science**	4. **Specialist / focused university of applied science**	5. **Professionally oriented institution offering up to ISCED 6 (comprehensive or specialist)**	6. **Professionally oriented institution offering up to ISCED 5**
International examples	Classic model of comprehensive university found in most OECD systems	Specialised technical universities (e.g. TUs in DEU and NLD); Stand-alone medical schools, arts schools with research function	Universities of applied science in AUT, DEU, NLD, FIN, PRT	Nursing schools, engineering schools, arts schools without major research function, *grandes écoles* (FRA)	Flemish University Colleges, Danish University Colleges	US Community Colleges, Some further education colleges in UK Danish Business Academies Czech Higher professional schools (VOŠ)
Main levels of education offered	ISCED 6 to 8	ISCED 6 to 8	ISCED 6-7 ISCED 5 and 8 possible	ISCED 6-7 ISCED 5 and 8 possible	ISCED 5-6	ISCED 5 ISCED 3-4 possible
Type (orientation) of education offered	A mix of theoretical and professional orientation	A mix of theoretical and professional orientation	Professional orientation	Professional orientation	Professional orientation	Professional orientation (May include general education and bridging programmes for school leavers)
Fields of education offered	Wide coverage of fields [sciences, humanities, arts]	Specific (groups of) fields [e.g. engineering and science	Wide coverage of professional fields	Specific professional fields, e.g. business and management, applied engineering and regulated professions	Typically fields such as social work, ICT, business and management	Typically business, ICT, and human services programmes
Qualification of staff	As a rule, academic staff have PhDs	As a rule, academic staff have PhDs	PhDs not required for academic staff (frequency varies)	PhDs not required for academic staff (frequency varies)	Master's degree typically required for academic staff	At least Bachelor's degree required for academic staff
Typical workload models for academic staff	A mix of research and teaching	A mix of research and teaching	Teaching led, but informed by research that is applied and practice-oriented	Teaching led, but informed by research that is applied and practice-oriented	Teaching, with limited support for practice-based research or engagement activities	Exclusively teaching
Type of research activity and source of research and innovation funding	Basic and applied research, typically funded by research or science councils	Basic and applied research, typically funded by research or science councils, innovation agencies and firms	Applied and practice-oriented research with primary reliance on innovation agencies and firms	Applied and practice-oriented research with primary reliance on innovation agencies and firms	Practice-oriented research in cooperation with firms and innovation agencies	No significant research activity
Research intensity	High	High	Moderate	Moderate	Low – Very Low	None

The missions of non-university HEIs vary substantially between OECD systems

When compared to the university sectors in OECD higher education systems, variation in the missions of non-university institutions is notably greater. Although non-university HEIs in OECD higher education systems share a focus on provision of education in professionally oriented fields, as highlighted above, important differences exist in terms of the levels of education provided and the extent to which institutions and their staff engage in research. Table 4 highlights how non-university HEIs in selected OECD comparator higher education systems are situated in a matrix distinguishing non-university institutions based on their provision of post-graduate education (i.e. master's level education and above) and their level of research activity.

Table 4. A typology of professionally oriented HEIs

	No post-graduate education and comparatively weak research mission	Post-graduate education at least at master's level and comparatively developed research mission
Differentiated institution types	Denmark (Type 5) Flemish Community of Belgium (Type 5) Lithuania (Type 5) United States (Type 6) Canada (Type 6)	Finland (Type 3) Ireland (Type 3) Netherlands (Type 3) Portugal (Type 3 and Type 4)
Single institution type		United Kingdom* Australia Norway (Institutions with profiles similar to Type 3 exist with the title "university" or "university college")

Note: * In the United Kingdom, further education colleges provide some (mostly short-cycle) higher education programmes alongside upper-secondary vocational and academic programmes. However, these institutions do not have degree-awarding power and are subject to different funding arrangements to higher education providers.

As shown in Table 5, the educational mission of non-university institutions is consistently defined with reference to training for professional practice in domestic legislation. Professionally oriented institutions generally take the needs of professions and regions as their point of departure for defining and designing their activities, with education programmes seeking to train skilled professionals for the fields targeted and to supply skilled workers for regional – as well as national – economies.

Whereas institutions referred to in English as "university colleges" in Denmark and the Flemish Community of Belgium do not provide education above the bachelor's level, institutions in other comparator systems, including Finland and the Netherlands, which style themselves as "universities of applied science" in English, provide master's programmes in their fields of operation, alongside bachelor's degrees and, in the case of the Netherlands, short-cycle associate degrees. In all the comparator systems shown, transitions between non-university institutions and universities (such as transitions to a master's degree in a university) are typically restricted. In the Flemish Community of Belgium, for example, students from university colleges wishing to take a master's degree (which are provided only by universities) must take a one-year bridging programme to prepare them for academic study.

