HEA | HIGHER EDUCATION AUTHORITY
AN tÚDARÁS um ARD-OIDEACHAS

Higher Education System Performance

2014–2017

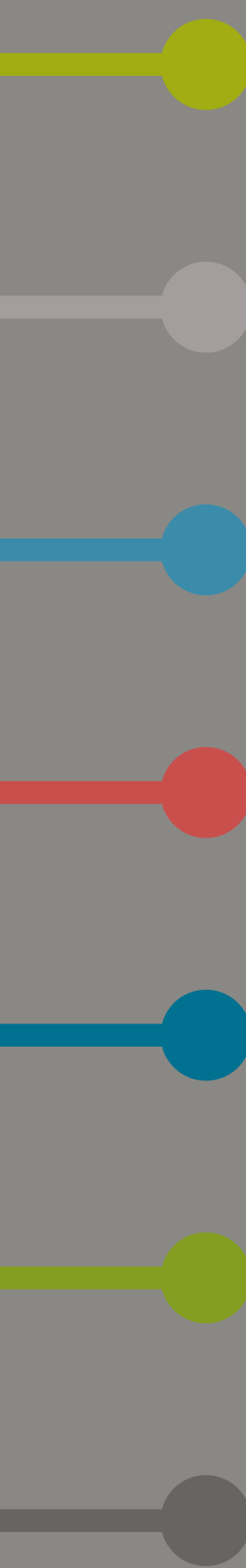# Higher Education System Performance 2014-2017

Third Report of the Higher Education Authority to the Minister for Education and Skills

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Executive Summary

This report, prepared by the Higher Education Authority (HEA), reviews the performance and progress of the Irish higher education system with reference to a steering and performance based framework, published by the Minister for Education and Skills; and a process of annual performance review carried out by the HEA Executive, with input from international experts.

The period covered by this report (2014-2017) has been one of significant and continued growth in Irish higher education. This growth was, however, underfunded, as the national message since the economic collapse at the end of the last decade has been to 'do more with less'. In that regard, the Irish higher education system has delivered what has asked of it and more, both in meeting the demand for increased student places and in meeting the increased skills needs of a recovering economy.

The increased number of places has opened higher education to participants from ever more diverse backgrounds. Ireland now has one of the highest levels of educational attainment in the world, and the institutions have worked hard to make this possible. They have diversified income streams, cut costs, run down historic surpluses and invested in international education to meet student demand and stay afloat through the period of austerity. Institutions have sought to recruit more international students or to reduce spending on capital projects in an environment where fixed costs, such as those relating to staff, constitute the greatest proportion of their budget but where the policy framework is largely outside their control.

Research performance has been strong. Ireland continues to perform well in bibliometric rankings of the impact of research and the European research funding that Ireland wins continues to grow to meet ambitious national targets. Strong links between research, teaching and learning continue to be a hallmark of Irish higher education. However, research activity rarely pays its way and often requires cross-subsidisation from other areas of institutional budgets.

Employer and industry representatives want to become more engaged in both research and graduate formation. Comparative international data suggests that while research is of a high quality, its intensity or the extent to which it is applied, could be better. As Ireland's economic recovery speeds up, it is likely that there will be skill shortages in key areas. Higher education will need more resources and will need to work more closely with industry to ensure that enough skilled graduates become available to meet demand.

The diversification of institutions' income streams has been positive, and many institutions have taken a strategic 'all of institution' approach to international recruitment, and have sought to internationalise the college environment. The HEA's annual performance review process has also found institutions taking the opportunity to use better data and benchmarking to inform their management decisions. There is a growing realisation that the whole offering of higher education is greater than the sum of its parts, and that there are opportunities for institutions to derive greater value from the ways in which teaching and learning, research and enterprise engagement are inter-related on campus.

There are limits as to what a coherent institutional strategy can deliver, however, without tackling wider issues around historic funding deficits, the HR framework and the broader context in which HEIs operate. The HEA is of the view that maintaining an open and accessible high-quality educational environment, capable of conducting world class engaged research, is now unsustainable unless the aforementioned issues are addressed.

Introduction

Introduction

This report, prepared by the Higher Education Authority (HEA), reviews the performance and progress of the Irish higher education system with reference to the Minister for Education and Skills' steering and performance based framework for the system governance of higher education in Ireland, published in 2013.[1] The system performance framework set out a series of national priorities and key objectives of Government for higher education over the 2014-2016 period.

Implementation of the framework is overseen by the HEA through a process of 'performance compacts' and 'strategic dialogue' where higher education institutions set out a set of strategic and performance objectives which are formally agreed with the HEA, with reference to the Minister's framework. The strategic dialogue process includes a facility for increasing levels of performance-related funding penalties (albeit rarely used) whereby the HEA may reduce funding to institutions where there is evidence of significant deviation from the agreed performance compact.

The report uses latest available data from sources such as Eurostat, HEA, OECD, and Knowledge Transfer Ireland (KTI). It is also informed by an annual process of strategic dialogue where Irish higher education institutions are evaluated on their progress by the HEA, with input from external experts.

The framework and associated dialogue process emerged from the development and implementation of the *National Strategy for Higher Education to 2030*,[2] published in 2011, which recommended significant reform of the higher education sector. The report also takes account of progress towards the goals as set out in the more recently published *Action Plan for Education, 2016-2019*.[3]

The HEA is of the view that Ireland and Irish higher education have changed significantly since the development and publication of the National Strategy and associated performance framework. Ireland's economy went into freefall at the end of the last decade. Average unemployment went from 4.4 per cent[4] in 2004 to a high of 14.7 per cent in 2012 just as this programme of reform was being implemented.

The HEA considers that Irish higher education has played no small part in the process of national recovery, which has seen unemployment rates drop back to 6.0 percent[5] by October 2017. It should also be acknowledged that this contribution was made at a time when a significant reform programme was being delivered and when student places were growing to meet demand, and against a background of decreased funding and resources for the sector. Ireland's population has increased by 8.2 per cent in the last four years and is set to increase further to 2021, and this population growth will lead to an expected 27 per cent growth in demand for higher education to 2027.

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1   Department of Education and Skills, 2013. *Higher Education System Performance Framework 2014-2016*. <http://hea.ie/assets/uploads/2017/06/DES-System-Performance-Framework.pdf>.
2   Department of Education and Skills, 2011. *National Strategy for Higher Education to 2030*. <https://www.education.ie/en/Publications/Policy-Reports/National-Strategy-for-Higher-Education-2030.pdf>.
3   Department of Education and Skills, 2016. *Action Plan for Education 2016-2019*. <www.education.ie/en/The-Department/Action-Plan-for-Education-2016-2019/>.
4   Central Statistics Office (CSO), Seasonally Adjusted Standardised Unemployment Rates (SUR), 2005-2015. <www.cso.ie/multiquicktables/quickTables.aspx?id=lrm03_lra03>.
5   Central Statistics Office (CSO), Seasonally Adjusted Unemployment Rate, October 2017. <www.cso.ie/en/releasesandpublications/er/mue/monthlyunemploymentoctober2017/>.

The HEA is of the view that the system has performed well despite the challenging environment of the past ten years. Student numbers have increased and research and enterprise engagement performance has been maintained. The HEA acknowledges that individual institutions can do more to prioritise and allocate their resources with greater effectiveness – for example, through better management of internal workloads and better human resource management. The HEA also acknowledges that institutions face challenges in maintaining their capital infrastructure research equipment while at the same time providing a quality teaching and learning environment for current and future students. Some HEIs have had to make tough decisions and they have managed their accountability and autonomy well; but in a small number of cases, there have been managerial and/or governance lapses that risk bringing the whole sector into disrepute.

The HEA welcomes the research performance of many of our higher education institutions. Ireland's higher education system has played and will continue to play a role in Ireland's strong Horizon 2020 performance. Several institutions are working hard to develop and implement better measures of their institutional, departmental or staff research performances and are using this information to better direct their investment in such activities. Institutions are challenged by this improved performance though, as research grants rarely cover the full costs of the activity undertaken. While institutions do leverage research and its outcomes to inform teaching and learning or to engage with enterprise, the full costs are not recovered through contract and overhead payments and must be subsidised via other income sources. The HEA is of the view that, with appropriate supports, the higher education sector can do more for Ireland in the research and engagement space. For example, knowledge transfer and enterprise engagement have both improved significantly in recent years and further investment could extend the reach of institutions in these areas. However, from conversations with enterprise bodies the HEA is aware that not all institutions have, or can afford, appropriate or accessible industrial liaison offices. In this context, the HEA will work with HEIs to encourage better industry focused engagement across the next round of performance compacts.

Equally, the system has proven its ability to grow external revenue as a response to funding reductions. International student numbers have increased significantly in recent years and will continue to grow into the future. The strategic dialogue process has allowed the HEA to interrogate institutional strategies in this area. The HEA welcomes the holistic approach taken by most institutions to focus on student exchange, on opportunities for broader research and teaching collaboration and on long-lasting inter-institutional relationships as core elements of their international strategies.

A commitment to life-long and flexible learning is less evident. While institutions have suggested that the funding model doesn't necessarily reward flexible models of teaching and learning, the HEA notes that enterprise agencies have repeatedly signalled a willingness on the part of industry partners to engage with and support institutions that can assist them to both anchor and grow their staff and businesses in Ireland. Many HEIs have engaged strongly with Springboard to create opportunities to bring people back into education and work, but there is less evidence of an ongoing commitment by HEIs to meet the upskilling needs of those in the workforce in a flexible way. This is in part symptomatic of the funding environment in which institutions operate, without the resources or flexibility to grow their offerings; however, HEIs must do more to engage with employers and learners to meet their needs. The HEA will continue to challenge HEIs to re-examine their priorities and the ordering of those priorities. The HEA will use the next round of performance compacts to continue to ensure that the system meets national, regional and individual education and skills needs better.

The Irish higher education system has been charged to contribute to the national *Action Plan for Education* vision that 'the Irish Education and Training System should become the best in Europe over the next decade'.[6] If the sector is to excel, to meet this goal, the evidence in this report suggests that it will require additional resources. In particular, it will need financial resources to ensure that it can maintain and improve existing levels of service, meet the needs of a new cohort of learners, and improve infrastructure for teaching and learning, for student accommodation and for the research environment. Legislative and structural reforms, such as in human resource, budgetary and external funding matters may also be required to provide institutions with improved flexibility to respond to opportunities and/or external shocks.

If the sector is to achieve these flexibilities it will need to maintain the trust of Government and the HEA. Over the course of this framework and the associated performance compacts the HEA has become aware of a small but significant number of cases where institutions failed in their governance or oversight role in relation to procurement or financial areas. The HEA takes its own sectoral governance and oversight responsibilities very seriously and will continue to investigate rigorously any such issues as they arise and will use its powers, including the application of performance funding measures, accordingly.

Finally, the HEA notes the learnings from the compact process and four cycles of strategic dialogue since the Minister's Framework was introduced in 2013. Institutions have pointed to the need for the HEA and indeed the whole system to work increasing together with other agencies such as QQI, IDA, SFI, EI, and SOLAS. The HEA will continue to engage with these partners to develop common data sets and common approaches to system performance in order to better address national and regional needs. The HEA has also recently carried out a study with the Central Statistics Office (CSO) on graduate circumstances and will look to expand such work through further engagement with the CSO and the Revenue Commissioners and to build better data sets on graduates' earnings outcomes.

This system report sets out areas of ongoing progress and challenge within Irish higher education, and specifically, it identifies areas of concern that require a response from the sector, from the HEA and from the Government. The HEA highlights these areas of concern as part of its input to the Department of Education and Skill's development of a new System Performance Framework for Higher Education for the period 2018-2020.

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6   Department of Education and Skills, 2016. *Action Plan for Education 2016-2019*.
    <www.education.ie/en/The-Department/Action-Plan-for-Education-2016-2019/>.

System
Objectives

System Objective 1

Meeting Ireland's Human Capital Needs

Meeting Ireland's human capital needs, across the spectrum of skills, by engaged institutions, through a diverse mix of provision across the system and through both core funding and specifically targeted initiatives.

Policy context: Meeting Ireland's Human Capital Needs

The indicators relating to System Objective 1 of the Higher Education System Performance Framework deal with three broad areas:

- Overall educational attainment and graduate output

- Alignment to the needs of the labour market

- Student outcomes following participation in higher education.

The System Framework sets out a key system objective for 2014-16 requiring higher education 'to meet Ireland's human capital needs across the spectrum of skills by engaged institutions through a diverse mix of provision across the system and through both core funding and specifically targeted initiatives'.

Growth in student enrolment

In Ireland, student numbers continue to grow. In 2016/17 the higher education student population stood at just over 225,000 students, a 13 per cent increase since 2011/12. Since the development and implementation of the Framework, higher education enrolments have increased annually: 2012/13 to 2013/14 saw a 4 per cent increase; and 2014/15 and 2015/16 saw year-on-year increases of 2 and 4 per cent respectively. Most recent HEA data suggests that enrolments increased by 1 per cent in 2016/17, a slower increase than in earlier years.

Figure 1.1 Ireland higher education enrolments, 2011-2017

ALL HEIS INCLUDING RCSI	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17
Full-time enrolments undergraduate	141,379	143,722	148,545	151,360	156,717	157,518
Full-time enrolments postgraduate	21,642	20,955	21,819	21,926	22,637	23,092
Part-time enrolments undergraduate	20,360	20,134	21,269	20,897	22,192	21,988
Part-time enrolments postgraduate	12,611	13,944	14,490	15,139	15,057	15,645
Remote enrolments undergraduate	2,750	2,810	3,148	3,175	3,446	4,711
Remote enrolments postgraduate	903	939	1,531	2,092	2,569	2,674
Total	**199,645**	**202,504**	**210,802**	**214,589**	**222,618**	**225,628**

Source: HEA Statistics <http://hea.ie/statistics/>.

Comparative data from the OECD's most recent *Education at a Glance*[7] places Ireland in the top decile for educational attainment of those aged 25-34, of whom 52 per cent have a third-level education compared to the OECD average of 43 per cent. Ireland's overall third-level education attainment level for those aged 25-34 has risen from 51.1 per cent in 2012. Fewer 55-64-year-olds have a third-level education (27 per cent); this, however, is in line with the OECD average of 26.5 per cent. The difference in the educational attainment rate between those in the 25-34 and those in the 55-64 age range remains a concern for Ireland. This gap is largely due to the growth of higher education take-up by younger people in recent decades, but there is now a greater need to consider how to create more opportunities for upskilling and reskilling among the older cohort which is discussed further under the 'Matching Labour Market Needs' section below.

Tertiary educational attainment in Ireland

The European Commission's *Education and Training Monitor 2017*[8] found a continuing expansion of higher education within the last two decades, and by 2016, Europe was within 1 per cent of reaching the Europe 2020 headline target of 40 per cent of the population in the 30-34 age range having successfully completed higher education. Eighteen EU member states, including Ireland, already exceed this target.

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7   OECD, 2017. Population with tertiary education (indicator). doi: 10.1787/0b8f90e9-en (Accessed on 9 November 2017) <https://data.oecd.org/eduatt/population-with-tertiary-education.htm>.

8   European Commission, 2017. *Education and Training Monitor 2017*. <https://ec.europa.eu/education/sites/education/files/monitor2017_en.pdf>.

Figure 1.2 Tertiary educational attainment 2010, 2013, 2016 and EU target level
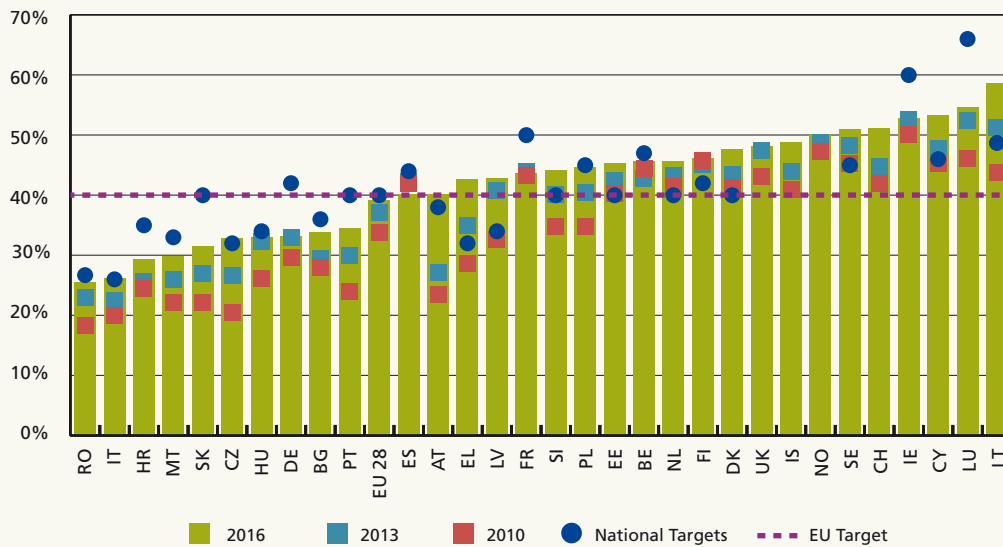
The European Commission's *Education and Training Monitor* country report for Ireland[9] notes that 'Ireland performs very well on early school leaving and tertiary educational attainment and has made significant progress in improving the provision of basic skills'. The report found that third-level education attainment (age 30-34) in Ireland was at 52.9 per cent in 2016, up from 52.6 per cent in 2013 (51.1 per cent in 2012). The equivalent EU average stood at 39.1 per cent, up from 37.1 per cent in 2013. Ireland's attainment therefore exceeds the EU average by 13.8 percentage points, and at 60 per cent, Ireland has the second highest Europe 2020 goal. From a 27.5 per cent third-level education attainment rate in 2000, Ireland is making steady progress, but will need to continue its efforts if the 60 per cent target is to be reached by 2020.

Education attainment is an important measure of social and economic progress. The OECD's Better Life Index[10] reports that 'a well-educated and well-trained population is essential for a country's social and economic well-being. Education plays a key role in providing individuals with the knowledge, skills and competences needed to participate effectively in society and in the economy. Having a good education greatly improves the likelihood of finding a job and earning enough money. The Irish can expect to go through 17.8 years of education between the ages of 5 and 39, slightly more than the OECD average of 17.5 years'.

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9   European Commission, 2017. *Education and Training Monitor 2017: Ireland*.
    <https://ec.europa.eu/education/sites/education/files/monitor2017-ie_en.pdf>.
10 OECD, Better Life Index: Education. <http://www.oecdbetterlifeindex.org/topics/education/>.

Alignment of higher education to the needs of the economy

The extent to which education outputs align to the needs of an economy is a widely debated concern. The OECD's 2017 *Education at a Glance*[11] notes that 'in most OECD countries, the most popular degree for tertiary-educated adults is business, administration or law. On average across the OECD, 23 per cent of tertiary-educated 25-64-year-olds hold a degree in one of these three fields of study'. The picture in Ireland is not dissimilar: 24.5 per cent of 2015 graduates have a qualification in business, administration or law, and 25 per cent have a qualification in science, technology, engineering or mathematics (STEM), above the OECD average of 22 per cent.

Figure 1.3 Higher education graduates by discipline, 2012-2016

FIELD OF STUDY (ISCED) – ALL GRADUATES FROM HEA INSTITUTIONS						
	2012	**2013**		**2014**	**2015**	**2016**
General programmes	342	235	Generic programmes and qualifications	580	160	498
Education	4,893	5,223	Education	5,249	3,690	5,302
Humanities and Arts	7,739	9,091	Arts and Humanities	9,073	9,004	10,024
Social Sciences, Business and Law	18,049	19,449	Social Sciences, Journalism and Information	4,600	4,090	4,032
			Business, Administration and Law	15,700	15,771	16,110
Science, Mathematics and Computing	7,164	8,727	Natural Sciences, Mathematics And Statistics	5,473	5,213	5,697
			Information and Communication Technologies (ICT)	4,096	4,080	4,218
Engineering, Manufacturing and Construction	7,273	6,978	Engineering, Manufacturing and Construction	6,877	6,718	6,864
Agriculture and Veterinary	958	1,046	Agriculture, Forestry, Fisheries and Veterinary	1,051	1,057	1,131
Health and Welfare	9,865	10,744	Health and Welfare	11,109	11,180	12,366
Services	2,926	3,232	Services	3,147	3,320	3,391
Combined	1,437					
Total	**60,646**	**64,725**	**Total**	**66,955**	**64,283**	**69,633**

Source: HEA Statistics. Note: ISCED discipline categories changed and it is not possible to match categorisations from 2012 to 2015 precisely. The 'Combined' category has been removed from 2013 onwards in favour of more precise categorisation.

11 OECD, 2017. *Education at a Glance 2017* <http://dx.doi.org/10.1787/eag-2017-en>.

The National Competitiveness Council (NCC) benchmarking report, *Ireland's Competitiveness Scorecard 2017*[12] reported that Ireland continues to have the highest level of maths, science and computing graduates aged 20-29 per 1,000 of the population in the EU. 'As a percentage of total undergraduates, Irish higher education and further education institutes provide more Science & Maths and ICT graduates than the EU28 average. However, the number of engineering graduates Ireland produced is significantly below the EU28 average' – as illustrated in figure 1.4.

At 33.6 per 1,000 of the population aged 20-29, the proportion of male graduates in mathematics, science and technology (MST) in Ireland was the highest in the EU. By contrast, at 10 per 1,000, the figure for female graduates in MST is below the EU28 average of 12.3 per 1,000 (CSO figures, 2014[13]). From these figures it is clear that a significant gender imbalance remains, and Ireland needs to attract more women to STEM education and careers.

The falling number of engineering programme participants and graduates is also an issue that needs to be addressed.

Figure 1.4 STEM graduates (% of total bachelor graduates), 2015
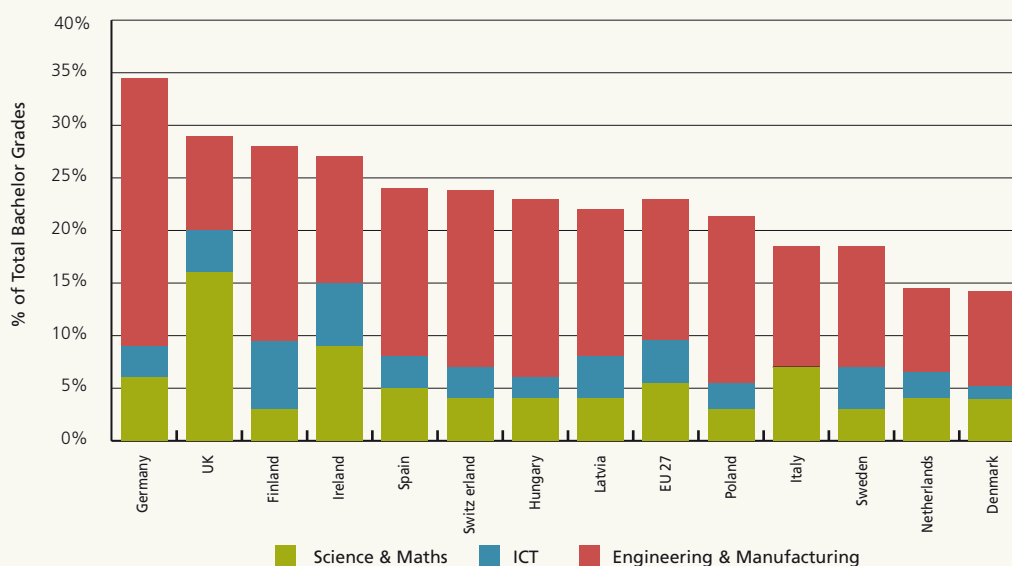
Source: National Competitiveness Council (NCC), Ireland's Competitiveness Scorecard 2017.
<https://dbei.gov.ie/en/Publications/Publication-files/Irelands-Competitiveness-Scorecard-2017.pdf>.