Table 5. Education missions in non-university higher education institutions

	Institution type	Teaching mission (extracts from legal basis)	ISCED 5 (short-cycle programmes)	ISCED 6 (bachelor's degrees)	ISCED 7 (master's degrees)	ISCED 8 (doctorates)	Transitions
Denmark	Business Academy	Education must be based on R&D knowledge within the relevant subject areas and **knowledge of practice in the professions** to which the education is directed	Academy Profession (AP) (120 ECTS)				AP gives access to related professional bachelor's (top-up)
	University College			Professional bachelor's degree (180-240 ECTS)			Limited access to master's from professional bachelor's
Flemish Community of Belgium	University College	University colleges and universities work in the field of higher education in the interest of society	Associate degree (120 ECTS)	Professional bachelor's degree (180 ECTS)			Bridging programme needed to access Master's
Finland	University of Applied Science (UAS)	Higher education for **professional expert tasks**… based on the **requirements of the world of work**		UAS bachelor's degree (210-270 ECTS)	UAS master's degree (60-90 ECTS)		UAS master's typically require 3 years relevant work experience Limited access to university master's
Netherlands	University of Applied Science (UAS)	Higher professional education: the development of skills in **close connection with professional practice**	Associate degree (120 ECTS)	Professional bachelor's degree (240 ECTS)	Professional master's degree (60 ECTS)		Limited access to university master's from professional bachelor's
Portugal	Polytechnic	Polytechnic education focuses in particular on **vocational training** and advanced, **professionally oriented technical** training	Higher Technical Professional Programmes – CTeSP (120 ECTS)	Polytechnic bachelor's degree (180-240 ECTS)	Polytechnic master's degree (120 ECTS)	Limited number in cooperation with universities	Transition to master's degrees in similar fields theoretically possible
Ireland	Technological University	Teaching and learning reflect[s] the needs of individuals, **business, enterprise**, the **professions**, the community, local interests and other stakeholders **in the region**	Higher Certificate (120 ECTS)	Ordinary or Honours bachelor's degree (180 or 240 ECTS)	Taught master's degree (90 ECTS)	Graduate schools	Admission to master's programmes based on applications

Note: ECTS = European Credit Transfer and Accumulation System. Based on research undertaken by the OECD for the preparation of this policy brief.

Table 6. Research missions in non-university higher education institutions

	Institution type	Research mission	Staff qualification requirements	Dedicated research staff	Core funding for research	Research quality assessment
Denmark	University College	The purpose of the R&D activities is to provide new knowledge and concrete solutions to challenges within the professions [covered by] university college programmes (Law on University Colleges)	Master's = typical [no open data on qualifications profile]	Research staff may be employed, but this is rare	5.5% of core funding is for practice and application-oriented research Linked to education funding	Research is one aspect of "knowledge base" in Danmarks Akkrediteringsinstitution guidelines
Flemish Community of Belgium	University College	University Colleges are active in the field of practice-oriented scientific research (Codex Hoger Onderwijs)	Master's = typical [no open data on qualifications profile]	Research staff may be employed, but this is rare	4% of core funding is for "Practice-oriented research" (PWO)	No systematic evaluation of research in university colleges
Finland	University of Applied Science	Applied research, development and innovation activities … that serve education in UAS, promote industry, business and regional development (UAS Act)	Master's = typical 16% teaching staff have PhD 13% RDI staff have PhD	"RDI staff" account for 17% of FTE positions in UAS sector in 2021	19% of core funding is for R&D External R&D funding Master's degrees Publications/outputs	RDI activities covered in institutional audits conducted by Finnish Education Evaluation Centre
Netherlands	University of Applied Science	UAS undertake "design and development activities or research focused on professional practice" (practice-oriented research) HE and Research Act	Master's = typical [no open data on qualifications profile]	"Lectors" (PhD qualified) lead research groups (but also involved in teaching)	3% of core funding (Design and Development) Linked to education funding	NVAO institutional audit does not include focus on research
Portugal	Polytechnic	Creation, transmission and dissemination of … professional knowledge, through the articulation of study, teaching, applied research and experimental development RJIES	Aspiration for academic staff to hold PhDs In 2021: 45% of lecturers held PhDs	Staff are expected to engage in research (very few in "research career")	Research Council (FCT) funds R&D units based on results of periodic evaluation	Periodic evaluation of R&D units (last in 2018), based on peer review panels
Ireland	Technological University	Support a "body of research that includes research relevant at regional, national and international levels and pursue excellence in the conduct of that research" TU Act 2018	Master's = typical [no open data on qualifications profile]	Not at present – workload model for new TUs currently being developed	No core funding specifically for research (PhDs are factor in core funding formula)	Research taken into account in assessment of learning environment by QQI

Note: Based on research undertaken by the OECD for the preparation of this policy brief.