In the same report, the NCC, noted that 'at all levels, average educational attainment in Ireland has improved in recent years. There is a significant inverse correlation in Ireland between educational attainment and age; while a lower proportion of 45-54 and 55-64-year olds have attained tertiary education than the OECD average, a greater proportion of the remaining cohorts have a third-level qualification than is the case in the OECD'.

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12 National Competitiveness Council (NCC), *Ireland's Competitiveness Scorecard 2017*.
    <https://dbei.gov.ie/en/Publications/Publication-files/Irelands-Competitiveness-Scorecard-2017.pdf>.
13 Central Statistics Office (CSO). Measuring Ireland's Progress 2014: Education.
    <http://www.cso.ie/en/releasesandpublications/ep/p-mip/mip2014/education/ed/>.

Graduate employment outcomes

Eurostat data[14] from 2016 on the employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year) shows 79.5 per cent in employment, ahead of the EU average of 78.2 per cent. At 78.5 per cent in 2016, Ireland's graduate employment rate is up 5.5 per cent from 73 per cent in 2013 (2013 EU average was 75.4 per cent).

Data on the unemployment rate (per cent) in Ireland by highest level of education, from the Central Statistics Office (CSO) Quarterly National Household Survey (QNHS) of 2016[15] shows that those with highest levels of educational attainment are most likely to be in employment. As at quarter 3, 2016, the unemployment rate was 6.3 per cent for those with a third-level non-honours degree and 4.3 per cent for those with a third-level honours degree or above. By comparison, the workforce average unemployment rate was 8.9 per cent at that time. The trend data (see figure 1.5) also shows that those with higher qualifications were consistently more likely to be employed and there was a faster fall in their unemployment rate over the three years from 2014 to 2016.

Figure 1.5   Unemployment rate (per cent) in Ireland by highest level of education, 2016
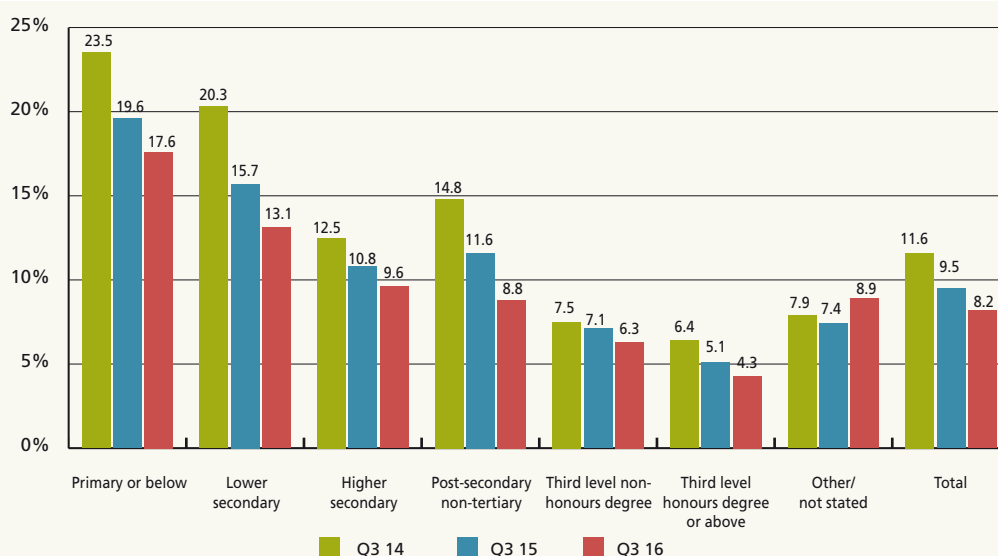
Source: Central Statistics Office (CSO), Quarterly National Household Survey (QNHS). <www.cso.ie/en/qnhs/>.

The American Chamber of Commerce Ireland (AMCHAM) has noted the value of the skills base here in its annual business report 'US-Ireland Business 2017'[16] stating that 'given American business' demand for skilled labour in the US and globally, Ireland's young, well-educated and English speaking talent pool remains a key competitive edge for US firms based in the country' and that 'Ireland is well placed to remain the critical link not only between the United States and Europe but also the United States and the world'.

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14 European Commission, 2017. *Education and Training Monitor 2017*.
    <https://ec.europa.eu/education/sites/education/files/monitor2017_en.pdf>.
15 CSO Quarterly National Household Survey, *Detailed Employment Series Quarter 1 2010 – Quarter 1 2016*.
    <http://www.cso.ie/en/qnhs/releasesandpublications/qnhspostcensusofpopulation2011/>.
16 American Chamber of Commerce Ireland, 2017. *US–Ireland Business 2017*.
    <www.amcham.ie/getattachment/News/News-Room/Publications/US-Ireland-Business-2017/US-Ireland-Business-2017.pdf.aspx?ext=.pdf>.

This positive view of Ireland as a location that offers a pool of skills and talent is reflected in the recently published IMD World Talent Ranking 2017[17]. The report saw Ireland move up three places from its 2016 placing, to number 14 on the IMD (International Institute for Management Development) list of the 63 most talent-competitive economies included in the survey. The World Talent Ranking is based on countries' performance in three main categories – investment and development, appeal and readiness. Within these categories, countries are assessed on how they perform in a wide range of areas, including education, apprenticeships, workplace training, language skills, cost of living, quality of life, remuneration and tax rates.

Figure 1.6 IMD world talent ranking, 2017, top 21 performers

RANK	COUNTRY	1 YEAR +/-	SCORE
1	Switzerland	–	100
2	Denmark	–	89.36
3	Belgium	–	83.80
4	Austria	+1	83.63
5	Finland	+1	83.18
6	Netherlands	+2	82.86
7	Norway	–	82.41
8	Germany	+2	79.87
9	Sweden	-5	79.04
10	Luxembourg	+1	78.46
11	Canada	+1	77.99
12	Hong Kong SAR	-3	77.90
13	Singapore	+2	75.63
14	Ireland	+3	75.46
15	New Zealand	-1	75.40
16	USA	-3	74.52
17	Cyprus	–	74.47
18	Iceland	–	74.07
19	Australia	-3	71.09
20	Israel	-1	69.58
21	United Kingdom	-1	68.85

Source: IMD World Talent Ranking 2017

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17 International Institute for Management Development, 2017. *IMD World Talent Ranking 2017*.
    <www.imd.org/wcc/world-competitiveness-center-rankings/talent-rankings-2017/>.

Worldwide, however, the shortage of skills remains a matter for concern, particularly in relation to skills in highly sought-after STEM areas. AMCHAM's annual business report (2017) notes this challenge in the Irish context and indicates the importance of 'ensuring that Ireland continues to create, attract and retain world class talent is the top priority'. The new 'emphasis companies now place on learning and development' will require ever closer links between higher education and industry if Ireland is to continue to produce graduates with appropriate skills, including the ability to react to the requirements of a rapidly changing workplace.

The Irish Business and Employers Confederation (Ibec) echoed this challenge in its June 2017 briefing for the Minister for Education and Skills[18], in which it stated that 'Ireland has fallen behind in the EU league table for education spending, yet has the EU's fastest-growing population. It is imperative that we prepare young people for life beyond the classroom while ensuring that a sustainable funding model is in place to underpin a world class further and higher education system'.

The Ibec briefing commented on the need for entrepreneurial and business skills including critical thinking, intelligent risk-taking and collaboration as well as language skills to support Irish and Irish-based enterprises trading internationally. Among a number of specific recommendations, Ibec called for 'employer engagement (to be a) key metric in higher education performance compacts'.

Availability and calibre of graduates

A report by Amárach Research (commissioned by MERC partners) also found that there were concerns among the senior executive community about the availability of skilled labour in Ireland. The report, *Executive Expectations 2017*[19], noted that 'one of the consequences of the speed of the recovery is that there are immediate and pressing demands for resources across the economy'. The report asked executives to rate the concerns they saw facing their industry on a scale of 1 to 10. Alongside issues on taxation (regarded as important by 69 per cent of respondents) and housing shortages (regarded as important by 75 per cent of respondents), the executives surveyed had concerns on:

- The availability of skilled labour, a concern which remained consistently high year-on-year, with 70 per cent of respondents regarding it as an important issue; and

- Reduced levels of funding to Irish universities, regarded as important by 61 per cent of respondents.

In a detailed survey of concerns around higher education the MERC report found:

- 77 per cent believed that the reduction in state funding to the Irish third-level sector was 'important' or 'somewhat important';

- 50 per cent agree the calibre of graduates had declined over the past decade, with 42 per cent disagreeing;

- 50 per cent agree that graduates coming from the third-level sector are well equipped for work compared to 48 per cent who disagree; and

- 32 per cent think the level of third-level participation is too high in Ireland, and 62 per cent disagree.

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18 Irish Business and Employers Confederation (Ibec), 2017. *Brief for Minister for Education and Skills – Business priorities and solutions.*
    <http://agenda.ibec.ie/106rya75t2x?a=2&p=52103475&t=28687519>.
19 MERC Partners, 2017. *Executive Expectations 2017.*
    <www.merc.ie/project/merc-partners-annual-leadership-survey-executive-expectations-2017/>.

In closing, the report notes 'that (while opinions are split) a substantial minority are dissatisfied with graduates and their ability to face into the world of work' and that this 'should serve as a call to action for government in general and the sector in particular'. While the sample size was relatively small (275 senior executives completed the survey), respondents were drawn from a variety of different business types and sectors. The sample also included many organisations of scale with an international presence (67 per cent).

Matching labour market needs

While no country can produce graduates to meet the exact needs of every employer (given variances such as student choices, time to graduation and a rapidly changing world of work), the outcomes expressed to Amárach by the senior executive community are a concern that the HEA will need to address with the higher education institutions.

The Springboard programme was established under the Irish Government's 2011 Jobs Initiative to address then increasing figures on the live register. Springboard seeks to help people remain close to the labour market by providing education, training and upskilling in high demand areas. In doing so Springboard seeks to improve the skills profile of the labour force and to enhance collaboration between the enterprise sectors and higher education providers.

Figure 1.7 Springboard+ programme inputs, 2011-2017

| **1,557** courses | **53** providers | **47,000** funded places | **88%** average participation rate | **€167m** investment |

2011 ━━━━━━ **INPUTS** ━━━━━━ 2017

PARTICIPANT PROFILE

SPRINGBOARD COURSES

31%   69%

ICT CONVERSION COURSES

27%   73%

WHERE THEY COME FROM

8% Border
7% West
13% Mid East
7% Mid West
44% Dublin
10% South West
8% South East
5% Midlands

AGE GROUP

30+ (73%)
40-65 (36%)

81% of participants have a level 6-10 award prior to commencing the course.

Source: HEA, 2017. Springboard+ programme data, 2011-17. <https://springboardcourses.ie/>.

Figure 1.8 Springboard+ programme outcomes, 2011-2015

OUTCOMES

2011/12   **2014/15**

EMPLOYMENT RATES BY INITIATIVE 3-6 MONTHS AFTER GRADUATION

76%	**53%**	**19%**	**28%**	**73%**
Reported Outcomes	In employment	Further Study	Looking for Work	ICT Skills Conversion Employment
10,381	5,459	2,009	2,913	

SPRINGBOARD EMPLOYMENT HAS RISEN YEAR-ON-YEAR

Outcomes were reported for 76% of the graduates. Employment rates vary between Springboard and the Level 8 ICT Skills Conversion courses with higher levels reported for ICT Skills Conversion courses.

37% 2011   **61%** 2014

SPRINGBOARD+ EMPLOYMENT

80%*
of Springboard+ participants (2011-2015) are **NO LONGER ON THE LIVE REGISTER**
*As of 16th July 2016

EMPLOYMENT RATES BY SKILLS SECTOR 3-6 MONTHS AFTER GRADUATION

Construction/ Green Economy	ICT	Manufacturing/ Biopharmachem
39%	**53%**	**55%**

Financial Services	Management/ Business/ Entrepreneurship	Other Skills Areas
45%	**54%**	**46%**

Source: HEA, 2016. Developing Talent, Changing Lives. An Evaluation of Springboard+, 2011-16.
<https://springboardcourses.ie/pdfs/An-Evaluation-of-Springboard+-2011-16.pdf>.

Responses to employment and skills challenges have highlighted the integral role that apprenticeship and skills schemes play as part of the higher education system. Such programmes demonstrate higher education's ability to offer flexible responses which are complementary to all other provision. They offer a different mode of delivery as well as a diversification of entry routes, and in that way meet the needs of industry and the students who participate in the programmes. Existing skills schemes such as Springboard+ provide an opportunity to reskill for those who wish to transition to new career opportunities and an opportunity to upskill for those in current employment. The continued future development of apprenticeship and skills programmes in partnership with industry and business will be an essential driver of sustainable economic development.

The establishment of the Apprenticeship Council and the launch of a national call for proposals for new occupational apprenticeship programmes in January 2015 has seen strong support from the higher education sector and significant enterprise interest. A total of 86 apprenticeship proposals were received in response to the first call from both further and higher education consortia. Following assessment of proposals, in July 2015 the Minister for Education and Skills announced the development of an initial 25 new apprenticeship programmes.

Work has been continuing over the past 18 months to develop these new apprenticeship proposals to add to existing 'craft' apprenticeships. Diverse models of on-job and-off job training are applied, as well as different models of delivery, and different groups are targeted (including those already in employment). Apprenticeship development and roll-out is overseen by industry-led groups (consortia) working with education and training providers and with other partners.

New apprenticeships:

- Are industry led;

- Have a minimum duration of two years;

- Include learning that alternates between a workplace and an educational or training institute;

- Have a minimum of 50% on-the-job training;

- Are part of the formal education and training system;

- Ensure that apprentices are employed and paid under a contract of apprenticeship; and

- Offer substantial in depth and duration – with a view to preparing apprentices to work autonomously and competently in a specific occupation.

Five new apprenticeship programmes, delivered by higher education consortia, have been launched since 2016:

- Level 8 BA (Hons) in Insurance Practice (Institute of Technology Sligo in partnership with Institute of Insurance Ireland);

- Level 7 B Eng in Industrial Electrical Engineering (Limerick Institute of Technology in partnership with Limerick for Engineering);

- Level 7 BSc in Polymer Process Technology (Athlone Institute of Technology in partnership with Ibec – Plastics Ireland);

- Level 6 and 7 Manufacturing Engineering (Galway–Mayo Institute of Technology, Limerick Institute of Technology and Cork Institute of Technology in partnership with Ibec – IMDA); and

- Level 6 International Financial Services and Level 8 Financial Services Analytics programme (National College of Ireland in partnership with Ibec – FSI).

There are also several other higher education apprenticeship programmes in active development. A second call for proposals for new apprenticeships was launched on 4 May 2017 with a deadline for submissions of 1 September 2017. A total of 77 proposals were received from both further and higher education consortia. Following assessment of all the proposals, 26 were recommended for approval by the Apprenticeship Council. The Minister for Education and Skills announced the development these additional occupational apprenticeship programmes on 8 December 2017. Of the 26 new programmes, 18 will be developed by consortia that have a higher education institution as the lead provider.

System Objective 1 – Meeting Ireland's Human Capital Needs: *case studies*

CASE STUDY 1: CORK INSTITUTE OF TECHNOLOGY, *EXTENDED CAMPUS INITIATIVE*

CIT's approach to engagement is to offer a coherent continuum to its external enterprise partners. It offers a seamless, joined-up approach to engaging with enterprise, which allows the institute to 'upsell' from one offering to the next. To facilitate this, a research group was established at CIT – the Enterprise, Engagement and Experiential Learning Research Group (E3L). This group has many participants who meet on a regular basis to share good practice and thought leadership in this space.

CIT plays a leading role in the South West Regional Skills Forum (SWRSF). The Institute actively participates on the Steering Committee and the Education and Training Providers group and has appointed a full-time Regional Skills Forum Manager on behalf of the Forum. CIT's 'extended campus' initiative, described above, allows the SWRSF to access relevant Heads of School and Department and the associated sector-focused subgroups, i.e. manufacturing and biopharma.

CIT reports that feedback from organisations who engage regularly with enterprise, such as the IDA, Enterprise Ireland and others, indicate that the institute offers an excellent interface between higher education and enterprise, particularly so in the context of the SME sector.

CASE STUDY 2: DUNDALK INSTITUTE OF TECHNOLOGY, *EMBEDDING ENTREPRENEURIAL LEARNING OUTCOMES*

Dundalk Institute of Technology's Strategic Plan 2011-2016 sets out its mission and vision to produce highly skilled and creative graduates, with the 'entrepreneurial flair' necessary for employability. In pursuit of this goal, the institute has embedded entrepreneurial learning outcomes across all its programmes.

With this aim in mind, the leadership of the institute has set the direction and 'cultural' expectations in a number of key ways:

■   The institute's Strategic Plan 2011-2016 identified entrepreneurship as a core strategic theme that underpinned the institute's work;

■   Each year a President's Award for 'The Most Enterprising Student of the Year' is made to the student who has been most involved in enterprise activities across the institute;

■   Regular and varied student enterprise competitions have been developed and promoted and implemented across the institute; and

■   Recognising the need to systematise the desired change in mind-sets and entrepreneurial behaviours, in 2012/2013 the institute started a formal programme of embedding the desired behaviours and approaches within the academic programmes, with oversight by the Academic Council.

Two case studies recognise DkIT's success in this regard.

(1)   The OECD HEI Country Review Ireland 2016 cites the institute as a best practice exemplar for embedding entrepreneurship education, and entrepreneurial mind-set and behaviour among staff and students. This case study considered DkIT's approach to knowledge exchange, business supports and the development of programmes with an entrepreneurship focus, but additionally the institute's approach to the development of desirable graduate attributes such as creativity, critical thinking and teamwork.

(2)   The HEInnovate case study – *Dundalk Institute of Technology: HEI – Organisational Capacity: Funding, People and Incentives Case Study* explores how the institute's organisational culture and behaviour can impact on the overall organisational capacity to be entrepreneurial. The whole of institute approach to embedding entrepreneurship is set out in Figure 1.9.

Figure 1.9 Dundalk IT's entrepreneurial ecosystem
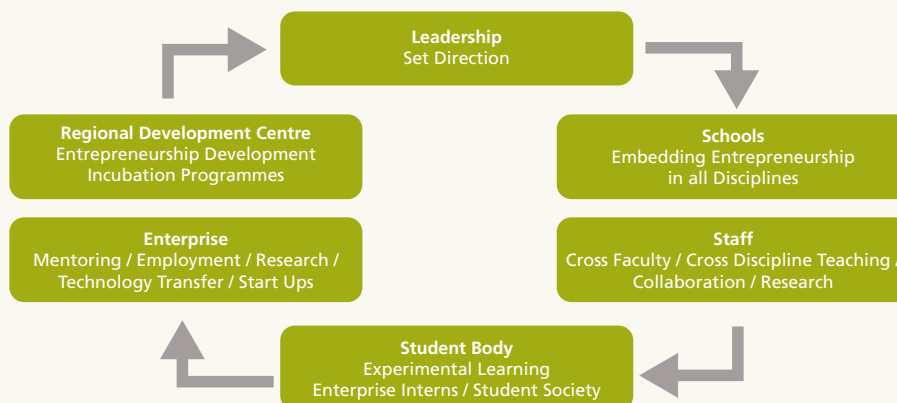
System Objective 1 – Meeting Ireland's Human Capital Needs: *issues arising*

- Ireland has a strong skills base and is moving towards a National Reform Plan EU2020 target of 60 per cent third-level attainment rate for 30-34-year olds by 2020 (currently 52.9 per cent, 2017 data).

- There is strong demand for Science, Technology, Engineering and Math (STEM) based education and skills development. Ireland leads Europe in this regard, but a significant gender imbalance remains, and Ireland will need to attract more women to STEM education and careers.

- Ireland's number of engineering graduates is significantly below the EU28 average.

- In recent years Ireland's public expenditure on education as a percentage of GDP fell back from 4.8 to 4.3 percent (EU equivalent 5.0 to 4.9 percent).

- There is a significant inverse correlation in Ireland between educational attainment and age as the younger cohort of the population has been afforded greater educational opportunities. A lower proportion of 45-54 and 55-64-year olds has attained third-level education than the OECD average, while a greater proportion of the remaining cohorts has a third-level qualification than is the case in the OECD. Upskilling and reskilling will be important if a significant proportion of the population is to be afforded an opportunity to reach its full potential in an increasingly skills-based economy.

- Employer satisfaction with graduates is divided, as evidenced by the Amárach/MERC survey. Often it is not as positive as it should be and, alongside calls for specific skills, employers have also commented on generic skills or work readiness requirements, as described in previous system reports. This issue will need to be resourced and addressed.

- While HEA/HEI compacts have shown many institutions working hard to develop graduate attributes, which are similar to employability statements, more is needed by HEIs and employers to support graduates to be both active citizens and members of the work force.

- Business has recommended that employer engagement should be key metric in higher education performance compacts.

System Objective 2

Equity of Access and Student Pathways

To promote access for disadvantaged groups and to put in place coherent pathways from second level education, from further education and other non-traditional entry routes.

Policy context: Equity of Access and Student Pathways

The indicators relating to System Objective 2 of the Higher Education System Performance Framework deal with three broad areas:

- Diversity of entrants to higher education

- Progression rates achieved by specific target groups

- Type of enrolment.

The System Framework set out a key system objective for 2014-16 requiring higher education 'to promote access for disadvantaged groups and to put in place coherent pathways from second level education, from further education and other non-traditional entry routes'.

New entrants from under-represented groups

The number of mature new entrants decreased to 9 per cent of all new entrants in 2016/17. The number of mature student enrolments has decreased steadily between the academic years 2011/12 to 2015/16, with a large decrease between the 2015/16 and 2016/17 academic years (614 fewer mature new entrants).

The percentage of new entrants with a disability increased from 8 per cent to 10 per cent of all new entrants in 2016/17. Entrants from socio-economic groups that have low participation in higher education also remained static at 26 per cent of the overall student population. This share suggests that participation by students with a disability and those from targeted socio-economic groups is increasing in line with overall student numbers, at circa 2.3 per cent year on year.

Figure 2.1 HEA data, new entrants (under-represented groups), 2011-2017

NEW ENTRANTS (UNDER-REPRESENTED GROUPS)	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17
New entrants	41,142	41,771	41,529	42,393	43,460	43,569
Mature entrants	5,615	5,524	5,356	5,085	4,752	4,138
Mature as % of new entrants	*14%*	*13%*	*13%*	*12%*	*11%*	*9%*
Disability new entrants	2,166	2,561	2,658	3,655	3,343	4,417
Disability as % of new Entrants	*5%*	*6%*	*6%*	*9%*	*8%*	*10%*
Socio-economically disadvantaged new entrants	8,241	9,150	10,530	10,667	11,362	11,318
SEG as % of new entrants	*20%*	*22%*	*25%*	*25%*	*26%*	*26%*

Source: HEA Statistics <http://hea.ie/statistics/>.

The number of part-time new entrants increased rapidly between 2014/15 and 2015/16, up 7.8 per cent year-on-year, but fell back again in 2016/17. As evidenced above, mature students continue to make up the majority share of all part-time numbers. The number of mature part-time new entrants increased in real terms over the same period and, as a proportion of part-time new entrants, the number peaked in 2012/13 and 2014/15, but has continued to fall since then.

Figure 2.2 HEA data, part-time new entrants, 2011-2016

NEW ENTRANTS (UNDER-REPRESENTED GROUPS)	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17
All part-time new entrants	3,586	3,616	3,724	3,782	4,078	3,930
Mature part-time new entrants	3,072	3,210	3,094	3,339	3,520	3,372
Mature part-time as *percentage* of *all* part-time *new* entrants	86%	89%	83%	89%	87%	86%

Source: HEA Statistics <http://hea.ie/statistics/>.

Returning to the attainment rate data discussed above in the chapter on System Objective 1, the OECD's *Education at a Glance* (2017)[20] recorded Ireland as having one of the highest third-level education attainment rates in the 25-34 age range in the OECD (52 per cent) but that the attainment rate for the 55-64 age range is much lower (27 per cent). This attainment gap suggests a need for more, rather than less, participation by mature students, if that cohort is to continue to participate in an ever more skills-based workforce.

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20 OECD (2017), Population with tertiary education (indicator). doi: 10.1787/0b8f90e9-en (Accessed on 9 November 2017) <https://data.oecd.org/eduatt/population-with-tertiary-education.htm>.

The European Commission's Education and Training Monitor country report for Ireland[21] reflects this concern, noting that 'the major reforms of the further education and training and higher education sectors are progressing. Access to higher education remains closely linked to socio-economic status and there is a need for alternative, more vocationally oriented pathways. Future funding of tertiary education is also a key issue'. The same report also noted that rates of adult (age 25-64) participation in learning in Ireland trail the EU average and are currently heading in the wrong direction.

Figure 2.3: Adult participation in learning (age 25-64) Ireland v EU, 2013-2016

ADULT PARTICIPATION IN LEARNING (AGE 25-64)	2013/14	2016/17
Ireland	7.6%	6.4%
EU Average	10.7%	10.8%

Source: European Commission, Education and Training Monitor 2017: Ireland.
<https://ec.europa.eu//education/sites/education/files/monitor2017-ie_en.pdf>.

The recent fall in mature student numbers has in part been attributed to an improving economy and increasing employment opportunities. However, the higher education system will need to develop an ever more flexible approach to higher education and Ireland will need to communicate better the need to upskill, and the opportunities afforded by educational participation, if it is to engage mature and non-traditional learners and continue to meet their needs.

An additional €4m funding for re-instatement of maintenance grants for post-graduate courses announced in Budget 2017 and has been implemented for the 2017/18 academic year.

The Expert Group on Future Skills Needs (EGFSN) noted this ongoing national challenge in its report *Lifelong Learning Participation Among Adults in Ireland*,[22] stating that 'Ireland's lifelong learning rate, at just over 7 per cent, is less than half the benchmark set by the EU under its Education and Training Framework (ET 2020), which aims to have 15 per cent of adults aged 25-64 engaging in lifelong learning by 2020'.

A five-year *National Plan for Equity of Access to Higher Education 2015-2019*[23] was published by the HEA in December 2015. The plan was developed by the HEA in conjunction with the Department of Education and Skills (DES) and followed wide consultation with stakeholders. This is the third National Access Plan, the first plan was published in 2004 and followed the report of the Action Group on Access (DES, 2001). A steering committee dedicated to the implementation of the plan has been established and is chaired by the Department of Education and Skills. To date, two subcommittees have been formed: a Working Group on Initial Teacher Education (chaired by DES) and a Working Group on Student Success (chaired by the HEA). A budget of €450m is now invested in student support/access measures. This includes an additional €8.5m per annum secured in Budget 2017 to support the delivery of the National Access Plan.

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21 European Commission, *Education and Training Monitor 2017: Ireland*.
    https://ec.europa.eu//education/sites/education/files/monitor2017-ie_en.pdf>.

22 Expert Group on Future Skills Needs (EGFSN), *Lifelong Learning Participation Among Adults in Ireland, Quarter 4 2015*, July 2016.
    <www.skillsireland.ie/Publications/2016/Lifelong%20Learning%20Participation%20Among%20Adults%20in%20Ireland,%20Quarter%204%20 2015.html>.

23 HEA, 2015, *National Plan for Equity of Access to Higher Education, 2015-2019*
    <http://hea.ie/policy/national-access-plan/national-access-plan-2015-2019/>.

Specific target groups

For the five-year duration of the National Access Plan, the HEA and the DES are committed to increasing participation in higher education by groups who have been under-represented up to now.

The groups targeted are:

■   Entrants from socio-economic groups that have low participation in higher education;

■   First time, mature student entrants;

■   Students with disabilities;

■   Part-time/flexible learners;

■   Further education award holders; and

■   Irish Travellers.

The National Access Plan sets numerical targets to increase participation by specific categories of students. The vision of the National Access Plan is: 'to ensure that the student body entering, participating in and completing higher education at all levels reflects the diversity and social mix of Ireland's population'.

Figure 2.4 National Plan targets for participation by people with disabilities, 2015-2019

Participation in higher education by people with disabilities

— Number of students* with physical disability   — Number of students* who are deaf/hard of hearing   — Number of students* who are blind/have a vision impairment
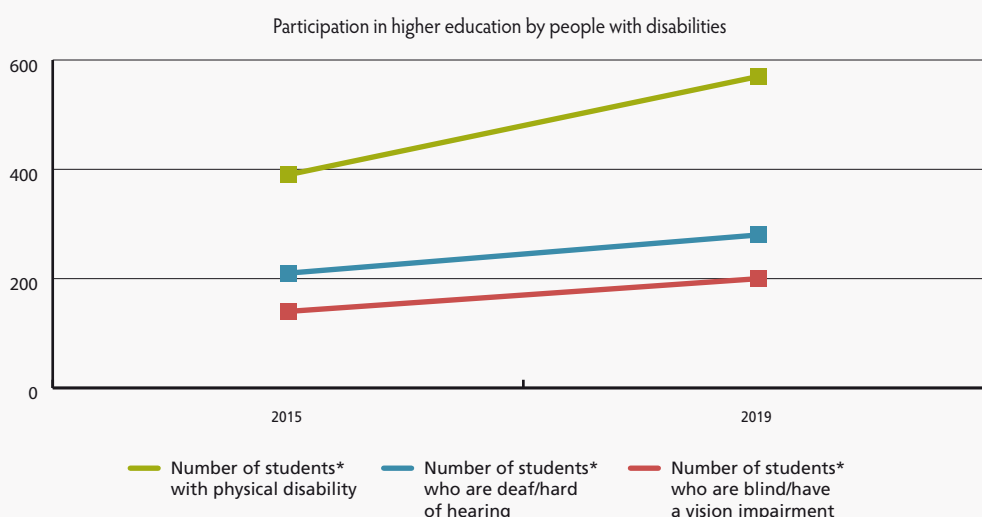
*All full-time students in receipt of the Fund for Students with Disabilities
Source: HEA, 2015, National Plan for Equity of Access to Higher Education, 2015-2019

The *Report of the Review of the Student Assistance Fund* (SAF)[24] was published in September 2016 as one of the first actions to be delivered under the National Plan. The main finding of the review was to affirm that SAF continues to be highly valued as a source of support for students. The review also identified several challenges that the HEA, working with the Department of Education and Skills and higher education institutions, should work to address to ensure that the fund is more effective and targeted in supporting as many students as possible, particularly those who are in the greatest need of support. Work on implementing the recommendations is ongoing. In 2017 the SAF has been extended to support part-time students, lone parents or other access target groups, and €1m was added to the Fund.

A review of the Fund for Students with Disabilities (FSD), recommended under the National Plan, commenced in mid-2016. The consultation process for the review has included site visits, staff and student surveys, one-to-one interviews with stakeholders, consultation with disability advocacy groups and a workshop in October 2016 which was well attended by representatives of the further and higher education sectors. The report, conducted by RSM UK, was published in October 2017.[25] A HEA implementation group will be established to progress the recommendations of the review.

The HEA has allocated €18.5m to SAF and FSD funding 2016/17, supporting the participation of almost 28,000 students in that year.

Figure 2.5 Priority goals of the *National Plan for Equity of Access 2015-2019*

PRIORITY GOALS OF THE NATIONAL PLAN FOR EQUITY OF ACCESS 2015-2019	
Goal 1	To mainstream the delivery of equity of access in HEIs
Goal 2	To assess the impact of current initiatives to support equity of access to higher education
Goal 3	To gather accurate data and evidence on access and participation and to base policy on what that data tells us
Goal 4	To build coherent pathways from further education and to foster other entry routes to higher education
Goal 5	To develop regional and community partnership strategies for increasing access to higher education with a particular focus on mentoring

Source: HEA, 2015. National Plan for Equity of Access to Higher Education 2015-2019

One of the main goals of the National Plan is to develop data collection and analysis on access. Actions being progressed as part of this goal include the development of an access data strategy. Work is progressing on the development of this strategy with a focus on developing a model to analyse geographic patterns of access to higher education.

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24 HEA, 2016, *Review of the Student Assistance Fund*
   <http://hea.ie/assets/uploads/2017/06/Review-of-the-Student-Assistance-Fund.pdf>.
25 HEA, 2017. *Review of the Fund for Students with Disabilities.*
   <http://hea.ie/assets/uploads/2017/10/HEA-Review-of-the-Fund-for-Students-with-Disabilities.pdf>.

Programme for Access to Higher Education (PATH)

Following the launch of the National Plan, the DES established the Programme for Access to Higher Education (PATH) fund. This fund is managed by the HEA on behalf of the DES and is allocated on a competitive basis to higher education institutions.

In 2016 the HEA issued a call for proposals under the PATH 1: Access to Initial Teacher Education (ITE). The outcome of PATH 1 was announced by the Minister in April 2017 and €2.4m will be allocated over the next three years to support initiatives by Centres of Teaching Excellence to increase access to ITE and diversity in the teaching profession. Two additional strands of the PATH fund were announced in August 2017: the 1916 Bursary Fund (PATH 2) and the Higher Education Access Fund (PATH 3).

Through PATH 2 a total of €6m will be invested over the next three years in bursaries for 600 students from target groups. Each bursary will be worth €5,000 per year and may be held in addition to a SUSI grant.

PATH 3 is intended to support regional clusters of higher education institutions in attracting 2,000 additional students (full or part-time) from under-represented groups to higher education and to ensure those students are supported to complete their studies. At least 10 per cent of places will be targeted at lone parents. Over the next three years, €7.5m will be allocated through the PATH 3 fund.

A HEA working group is advising the development of policy supporting student retention and success. This work is being supported by the National Forum for Teaching and Learning. A HEA analysis of student progression data was published in March 2017. Beyond the non-traditional access target groups, there are concerns on student non-progression rates. While Ireland is not unusual in that regard, the economic, social and individual costs are significant. This is an issue that this report will return to later in the chapter on System Objective 3.

System Objective 2 – Equity of Access and Student Pathways: *case studies*

CASE STUDY 3: DUBLIN INSTITUTE OF TECHNOLOGY, *ACCESS TO APPRENTICESHIP*
DIT has a long tradition of addressing disadvantage and diversity in higher education. The institute has fully supported, participated in and resourced the HEAR and DARE initiatives for the sector and supports the mainstreaming of student applications within the CAO system, in order to make it easier for students to access programmes. As part of its diversity agenda, DIT developed the Access to Apprenticeship initiative in partnership with JP Morgan and the ESB. DIT has a long and successful track record in providing access programmes at undergraduate level and is also the leading provider of apprenticeship education in Ireland. The Access to Apprenticeship programme, a pilot of which began in September 2017, is an opportunity to combine these strengths.

CASE STUDY 4: INSTITUTE OF TECHNOLOGY BLANCHARDSTOWN, *ENERGY TRAINING FOR CONSTRUCTION WORKERS FOR LOW ENERGY BUILDING*

The QualiBuild Project, funded by European Commission's BUILD UP Skills Initiative, was set up in 2013 as part of wider efforts to create employment in the construction sector and to assist Ireland in achieving the EU2020 energy efficiency target. As the residential and commercial/public sectors account for approximately 40 per cent of energy consumption in Ireland, improving energy efficiency and renewable energy uptake in these sectors is key to meeting the sustainable energy targets. People working in or entering the construction sector require new knowledge, skills and competences to achieve the standards introduced by the new building regulations and to understand the principles of quality low energy building. The project encourages all Irish building construction workers to undergo training and up-skilling to enable the twin goals of an upskilled workforce and to allow Ireland to reach its national objective to reduce its total energy consumption by 20 per cent by 2020.

System Objective 2 – Equity of Access and Student Pathways: *issues arising*

- The number of mature entrants to higher education dropped by 2 per cent to 10 per cent in 2016/17, falling almost 13 per cent year-on-year. This concern is compounded by the inverse correlation in Ireland between educational attainment and age, as discussed above in the chapter on System Objective 1.

- The percentage population of students with a disability and those from socio-economic groups that have low participation in higher education is increasing in line with overall student numbers, but significant disparities and barriers to access remain.

- Part-time provision and flexible approaches are the exception not the norm in Ireland.

- There is a need for alternative, more vocationally oriented pathways into and through further and higher education.

- There is a need to pay attention to the issue of non-progression and non-completion in higher education, particularly for those from under-represented target groups.

System Objective 3

Excellence in Teaching and Learning
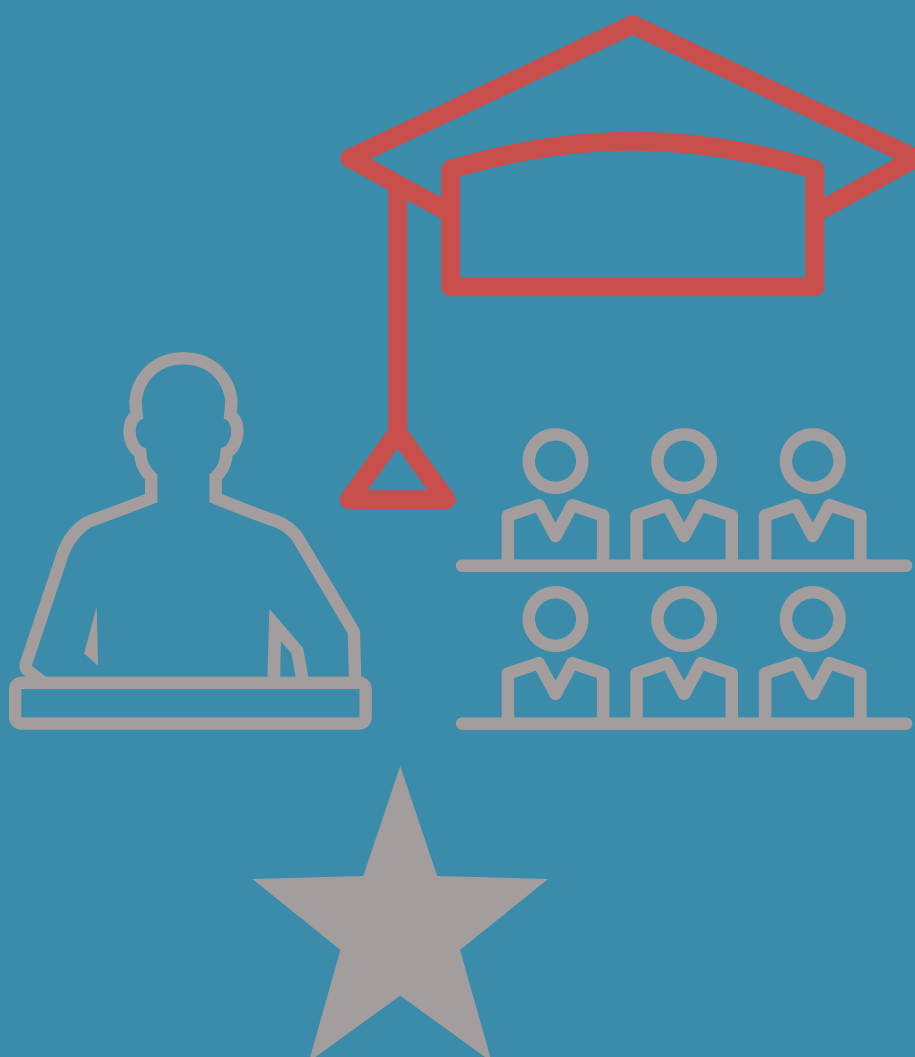
To promote excellence in teaching, learning and assessment to underpin a high-quality student experience.

Policy context: Excellence in Teaching and Learning

The indicators relating to System Objective 3 of the Higher Education System Performance Framework deal with four broad areas:

- Student experience and outcomes
- Non-progression
- Transitions to higher education
- Quality enhancement initiatives.

The System Framework set out a key system objective for 2014-16 requiring higher education 'to promote excellence in teaching and learning to underpin a high-quality student experience'.

The student experience

The Irish Survey of Student Engagement (ISSE) aims to capture information about students' experiences of higher education in Ireland and to make this available to institutions so that it could inform their actions in relation to teaching and learning. The Survey is managed as a collaborative partnership, and is co-sponsored by the HEA, the institutions' representative bodies (the Irish Universities Association (IUA), and the Technological Higher Education Association (THEA)) and the Union of Students in Ireland (USI).

The Survey for taught students (first year and final year undergraduate, and taught postgraduate) opens during February–March each year for a three-week period that is specific to each institution. Almost 60,000 students participated in the original survey from 2013 to 2015. A revised and shortened survey was introduced in 2016 and more than 65,000 students have responded to this survey to date. Details and results are shared widely as they are analysed and interpreted within institutions.

Key objectives of the Survey include:

- To increase transparency in relation to the student experience in higher education institutions;
- To enable direct student input on levels of engagement and satisfaction with their higher education institution;
- To identify good practice that enhances the student experience;
- To assist institutions in identifying issues and challenges affecting the student experience;
- To serve as a guide for continual enhancement of institutions' teaching and learning and student engagement;
- To document the experiences of the student population, so enabling year on year comparisons of key performance indicators;
- To provide insight into student opinion on important issues of higher education policy and practice; and
- To facilitate comparison with other higher education systems internationally.
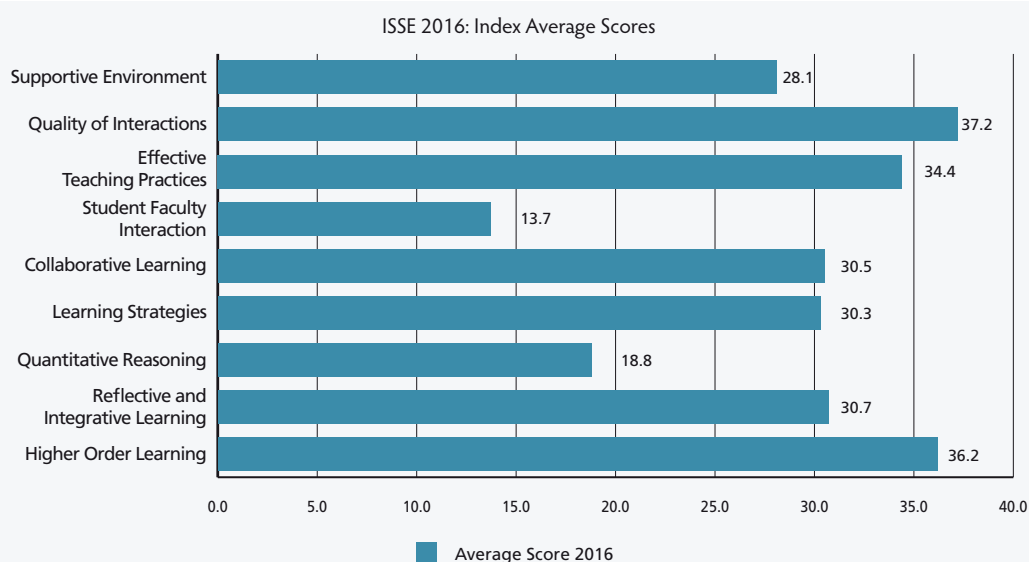
More than 29,000 participants responded to a wide-ranging set of questions intended to probe interaction between students and their higher education institutions in 2016.[26] For example, the survey sought to explore the extent to which students' experience teaching practices that contribute to promoting comprehension and learning. In this area, students were generally satisfied with their experience – 26 per cent of respondents felt that academic staff clearly explained course goals and requirements 'very much' with a further 43 per cent responding 'quite a bit'.

Figure 3.1 Irish Survey of Student Engagement (ISSE) snapshot of outcomes, 2016

IRISH SURVEY OF STUDENT ENGAGEMENT (ISSE) OUTCOMES 2016	
69 per cent of students report that teaching staff clearly explain course goals and requirements either 'quite a bit' or 'very much'.	**73 per cent** of students report that teaching staff use examples or illustrations to explain difficult points either 'quite a bit' or 'very much'.
45 per cent of students report that teaching staff provide feedback on work in progress either 'quite a bit' or 'very much'.	**75 per cent** report that they have developed critical and analytical thinking skills either 'quite a bit' or 'very much'.
68 per cent report that they have developed skills to work effectively with others, either 'quite a bit' or 'very much'.	**56 per cent** of students report that they have developed clear and effective writing skills from their experience at the institution either 'quite a bit' or 'very much'.