As illustrated in

Table 6, while university colleges in Denmark and the Flemish Community of Belgium have a mission to undertake practice-oriented research related to the professions for which they provide training, universities of applied science in Finland and the Netherlands, as well as their counterparts in Ireland and Portugal have more extensive research missions. Nevertheless, research in universities of applied science is typically a secondary activity and is also clearly focused on practical innovations in professional practice and related economic sectors.

The underlying knowledge base for education and research capacity may be considered in accreditation and quality assurance procedures for universities of applied science, as in Finland, but performance-linked institutional funding and institutional research evaluation are generally not used by governments for non-university institutions or are less developed than in the university sector. One exception to this is Finland, where core funding for research in universities of applied science is allocated using a formula that takes into account externally raised research funding, the number of master's degrees awarded, and publications produced. In Portugal, research centres located in polytechnics or in which polytechnic staff participate can be entered for the periodic research evaluation exercises based on peer review, the results of which determine whether the research centre receives an operating grant from the Foundation for Science and Technology (FCT), the national research council.

More generally, there is an ongoing debate in several OECD systems about the role of non-university institutions in applied research. Systems such as the Netherlands and Ireland, for example, have adopted concerted strategies to expand the role of, respectively, universities of applied science and the new technological universities in research, in particular by revising the job profiles and workload and career models for academic staff (OECD, 2020[6]).

4 The case for reforming in Lithuania's higher education landscape

The case for reshaping Lithuania's higher education system is strongest in the non-university college sector

Lithuania's public research universities correspond broadly to international profiles of comprehensive and specialised research universities, with significant, albeit variable, levels of doctoral training and research activity, indicated by research expenditure. Lithuania has maintained separate specialist university institutions in the fields of health sciences, sport and the visual and performing arts, while in many other OECD systems, such institutions have tended to become part of larger institutions, although this has not universally been the case. As highlighted earlier in this policy brief, several public university institutions in Lithuania have seen their ability to attract new undergraduate students decrease substantially in the last decade. If these enrolment trends continue, it will be necessary to revisit the current structure of the public university sector to identify options to allow institutions to retain the critical mass necessary to ensure quality and efficiency.

As things stood in 2022, however, a more urgent priority was reform of the system of public colleges, which had experienced substantial enrolment decline in the previous decade, was characterised by particularly small institutions by international standards and which lacked the capacity to contribute significantly to Lithuania's research and innovation activity. The small size of colleges and their lack of research capacity limit these institutions' ability to contribute effectively to Lithuania's skills base and innovation potential and these two key challenges warrant a concerted policy response from government.

Public colleges currently lack the critical mass to guarantee quality and efficient use of resources in education and the situation is likely to worsen if no action is taken

Lithuanian HEIs are comparatively small by international standards. With the exception of Vilnius University (which enrolled a total of 22 650 students in 2021/22), all public universities in Lithuania enrol well under 10 000 students. However, the current scale of university institutions is generally understandable given the need to provide university education in multiple locations in a sparsely populated country and the existence of specialised university institutions, which are typically smaller in most OECD higher education systems.

The comparatively small size of Lithuanian colleges in comparison to their counterparts in other OECD countries is more striking. In 2021/22, the average size of the 12 public colleges was 1 950 students, with four public colleges enrolling fewer than 1 000 students. In comparison, in the same academic year, the

average enrolment in Finnish and Dutch universities of applied science – which admittedly also enrol master's students – was 6 139 and 12 897, respectively (Vipunen, 2021[11]; Vereniging Hogescholen, 2022[12]). In the Flemish Community of Belgium, the 16 university colleges, which provide associate degree and professional bachelor's programmes, had an average enrolment of 8 942 in 2021 (AHOVOKS, 2021[13]).

Strong international evidence on the "optimal size" of HEIs is lacking. However, international literature suggests that larger post-secondary educational institutions are generally able to operate with lower average unit costs than smaller institutions through realising economies of scale (Toutkoushian and Lee, 2018[14]). These economies of scale are driven by multiple factors, of which class size and fixed overhead costs are likely the most important. Analysis of the cost of providing university programmes in different fields of study in Australia and the United States, for example, has found that lower student-to-staff ratios are the main driver of higher units costs for educating each student, when comparing across institutions and disciplines (Deloitte Access Economics, 2016[15]; Hemelt et al., 2018[16]). As, in independent institutions, certain central services – such as administration and libraries – are always required, lower student numbers increase the unit cost of providing these largely fixed overheads.

An English study into costs in the provision of upper secondary education (A levels) also found that institutions needed substantial numbers of students to exploit available economies of scale, and that the cost penalties associated with operation at a smaller size were large (Owen, Fletcher and Lester, 2006[17]). Here again, class size and ability to share central services costs over more students in larger institutions were the determining factors. However, the authors of this work explicitly note that their analysis did not seeks to assess potential gains in quality gained from smaller class sizes or accessibility benefits of providing education in smaller, but geographically dispersed institutions.