Source: ISSE Results from 2016

Figure 3.2 Irish Survey of Student Engagement (ISSE) – index scores (averages)

ISSE 2016: Index Average Scores

Index	Average Score 2016
Supportive Environment	28.1
Quality of Interactions	37.2
Effective Teaching Practices	34.4
Student Faculty Interaction	13.7
Collaborative Learning	30.5
Learning Strategies	30.3
Quantitative Reasoning	18.8
Reflective and Integrative Learning	30.7
Higher Order Learning	36.2

■ Average Score 2016

Source: ISSE Results from 2016.

26 HEA, 2016, *The Irish Survey of Student Engagement (ISSE) ISSE Results from 2016*
   <http://studentsurvey.ie/wp-content/uploads/2016/11/ISSE-Report-2016-final.pdf>.

Irish Survey of Student Engagement (ISSE) findings show that in most cases over half of students are positively disposed towards their teaching and learning experience in Irish higher education. However, there are areas of concern too. For example, feedback on work in progress is not always provided and a significant number of students are not happy that they have developed clear and effective writing skills.

Improving student participation in decision-making

One way to address such concerns is to have students more involved in decision-making processes related to their higher education. The National Student Engagement Programme[27] was established by the HEA, Quality and Qualifications Ireland (QQI) and USI in 2016 to improve student participation in decision-making in their institutions. The programme, referred to as NStEP, began with a twelve-month pilot involving five institutions undertaking two pieces of work, a student training programme and an analysis of institutional practices.

The objective of the NStEP programme is to:

- Develop student capabilities to engage in quality assurance and quality enhancement with higher education institutions;

- Support institutions in facilitating meaningful engagement with students;

- Strengthen the value of student engagement;

- Develop and implement tools and resources to build effective engagement practice; and

- Systematically improve student engagement across all higher education institutions.

There are two key strands of work involved in the national programme:

- **A National Student Training Programme**: Working with pilot institutions to develop the materials, processes and supports required to deliver a common student representative training programme that will inform the implementation of a comprehensive student training programme at a national level; and

- **Developing Institutional Capacity:** Working with pilot institutions to help them assess their current student engagement activities and to identify areas where practice might be enhanced or improved.

In April 2016, the HEA published the report of the Working Group on Student Engagement in Irish Higher Education.[28] The Working Group was established by the HEA in 2014 to develop a set of principles to assist higher education institutions in enhancing student engagement. The Working Group's report recommended that all higher education institutions complete a co-led (staff and student) evaluation of formal and informal student engagement practices and opportunities at every level.

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27 USI website, National Student Engagement Programme (NStEP). <http://usi.ie/nstep/>.

28 HEA, 2016. *Enhancing Student Engagement in Decision-making: Report of the Working Group on Student Engagement in Irish Higher Education*. <http://www.iua.ie/wp-content/uploads/2016/04/HEA-IRC-Student-Engagement-Report-Apr2016.pdf>.

Following this report, the National Student Engagement Programme (which provides training for class representatives) was developed and delivered by the NStEP Working Group. The Working Group is comprised of representatives from the HEA, QQI, USI (Chair), CIT, CITSU, LYIT, LYITSU, NCI, NCISU, NUIG, NUIGSU, WIT, WITSU, ISSE, the National Forum for the Enhancement of Teaching and Learning and the Student Partnerships in Quality Scotland agency (SPARQS). Training, targeted at first time class representatives, was delivered across 23 Irish higher education institutions in late 2017.

Enhancing the quality of the learning experience

In 2016, the HEA continued to fund and oversee the National Forum for the Enhancement of Teaching and Learning in Higher Education, which was established by the Minister for Education and Skills in November 2012. The role of the Forum is to enhance the quality of the learning experience for all students at third-level, be they full-time, part-time or flexible learners. Regular meetings are held between the HEA Executive and the National Forum, and the Chairperson and Director of the National Forum also gave a presentation to the HEA. The National Forum brings together all of those involved in shaping third-level teaching and learning in Ireland to support and develop excellent practices already under way in many universities, institutes of technology and private colleges.

Engaging with leaders, managers, teachers and students across all higher education institutions in Ireland, the National Forum seeks to mobilise expertise and inputs from across the entire sector to shape good practice. An independent review of the National Forum commissioned by the HEA and carried out in 2017 found that the National Forum had made significant contributions to the enhancement of teaching and learning in Irish higher education, and that it should be established on a sustainable basis. The HEA is currently engaging with key stakeholders to implement the review recommendations.

Progression rates

As set out above in the chapter on System Objective 1, student numbers in Ireland continue to grow. The trend in progression rates from first year into second year is also improving. In 2017 the HEA published its fifth report on progression in Irish higher education,[29] which provided an analysis of a full-time first year undergraduate cohort of 40,142 new entrants from 1 March 2014 to 1 March 2015 in their enrolled institutions. For example, the report found that the proportion of new entrants in 2013/14 who did not progress is 15 per cent across all sectors and NFQ levels. This compares to 16 per cent in 2012/13.

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29 HEA, 2017. *A Study of Progression in Irish Higher Education, 2013/14 to 2014/15*.
<http://hea.ie/2017/04/26/hea-study-highlights-85-progression-rate-to-second-year/>.

Figure 3.3 Non-progression rates by sector and NFQ level, 2013/14 v 2012/13

SECTOR	LEVEL (% OF NEW ENTRANTS IN IOTS IN 2013/14)	% NON-PROGRESSED (2013/14)	% NON-PROGRESSED (2012/13)
Institutes of technology	Level 6 (13%)	26%	26%
	Level 7 (39%)	27%	28%
	Level 8 (48%)	16%	17%
	All Levels	21%	23%
Universities	Level 8*	11%	11%
Colleges	Level 8	6%	6%
All institutions	Level 8	12%	12%
	All levels	**15%**	**16%**

Source: HEA, 2017. A Study of Progression in Irish Higher Education, 2013/14 to 2014/15.

* There were 30,529 new entrants at level 8 across all sectors in 2013/14. Of these, 65% are in the university sector (n=19,864), 29% in the institute of technology sector (n=8,795) and 6% in the college sector (n=1,870).

The overall new entrant non-progression rate was 15 per cent in 2007/08, moved up to 16 per cent from 2010/11 to 2012/13, and back down to 15 per cent in 2013/14. The rate of non-progression at Level 6 in the institute of technology sector rose from 25 per cent in 2007/08 to 30 per cent in 2010/11 and 2011/12, and then fell back to 26 per cent in 2012/13 and 2013/14. In the colleges sector (Level 8), the non-progression rate increased from 4 per cent in 2011/12 to 6 per cent in 2012/13 and remains the same in 2013/14.

While overall progression is therefore good in that the majority of new entrants (85 per cent) progress to the following academic year, there remain 6,203 students who do not progress in their institutions. Analysis in the report suggests a link between prior educational attainment on entry and successful progression after the first year of study. There are also particular concerns around socio-economic groups and some key skills areas such as construction, computer science and engineering.

Ireland's 85 per cent progression rate compares satisfactorily to international rates. This is testament to the resilience of a sector which has accommodated rising student-numbers while staff numbers and budgets have been cut substantially. However, while almost 34,000 students do make the transition from first to second year, the fact remains that about 6,200 students do not.

Below average progression rates are observed in the fields of Construction and Related, Services, Computer Science and Engineering. While Services and Computer Science have the lowest rates of progression at Level 8, there is considerable variation between sectors (universities and institutes of technology) as well as between institutions within sectors. Improvements have been seen in Computer Science since last year's analysis across all sectors at Level 8, with non-progression rates falling by 4 per cent to 16 per cent, with a more pronounced fall in the institutes of technology (by 6 per cent to 20 per cent) than in the universities (by 3 per cent to 12 per cent). Medicine has the lowest non-progression rate at 3 per cent.

Figure 3.4 **Non-progression rates by field of study 2012/13 vs 2013/14**
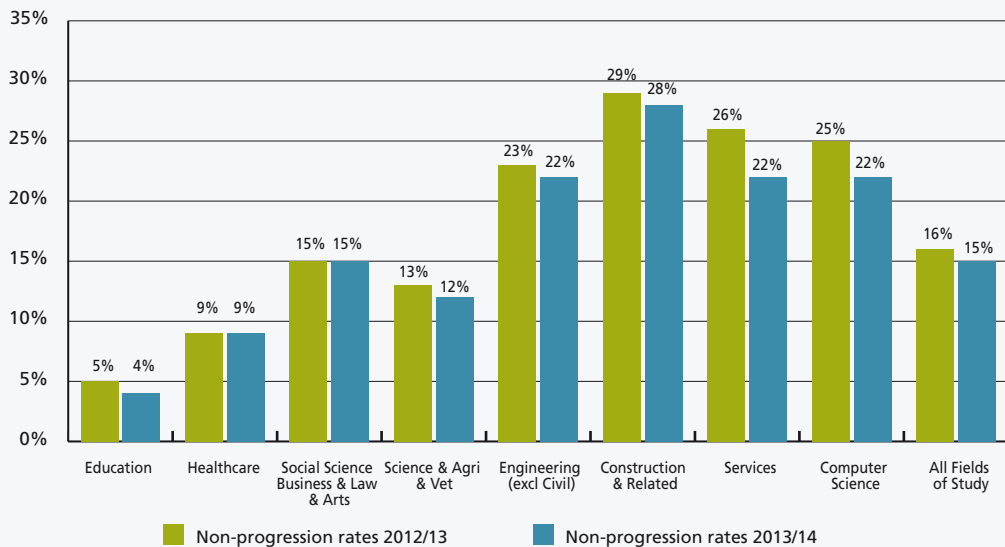
Source: HEA, 2017. A Study of Progression in Irish Higher Education, 2013/14 to 2014/15.

Factors affecting progression

The HEA study confirms that there is a significant relationship between prior educational attainment (based on CAO points) and progression rates. While the overall non-progression rate is 15 per cent, this falls to 7 per cent for students who obtained between 555 and 600 points. Further analysis has shown that although students attending institutes of technology are less likely to progress, compared to university students – once prior educational attainment is factored in, the difference diminishes substantially.

There is a price to be paid for significantly widening participation in that non-completion is almost certain to rise as students with less educational capital enter higher education. There are measures that can be taken to counter this, but these cannot eliminate it entirely. Ireland is not different from the rest of the world in this respect; but given our national attainment targets, institutions will need to do all they can to assist students to better transition into and progress through higher education.

Supporting better transition

Recent policy developments have been formulated to address such concerns. In line with the Government's agenda to support a better transition from second level to higher education, the report *Supporting a Better Transition from Second to Higher Education* (2015)[30] outlined a proposal for a new progressive points system that aims to reward students for taking higher level papers and to reduce the risk of random selection becoming a feature of college entry. This coincides with the Transitions Initiative of higher education institutions that moves towards broader entry routes and ensures that students don't have to decide too early what specialism might suit them later in life.

Figure 3.5 CAO Offerings at Level 8, 2012-2017

CAO Offerings At Level 8

2012	2013	2014	2015	2016	2017
982	1,022	1,036	1,035	1,023	964

Source: CAO website <http://cao.ie>. Note: excludes RCSI numbers).

The Transitions Initiative is a commitment to significantly reduce the number of Level 8 honours bachelor degree programmes in the universities so that these become broader and less specialised; and to ensure a more mixed portfolio of Level 8 programmes with both denominated and generic entry in the institutes of technology. A review of CAO handbooks shows that the number of Level 8 courses has dropped from a high of 1,036 in 2014/15 to 964 in for the 2017/18 academic year.

Other specific quality enhancement initiatives intended to improve the student experience and improve retention include the National Forum for Teaching and Learning Teaching Expert Awards.[31] The awards recognise expert teachers who are models for excellence in teaching and whose knowledge about learning impact is strong and evidence based. There were sixteen winners, eleven individuals and five teams. All awards were made with reference to internationally acknowledged best practice.

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30 Department of Education and Skills, 2015. *Supporting a Better Transition from Second to Higher Education.* <http://transition.ie/files/Supporting%20a%20Better%20Transition%20from%20Second%20Level%20to%20Higher%20Education%20-%20Implementation%20and%20Next%20Steps_April%202015.pdf>.

31 National Forum for Teaching and Learning website.
<http://www.teachingandlearning.ie/priority-themes/learning-impact-awards/teaching-expert-awards-2015/>.

System Objective 3 – Excellence in Teaching and Learning: *case studies*

CASE STUDY 5: MAYNOOTH UNIVERSITY, *CURRICULUM CHANGE, CRITICAL SKILLS AND FEEDBACK IN FIRST YEAR*

A large-scale revision of the undergraduate curriculum was rolled out, commencing in 2016. The main changes are (1) the introduction of critical skills for first year students, (2) greater flexibility in the range and balance of subjects that can be taken, (3) a greater range of progression and specialisation options, and (4) opportunities to study areas outside the discipline as elective options. This model seems to have been attractive to students as Maynooth University can report an increase in applications to the BA degree.

A new subject 'Critical Skills' was introduced as an option for first year students. It was piloted in 2015-16 and then made available to students in most programmes from 2016. The aim was to focus on developing key graduate attributes such as clear analysis, critique and written and verbal communication. Of necessity, it is taught in small groups, but it is also intended to provide an initial peer group for students who might otherwise be in large classes. In 2016, approximately 750 first year students took this option. Analysis in the coming year will examine whether taking this programme is associated with better performance in other subjects.

From 2015-2017, Maynooth University led the Y1Feedback teaching and learning enhancement initiative in collaboration with regional cluster partners. The aim was to enhance feedback practice in first year undergraduate programmes by leveraging the potential of digital technologies to better support new student transition into the first year of higher education. Key outputs included (1) a landscape study of feedback practice and experience across partner institutes, (2) a review of international scholarship in relation to technology-enabled feedback, (3) design and development of 24 case studies involving over 30 academic partner teams across 16 disciplines, exploring a range of best practice and innovative approaches to feedback in first year, and (4) hosting a National Symposium on Enhancing Feedback in First Year in January 2017. In the coming year, further work will examine student engagement with feedback and programmatic approaches. Y1Feedback was funded by the National Forum for the Enhancement of Teaching and Learning in Higher Education.

CASE STUDY 6: LETTERKENNY INSTITUTE OF TECHNOLOGY, *STUDENT ENGAGEMENT PILOT*

LYIT is one of five institutions selected to participate in the National Student Engagement Programme 2016 Pilot (NStEP). The initial phase of the NStEP had two aspects:

- Enhancing the capacity of students to engage with higher education issues by focusing on student training; and

- Enhancing the capacity of the institution to facilitate student engagement, by focusing on institutional analysis and evaluation.

With these aims in mind, LYIT established an internal working group co-chaired by the Head of Teaching and Learning and the LYIT SU President. Membership of the working group was drawn from senior managers and administrators with equal numbers of student representatives from across the institution. Three representatives from the internal working group are part of the National Working Group.

The institutional analysis session was attended by ten student class representatives and society leaders and thirty LYIT staff (including President, Registrar, senior managers, academic staff and student services staff). The full day session examined five aspects of student engagement aligned to the *Report of the Working Group on Student Engagement in Higher Education* (HEA, 2016): feedback; teaching and learning; students and institutional strategy; students and programme interaction and communication, feedback and transparency.

Eighty-five LYIT student representatives participated in NStEP class rep training. Student feedback from the session was very positive with over 90 per cent of students reporting that they found the training very valuable, and that it improved their understanding of the class representative role, of the mechanisms for student engagement and of representation within their institution.

Participation in NStEP has provided LYIT with the opportunity to critically analyse student engagement within the institution in a structured way. The NStEP pilot has been extended to 2017 and LYIT will lead one of the agreed work streams.

System Objective 3 – Excellence in Teaching and Learning: *issues arising*

- Irish Survey of Student Engagement (ISSE) findings show that in most cases over half of students are positively disposed towards their teaching and learning experience in Irish higher education, but that a significant number are not.

- The HEA considers that student views, on matters such as staff engagement and provision of ongoing feedback need to be better addressed, given the positive impact appropriate two-way feedback could have on other issues such non-progression and non-completion.

- Students should be more involved in decision-making processes related to their higher education so that there is more information on some of the issues raised in the ISSE and that these can be addressed more effectively. The important work of the National Student Engagement Programme needs to be encouraged, extended and mainstreamed in Irish higher education.

- As noted in above in the chapter on System Objective 1, there are some concerns on the preparedness of graduates for the world of work. Updating and renewing teaching and learning practices, such as through improving employer input is something that could be important in addressing this concern.

- Non-progression and non-completion are issues that need to be addressed by all stakeholders in Irish higher education. This is particularly the case where they relate to students from under-represented target groups.

System Objective 4
Excellent Public Research System

To maintain an open and excellent public research system focused on the Government's priority areas and on the achievement of other societal objectives, and to maximise research collaborations and knowledge exchange between and among public and private sector research actors.

Policy context: Excellent Public Research System

The indicators relating to System Objective 4 of the Higher Education System Performance Framework deal with three broad areas:

- Investment in higher education research and development (HERD)

- Higher education research outputs and performance

- Improving processes to sustain research quality.

The System Framework set out a key system objective for 2014-16 requiring higher education 'to maintain an open and excellent public research system focused on the Government's priority areas and the achievement of other societal objectives and to maximise research collaborations and knowledge exchange between and among public and private sector research actors'.

Measuring R&D in higher education

Expenditures and human resources devoted to research and development (R&D) work in the higher education sector are measured in a biennial survey on research and development in the higher education sector (HERD). The sector includes the universities, institutes of technology, and other institutions that are in receipt of public funding and engaged in research and development activities.

The most recently available HERD report was published by the then Department of Jobs, Enterprise and Innovation in April 2017,[32] and it surveys research and development in the higher education sector for the academic year 2014/15. It shows that total expenditure on research and development in the sector (HERD) was at €730m in 2014, up 10 per cent from 2012 (€664m) and up 48 per cent from 2004 (€492m), but still remained below the 2008 highpoint of €750m.

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32 Department of Jobs, Enterprise and Innovation, 2017. *Survey of R&D in the Higher Education Sector 2014-2015.*
    <https://dbei.gov.ie/en/Publications/Publication-files/Survey-of-R-D-in-the-Higher-Education-Sector-2014-2015.pdf>.

While the recent increases do show considerable progress and performance in recent years, it is important to put these in a wider context. The ambition in Innovation 2020, Ireland's five-year strategy on research and development, science and technology,[33] is for Ireland to move towards being a global innovation leader. In that context there remains a need for continued improvement in research performance. For example, spending on R&D in Ireland as a whole remains below average EU levels, and well below that of innovation leaders. The *Second Progress Report on Innovation 2020*[34] noted that 'in 2015, the R&D intensity rate slipped back from 1.79% in 2014 to 1.62% in 2015. We will need to further increase public funding for R&D if we are to realise our ambitions in Innovation 2020 and meet our 2.5% target.'

Figure 4.1 Higher education research expenditure, 2004-2014

Trend in HERD expenditure, 2004-2014, in current prices. (€millions)

HERD (current prices)
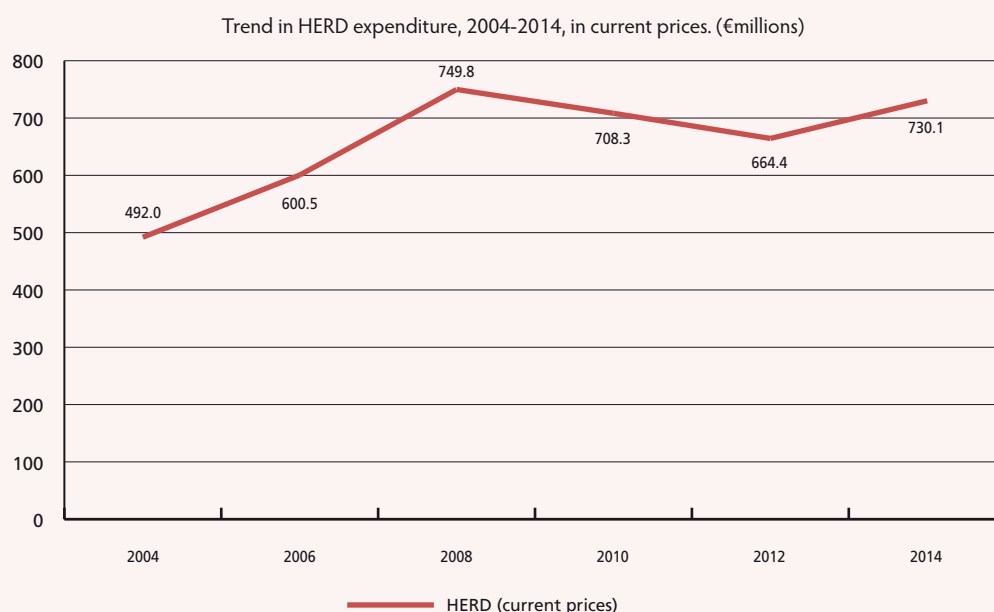
Source: Department of Jobs, Enterprise and Employment, 2015. Survey of Research and Development in the Higher Education Sector 2014-2015. (Total expenditure on research and development in the higher education sector (HERD)) <https://dbei.gov.ie/en/Publications/Publication-files/Survey-of-R-D-in-the-Higher-Education-Sector-2014-2015.pdf>.

Higher education income from non-Exchequer sources has grown in recent years. The HERD report shows EU funding increasing from €73m in 2012 to €87m in 2014 (a 20 per cent increase), and that it has increased threefold since 2004. Funding by Irish and foreign business amounted to €19m and €13m respectively in 2014, cumulatively accounting for 4.4 per cent of total HERD. Private funding increased by €13m since 2012 to €23m in 2014, and other and own funds accounted for €23m in the same year. In Ireland, HERD as a percentage of GNP increased from 0.37 per cent in 2004 to a high of 0.51 per cent in 2010 and declined to 0.45 per cent in 2014. This 2014 figure is on a par with the EU28 average of 0.46 per cent and above the OECD average of 0.43 per cent for that year. However as indicated above, research intensity and industry involvement in projects at all levels can be improved.

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33 Department of Jobs, Enterprise and Innovation, 2015. *Innovation 2020: Ireland's Strategy for Research and Development, Science and Technology.* <https://dbei.gov.ie/en/Publications/Publication-files/Innovation-2020.pdf>.

34 Department of Jobs, Enterprise and Innovation, July 2017. *Innovation 2020, Second Progress Report.* <https://dbei.gov.ie/en/Publications/Publication-files/Innovation-2020-Second-Progress-Report.pdf>.

Figure 4.2 Higher education research expenditure by source of funds (current prices, €million), 2004-2014

HIGHER EDUCATION RESEARCH EXPENDITURE BY SOURCE OF FUND	2004	2006	2008	2010	2012	2014
Direct government	203	265	405	440	364	350
Indirect government	205	248	219	148	174	217
EU public	30	38	46	57	73	87
Irish business	13	11	23	16	13	19
Foreign business	10	5	6	11	9	13
Private/individual funded	–	26	13	12	10	23
Other and own funds	31	6	37	24	22	23
Total	**492**	**600**	**750**	**709**	**665**	**732**

Source: DJEI/HERD data

Knowledge transfer and commercial collaboration

Higher education collaboration with enterprise has improved with a record number of collaborative innovations between industry and higher education institutions in 2015. Knowledge Transfer Ireland's Annual *Review and Annual Knowledge Transfer Survey 2015*[35] reports that 'the total number of research collaboration agreements executed between industry and research performing organisations (RPOs) in 2015 has risen by 16 per cent on the previous year to 748'.

The knowledge transfer data shown in in figure 4.3 demonstrates a growing appetite for higher education collaboration with enterprise, with consequent increases in commercialisation activity. A highlight of 2015 was the delivery of the national IP Protocol[36] designed to make it easier for research performing organisations and business to engage with each other.

Knowledge Transfer Ireland's *Annual Review and Annual Knowledge Transfer Survey 2016* [37] again reported stronger relations: 'this year, 78 per cent of companies that signed collaboration agreements with research performing organisations (RPOs) were based in Ireland and 94 per cent of collaboration agreements signed with the SME sector were with Irish SMEs. More generally, nearly 1,100 different companies have signed agreements with RPOs relating to research related projects and there are over 300 companies for whom this is a repeat engagement over the past three years.

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35 Knowledge Transfer Ireland, 2015. *Annual Report and Annual Knowledge Transfer Survey.*
    <http://www.knowledgetransferireland.com/About_KTI/Reports-Publications/KTI-Annual-Review-and-Annual-Knowledge-Transfer-Survey-2015.pdf>.
36 Knowledge Transfer Ireland, 2016. *The National IP Protocol 2016.*
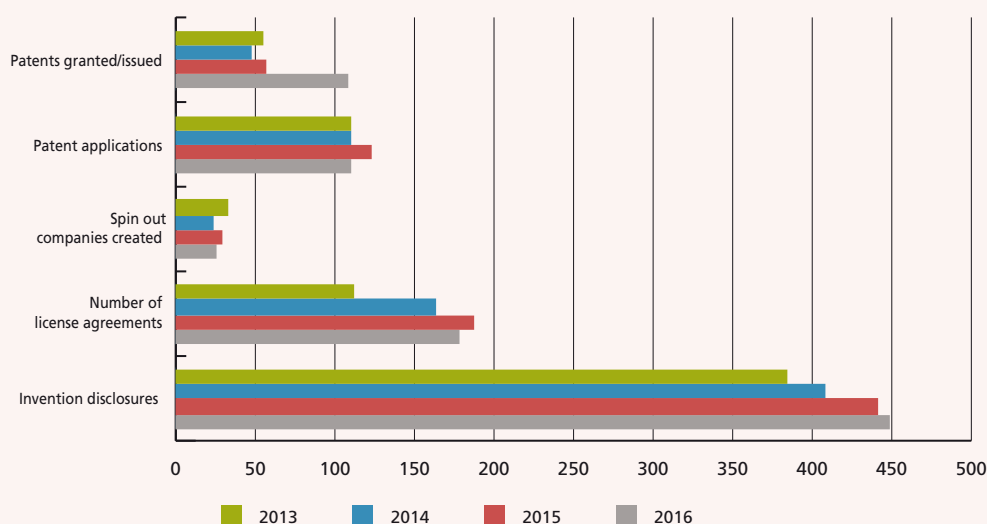   <http://www.knowledgetransferireland.com/ManagingIP/KTI-Protocol-2016.pdf>.
37 Knowledge Transfer Ireland, 2016. *Annual Report and Annual Knowledge Transfer Survey*
    <http://www.knowledgetransferireland.com/About_KTI/Reports-Publications/KTI-Annual-Review-and-Annual-Knowledge-Transfer-Survey-AKTS-2016.pdf>.

The report also suggests that 'activity and output measures are stabilising, with trends suggesting figures of around 460 invention disclosures and 117 priority patent applications per annum. The annual rate of spin-out company formation over the past few years is around 26-30 new companies per year. The number of Licensing, Options and Assignments executed is, on average, approximately 170 per year'.[38]

Figure 4.3 Knowledge transfer: selected metrics, 2013-2016

Source: Knowledge Transfer Selected Metrics, 2013-2016. <http://www.knowledgetransferireland.com/KTI-Reports/>.

In 2016, 26 new products or services were launched on the market by companies as a result of a licence to intellectual property created by research performing organisations.

The number of active spin-out companies that are still active three or more years since their formation continued to grow, and had reached 119 by the end of 2016. By conservative estimates these spin-outs employed over 1,000 people in 2016.

Highlights from Knowledge Transfer Ireland's *Annual Review and Annual Knowledge Transfer Survey 2016* include the following:

- 34 registered technology transfer professionals;

- 1,243 new research collaboration agreements were signed;

- 78 per cent of research collaborations were with Irish companies; and

- 94 per cent of research collaborations with SMEs are with Irish SMEs.

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38 Ibid.

Postgraduate numbers

Postgraduate researcher numbers continued to recover into 2016/17 standing at 9,802 up 5.4 per cent from the low point of 9,279 in 2012/13. Full-time and part-time Doctorate numbers have also recovered significantly from recent lows. Full-time and part-time Research Master's have not recovered to the same extent, and are still lower than in 2010. Part-time Research Master's numbers continue a worrying downward trend.

A recovering economy and increasing graduate employability partially explain the divergence between Master's and Doctorate numbers, as do past reductions in postgraduate student supports. The Doctorate and structured doctoral programmes have become the preferred postgraduate options over the past few years.

These student recruitment challenges aside, skills at all levels are, and will continue to be, in demand nationally and internationally. Ireland will need to improve the flexibility of programme offerings to meet the increasing needs of lifelong learners.

Figure 4.4 Postgraduate researcher numbers, 2007-2017

	2008 /09	2009 /10	2010 /11	2011 /12	2012 /13	2013 /14	2014 /15	2015 /16	2016 /17
Full-time Doctorate	6,330	7,414	7,512	7,677	6,953	6,840	6,800	6,928	6,806
Part-time Doctorate	920	1,227	1,059	1,156	1,210	1,284	1,358	1,440	1,551
Full-time Research Master's	2,206	1,715	1,457	1,193	1,110	1,081	1,145	1,115	1,156
Part-time Research Master's	450	418	370	343	292	301	303	290	289
Total	9,906	10,774	10,398	10,369	9,565	9,506	9,606	9,773	9,802

Source: HEA Statistics <http://hea.ie/statistics/>.

Figure 4.5 Postgraduate researcher graduations, 2010-2016

	INSTITUTE TYPE	GENDER	2011	2012	2013	2014	2015	2016
Master's Research (Postgraduate)	Universities	Male	162	133	163	151	119	150
		Female	133	119	128	135	107	145
	Colleges	Male	13	21	28	17	11	4
		Female	27	40	34	33	17	17
	Institutes of Technology	Male	48	44	37	37	40	50
		Female	39	48	39	35	59	40
Master's Research (Postgraduate) Total			**422**	**405**	**429**	**408**	**353**	**406**
PhD (Postgraduate)	Universities	Male	652	710	785	764	686	692
		Female	636	649	789	794	610	731
	Colleges	Male	22	26	27	28	30	30
		Female	33	51	31	49	35	39
	Institutes of Technology	Male	61	49	64	59	30	39
		Female	43	47	41	55	38	37
PhD (Postgraduate) Total			**1,447**	**1,532**	**1,737**	**1,749**	**1,429**	**1,568**
Grand Total			**1,869**	**1,937**	**2,166**	**2,158**	**1,782**	**1,974**

Source: HEA Statistics <http://hea.ie/statistics/>.

Figure 4.6 Research degree graduations by gender and sector, 2015/16

Research Degree Graduations
in 2016 – by Gender

Research Degree Graduations
2016 – by Sector

- Male
- Female

- Universities
- Institutes of Technology
- Colleges
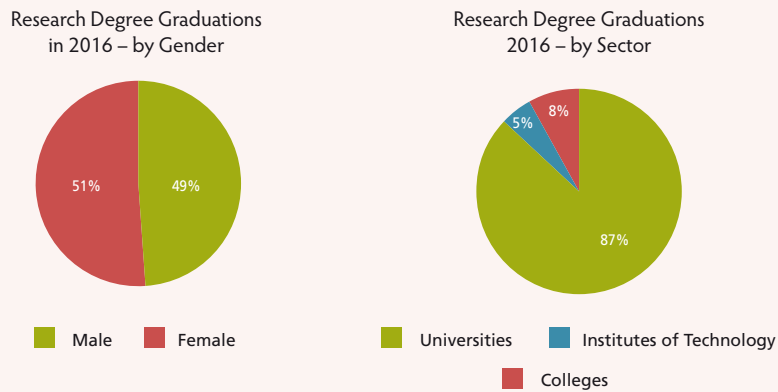
Source: HEA Statistics <http://hea.ie/statistics/>.

Structured doctoral programmes that combine discipline-specific knowledge with the development of transferable skills have become a significant feature of the Irish research landscape. A National Framework for Doctoral Education was launched in 2015 and will in time include a national code of practice for the quality assurance of Irish research degree programmes.

Figure 4.7 Research degree graduations by area of study, 2015/16

Research Degree Graduations in 2014/15 - by Area of Study

- Education
- Arts & Humanities
- Social Sciences, Journalism and Information
- Business, Administration and Law
- Natural Sciences, Mathematics, and Statistics
- Information and Communication Technologies (ICT's)
- Engineering, Manufacturing and Construction
- Agriculture, Forestry, Fisheries and Veterinary
- Health and Welfare
- Services

Source: HEA Statistics <http://hea.ie/statistics/>.

Research prioritisation

Funding for research activity in Ireland has increasingly been concentrated on national priority areas.[39] The objectives of the 2012 research prioritisation exercise were to create research activities of critical mass in areas of importance to Ireland; to efficiently extract value from the national research investment; and to take research to market faster than in other jurisdictions.

Higher education research and development has increasingly contributed to the realisation of these objectives, while at the same time ensuring that there remains broad underpinning expertise across emerging research areas. The then Department of Jobs, Enterprise and Innovation's 2015 *Review of Progress in Implementing Research Prioritisation*[40] stated that 'the Government remains strongly committed to research, development and innovation (RD&I) as it believes that RD&I are key drivers of long-run economic growth. However, with limited resources to invest, Ireland must ensure that all investment decisions are prudent and optimal'. This report found that research prioritisation had 'significantly altered the national research system in a short space of time'.

The HEA understands concerns that not enough research investment is being made in areas that are crucial to national innovation and growth. Several institutions have reported that research activities are cross-subsidised by funding that is primarily designated for teaching resources. While HEA core funding is intended to partially support researchers to engage with industry or to compete and win research funding, the current level of cross-subvention seems unsustainable, particularly in an era of severely constrained higher education resources.

Securing Horizon 2020 funding

Ireland's national target of securing €1.25 billion in EU research funding is equivalent to 1.67 per cent of the total Horizon 2020 budget, and the HEA welcomes the fact that to date Irish researchers have been very successful in accessing funding in this highly competitive international environment. In February 2017, European Commission data[41] confirmed that Irish researchers (both academic and industry) had secured funding to the value of €386.5 million, slightly ahead of the Government's target for that date. Ireland's top programme area in Horizon 2020 to February 2017 was the Marie Skłodowska-Curie Actions (MCSA) for mobility and training of researchers. This area secured €70m in funding, just ahead of the ICT Leadership in Industrial Technologies programme at €62m and the European Research Council programme which secured €49 million. Higher education institution activity accounted for €221 million, or 57 per cent of the total and companies won €126 million, or 33 per cent. SMEs received €78 million of the funding to companies.

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39 Department of Jobs, Enterprise and Innovation, 2012. *Research Prioritisation Steering Group Report*
    <https://www.djei.ie/en/What-We-Do/Innovation-Research-Development/Research-Prioritisation/>.
40 Department of Jobs, Enterprise and Innovation, 2014. *Review of Progress in Implementing Research Prioritisation*.
    <https://www.djei.ie/en/Publications/Publication-files/Review-of-Progress-Research-Prioritisation.pdf>.
41 Horizon 2020 Ireland, March 2017. *Ireland's Horizon 2020 support network in Brussels to discuss and influence next phase of Horizon 2020 and future EU Research and Innovation programme*. <http://www.horizon2020.ie/irelands-horizon-2020-support-network-brussels-discuss-influence-next-phase-horizon-2020-future-eu-research-innovation-programme/>.

By June 2017, Ireland had secured funding of €424 million, representing 1.66 per cent of the total EU budget committed up to that date (€22.7 billion), and by September 2017 the figure had risen to €475 million. Higher education institution activity accounted for the largest proportion of this funding, securing just under €255 million. Industry won just over €160 million, of which €98.6 million was awarded to SMEs. More than 1,100 Irish applications have been successful to date, 536 awards went to higher education researchers and 430 to companies. At 15.3 per cent, the Ireland's applications success rate exceeds the EU member state average of 14.1 per cent.

Underfunding and the resulting cross-subsidisation of research by Ireland's higher education system is a concern, especially in the context of Ireland's continuing success in Horizon 2020, the EU Framework Programme for research and innovation. Horizon 2020 has a total budget of €75 billion over the period 2014-2020. However, under present arrangements, the greater the success of the Irish higher education system in securing research funds – whether from the EU or from elsewhere – the greater the cross subsidisation that will be required and the less that will be available to devote to the education of students.

System Objective 4 – Excellent Public Research System: *case studies*

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CASE STUDY 7: IT TALLAGHT, *3D ASSIST TALLAGHT*

The 3D Assist Tallaght is a voluntary project that was set up in January 2015, with a view to 3D printing of prosthetic limbs (arms and hands) for children who have suffered limb deformation before birth or have lost limbs through accident or illness. The group is part of the worldwide E-Nable organisation.

Since January 2015, the group has manufactured eight prosthetic hands and seventeen prosthetic arms for recipients in Ireland and the UK. The range of activity provided by the 3D Assist Group has developed to include a number of projects with the Central Remedial Clinic to design and manufacture a range of assistive devices – such as modified joysticks for wheelchairs and heated joystick covers for wheelchairs. The group has also recently started to print and develop assistive devices for the visually impaired, including braille devices for visually impaired teachers and students.

The group is comprised of volunteers (staff, students and alumni) and the 3D printers have been donated to the Institute. All products and services are provided free of charge, as projects are supported through fund raising activities by students in IT Tallaght.

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CASE STUDY 8: INSTITUTE OF TECHNOLOGY SLIGO, *INTERREG FUNDING 2017*

IT Sligo has successfully secured INTERREG funding, designed to help overcome the issues that arise from proximity to an international border. As a partner in three major awards IT Sligo has secured funding as follows:

1. An advanced manufacturing research programme specifically for the health and life science sector for the respective eligible regions involved (Northern Ireland, Border Counties, and Western Scotland). The project 'Northwest Centre for Advanced Manufacturing' includes partners such as Northern Ireland Science Park (NISP), University of Ulster (Lead partner), LyIT, and University of Glasgow. The programme will fund a number of PhD and postdoctoral projects that would be specific to the research needs of industry participants including Abbott and GSK in Sligo. The project will fund two to three PhD students and postdoctoral positions, and IT Sligo's share will be in the region of €1.1m over a five-year period.

2. Project CANN (Collaborative Action for the Natura Network). The partnership includes: Scottish Natural Heritage (S), Agri-Food and Biosciences Institute (NI), Ulster Wildlife (NI), Golden Eagle Trust (I), Argyll and the Isles Coast and Countryside Trust (S), Ulster University (NI), Newry, Mourne and Down District Council (NI), Armagh, Banbridge and Craigavon Borough Council (NI), Monaghan County Council (I), East Border Region Ltd (I & NI). The project will deliver direct conservation actions across 3,150 ha of Special Areas of Conservation to contribute to an overall programme output of 4,500 ha of habitats.

3. Renewable Engine. The partnerships include South West College (NI, Lead), IT Sligo, Queens University (NI), Manufacturing NI, Action Renewables (NI), Mid Ulster Council, University of Strathclyde and the project aims to facilitate the creation of a unique cross-border R&I 'supercluster' involving internationally recognised partners in the area of renewable energy and advanced manufacturing technologies and has the potential to create economic impact.

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System Objective 4 – Excellent Public Research System: *issues arising*

- Skills at all levels are, and will continue to be, in demand, nationally and internationally. Ireland will need to improve the flexibility of programme offerings, including industry based Master's and PhD degrees, to meet the increasing needs of the economy and lifelong learners.

- Higher education research and development has increasingly contributed to the realisation of national policy. However, higher education is underfunded. The availability of funding for research projects and for research overheads will need to improve. Resolving these research funding concerns will be critical if higher education institutions are to make a contribution over and above current levels.

- Several institutions have reported that the ongoing cross-subsidisation of research activities by funding required for teaching (because of inadequate overhead resourcing) is placing institutions and research activities at significant risk. While HEA core funding is intended to partially support researchers to engage with industry or to compete and win research funding, the current level of cross-subvention seems unsustainable, particularly in an era of severely constrained higher education resources.

- The original Research Prioritisation exercise committed to maintaining underpinning expertise across emerging enterprise research areas. Higher education institutions are reporting that this is happening less and less, and that limited national investment is being increasingly funnelled into a smaller number of large centres to the detriment of the research base.

- There is an urgent need for greater balance between higher education and the research eco-system and in the coordination of a national approach to research policy.

- Full implementation of the National Doctoral Framework and greater national coordination around graduate education are desirable.

- Higher education institutions are already competing at the highest levels of European research. Researchers will need significant local (HEI) and national (Horizon2020.ie) supports if our ambitious national targets for Horizon 2020 are to be realised.

System Objective 5

Globally Competitive and Internationally Oriented Institutions

To ensure that Ireland's higher education institutions will be globally competitive and internationally oriented, and Ireland will be a world-class centre of international education.

Policy context: Globally Competitive and Internationally Oriented Institutions

The indicators relating to System Objective 5 of the Higher Education System Performance Framework deal with four broad areas:

- Outward mobility of Irish students
- Inward mobility of students from other countries coming to Ireland
- International mobility of staff
- Transnational activities of Irish higher education institutions.

The System Framework set out a key system objective for 2014-16 requiring higher education 'to ensure that Ireland's higher education institutions will be globally competitive and internationally oriented, and Ireland will be a world-class centre of international education'.

Student mobility

Since 1987, over 60,000 higher education students and staff from Ireland have travelled for periods of study and/or work in 32 other European countries under the EU's Erasmus Programme. In addition, the programme has seen more than 100,000 other Europeans come to this country on similar exchanges, generating in the process an additional 500,000 visits from family and friends to Ireland during that period. As the programme celebrates its 30th anniversary, the Erasmus+ National Agency at the HEA plans to raise the total outward-bound number of students and staff for the Erasmus+ period 2014-2020 to 25,000 mobilities.[42]

Data on 2012 mobility from the background report on the European Commission's Mobility Scoreboard[43] shows the proportions of graduates who take their degree in a country other than their country of origin – these are 'degree mobile' graduates. Seventeen countries have degree mobility rates below 5 per cent with the lowest being the United Kingdom (below 0.5 per cent of its students taking a degree in a different education system) followed closely by Poland with 0.9 per cent. Eight countries are between 5 and 10 per cent, with Germany just over (5.1 per cent) and Ireland just under (9.9 per cent).[44] In the academic year 2012/13, 95 per cent of Irish students who have graduated abroad have done so in the United Kingdom.[45]

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42 Higher Education Authority (HEA), 2016, Erasmus+ National Agency. <http://eurireland.ie/2017/05/09/erasmus-30th-anniversary-banners-launched-by-lord-mayor-of-dublin/>.
43 European Commission/EACEA/Eurydice, 2016. *Mobility Scoreboard: Higher Education Background Report.* <https://webgate.ec.europa.eu/fpfis/mwikis/eurydice/index.php/Publications:Mobility_Scoreboard:_Higher_Education_Background_Report>.
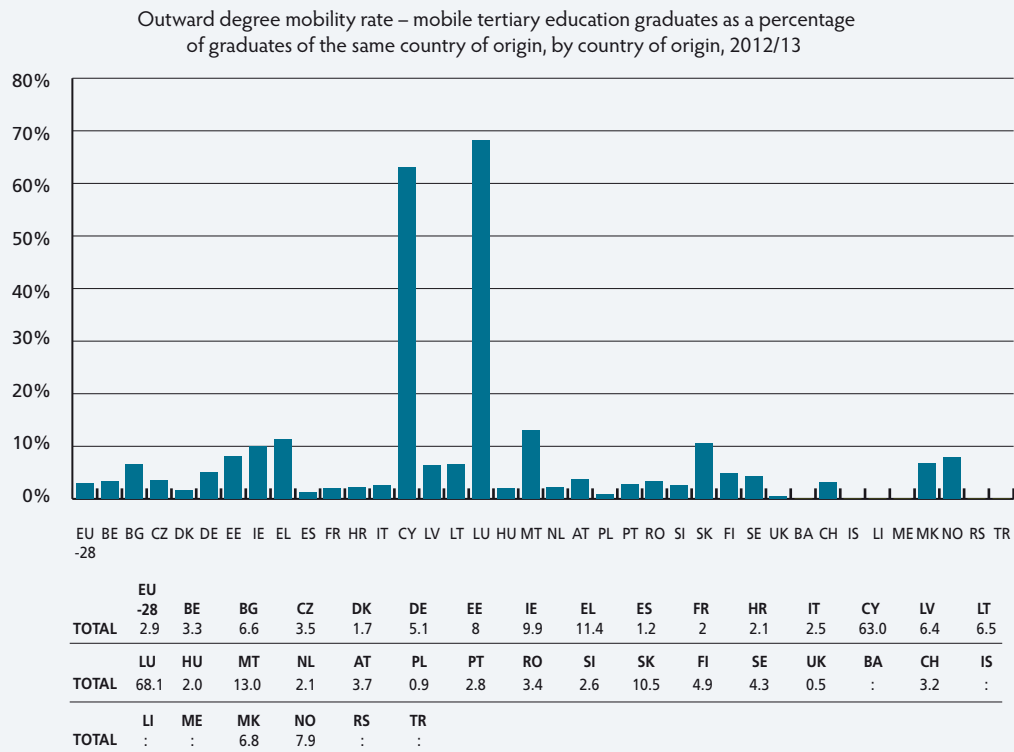44 Ibid.
45 Ibid.