Overall, available evidence suggests that this need to balance the potential for economies for scale gained from larger institutions with quality and accessibility considerations applies across the upper secondary and post-secondary educational sectors. In systems such as Lithuania's public college sector, where most institutions are objectively small by international standards, it is likely that substantial efficiencies could be gained by consolidating educational provision into fewer institutions. However, any consolidation strategy would need to make allowances for the small class sizes required to ensure quality in certain fields, such as the visual and performing arts, as well as the physical accessibility of educational opportunities for citizens across the national territory.

Securing quality in education: staffing models and institutional scale

In the absence of comparable assessments of student learning outcomes and learning gains, it is notoriously difficult to observe the quality of higher education provision. Across academic fields, evidence on the effects of class size and the composition of peer groups in given study programmes on student experience and learning is mixed. While smaller class sizes may facilitate interaction between staff and students, there is no clear evidence that smaller classes generally lead to better student outcomes across disciplines (OECD, 2020[6]). In relation to peer effects, Feld and Zölitz (2015[18]), for example, found some evidence that university students benefit from having academically able peers on average, but that low-achieving students are actually harmed by having high-achieving peers and that peer effects are often substantially overestimated.

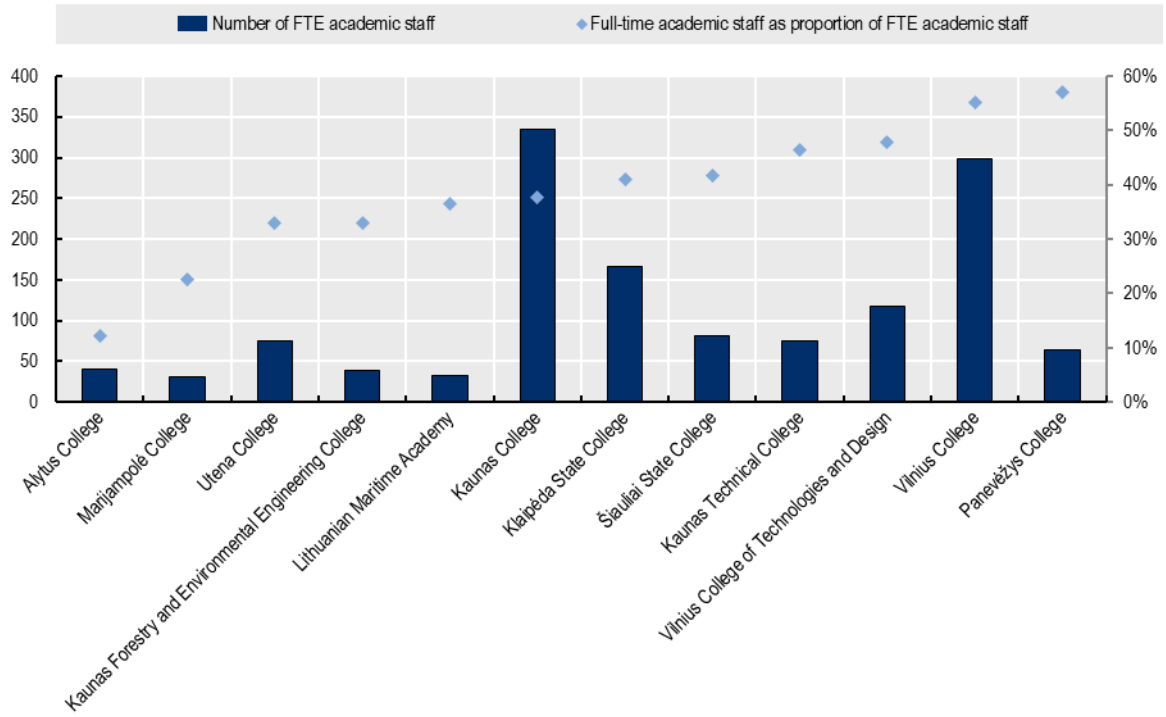
This lack of clear evidence complicates the task of assessing the potential effects on educational quality of changes to class size and the composition of student cohorts that may result from institutional consolidation and restructuring.

One area where stronger evidence does exist is on the relationship between the proportion of part-time and temporary academic staff involved in delivering instruction and student outcomes. On balance,

research from the United States suggests that the increased use of temporary part-time academics has some negative consequences for the quality of teaching and learning (Baldwin and Wawrzynski, 2011[19]). The effects are complex and heterogeneous across institutions, student types and study levels, but research has shown that, in US universities, students taught by part-time instructors are less likely to take subsequent classes in a subject and less likely to complete their studies (Ehrenberg and Zhang, 2005[20]). Jaeger and Eagan (Jaeger and Eagan, 2011[21]) also found that high levels of exposure to part-time faculty in the first year of college are consistently found to affect negatively student retention to the second year. The most plausible explanation for these observations is that temporary and part-time teaching staff are less engaged in providing support and guidance to students outside their particular classes and have lower levels of responsibility for the design and consistency of study programmes.