Figure 5.1 Percentage of degree mobile graduates by country of origin, (2012)

Outward degree mobility rate – mobile tertiary education graduates as a percentage
of graduates of the same country of origin, by country of origin, 2012/13

TOTAL	EU -28	BE	BG	CZ	DK	DE	EE	IE	EL	ES	FR	HR	IT	CY	LV	LT
	2.9	3.3	6.6	3.5	1.7	5.1	8	9.9	11.4	1.2	2	2.1	2.5	63.0	6.4	6.5

TOTAL	LU	HU	MT	NL	AT	PL	PT	RO	SI	SK	FI	SE	UK	BA	CH	IS
	68.1	2.0	13.0	2.1	3.7	0.9	2.8	3.4	2.6	10.5	4.9	4.3	0.5	:	3.2	:

TOTAL	LI	ME	MK	NO	RS	TR
	:	:	6.8	7.9	:	:

Source: Flisi, Dinis da Costa and Soto-Calvo (2015), quoted by European Commission, 2016. Mobility Scoreboard

The Mobility Scorecard also notes that 1.5 per cent of students enrolled in Ireland's participated in
the Erasmus programme in 2013/14, just above the EU28 average of 1.3 per cent. As a destination
of choice, Ireland is popular with EU students from the UK, France, Germany, Spain and Italy.

Figure 5.2 Share of students participating in the Erasmus programme based on total enrolments, by country of home institution, 2013/14

Share of students participating in the Erasmus programme based on total enrolments, by country of home institution, 2013/14

	EU -28	BE	BG	CZ	DK	DE	EE	IE	EL	ES	FR	HR	IT	CY	LV	LT
TOTAL	1.3	1.6	0.6	1.8	1.2	1.2	1.7	1.5	0.7	1.9	1.5	0.8	1.4	1.2	2.4	2.3

	LU	HU	MT	NL	AT	PL	PT	RO	SI	SK	FI	SE	UK	BA	CH	IS
TOTAL	6.4	1.2	1.8	1.5	1.4	0.9	1.9	1.0	2.0	:	1.8	0.9	0.7	:	1.0	:

	LI	ME	MK	NO	RS	TR
TOTAL	3.6	:	0.1	0.6	:	.3

Source: Eurydice, based on European Comission 2015b and Eurostat/UOE
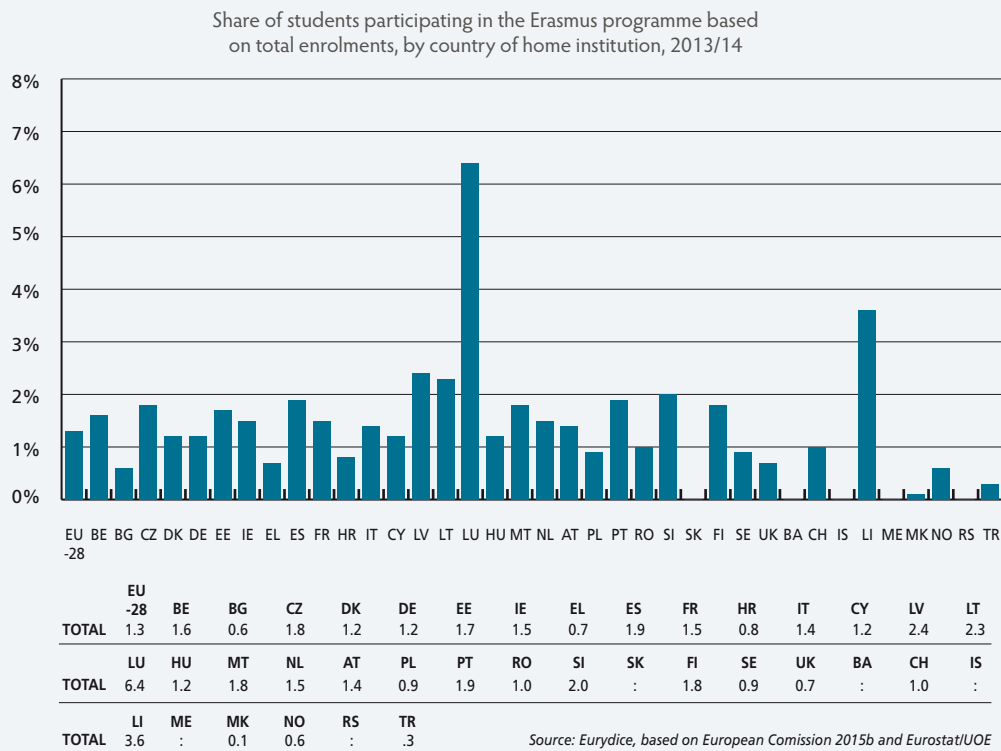
Source: Eurydice, quoted by European Commission, 2016. Mobility Scoreboard

Growth in international student numbers in Ireland

The *International Education Strategy for Ireland, 2016-2020* has set a medium-term target for international students to represent 15 per cent of full-time students over the period.[46] By most recent HEA data (see figure 5.3), international students represent 11.6 per cent of full-time students. Taking all international students into account (see Figure 5.4), the number grows to 32,989 over the International Strategy baseline of 16,686. This represents growth of 50 per cent in international student numbers since the 2010 baseline cited in Ireland's previous International Education strategy, *Investing in Global Relationships 2010-2015*.

Figure 5.3   Full-time international student numbers in Ireland, 2014/15-2016/17

IRELAND – INTERNATIONAL STUDENTS (NUMBER & %)	2014/15	2015/16	2016/17
Total full-time enrolments	**173,286**	**179,354**	**180,610**
Full-time international enrolments	**18,130**	**20,597**	**20,972**
EU enrolments	*3,940*	*4,428*	*4,159*
Non-EU enrolments	*13,754*	*15,598*	*16,213*
Enrolments of unknown origin	*436*	*571*	*600*
Full-time international enrolments as % of total full-time enrolments	**10.5%**	**11.5%**	**11.6%**

Source: HEA statistics. <http://hea.ie/statistics/>.

Figure 5.4   All international enrolments in Ireland, 2014/15-2016/17

IRELAND – INTERNATIONAL STUDENTS (NUMBER & %)	2014/15	2015/16	2016/17
Total full-time enrolments	**173,286**	**179,354**	**180,610**
All international enrolments	**29,817**	**32,329**	**32,989**
Full-time international enrolments	18,130	20,597	20,972
Overseas students*	2,628	2,800	2,657
Erasmus/LLL Programme incoming	7,224	7,679	7,693
Other Exchange Incoming	1,835	1,253	1,667
All international enrolments as % of total full-time enrolments	**17.2%**	**18.0%**	**18.3%**

Source: HEA data, higher education enrolments, full time international students (2016/17) <http://hea.ie/statistics>

* Overseas students here refers to students registered at an Irish HEI campus located outside of Ireland.

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46 Department of Education and Skills, 2016. *Irish educated, globally connected, an international education strategy for Ireland* 2016-2020 <www.education.ie/en/Publications/Policy-Reports/International-Education-Strategy-For-Ireland-2016-2020.pdf>.

Figure 5.5 International student enrolments as a percentage of all enrolments, 2015

	TOTAL TERTIARY EDUCATION	SHORT-CYCLE TERTIARY PROGRAMMES	BACHELOR'S OR EQUIVALENT LEVEL	MASTER'S OR EQUIVALENT LEVEL	DOCTORATE OR EQUIVALENT LEVEL	NUMBER OF INTERNATIONAL OR FOREIGN STUDENTS
Australia	15.5%	6.6%	13.3%	42.6%	33.8%	294,438
Austria	15.9%	1.1%	18.4%	19.0%	27.0%	67,691
Belgium	11.2%	2.4%	8.6%	17.7%	42.3%	56,453
Canada	6.4%	2.6%	4.8%	11.9%	24.4%	171,603
Chile	0.3%	0.3%	0.2%	1.3%	8.4%	3,810
Denmark	10.3%	14.1%	5.6%	18.0%	32.1%	32,264
Estonia	5.2%	–	3.9%	7.1%	10.7%	2,859
Finland	7.7%	–	5.2%	12.3%	19.9%	23,142
France	9.9%	4.7%	7.3%	13.3%	40.1%	239,409
Germany	7.7%	0.0%	4.7%	12.9%	9.1%	228,756
Hungary	7.1%	0.5%	5.0%	14.1%	7.2%	21,707
Iceland	8.0%	25.4%	6.0%	9.3%	31.6%	1,507
Ireland	7.4%	1.9%	6.0%	13.2%	25.4%	15,815
Japan	3.4%	4.0%	2.4%	6.8%	18.2%	131,980
Latvia	6.1%	1.9%	5.1%	12.7%	8.8%	5,255
Luxembourg	45.9%	10.4%	25.5%	71.1%	87.0%	3,163
Mexico	0.3%	0.0%	0.2%	0.7%	2.6%	9,994
Netherlands	11.2%	0.0%	8.7%	15.1%	36.2%	86,189
New Zealand	21.1%	32.3%	16.0%	24.3%	46.2%	57,091
Norway	3.6%	0.7%	2.0%	6.6%	20.5%	9,530
Poland	2.6%	0.0%	2.4%	3.3%	1.9%	43,988
Portugal	5.0%	3.0%	2.9%	6.1%	21.2%	16,888
Slovenia	2.7%	0.9%	2.3%	4.1%	8.5%	2,354
Spain	2.7%	5.0%	0.8%	7.1%		75,347
Sweden	6.2%	0.2%	2.4%	9.9%	34.0%	26,672
Switzerland	17.2%	0.0%	9.8%	28.5%	54.3%	50,591

	TOTAL TERTIARY EDUCATION	SHORT-CYCLE TERTIARY PROGRAMMES	BACHELOR'S OR EQUIVALENT LEVEL	MASTER'S OR EQUIVALENT LEVEL	DOCTORATE OR EQUIVALENT LEVEL	NUMBER OF INTERNATIONAL OR FOREIGN STUDENTS
United Kingdom	18.5%	5.2%	14.0%	36.9%	42.9%	430,833
United States	4.6%	2.2%	3.8%	9.5%	37.8%	907,251
OECD total	5.6	2.5	4.3	11.5	25.7	3,296,496
EU22 total	8.4	4.6	6.2	12.4	21.7	1,521,795

Source: OECD, 2017. Education at a glance 2017: OECD indicator C4, distribution of foreign students in tertiary education, by country of destination (2015) <http://dx.doi.org/10.1787/eag-2017-26-en>.

Ireland's population of international and foreign students enrolled as a percentage of all students (international plus domestic) had grown to 7.4 per cent as compared to an OECD total of 5.6 per cent or an EU22 average of 8.4 per cent (as shown in figure 5.5). The OECD data also shows Ireland in the top ten for international student number growth, and showing an 11 per cent increase between 2013 and 2014.

The countries with the greatest number of international students in Ireland are the United States, China, Saudi Arabia, Malaysia, Canada, and the UK.

Figure 5.6 Ireland – Whole time equivalent international enrolments at HEA funded institutions by domiciliary of origin, top 23 countries, 2016/17

2016/17 WTE INTERNATIONAL ENROLMENTS (TOP 23, 100+)	FULL-TIME	PART-TIME	WHOLE-TIME EQUIVALENT
United States	4,696	149	4,771
China	2,153	59	2,183
Saudi Arabia	1,396	15	1,404
Malaysia	1,380	11	1,386
Canada	1,356	38	1,375
Great Britain	1,168	251	1,294
India	1,218	70	1,253
France	705	76	743
Germany	607	50	632
Oman	464	4	466
Italy	410	30	425
Singapore	419	5	422
Kuwait	421		421
Spain	252	34	269
Nigeria	243	26	256
Poland	168	32	184
Brazil	149	12	155
United Arab Emirates	144	9	149
Pakistan	133	23	145
Netherlands	103	46	126
Belgium	114	16	122
Australia	99	12	105
Japan	101	3	103

Source: HEA statistics (2016/17). Note that the data for Great Britain does not include students from Northern Ireland for statistical purposes as they may, or may not, hold an Irish passport. <http://hea.ie/statistics/>.

This international student number growth demonstrates that Ireland is progressing towards its international education strategy targets and fulfilling the ambitions set out in the *National Strategy*.[47] However, this rapid expansion also comes with some risk. In the strategic dialogue process the HEA has cautioned higher education institutions to manage any downside exposure that might arise from over concentration on specific markets or income streams. Institutions should seek to develop meaningful and lasting relationships with partner countries, and such relationships should be appropriate to the institutions' scale, mission and strategy.

As noted above in the chapter on System Objective 4, Irish higher education institutions are highly internationalised and competitive in their research and development activities. This performance means that Ireland is on track to achieve its national target of securing €1.25 billion in EU funding over the course of Horizon 2020.[48] As discussed above, this success comes at a price, given that the research will need to be subsidised from the other resources available to the sector.

System Objective 5 – Globally Competitive and Internationally Oriented Institutions: *case studies*

CASE STUDY 9: ATHLONE INSTITUTE OF TECHNOLOGY, *INTERNATIONAL AND RESEARCH OFFICE COLLABORATION*

The International Office and Research Office of Athlone IT collaborate on new funding programmes such as SFI's Ireland–China programme in 2017. Research institutes at AIT have hosted Government of Ireland researchers as well as postgraduate students funded by the Brazilian CAPES and 'Science Without Borders' programmes. Promoting internationalisation of the campus is not possible without the support of staff across the Institute. Faculty encourage AIT students to participate in outward mobility programmes to partner universities in Europe, China and North America, and staff visit students to monitor their progress. Ten academic staff members from all three faculties of the Institute will participate in mobility programmes to non-EU partner universities in India, Canada, Zambia and China during academic year 2016/17. Six staff members will participate in outward mobility to European partner universities with Erasmus+ funding.

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47   Department of Education and Skills, 2011. *National Strategy for Higher Education to 2030*. <https://www.education.ie/en/Publications/Policy-Reports/National-Strategy-for-Higher-Education-2030.pdf>.

48   Horizon 2020, National Support Office, Enterprise Ireland. <www.horizon2020.ie/category/news/>.

System Objective 5 – Globally Competitive and Internationally Oriented Institutions: *issues arising*

- Mobility data suggest that Ireland attracts significant inward mobility but is less successful at encouraging Irish students to travel abroad.

- The *International Education Strategy for Ireland, 2016-2020* has set a medium-term target for international students to represent 15 per cent of full-time students over the period.

- Growth in the number of international students comes with some risks. Higher education institutions need to manage any downside exposure that might arise from over concentration on specific markets or income streams.

- Institutions should seek to develop meaningful and lasting relationships with partner countries, and which are appropriate to the institutions' scale, mission and strategy.

- Irish higher education institutions are also highly internationally competitive in their research and development activities, but (as set out in the chapter on System Objective 4) they are not sufficiently resourced to continue to expand these aspects of their operations.

System Objective 6

Restructuring for Quality and Diversity

To reform practices and restructure the system for quality and diversity.

Policy context: Restructuring for Quality and Diversity

The indicators relating to System Objective 6 of the Higher Education System Performance Framework deal with four broad areas:

- Reform of teacher education
- Progress towards technological universities
- Development of regional clusters
- System diversity.

The System Framework set out a key system objective for 2014-16 requiring higher education 'to reform practices and restructure the system for quality and diversity'.

Reform, consolidation and reconfiguration

The *National Strategy for Higher Education*[49] recommended significant reform and consolidation within the sector and a pathway that would enable institutes of technology to demonstrate significant progress against stated performance criteria and to apply on that basis to become technological universities. In 2012 the HEA made policy proposals for a reconfiguration of the higher education landscape.[50] This involved institutional mergers and clusters of collaborating higher education institutions, and proposals for institutions funded by the Department of Education and Skills, to move to be funded by the HEA.[51] The Minister for Education and Skills also requested the HEA carry out a review of the structure of initial teacher education provision, and to identify possible new structures that might recognise and address weaker areas in the system of teacher education; leverage the current strengths in the system; and envision innovative strategies so that Ireland could provide a teacher education regime comparable with the best in the world.

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49 Department of Education and Skills, 2011. *National strategy for higher education to 2030.*
50 HEA, 2012, *Towards a Future Higher Education Landscape.* <http://hea.ie/assets/uploads/2017/04/Towards-a-Higher-Education-Landscape.pdf>.
51 HEA, 2012, *Report to the Minister for Education and Skills on System Re-Configuration, Inter-Institutional Collaboration and System Governance in Irish Higher Education.* <www.education.ie/en/Publications/Policy-Reports/HEA-Report-to-the-Minister-for-Education-and-Skills-on-Irish-higher-education.pdf>.

The report on Initial Teacher Education[52] (known as the Sahlberg report) proposed a shift in provision of teacher education from nineteen institutions to six new 'centres for teacher education'. The new collaborations recommended by the international panel meant that there would be a smaller number of centres for teacher education, but that each centre would offer education across the continuum of teacher education – from early childhood to primary, to post primary to adult education. These centres for teacher education would have a critical mass of research capacity on a scale not always possible in smaller institutions. The new configurations meant strong research bases would be cemented in each centre. These changes were intended to complement other changes to the content and length of teacher education, which also placed a greater emphasis on pedagogical skills and on the teaching of numeracy and literacy.

Some of the proposals are now complete (e.g. the incorporation into DCU of St Patrick's College, Mater Dei Institute and the Church of Ireland College of Education), while others are ongoing (e.g. the process for the merger and possible re-designation of some institutes of technology as technological universities).

Progress towards reform

At a general level, there has been very significant progress in addressing the recommendations made in the Sahlberg report of 2012. A series of engagements have taken place with the institutions concerned, both as part of the new process of strategic dialogue between HEA and higher education institutions, and through more focused meetings. The institutions concerned have sought to take a positive and constructive approach to what are, by any standards, major reforms to the current structure of initial teacher education. There is a strong sense from the institutions that the reform offers opportunities to enhance the teaching and research currently carried out as well as opportunities for other activities such as internationalisation and continuing teacher education and professional development. The HEA has also, through a top slice of core funding, provided some dedicated financial support to assist with the costs involved in transition. The HEA will undertake a follow-up to Sahlberg in early 2018 to establish what elements of the report's recommendations have been progressed.

Other restructuring or reform proposals have met with much more mixed fortunes. For example, the responses to the proposals for regional clusters of collaborating HEIs have seen some institutions very actively engaged and others far less so. A separate but parallel initiative to the regional clusters is the regional skills fora which has also been put in place by the Department for Education and Skills. Some institutions involved in both cluster and skills fora activity have tried to align activities in order to avoid duplication of effort. However, the more specific skills focus of the fora is rather different to the academic mapping and pathways agenda set out for the earlier clusters. The geography and group memberships are also complicating factors. A final position on the clusters and fora is expected in 2018.

Each of the reform and merger projects has involved extra costs and not insignificant risk for the institutions concerned. International experience of institutional mergers suggests that risks can arise in both successful and unsuccessful merger/alliance processes. In all cases, such exercises absorb large amounts of time and resources, not least of which is the cost associated with the senior management time involved in driving such projects forward.

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52 HEA, 2012, *Report of the International Review Panel on the Structure of Initial Teacher Education Provision in Ireland.* <www.education. ie/en/Press-Events/Press-Releases/2012-Press-Releases/Report-of-the-International-Review-Panel-on-the-Structure-of-Initial-Teacher-Education-Provision-in-Ireland.pdf>.

Funding for higher education reform

The ambitious programme of reform is proceeding relatively well – for example, the DCU incorporation project was completed within a relatively short period. In any such project, the institutions themselves incur direct costs in the form of legal and financial preparations for merger. Although the overall funding of higher education has reduced significantly over the economic crisis (core funding per student in Ireland fell by 22 per cent in the seven-year period to 2015 while student numbers increased by about 25 per cent), the HEA has allocated funding to support the merger projects. Up to December 2016 this amounted to roughly €11.7 million in funding which has been complemented by internal institutional allocations of over €8 million. A further €2 million was allocated in 2017 which again will be complemented by institutional funding. All allocations to date are set out in figure 6.1.

Figure 6.1 HEA funding allocations (€m) in support of higher education reform, 2013-2018

CONSORTIA/ ALLOCATIONS TO 31.11.17 (€M)	SIDF 2013	2014	2015	2016	EARLY 2017	2017-18 (11/17)	INDICATIVE TOTAL	STATUS
DCU Incorporation		€1.82	€2.50	€3.10	€2.50	€1.50	€11.42	Complete
NUIG Incorporation NUIG/SCHM/STAC		€0.45	€0.75		€0.45	€0.15	€1.80	Pending 2018
UL/MIC/LIT	€0.15	€0.05					€0.20	Reform ongoing
MU/Froebel	€0.425						€0.425	Complete
Total:	**€0.58**	**€2.32**	**€3.25**	**€3.10**	**€2.95**	**€1.65**	**€13.22**	

Source: HEA Data, funding allocations in support of higher education reform.

Progress towards technological universities

Considerable progress has been made under the Technological University process, and there are currently four consortia engaged with the process to become designated as technological universities:

- TU4Dublin, consisting of Dublin Institute of Technology, Institute of Technology Tallaght and Institute of Technology Blanchardstown;

- Technological University for the South-East (TUSE), consisting of Waterford Institute of Technology and Institute of Technology Carlow;

- Munster Technological University (MTU), consisting of Cork Institute of Technology and Institute of Technology Tralee; and

- Connacht Ulster Alliance (CUA), consisting of Galway-Mayo Institute of Technology, Institute of Technology Sligo, and Letterkenny Institute of Technology.

The objectives of the technological sector reform are to raise standards, to deliver better quality outcomes for students and for other stakeholders in the region and to enhance the performance of institutes of technology in their very important mission – irrespective of whether they are seeking technological university status or remaining as stand-alone institutions. The consolidation of the sector brought by the mergers will increase the scale, critical mass and quality of the institutions, allowing them to compete on the world stage with other comparable higher education institutions internationally.

The two consortia that have finalised stage 3 of the technological university designation process (TU4Dublin and MTU) acknowledge the financial costs involved in the merger/designation process, and are committed to meeting those costs from within their own budgets. The HEA, however, acknowledges that such major changes carry additional, upfront costs and has made funding available in 2013, 2014, 2015 and 2016 to provide support to institutions involved in the TU process. In doing so, the HEA recognises the benefits that will accrue to the institutions, to students and to the higher education system more generally from TU designation.

Technological universities will foster the social and economic development of their regions through an emphasis on programmes at levels 6 to 8 on the National Qualifications Framework and the development and use of new knowledge through industry-focused research. Technological universities will also enhance the pivotal national role traditionally played by the institutes of technology in facilitating access and progression by a wide range of students. The Technological Universities Bill is expected to require that these new universities must have the scale and capacity to deliver for their stakeholders in areas such as:

- Delivering a range of disciplines and levels of qualification, including apprenticeships, to meet the skills needs of the regions, retain talent in the regions and contribute to national priorities;

- Effectively supporting lifelong learning, upskilling and reskilling to support career development for citizens throughout their lives;

- Internationalisation activities including attracting more international students and increasing mobility opportunities for Irish students and staff;

- Creating the capacity for greater engagement with local enterprises, particularly SMEs. Supporting innovation, management upskilling and internationalisation of companies;

- Undertaking globally significant research and innovation that supports competitiveness and nurtures new business ideas; creating a regional research capacity;

- Attracting, retaining and developing enterprise in the regions;

- Building a greater capacity for social and community engagements that would include placements, research and innovation, work with schools, and cultural and sporting activities; and

- Acquiring greater national and international influence and visibility with a single and coherent university identity.

The four consortia seeking technological university designation made presentations and submissions to the HEA in May 2016, seeking funding to underpin the next phase of engagement in respect of their ongoing merger processes. Arising from these presentations and submissions, the HEA allocated a ring-fenced sum of €4.7 million in 2016 to the four. This funding is in addition to the resources that the consortia bring to the projects themselves.

In Budget 2017, the Minister for Education and Skills allocated a further €4 million in funding to support the establishment of technological universities. This funding, combined with HEA allocations towards landscape/merger projects, provides a total funding pot of about €6m for 2017-2018. The Minister indicated that the 2017 funding would be allocated via a competitive call for proposals.

Following discussion with the Department of Education and Skills, the HEA issued a call for proposals on 10 October 2017, and funding was allocated across the four consortia in early November. Future projections for the overall costs of each project will only be fully determined as part of the Stage 4 technological university application process. All funding allocations to date are set out in the table below.

Figure 6.2 HEA funding allocations (€million) in support of technological universities, 2014-2018

CONSORTIA/ ALLOCATIONS TO 31.11.17 (€M)	2014	2015	2016	EARLY 2017	2017-18 (11/17)	INDICATIVE TOTAL
Connacht Ulster Alliance	€0.16		€0.76		€1.20	**€2.12**
Munster Technological University	€0.87		€0.40		€1.03	**€2.30**
TU4Dublin	€1.32		€0.44	€0.86	€2.26	**€4.88**
Technological University for the South-East	€0.17		€0.40		€0.15	**€0.72**
Total:	**€2.52**		**€2.00**	**€0.86**	**€4.64**	**€10.02m**

Source: HEA Data, funding allocations in support of higher education reform <http://hea.ie/statistics/>.

Following extensive discussion, the recent agreement between the Department of Education and Skills, the Teachers' Union of Ireland (TUI) and the Technological Higher Education Association (THEA) is expected to accelerate progress on the Technological Universities Bill. This underpinning legislation is required to provide clarity around certain aspects of the process in order for consortia to make progress. The legislative process for the Technological Universities Bill 2015 (as initiated) commenced in January 2014. The Bill was passed by Government in early November 2017 with insertions and amendments scheduled for Committee Stage in Dáil Éireann in December 2017.

Summary of progress for each technological university consortium

Each consortium is at a different stage in the process. Progress is related to the scale of each undertaking, to historical relationships, and to the starting point of each group and the challenges they have faced along the way. Each project is prioritising particular actions in order to make best progress.

TU4Dublin, consisting of Dublin Institute of Technology, Institute of Technology, Tallaght and Institute of Technology, Blanchardstown.

The TU4Dublin Alliance has a stated aim of creating a new technological university for Dublin by consolidating the three existing institutes. The alliance has successfully completed three stages of the four-stage process for designation as a technological university as set out by the HEA. The TU4Dublin Project Management Office (PMO) has prioritised in excess of 50 projects to be completed by September 2018, ranging from initial project scoping, organisation design, joint graduate research school, academic policies review and student services review. The TU4Dublin Alliance is on target to apply for designation in 2018, subject to enactment of the required legislation in accordance with the legislative timetable published by Government.

Munster Technological University (MTU), consisting of Cork Institute of Technology and Institute of Technology, Tralee.

Cork Institute of Technology (CIT) and Institute of Technology Tralee (ITT) have successfully completed stage three of the four stage process for designation as a technological university. The creation of the MTU will result in a new and exciting technological university, fit for the 21st century, meeting the needs of the Irish economy, supportive of the values of the broader society and able to operate successfully in the face of national and international competition.

The governing bodies of the two institutes have signed a detailed integration agreement, and work on programme governance, project management, project initiation and planning is ongoing. In the past year a formal project governance structure has been established and the Project Management Office (PMO) has been put in place with dedicated resources and a detailed project management framework. Two programme directors and three project leaders have been appointed. The consortium is on target to apply for designation in 2018, subject to enactment of the required legislation in accordance with the legislative timetable published by Government.

Connacht Ulster Alliance (CUA), consisting of Galway–Mayo Institute of Technology, Institute of Technology, Sligo, and Letterkenny Institute of Technology.

The partners of the Connacht-Ulster Alliance are committed to achieving designation as a technological university. Over a three-year period, the CUA has become a recognised alliance, working effectively together across a broad range of projects to the benefit of their students and regions. The alliance has progressed through the first formal stage of the four-stage designation process, with submission of the second stage document planned for 2018.

Technological University for the South-East (TUSE), consisting of Waterford Institute of Technology and Institute of Technology, Carlow.

The Technological University for the South-East partners aim to enhance their already significant contribution to regional education and development through more systemic collaboration. The current project builds on the earlier activation phase with a view to greater alignment of the working environment and cultures within the South-East institutes of technology, as well as the development and alignment of policies, processes, data management and other systems.

System Objective 6 – Restructuring for Quality and Diversity: *case studies*

CASE STUDY 11: UNIVERSITY COLLEGE DUBLIN, *UNIVERSITY BRIDGE FUND*

The University Bridge Fund, launched in 2016, is a €60 million venture capital partnership driven by University College Dublin and Trinity College Dublin and available to benefit all third-level research institutions in the country. UCD and Trinity worked in alliance to lead this initiative and brought together public, private and international institutional investors under its umbrella. The establishment of the fund is an example of the change in Ireland's focus on translating academic research into high quality jobs, and the country is now joining a select group of countries that has a dedicated fund to translate innovative academic research into companies that compete in global markets. The fund recently won the KTI Initiative of the Year Award in recognition of its impact on the Irish venture system.

CASE STUDY 12: NATIONAL UNIVERSITY OF IRELAND, GALWAY, *QUALITATIVE MARKET RESEARCH AND CURRICULAR REFORM*

In 2014, in response to falling market demand for Arts programmes, NUI Galway undertook qualitative market research to test perceptions of their programmes with prospective students and guidance counsellors. The research found the quality of its programmes were strong but there was a perception graduates weren't job market ready.

Responding to this feedback, the university undertook an extensive curricular reform. In the College of Arts, Social Sciences and Celtic Studies an internal review group was established to review and implement sweeping reforms to the existing curriculum, programme structures and the programme portfolio.

Changes include the introduction of core skills modules to the standard Joint Honours Arts Degree – skills include Skills for Learning, Skills for Work, and Skills for specific Disciplines, and students accumulate credit via a 'Skills Passport' which will be recognised on their degree transcripts. Further reform was driven through the introduction of ten new undergraduate degrees in popular areas such as Children's Studies, and Applied Social Sciences. Crucially, all new degrees are four-year degrees with a year of work placement and/or opportunities to study abroad.

The market is responding positively with first preference CAO applications to Arts and Social Sciences programmes in the university increasing. The University's commitment to enhancing the employability agenda is set out in its *Strategic Plan 2015-2020*[53], with a key objective being to increase the provision of work-based learning opportunities on 80 per cent of undergraduate programmes.

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53 NUI Galway, 2015. *Vision 2020: NUI Galway Strategic Plan 2015-2020*.
     <https://www.nuigalway.ie/media/nuigalwayie/content/files/aboutus/Vision2020-NUI-Galway-Strategic-Plan-Web.pdf>.

System Objective 6 – Restructuring for Quality and Diversity: *issues arising*

- At a general level, there has been some very good progress in addressing the recommendations in the 2012 Sahlberg report. However, not all institutions or consortia have made progress. The HEA will undertake a follow-up to Sahlberg in early 2018 to establish what has been achieved to progress the report's recommendations.

- Responses to the proposals for regional clusters of collaborating HEIs have been mixed, with some institutions very actively engaged and others far less so. The suggestion from institutions is that the structure of clusters, for example the geography and the top-down nature of the policy and the levels of support provided weren't conducive to long-term and sustainable relationships. The HEA is discussing regional cluster policy and regional skills fora with the Department of Education and Skills and expects to further clarify the approach in 2018.

- Technological university consortia have made significant progress to date. Several groups are now at a stage where they urgently need underpinning legislation to formalise the next steps they need to take.

System Objective 7
Accountability for Public Funding

To increase accountability of autonomous institutions for public funding against national priorities.

Policy context: Accountability for Public Funding

The indicators relating to System Objective 7 of the Higher Education System Performance Framework deal with three broad areas:

- System funding and infrastructure
- Accountability, governance and performance management
- Public sector reform.

The System Framework sets out a key system objective for 2014-16 requiring higher education 'to increase accountability of autonomous institutions for public funding and against national priorities'.

The funding gap in higher education

Despite significant student number growth over the past decade, state funding allocations to higher education institutions have not increased over the same period. During this expansionary period, higher education institutions have sought to grow other income to bridge their funding gap. Income sources include international student fees and research grants, but there is a risk attached, such as over reliance on international markets or on research area where unfunded or inadequate overheads may create an additional burden on already stretched institutional finances.

Figure 7.1 Higher education institutions funding statement data, 2011-15

FUNDING STATEMENT FIGURES (€000)	2011/12	2012/13	2013/14	2014/15
Total income	**2,286,600**	**2,300,044**	**2,326,975**	**2,370,042**
State grants	718,087	672,057	631,954	612,405
Fee income	931,890	1,002,446	1,050,171	1,092,250
Research grants and contracts income	429,405	434,048	453,880	467,473
Other income	207,218	191,493	190,970	197,914
Total expenditure	**2,252,992**	**2,283,283**	**2,322,685**	**2,367,883**
Core – pay	1,351,519	1,349,108	1,364,120	1,389,508
Core – non-pay	470,729	503,018	510,721	511,161
Research grants and contracts – pay	262,463	265,085	271,439	293,869
Research grants and contracts – non-pay	168,281	166,072	176,406	173,345

Source: HEA Statistics <http://hea.ie/statistics/>

Ireland has the ambition to be Europe's leading higher education system, but that will be difficult to achieve while funding lags well behind many others. Institutions are managing, but the situation is becoming increasingly difficult and ultimately the core business of providing high quality higher education is beginning to suffer. An additional €36.5 million was made available in 2017. However, the gap remains significant. The report of the Expert Group on Future Funding for Higher Education (2016)[54] recommended an increase in investment, over the next fifteen years, in three targeted areas:

■ **Core funding:** Additional annual funding of €600 million by 2021 and €1 billion by 2030 to deliver higher quality outcomes and provide for higher student numbers. This will allow an improvement in staff–student ratios and better engagement with students, improved support services for teachers and students, higher quality teaching and learning, better completion rates and better graduate outcomes such as competences, abilities and employment readiness.

■ **Capital funding:** A capital investment programme of €5.5 billion is needed over the next fifteen years to cater adequately for increased student numbers, capital upgrades, health and safety issues, equipment renewal and ongoing maintenance.

■ **Student support:** An additional €100 million is needed to deliver a more effective system of student financial aid.

In 2016, the Minister for Education and Skills referred the Expert Group report to the Oireachtas Joint Committee on Education and Skills to consider its implementation and possible new mechanisms/funding models for Irish higher education. The Expert Group report identified a serious funding gap, whose effects are beginning to be felt, and a resolution to this question is needed urgently.

HEA funding model review

A key part of the work of the HEA in 2017 was to review its own model for the allocation of funding to higher education institutions. The review was driven by a need to ensure that the allocation model remained fair and transparent and that it provided appropriate incentives to institutions to meet national needs. The final report from this review is expected to be published shortly. Part of the review involved extensive consultation with a range of stakeholders, and the following were among the issues raised were the need for:

■ A revised approach to the funding of research, to incentives research performance by the HEIs, including provision for research metrics for the institute of technology sector;

■ Further review and development of the metrics to support students from under-represented groups to access higher education;

■ Greater focus on the role of the higher education sector in meeting skills needs, including greater engagement with the enterprise sector.

The HEA will publish the report of its review, and following that will work on implementing its recommendations in 2018 and beyond. The HEA recognises that some of the recommendations will require extra levels of resources and investment before they can be delivered.

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54 DES, 2016, *Investing in National Ambition: A Strategy for Funding Higher Education*, report of the Expert Group on Future Funding for Higher Education (2016). <www.education.ie/en/Publications/Policy-Reports/Investing-in-National-Ambition-A-Strategy-for-Funding-Higher-Education.pdf>.
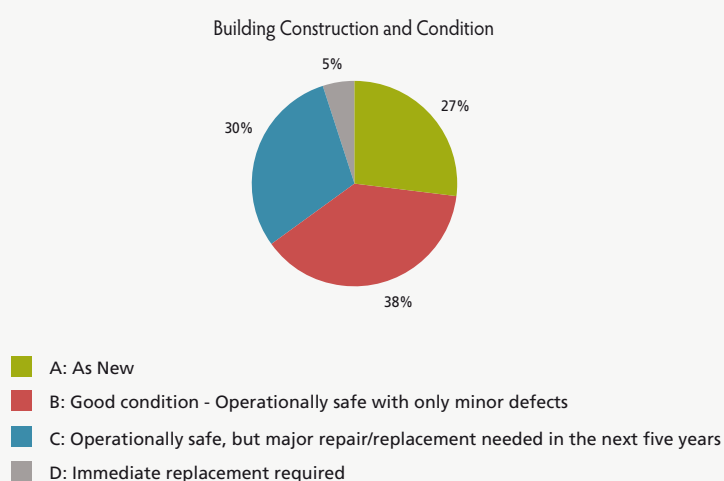
Figure 7.2 Higher education institutions funding statement percentage changes

FUNDING STATEMENT FIGURES CHANGE (%)	FROM 2013/14 TO 2014/15	FROM 2011/12 TO 2014/15
Total income	**2%**	**3%**
State grants	-3%	-16%
Fee income	4%	16%
Research grants and contracts income	3%	9%
Other income	4%	-5%
Total expenditure	**2%**	**4%**
Core – pay	2%	2%
Core – non-pay	0%	8%
Research grants and contracts – pay	8%	12%
Research grants and contracts – non-pay	-2%	3%

Source: HEA Statistics <http://hea.ie/statistics/>

The HEA's Higher Education Space Survey[55] found that 5 per cent of the capital stock needed immediate replacement while a further 30 per cent would need attention within five years. The results of this are summarised in figure 7.3.

Figure 7.3 Higher education institutions: building structure and condition, 2010

Building Construction and Condition

- A: As New
- B: Good condition - Operationally safe with only minor defects
- C: Operationally safe, but major repair/replacement needed in the next five years
- D: Immediate replacement required

Source: HEA data, Higher education space survey, 2010.

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55 HEA data, Higher education space survey, 2010.

Managing more students with less funding

HEA budget meetings with universities and colleges found that 11 of the 27 institutions presented deficit budgets for 2016. These institutions will be monitored particularly closely by the HEA with a range of actions already agreed to address these issues. There are also signs that particular institutions are experiencing real concerns over ongoing sustainability for the first time. As their overall financial position continues to deteriorate, higher education institutions are challenged to maintain their capital stock, innovate, and provide a quality education and research environment that is appropriate for students and enterprise partners. Many of the underlying issues relate to a wider national funding debate which is largely outside the control of individual institutions, and a longer-term system-wide solution is now urgently required.

The numbers entering higher education have grown significantly in recent years, up from 15,000 in 1980 to 43,260 in 2016. The number of students completing second level is expected to peak in 2029 at 27 per cent higher than 2015. This demographic increase is happening against a context of reduced public funding of higher education. Core funding per student in Ireland fell by 22 per cent in the seven-year period to 2015. One clear manifestation of this combination of reduced funding and increased student numbers has been disimprovement in the student-staff ratio in higher education, which has gone from 16 students per staff member to 20 students per staff member.

International comparative data on staff-student ratios from the OECD's most recent Education at a Glance[56] suggests the student-staff ratio in Irish higher education reached 20 students per staff member in 2015, when staff-student ratios in tertiary education averaged 16 in the EU-22 and OECD countries. Within the OECD, the highest student-staff ratios were recorded in Belgium and the Czech Republic (23:1). By contrast, student-staff ratios were lower in Luxembourg (8:1) Norway and Sweden (10:1) and Germany (12:1).

International comparative data on student-staff ratios from Eurostat[57] suggests the student-staff ratio in Irish higher education reached 23.3 students per staff member in 2015, when student-academic staff ratios in tertiary education averaged 15.6 in the EU-28. According to Eurostat, among the EU Member States, the highest student-staff ratios were recorded in Croatia (74.5) and Greece (44.5; 2014 data), while ratios of more than 20 students per staff member were also recorded in the Czech Republic, Belgium and Italy. By contrast, student-staff ratios were in single figures in Malta (9.8 students per staff member) and were also relatively low in Sweden and Denmark.

The recent report by the Expert Group on the Future Funding of Higher Education concluded that these pressures 'are now seriously threatening quality within the system'. The Expert Group recommended significant additional investment in higher education to address existing concerns over quality and to strengthen it into the future.

The Expert Group's report calculated the need for additional annual funding at €600 million by 2021 and €1 billion by 2030 'to deliver higher quality outcomes and provide for increased demographics'. The group made it clear that increased investment must be linked to 'enhanced quality and verification of outcomes'.

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56 OECD, 2017. Ratio of students to teaching staff in educational institutions, all tertiary education (2015). doi: 10.1787/888933561802
(Accessed on 9 November 2017) <http://dx.doi.org/10.1787/eag-2017-table189-en>.

57 Eurostat, 2017. Education and training in the EU – facts and figures.
<http://ec.europa.eu/eurostat/statistics-explained/index.php/Education_and_training_in_the_EU_-_facts_and_figures>.

Ensuring quality student outcomes in higher education

Quality and Qualifications Ireland (QQI), the state agency with responsibility for quality assurance in further and higher education, has also expressed concerns about the impact on quality of recent economic and demographic trends. In a 2016 synthesis of 90 'internal' quality reports produced by public higher education institutions, QQI pointed to concerns among HEIs that reduced funding levels since 2008, combined with restrictions on public sector recruitment had the potential to impact on quality within institutions:

> 'The ramifications of continued reduced resources primarily because of reduced income and controls in place from the national Employment Control Framework were seen to be impacting across key areas: reduced staff (and associated increase in student numbers) with subsequent increased workload; reduced promotion opportunities; reduced staff development opportunities and increasing tensions between time spent on teaching and research. Ultimately, reports warned about the impact on the quality of the student learning experience'. [58]

HEIs are responsible for creating an appropriate learning environment to support quality student learning outcomes. They are expected to recruit appropriately qualified lecturers and tutors, and other support staff, provide professional development opportunities for academics, develop and quality assure education and training programmes (in line with QQI guidelines), develop curricula, assess and monitor student learning through examinations and assignments, act upon feedback from students and external examiners, and from regulators such as QQI and the HEA, and provide the necessary infrastructure and resources to support an appropriate learning environment.

Publicly funded HEIs are required under the Qualifications Act 2012 to periodically review the quality of their education, research and related services. These internal quality reviews are expected to be conducted every five or six years. Reviews can be of an academic unit (department or school), administrative unit, or at the level of the academic programme or suite of programmes in the institution.

There is also a dual agenda at play in relation to the role of HEIs in managing internal quality assurance – both to react to issues of student concern and to address those issues, but also to proactively look for opportunities to enhance the quality of their service. The HEA has in its process of strategic dialogue emphasised that institutions need to actively capture and understand a variety of data to self-evaluate their activity, and to look for means to improve. This includes feedback not just of students, but of academic peers, of international data like multi-rank, from employers, alumni and many others.

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58 Quality and Qualifications Ireland (QQI), 2016. *Quality In an Era of Diminishing Resources*, p.8. The report focused on a sample of 90 reports produced by 12 publicly funded HEIs (5 universities and 7 institutes of technology) over the period 2008 to 2015. <https://www.qqi.ie/Publications/Publications/Quality%20in%20an%20Era%20of%20Diminishing%20Resources%20Report%20%28FINAL%20March%202016%29.pdf>.

Higher education institutions must achieve balance between quality and continuous improvement through appropriate systems for quality assurance in institutional governance and management. Quality, or indeed lack of quality does not arise in a vacuum. HEIs themselves are powerful influencers of strategy – through their decisions on setting strategy and goals, on allocation of resources, and on monitoring progress towards goals, and in doing so they need to be proactive in relation to key decisions. For example, decisions such as the sorts of courses to offer must be based on assessment of available resources, on synergies with other current programmes, on evaluation of likely student demand (so that the programme will generate sufficient public and private resources to enable a high-quality offering), and on effective systems of monitoring and review to establish whether or not programme are delivering the expected learning outcomes.

Likewise, institutions need to be proactive in taking decisions on the funding of teaching and learning units, and on measures to ensure they offer a high-quality service to academics and students. They also need to acknowledge that resources will always be constrained, and it is primarily their responsibility to set out a range of high quality programmes that can be supported by available resources as opposed to wished for resources. The available resources must also be managed carefully, used judiciously and in the furtherance of a quality student experience, underpinned by institutional mission.

The current HEA funding model is designed to provide all institutions with certain flexibilities as to the application and balancing of resources. This flexibility is built-in to support areas such as access, teaching and learning, research, regional development and skills development – this is in line with individual institutional missions and helps promote diversity within Ireland's higher education system.

Accountability, governance and performance management: the HEA's role

The HEA's role in relation to accountability, governance and performance management in higher education is to balance institutional diversity and autonomy with clear financial accountability for the significant public funding that is made available to higher education. The HEA (alongside the Comptroller and Auditor General in financial matters), manages this role in a number of ways: through the strategic dialogue process (examining institutional strategy and the application of strategy), through its own audited financial accounts together with the Comptroller and Auditor General's certificate (reporting on national level expenditure),[59] and through a set of annual HEI governance statements (reporting on adherence with relevant financial code and matters of financial and governance oversight).

The HEA's role and responsibilities are set out in its Financial Accountability Framework[60] with the Department of Education, which is designed to ensure proper and effective use of public funding; effective control, audit and accountability measures; and cost effective and efficient delivery of services by the HEA. The Framework also provides that 'the HEA shall require confirmation from the higher education institutions under its designation, that governance and assurance mechanisms and structures in place are effective and adequate'.

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59 See: HEA, *Annual Report and Accounts 2015*. <http://hea.ie/assets/uploads/2017/04/higher-education-authority-annual-report-2015.pdf>.

60 HEA, *Financial Accountability Framework*. <http://hea.ie/assets/uploads/2017/05/Appendix-15-Financial-Accountability-Framework.pdf>.