As shown in Figure 1, Lithuania's colleges are characterised by a high dependency on part-time staff. In 2021/22, full-time lecturers accounted on average for 42% of full-time equivalent (FTE) academic staff positions in Lithuanian public colleges. In four of the 12 colleges, full-time staff accounted for one-third or less of FTE lecturer positions, meaning that a significant majority of teaching hours are delivered by staff with part-time (and, in practice, often temporary) positions.

Figure 1. Full-time academic staff in Lithuania's public colleges (2021/22)



Note: Data supplied by the Ministry of Education, Science and Sport.

It is neither unusual nor problematic for HEIs to employ part-time and temporary teaching staff. Institutions require some flexibility, and, in professional fields, it is common and desirable for a proportion of teaching staff to be professionals who remain active in their respective field, alongside their teaching activity.

Nevertheless, the particularly high reliance on part-time staff in certain Lithuanian public colleges – notably Alytus College, Marijampolė College, Utena College and the Kaunas Forestry and Environmental Engineering College – is a cause for concern. It appears likely that the small scale of these institutions is a factor in explaining their limited capacity to employ (and potentially attract) full-time academic staff. However, as illustrated by Figure 1, the correlation between the size of institutions and the proportion of

full-time academic staff they employ is not always direct. Further analysis would be required to understand better the underlying causes of the observed differences in staffing models.

Public colleges currently lack the capacity for post-graduate education and research needed to operate as universities of applied science on a European model

A number of public colleges in Lithuania currently style themselves as "universities of applied science" in English. However, universities of applied science in European OECD higher education systems such as Austria, Finland, Ireland, the Netherlands or Portugal offer master's-level education (which is not the case in Lithuanian colleges) and have a clearly defined – although variable – mission to undertake practice-based and applied research. While some Lithuanian colleges are research-active, the lack of post-graduate educational provision limits their research capacity and means they are not directly equivalent to universities of applied science in other systems. Non-university institutions in other systems that provide education only up to ISECD 6 – as in the Flemish Community of Belgium and Denmark – are typically styled as "university colleges" in English.

There is potential to develop Lithuania's *innovation capacity* through development of practice-oriented and applied research in a limited number of college institutions. Governments use a combination of legal provisions, funding, targets and evaluation to help steer and shape innovation and research activity within their higher education systems. In the last two decades, policymakers in several OECD higher education systems have sought to better understand, define and support practice-oriented and applied research activity in non-university institutions, which are often seen as important potential drivers of innovation in the wider economy. Ireland, Finland, the Netherlands and Portugal are notable examples of higher education systems where public authorities have made – or are making – a concerted effort to strengthen the research and innovation capacity of non-university institutions.

In broad terms, research in universities of applied science or other non-university institutions is typically focused on the practical applicability of new knowledge. Research in these institutions usually seeks to enhance professional practice – and professional training – in fields where the institution provides programmes or to respond to demand for new knowledge and expertise in businesses and public-sector or non-profit organisations with which the institution collaborates.

In comparison to university research, research in universities of applied science (UAS) is more often demand-driven, inter-disciplinary and undertaken in collaboration with external businesses and public sector or non-profit organisations (Coombs and Meijer, 2021[22]). It is also less likely to result in the kind of articles published in peer-reviewed journals and other publications that drive research rankings and the bibliometric research evaluation systems used in some OECD research funding systems. At the same time, the results and lessons from practice-based and applied research undertaken by UAS typically feed more directly back into study programmes.

Governments may provide a – typically modest – level of core funding to non-university institutions to support research. In Dutch universities of applied science and Flemish and Danish university colleges, such core institutional grants account for less than 4% of public funding on average (OECD, 2021[23]). In contrast, 19% of core public funding to Finnish universities of applied science is allocated for research (OECD, 2022[24]), while in other systems, such as Ireland and the United States, HEIs do not receive core institutional funding specifically for research. Across many OECD jurisdictions non-university HEIs also receive project-based funding for innovation and research activities from public innovation agencies and, in fewer cases, central science or research funding councils (this is the case of Portugal's polytechnics, for example).

As research in UAS seeks to create a direct impact on the quality and relevance of professional training or on external organisations and society, an understanding of how such impact can be achieved and how it can be measured is particularly important for evaluation of this kind of research and related policy and funding decisions. However, as Coombs and Meijer (2021[22]) note in a recent overview, the comparatively short history of research conducted by universities of applied science means "there is no recognised approach for evaluating the impact created by the research of these institutions". The same authors argue that appropriate evaluation of UAS research must focus on the impact achieved on society and on teaching practice, but do not propose a specific approach.