In meeting this responsibility, the HEA has received annual governance statements and statements of internal control for 2014/15 submitted by higher education institutions. The HEA has prepared high level traffic light indicators setting out the areas of governance where issues were identified and where action is being taken (see appendix B). Statements for 2015/16 are currently being collected and analysed by the HEA.

In requesting these statements, the HEA process requires, among other things, 'a statement affirming that the governing authority is responsible for and is satisfied that the institution is in compliance with all statutory obligations applicable to the university that may be set out in legislation governing the establishment of the university or in other relevant legislation'.[61] A statement 'affirming that all appropriate procedures for procurement are being carried out and confirmation that the relevant procurement policy and procedures and the development and implementation of the Corporate Procurement Plan are being adhered to where appropriate' is also required. The HEA also requests institutions to report in their annual Statement of Governance and Internal Control on 'other items that, although not referred to explicitly in the Code itself, form part of the HEA's expectation of best practice and governance in the higher education sector'.

Issues and areas of non-compliance identified by the HEA in annual governance statements are followed up directly or through the annual budget meeting process according to the severity of issues raised. In all cases, the HEA works directly with the institutions concerned, and with the Comptroller and Auditor General's office and the Department of Education and Skills, to ensure that any failings in process or financial probity are resolved at the earliest possible juncture.

In the past, where issues were identified, the Office of the Comptroller and Auditor General carried out an examination of matters arising out of audits in the education sector.[62] The scope of the examination included aspects of resource management in third-level institutions and activities conducted through campus companies and foundations in those institutions. The report also included certain matters relating to remuneration and accountability as follow-up to matters raised in a previous special report published in September 2010.

Given its role in accountability, governance and performance management, the HEA takes very seriously any such issues raised either via the Comptroller and Auditor General reports or via the annual governance statements, and seeks to act swiftly and within its powers.

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61 HEA, *Universities Annual Statement of Governance and Internal Control Reporting Template.* <http://hea.ie/assets/uploads/2017/05/Appendix-2-Unis-Annual-Statement-of-Gov-Template.pdf>.

62 Comptroller and Auditor General, 2012, *Special Report 78: Matters Arising out of Education Audits.* <www.audgen.gov.ie/documents/vfmreports/78_Education_Report_2012.pdf>.

Mechanisms to ensure greater compliance with legislative and other requirements

During 2015 the HEA reviewed its approach to the oversight and governance of higher education institutions. The significant existing governance and accountability infrastructure was built upon, with a series of new and improved mechanisms to provide more robust assurance of compliance with legislative and other requirements and more timely and responsive interventions to address any issues arising. Changes included:

- Submission by institutions to the HEA of annual governance statements and statements of internal control based on a revised template covering a comprehensive list of governance requirements, with non-compliance in any matter to be identified within the statement;

- Reduced timelines for the submission of draft accounts for certification by the C&AG and for the submission of annual governance statements to the HEA;

- The introduction of a financial memorandum which is signed by each institution on an annual basis; establishment of a formal policy framework for intervention when an institute of technology is in deficit, and core principles that should apply to universities or specialist colleges in a similar situation;

- The introduction of annual rolling reviews on corporate governance compliance themes, focusing on good practice and areas of improvement across the sector. The first such rolling review focused on procurement and was carried out by Deloitte on behalf of the HEA.[63] In response to this and to the need for full compliance with national procurement guidelines, the HEA together with the Education Procurement Service (a higher education shared service provider) organised a Higher Education Procurement Summit in May 2017. The summit was held to present and discuss the findings of the rolling review on procurement, to highlight the opportunities presented by Office of Government Procurement (OGP) frameworks and to share good practice and agree on the future approach to improving procurement practice in the future;

- The embedding of the HEA's strategic dialogue process with HEIs together with the HEIs' commitment to achieving specific outputs and targets set out in individual performance compacts;

- Strengthening of the HEA's relationship with the Department of Education and Skills on the area of governance via mechanisms including the Annual System Performance Report, a Service Level Agreement, Financial Accountability Framework, Corporate Governance Risk Register and 'early warning' reporting;

- Enhancing the HEA's working relationship with the C&AG via the introduction of quarterly meetings that focus in particular on the status of C&AG audits of financial statements of HEIs and the identification of any issues or difficulties arising.

These changes culminated in the establishment and communication of the Governance Framework for the Higher Education System, details of which are available on the HEA website.[64] The framework is intended to be a central reference point for all governance responsibilities and requirements across higher education.

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63 See: Deloitte, 2017, *HEA Procurement Review*. <http://hea.ie/assets/uploads/2017/08/hea_procurement_review_final_report_4_may_2017.pdf>.
64 *Source*: HEA, *Governance Framework for the Higher Education System*. <www.hea.ie/en/funding/governance>.

Updating codes of governance

In 2016 a new *Code of Practice for the Governance of State Bodies*[65] was published by the Department of Public Expenditure and Reform. Work is ongoing to update existing codes of governance for universities and institutes of technology to reflect the new State code.

The HEA is disappointed by recent concerns which have surfaced in respect of institutional governance and financial oversight. The HEA will use the revised process for the production of HEI annual governance statements and statements of internal control, to hold HEIs to account for public expenditure, while at the same time providing for institutional autonomy in furtherance of mission and strategy. The HEA will also continue to rigorously examine institutional activities and hold institutional leadership accountable for actions which are not in accordance with or in the interest of their central missions to further higher education and research.

In balancing accountability and autonomy, institutions are responsible for their own futures and need to have in place appropriate governance arrangements. The strategic dialogue process assists in this regard, in that institutions are held accountable for the goals they set themselves and their performance in seeking to achieve these goals. In that way, while the HEA can assist institutions in strategic goal setting, matters of institutional governance and internal control are ultimately the responsibility of the institutions themselves.

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65 Department of Public Expenditure and Reform, *Code of Practice for the Governance of State Bodies*, 2016 <http://www.per.gov.ie/en/revised-code-of-practice-for-the-governance-of-state-bodies/>.

System Objective 7 – Accountability for Public Funding: *case studies*

Of itself, the introduction of the strategic dialogue process is a significant development in enhancing the governance and accountability of the higher education system. The process was initiated in 2013 with the publication by the Minister for Education and Skills of the system performance framework (2014-2016) setting out a range of priority national objectives against which Government could hold the system accountable. Autonomous institutions were invited to set out their targets for the period, having regard not only to their own mission, strategy and student profile, but also with reference to wider national goals. In this way, the system could respond collectively, but with due regard for the diversity of mission that exists.

Following the first three cycles of strategic dialogue, the HEA can report that the institution individually and the system collectively have performed well against the objectives set – see Appendix A for a full report.

It should be noted that performance is all the more noteworthy, given that it has been achieved against a backdrop of decreased funding and increased student numbers, both of which present significant challenges to institutional leadership.

Feedback from HEIs at the recent set of meetings acknowledged the contribution that strategic dialogue has made to strategy and objective setting at the highest levels and how the process now informs institutional data collection and analysis. A new system performance framework (2018-2020) will shortly be published and will initiate the next round of the process. It is the view of the HEA that strategic dialogue has value in encouraging a focus on outcomes in respect of institutional performance, which in turn enhances internal governance and accountability for public funding.

System Objective 7 – Accountability for Public Funding: *issues arising*

- Despite significant student number growth (from 15,000 in 1980 to 43,260 in 2016) State funding allocations to higher education institutions have not increased over the same period.

- Higher education institutions had to grow other income to bridge the gap – such as through international student fees or research grants. This brings new risks, such as over reliance on international markets or inadequate overheads in the research area.

- The number of students completing second level is expected to peak in 2029; up to 27 per cent higher than 2015. The system is underfunded and ill-prepared to address this challenge.

- Out of 27 institutions, 11 presented deficit budgets for 2016, and some institutions are experiencing real concerns over ongoing sustainability.

- The combination of reduced funding and increased student numbers has led to an increase in the staff–student ratio in higher education, which has gone from 16 students per staff member to 20 students per staff member.

- As the overall financial position of higher education institutions continues to deteriorate, they are challenged to maintain their capital stock, and at the same time to innovate and provide a quality education and research environment that is appropriate to students and enterprise partners.

- A HEA review of capital infrastructure in the sector (2010) found that 5 per cent of the capital stock needed immediate replacement while a further 30 per cent would need attention within five years.

- The HEA has significant concerns over issues which have surfaced in respect of institutional governance and financial oversight. The HEA will continue to use the powers and mechanisms available to it to ensure greater compliance.

Conclusion

Conclusion

The second report into Ireland's higher education system performance, Higher Education System Performance 2014-2016,[66] published in December 2016 found the system is approaching a point where the resources available, would not be able to assure adequate quality of provision into the future. The situation has not yet improved. Institutions continue to respond to ever greater demand for higher education, fuelled by demographic changes. They continue to carry out high quality research and to work with external parties to promote social progress and innovation in enterprise. The resources available (financial, strategic, managerial) have not kept pace. Institutions are further constrained by lack of access to the necessary capital funding sources or human resource frameworks.

Over the past few years, institutions have responded to a national funding crisis by seeking to grow alternative or external income sources. International student number growth for example has been significant, but not sufficiently strategic, and institutions are placing themselves at increasing risk from international economic shocks. Student number growth is also unevenly spread across sectors and geographical regions. Equally, research income is cyclical and while institutions may get an initial increase, more thought needs to go into the long-term financial and strategic implications of such endeavours. The HEA has encouraged institutions to consider regional and national needs, as well as their own areas of traditional and emerging expertise, and to set their strategy accordingly.

For all institutions in a national system, there is a difficult balance to be struck between institutional stability and meeting the needs of the economy and society. This can be better achieved through collaboration and diversification. The HEA has recommended institutional approaches that prioritise student needs in areas such as the quality of the student experience, in respect of access, or new modes of open, flexible learning. There have been successful collaborative approaches in areas such as ICT under the Springboard initiative, where groups of institutions have collaborated on a shared offering that both meets student needs and reflects institutional diversity and expertise. On maths, science and technology, gender balance remains a challenge and institutions will need to do more to address this.

The National Access Plan has set challenging but achievable goals for the higher education sector. Institutions will need to better understand and respond to the challenges that many prospective students face in accessing higher education. More comparative work can be done locally and nationally to understand these challenges and provide appropriate supports. Access and progression challenges are among the areas where institutions could use available data from national studies on progression or the student experience to improve their practice. The commitment shown to date by institutions to the 'transitions agenda' is one example of such a collaborative approach that can work.

On part-time and flexible learning, several institutions have made significant progress. National data does pinpoint areas of concern though. For example, since the downturn and subsequent recovery, full-time and part-time Research Master's numbers have not increased. In a rapidly recovering economy, where skills shortages are emerging, there is an opportunity for institutions to work with learners and employers to provide mutually beneficial part-time and flexible programmes to continue to address areas of acute skills needs. This is something that the HEA will examine in the future.

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66 HEA, *Higher Education System Performance 2014-2016*
    <http://hea.ie/assets/uploads/2017/06/Higher-Education-System-Performance-2014%E2%80%932016.pdf>.

Alongside these requests for more from higher education, it must be remembered that despite significant student number growth over recent years, state funding allocations to higher education institutions have not increased and the system is at significant risk. With no certainty as to the future funding environment, institutions will need to continue to manage finances carefully and to balance institutional mission and strategic objectives with the resources available.

Appendices

Appendix A – Higher education, summary of system activity and performance 2014-2017

SYSTEM PERFORMANCE INDICATOR	2014-17 ACTIVITY	HEA STATEMENT ON ACTIVITY
System Objective 1 – Meeting Ireland's Human Capital Needs		**Colour Code Green**
■ Overall educational attainment and graduate output	Increasing student numbers	In a challenging financial environment, Ireland's higher education system has continued to grow student numbers while maintaining the quality of the student experience. This cannot be guaranteed indefinitely. For example, the capital and buildings situation is difficult and there will not be sufficient space to provide for growing student numbers.
■ Alignment to the needs of the labour market	High graduate employability	
■ Student outcomes following participation in higher education	High employability, higher earnings	
System Objective 2 – Equity of Access and Student Pathways		**Colour Code Green**
■ Diversity of entrants to higher education	Increased numbers from target groups	Student numbers are increasing, and target and non-traditional groups continue to increase proportionally or exceed previous levels. There are concerns on HEIs' ability to meet the increasingly complex needs of such a diverse student population without adequate resources. There is also a need for greater flexibility of provision to meet the needs of mature and lifelong learners.
■ Progression rates achieved by specific target groups	Concern on low mature numbers	
■ Type of enrolment	Increased use of non-traditional routes	
System Objective 3 – Excellence in Teaching and Learning		**Colour Code Green**
■ Student experience and outcomes	Good student engagement and satisfaction data	Results from student satisfaction surveys are good. Initiatives such as the National Forum for the Enhancement of Teaching and Learning in Higher Education champion great teaching and learning in higher education and inspire great practice that can have a strong and positive impact on learning.
■ Quality enhancement initiatives	ISSE and National Forum progressing	
■ Transitions to higher education	Range of offers reducing, more common entry	
System Objective 4 – Excellent Public Research System		**Colour Code Green**
■ Investment in higher education research and development (HERD)	HERD increasing	The research and innovation system is rebounding following a difficult few years. While investment levels are not where they were, and the capital infrastructure will need investment too, in general Irish researchers are competing well internationally. The quality of Irish research is also well regarded, and education and industry play well together, both locally and nationally. Institutions have continued to refine their research strategies to maintain diversity while meeting local and national needs.
■ Outcomes: higher education research outputs and performance	H2020 and ERC improving	
■ Improving processes to sustain research quality	Prioritisation and concentration of research activity	

SYSTEM PERFORMANCE INDICATOR	2014-17 ACTIVITY	HEA STATEMENT ON ACTIVITY
System Objective 5 – Globally Competitive and Internationally Oriented Institutions		**Colour Code Amber**
■ Outward mobility of Irish students	Increased student mobility	The internationalisation story is positive too but with some risks. More Irish students are going abroad and increasing numbers of international students are coming to Ireland for a high-quality education experience. However, internationalisation is a challenge for some institutions – while the income can be significant, over-concentration risks market failure while over-stretching to multiple countries can be resource-intensive. The quality of the student experience must also be protected both in the interests of students and in the wider national interest.
■ Inward mobility of students from other countries coming to Ireland	Increasing popularity of Ireland as destination	
■ International mobility of staff	Some evidence but resource intensive activity	
■ Transnational activities of Irish higher education institutions	H2020 and ERC improving	
System Objective 6 – Restructuring for Quality and Diversity		**Colour Code Amber**
■ Reform of teacher education	Mergers and restructuring ongoing	Teacher education reform has continued apace, with most projects well progressed. Technological universities have made progress. There have been some delays, in part due to external factors, such as a complex legislative process. These issues now seem to be resolved. On regional clusters, there is a policy gap at present and the clusters/fora landscape will need to be defined.
■ Progress towards technological universities	Collaborations ongoing	
■ Development of regional clusters	Greater clarity required on national policy context	
■ System diversity	Diverse system of institutions and missions	
System Objective 7 – Accountability for Public Funding		**Colour Code Red**
■ System funding and infrastructure	Funding urgently required	A resolution to the funding crisis is urgently required. Every year that passes the situation is more and more challenging. As time goes by, the cost of recovery and reparation will be much greater as the real cost of deferred maintenance is realised.
■ Accountability, governance and performance management	Governance reviews ongoing	
■ Public sector reform	Procurement, staffing reforms ongoing	

Appendix B – Annual Governance Statement and Statement of Internal Control Indicators 2014/15

A number of items are included in the 'amber' category because institutions did not provide adequate information or did not answer the question. This may not accurately reflect the overall compliance of the institution

Universities and Colleges

Legend: G = green, A = amber, R = red

ISSUES	UCD	UCC	NUIG	MU	TCD	UL	DCU	MIC	SPD	NCAD	MATER DEI	ST ANGELA'S
1. Compliance With Legislation	G	G	G	G	A	G	G	G	G	R	G	G
2. Code of Governance	G	G	G	G	G	G	G	G	G	A	G	G
3. Members' Code	G	G	G	G	G	G	G	G	G	A	G	G
4. Employees' Code	G	G	G	G	G	G	G	G	G	A	G	G
5. Financial Developments	G	G	G	A	G	A	G	G	G	A	G	A
6. Pay	G	G	G	A	G	G	G	G	G	R	G	G
7. Financial Reporting	G	G	G	G	G	G	G	G	G	A	G	G
8. Internal Audit	G	G	G	G	G	G	G	G	G	A	G	G
9. Procurement	A	G	G	A	A	A	G	A	G	A	G	A
10. Asset Disposal	G	G	G	A	G	G	G	G	G	A	G	G
11. Capital Proposals	G	G	G	A	G	G	G	G	G	R	G	G
12. Travel	G	G	G	G	G	A	G	G	G	G	G	G
13. Value for Money	G	G	G	G	G	G	G	G	G	R	G	G
14. Tax	G	G	G	G	G	G	G	G	G	A	G	G
15. Child Protection Policy	G	G	G	G	G	G	G	G	G	G	G	G
16. Fees And Expenses	G	G	G	G	G	G	G	G	G	G	G	A
17. Fees And Expenses In Annual Report	G	G	G	G	G	G	G	G	G	A	G	G
18. Aggregate Fees And Expenses	G	G	A	G	G	G	G	G	G	A	G	G
19. Subsidiaries	G	G	G	G	G	G	G	G	G	A	G	G
20. General Non-Compliance	G	G	G	G	A	G	G	G	A	R	G	G
21. Protected Disclosures	G	G	G	G	G	G	G	G	G	G	G	G
22. Gov. Auth. Responsibility for Internal Control	G	G	G	G	G	G	G	G	G	A	G	G
23. Assurance Against Error	G	G	G	G	G	G	G	G	G	R	G	G
24. Control Environment	G	G	G	G	G	G	G	G	G	A	G	G
25. Business Risks	G	G	G	G	G	G	G	G	G	A	G	A
26. Information Systems	G	G	G	G	G	G	G	G	A	A	G	G
27. Implications of Risk	G	G	G	G	A	G	G	G	A	A	G	G
28. Monitoring Effectiveness of Internal Control	G	G	G	G	G	G	G	G	G	A	G	A
29. Review of Effectiveness of Internal Control	G	G	G	G	G	G	G	G	G	A	G	G
30. Weaknesses In Internal Control	G	G	G	G	G	G	G	G	G	A	G	G
31. Corrective Action	G	G	G	G	G	G	G	G	G	A	A	G

ISSUES	UCD	UCC	NUIG	MU	TCD	UL	DCU	MIC	SPD	NCAD	MATER DEI	ST ANGELA'S
32. Gov. Auth. Meetings	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢
33. Audit Comm. Meetings	🟢	🟡	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢
34. Review of Gov. Auth. Performance	🟢	🟡	🟡	🟢	🟢	🟡	🟢	🟢	🟡	🟡	🟡	🟡
35. Salary of President	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢
36. Other Issues	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟡	🟢	🟢

🟢 – Green indicates compliance with relevant requirements
🟡 – Yellow indicates non-compliance but corrective action has or will be taken
🔴 – Red indicates non-compliance with little or no evidence of corrective action

Institutes of technology

ISSUES	AIT	ITB	ITC	CIT	DIT	DKIT	IADT	GMIT	LYIT	LIT	ITS	ITTALLAGHT	ITTRALEE	WIT
1. Compliance With Code	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢
2. Members Code	🟢	🟢	🟢	🟡	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟡	🟢	🟢
3. Employees Code	🟢	🟢	🟢	🟡	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟡	🟢	🟢
4. Financial Developments	🟢	🟢	🟢	🟢	🟢	🟡	🟢	🟡	🟡	🟢	🟢	🟢	🟡	🟢
5. Pay	🟢	🟢	🟢	🟡	🟢	🟢	🟢	🟡	🟢	🟢	🟢	🟢	🟡	🟢
6. Financial Reporting	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢
7. Internal Audit	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢
8. Procurement	🟡	🟡	🟢	🟡	🟡	🟢	🟢	🟡	🟢	🟡	🟢	🟡	🟡	🟡
9. Assets Disposal	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢
10. Appraisal Capital Projects	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢
11. Travel Policy	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢
12. Value for Money	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟡	🟢
13. Tax Laws	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢
14. Corporate Procurement Plan	🟢	🟢	🟡	🟢	🟢	🟡	🟢	🟡	🟢	🟢	🟢	🟡	🟡	🟢
15. General Non-Compliance	🟡	🟡	🟢	🟢	🟡	🟢	🟢	🟡	🟢	🟡	🟢	🟡	🟡	🟡
16. Confidential Disclosures	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢
17. GB Meetings	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢
18. Audit Committee Meetings	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟡	🟢	🟢	🟢	🟢
19. Review of GB Performance	🟢	🟢	🟡	🟢	🟡	🟡	🟡	🟢	🟢	🟢	🟡	🟡	🟢	🟡
20. Salary of President	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢
21. Child Protection Policy	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢
22. Fees/Expenses in Line With DoF	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢
23. Fees/Expenses in Annual Report	🟢	🟢	🟢	🟡	🟡	🟢	🟢	🟢	🟢	🟢	🟡	🟢	🟢	🟢

ISSUES	AIT	ITB	ITC	CIT	DIT	DKIT	IADT	GMIT	LYIT	LIT	ITS	ITTALLAGHT	ITTRALEE	WIT
24. Schedule of Fee/Expenses	●	●	●	●	●	●	●	●	●	●	●	●	●	●
25. Trading Subsidiaries	●	●	●	●	●	●	●	●	●	●	🟡	🟡	●	●
26. General Governance Issues	●	●	●	●	●	🟡	●	●	●	●	●	🟡	●	●
27. GB Responsibility for IC	●	●	●	●	●	●	●	●	●	●	●	●	●	●
28. Assurance Against Material Error	●	●	●	●	●	●	●	●	●	●	●	●	●	●
29. Procedures in Place Effective Control	●	●	●	●	●	●	●	●	●	●	●	●	●	●
30. Business Risks	●	●	●	●	●	●	●	●	●	●	●	●	●	●
31. Information Systems	●	●	●	●	●	●	●	●	🟡	●	●	🟡	●	●
32. Financial Implications of Business Risks	●	●	●	●	●	●	●	●	🟡	●	🟡	●	●	●
33. Monitoring Effectiveness of IC	●	●	●	●	●	●	●	●	●	●	●	●	●	●
34. Review Of Effectiveness of IC	●	●	●	●	●	●	●	●	●	●	●	●	●	●
35. Weaknesses in IC	🟡	●	●	●	🟡	●	●	●	●	🟡	●	🟡	●	🟡
36. Actions to Correct Weakness	●	●	●	●	●	●	●	●	●	🟡	●	●	●	●

● – Green indicates compliance with relevant requirements

🟡 – Yellow indicates non-compliance but corrective action has or will be taken

🔴 – Red indicates non-compliance with little or no evidence of corrective action