Given the paucity of reliable quantitative indicators of the outputs and outcomes of much applied and practice-oriented research, qualitative approaches based on peer review appear to allow greatest scope for capturing the quality of cooperation and impacts achieved by this kind of research project. Among the OECD systems that rely heavily on peer review for the evaluation of research performance in higher education are, alongside Lithuania, Portugal and the United Kingdom.

The United Kingdom introduced a new system of peer review to evaluate the research performance of universities in 2014. As summarised in Box 1, The Research Excellence Framework (REF) relies on expert panels to evaluate research groups within universities and includes a focus on evaluating the impact of research through case studies.

Box 1. Assessing impact in the UK Research Excellence Framework (REF)

The Research Excellence Framework (REF), introduced in 2014, is the UK's system for assessing the excellence of research in HEIs. REF expert panels assess universities' submissions, including the quality of research outputs, the impacts achieved and the research environment. The panels comprise academics and research user members from outside of academia. Research users may be from the private, public or non-profit sectors.

Impact is assessed through the submission of case studies, which describe the changes or benefits brought about by research undertaken by researchers at an HEI. To ensure they have the full breadth and depth of expertise required to assess the submitted case studies, the REF panels will appoint "impact assessors" who will work with the other panel members to assess the impact element of submissions, attending relevant panel meetings and providing advice on the impact case studies they have assessed. Impact assessors are individuals from outside academia with relevant skills and experience in using research.

Source: REF (2021[25]) Guide for research users https://www.ref.ac.uk/about/guide-for-research-users/ (accessed on 16 February 2022).

Following the 2014 iteration of the REF, an independent review of the process by Nicholas Stern (Stern, 2016[26]) recommended that the system for evaluating impact be changed to capture a wider range of impacts, particularly from inter-disciplinary and applied research. Specific recommendations included allowing impact case studies to be linked to a body of research activity and a wider range of research outputs, rather than just traditional published research. In relation to defining and capturing impact, the Stern review argues:

> *In calling for a broadening and deepening of the definition of impact we are recognising that in REF2014 there was room for a wider variety of impacts than were captured in the case studies. We are recommending that this potential breadth and depth should be emphasised and that we should go even further. In particular: we recommend that impacts on public engagement and understanding are emphasised and that impacts on cultural life be specifically included. Better to align the REF with the TEF [Teaching Excellence Framework], we also recommend that research leading to major impacts on curricula and / or pedagogy within or across disciplines should be included; and in order to encourage long-term, interdisciplinary research endeavours, we*

> *recommend that ground-breaking academic impacts such as research leading to the creation of new disciplines should be included. (Stern, 2016[26])*

The recommendations of the Stern review to broaden the definition of research outputs and the interpretation of impact are particularly relevant to research groups in the more professionally and practically oriented universities (the UK abolished a binary distinction in 1992). Implementation of the 2021 REF has not been completed at the time of writing, but the approach may hold lessons for Lithuania as it seeks to define and evaluate research activity in its new universities of applied science.

In Portugal, the most recent peer evaluation of the research units associated to universities and polytechnics was undertaken in 2017/18. Here too, there was a clear desire to ensure that the assessment exercise was able to capture the value and impact of applied research undertaken by staff affiliated to polytechnics and of inter-disciplinary research more generally. To facilitate this – and avoid inter-disciplinary research being disadvantaged by the organisation of the evaluation in "disciplinary silos" – the evaluation exercise involved inter-disciplinary review panels (in addition to panels for each "classic" disciplinary area), organised in 12 broad themes, related to major societal challenges (see Box 2).

Box 2. Thematic evaluation panels in Portugal's evaluation of R&D units

The latest iteration of the Foundation for Science and Technology evaluation of Portugal's R&D units, research groups could choose to be evaluated by panels in 12 inter-disciplinary thematic areas, rather than the panels in the classic disciplines. The 12 areas were:

- Marine Sciences and Technologies
- Space Science and Technology and Earth Observation
- Mediterranean Studies: Agro-food Systems, Water and Energy Resources, Cultural Heritage
- African Studies: Human Development; Institutional Capacity-building in Science and Technology; Identity and Culture
- Digital Services – Social, Cultural, Economic or in Public Administration
- Industrial Innovation, Robotisation and Transformation of Production
- Sustainable Energy Systems, Circular Economy and Technologies for the Environment
- Tourism, Hospitality and Hotel Management
- Cities and Sustainable Mobility
- Migrations: Economic, Social or Cultural Aspects, and Associated Public Policies
- Inclusion, Multiculturalism and Social Integration
- Aging: Work and Social and Cultural Activities in the Life-cycle, Health and Well-being

Source: FCT (2018[27]) Evaluation Guide R&D Units Evaluation 2017-18
https://www.fct.pt/apoios/unidades/avaliacoes/2017/docs/Guiao_de_Avaliacao_Aval_2017.pdf (accessed on 16 February 2022).

Alongside the relative complexity of evaluating practice-oriented and applied research, the experience of other OECD countries reveals a number of other key challenges for developing research capacity in non-university institutions. In particular, academic staff in non-university institutions need appropriate expertise to engage effectively in practice-oriented and applied research and to have workload models, appraisal systems and career pathways that permit and reward impactful research activities. As many colleges and other non-university institutions have historically been teaching institutions, they do not always have the staff profiles required to expand institutional research capacity. As shown by reforms of the university of applied science and institute of technology sectors in the Netherlands and Ireland, respectively, developing

such capacity is a gradual process, which may occur to different extents and at different speeds in individual non-university institutions (OECD, 2022[28]).

Given their scale and apparent ambitions in terms of applied research (illustrated by their current institutional strategies), the largest colleges in the three core cities may be able to develop their profiles as universities of applied science, if they were to provide professional master's programmes in their fields of specialisation and increase their research activity. This is unlikely to be a realistic goal for most college institutions, which appear more suited to a role in professional education at bachelor's level and below.

5 Policy options for effecting landscape reform

The preceding section highlights a broad case for creating larger college institutions in Lithuania to achieve economies of scale and, potentially, implement consistent staffing models to support an improved student experience. It also highlights the potential advantages and challenges associated with increasing research capacity in the college sector. In recognition of these drivers of reform, the Lithuanian Government amended the nation's Science and Higher Education Act in June 2022 to adapt the legal classification of HEIs (Republic of Lithuania, 2022[29]) and has proposed a programme of consolidation and development in the college sector, supported by additional European funds.

A reform of the legal classification and missions of HEIs to create universities of applied science

As summarised in Table 1, under the proposed new structure, institutional entities could in future be established as one of three institutional types.

Table 1. Proposed classification of higher education institutions in Lithuania

	Non-university institutions		University institutions
	College (*Kollegija*)	University of Applied Science (*Taikomųjų Mokslų Universitetas* – TMU)	Research University (*Universitetas*)
ISCED 5 (Associate degrees)	✓	✓	
ISCED 6 academic (Academic bachelor's)			✓
ISECD 6 professional (professional bachelor's)	✓	✓	
ISCED 7 academic (academic master's)			✓
ISCED 7 professional (professional master's)		✓	
ISCED 8 (doctoral degrees)			✓

Source: Republic of Lithuania (2022[29]) *Lietuvos Respublikos mokslo ir studijų įstatymo Nr. XI-242 (Science and Higher Education Act of the Republic of Lithuania XI-242)* https://www.e-tar.lt/portal/en/legalAct/60718c50037311edb32c9f9d8ba206f8 (accessed on 20 December 2022).

The proposal creates an explicit distinction between colleges and universities of applied science (UAS). The "colleges" in the new classification would focus, as now, on provision of (three-year) professional bachelor's programmes, but also have responsibility for providing short-cycle (ISCED 5) programmes in the fields where they operate. Lithuanian legislation was modified in November 2018 to allow the provision of short-cycle study programmes, but such programmes were not implemented in practice until the academic year 2022/23. Universities of applied science within the new classification would, in addition to professional programmes at ISCED 5 and 6 levels, be authorised to provide professionally oriented master's degrees and use the title "university of applied science" in English, if they offer such master's programmes in at least two study fields (Republic of Lithuania, 2022[29]).

There is currently no distinct category of professional master's degrees in the Lithuanian Qualifications Framework. The introduction of such qualifications would bring future Lithuanian UAS into line with their counterparts in other European higher education systems, discussed earlier in this policy brief. To be permitted to offer post-graduate qualifications and use the UAS title, colleges will be required to demonstrate that they have sufficient capacity in practice-oriented and applied research in the areas of professional practice in which they provide programmes. Article 52.5 of the amended Science and Higher Education Act specifies that colleges offering post-graduate qualifications must demonstrate a quality rating of at least "good" in the external assessment of research and experimental development in colleges conducted every five years (Republic of Lithuania, 2022[29]).

A proposed programme of consolidation in the college sector

Within the framework created by the new legal classification of higher education institutions, the Lithuanian Government also plans to deploy European Union funds to support a programme of consolidation and development in the college sector. On the basis of the legislation and plans developed in 2022, this would involve the following changes:

- Allowing public colleges with the strongest existing profiles in practice-oriented and applied research to develop into true universities of applied science (as defined in the new classification above), offering a new set of professional master's degrees and with an expanded role in practice-oriented and applied research.
- The transformation of some regional colleges in smaller cities into campuses (sub-units) of the new universities of applied science. This change would allow a pooling of expertise across different sites offering similar programmes, increasing the support available to students in the smaller institutions. It could also allow the sharing of a certain number of central services and investment in new equipment and facilities. Some part-time staff could potentially be offered permanent, full-time positions through sharing staff across sites.

The result of the core mergers proposals (by the transformations to regional campuses) could reduce the total number of public colleges from 12 to potentially seven.

Key considerations for the Lithuanian authorities in implementing planned reforms

The Lithuanian Government's proposals for reform of the higher education landscape are rational given the case for change in the college sector outlined above. The merger of colleges – among them some of the country's smallest regional colleges – into larger institutions creates scope for greater sharing of staff and resources, bringing potential benefits for both quality and efficiency. Allowing the largest colleges to expand their activities as universities of applied science will bring these institutions more into line with the profiles of universities of applied science in advanced OECD higher education systems such as Finland or the Netherlands. Targeting investment on the largest institutions will also allow the Government to concentrate future investment in practice-oriented and applied research to develop capacity in this area as part of Lithuania's broader innovation strategy.

In implementing the proposal reforms, it will be important to take into account and address potential challenges. These include:

- The reality – as shown in other OECD higher education systems – that institutional mergers are complex and do not automatically result in cost savings or improved quality. Evidence from elsewhere in the OECD suggests that complementarity between the activities in the merging institutions is required (Rocha, Teixeira and Biscaia, 2018[30]; Ripoll-Soler and de-Miguel-Molina,

2019[31]). For example, if previously independent institutions offer programmes in the same disciplines, there is scope to bring these programmes together into a shared curriculum, while exploiting the specific expertise of teaching staff in each location to provide instruction to students across multiple sites. Equally, it is possible to pool certain central services, such as information technology, financial management and human resources. While potentially beneficial, such changes bring costs for individual staff members, who may become surplus to requirements or need to transfer to new roles. In the case of Lithuania's reforms, it is expected that institutions will be asked to propose their own merger plans. These plans should clearly demonstrate how complementarities will be sought and challenges related to mergers overcome.

- The risk that the colleges that remain independent but will not be classified as universities of applied science, will be viewed as "second class" colleges and become less attractive for students. In the medium term, this situation may not be tenable and these institutions in this situation may need to be "upgraded" to universities of applied sciences or merged with larger institutions to become regional campuses.
- The development of short-cycle higher education programmes at ISCED 5 has proven challenging in Lithuania, as institutions have apparently not been able to develop a distinctive programmatic offer at this level and the demand for such provision from typical higher education students is judged by Lithuanian to be low. While ISCED 5 programmes can be targeted at other population groups, such as adult learners and young people who might not otherwise have entered higher education – as in the Flemish Community of Belgium (OECD, 2021[23]), for example – it is not always easy to carve out a niche for such provision. A key issue in Lithuania appears to be the inter-relationship between (expanded) provision at ISCED 5 in colleges and universities of applied science and established provision at ISECD 4 and 5 in vocational schools. While challenging, it will ultimately be necessary to clarify the distinctive nature of ISCED 5 provision in the higher education and vocational sectors and create clear pathways between programmes in the two sectors and at different levels. Systems such as the Netherlands and the Flemish Community of Belgium, which have relatively recently introduced associate degree programmes at ISCED 5, could hold lessons for Lithuania. On this issue, also see (OECD, Forthcoming[32]).
- The need to ensure that adequate resources and workload and career models are in place to support staff in the proposed universities of applied science to develop their activities in practice-oriented research. As noted, the promotion of this kind of research requires a recognition of the specific characteristics of these activities – and the kinds of impact they are intended to achieve – in the design of research evaluation and staff appraisal systems.
- The staffing models of colleges in Lithuania vary considerably, with some colleges employing very few full-time teaching staff and others employing a relatively high proportion of staff on a full-time basis. As noted, the proposed mergers may allow some changes in this area, if some previously part-time staff can be employed on a full-time basis across multiple sites (perhaps delivering some instruction online at other sites, for example). However, as with the questions of efficiency and quality more generally, there is no automatic relationship between the proposed mergers; improvements in the employment conditions of teaching staff and the continuity, and support they are able to offer to students. Improving the staffing model in some colleges is likely to require a concerted effort that goes beyond the changes to institutional structures.

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Resourcing Higher Education Project

This thematic policy brief has been prepared as part of the OECD Resourcing Higher Education Project (RHEP). Co-funded by the European Union, the RHEP aims to develop the shared knowledge base available to OECD member and partner countries on effective policies for higher education resourcing. It does so by exploring how OECD jurisdictions organise the funding of higher education institutions, provide financial support to students and regulate the employment of academic staff, taking into account evidence on the effects of different policy approaches. The findings of the project are shared in publications, including thematic policy briefs and country review reports, and through peer learning events organised to share practice and experiences.

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This document was produced with the financial assistance of the European Union. The views expressed herein can in no way be taken to reflect the official opinion of the European Union.