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A strategic analysis of the Scottish higher education sector's distinctive assets: An update.

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Foreword

In 2013, the publication of *'A strategic analysis of the Scottish higher education sector's distinctive assets'* was the first of its kind. The report was a comprehensive analysis of Scotland's distinctive assets in learning, teaching and research. The report provided an evidence base of national-level assets that could feed into the story that was told about Scotland's higher education Sector internationally and highlighted the areas where it had a distinctive contribution to make. It laid out how and why Scotland's higher education system is world leading.

Since its publication, it has been widely used by British Council in Scotland, the wider UK and by our education teams based in over 100 countries. It was a reference point for developing the focus of Connected Scotland, a multi-agency partnership that supports a sector wide approach to international recruitment, partnerships, and research. It has also been used as a resource to underpin national promotional campaigns and as a practical tool to support engagement with a diverse range of international stakeholders including governments, funding agencies and universities. This has increased understanding of and collaboration with Scotland.

In 2019, in recognition that the global and domestic context for higher education had changed significantly, we commissioned the original authors of the report to conduct an update. At the time of commissioning, changes we had in mind included a range of Scotland and UK policy developments, growing international demand for higher education, alongside growing international competition. The global pandemic, Covid-19, had not yet begun. As of March 2021, the full scale of the impact of the pandemic for higher education remains to be seen. The authors have however, captured the critical role that the sector is playing in addressing the impact in Scotland and internationally.

As the report notes, the distinctive assets of Scotland's higher education sector described in the update are in many ways an extension of those identified in 2013. An integrated and inclusive sector that is outward looking with impressive international reach, it is defined by an overall approach that combines a focus on the public good with world leading teaching and research. Excellent student satisfaction rates together with an outstanding record on graduate employability were identified as some of the reasons that so many international students chose to study in Scotland.

Seven years on, these findings still hold true. In fact, as the findings show, the primacy of the learner has been strengthened through the unique role played by QAA Scotland's enhancement themes that have helped give students a genuine voice in shaping policy. This focus, along with continued innovations in consolidating strengths in research, perhaps explain why Scotland is second only to Australia on a per-capita basis for international student enrollments and why Scotland enjoys impressive national and international metrics for research impact in areas such as: Life Sciences, Data Science and Digital Medicine.

We hope that this update again proves useful. We look forward to using the insights that it offers to support our work with and on behalf of the higher education sector in Scotland.

Lucy Young, Head of Education,
British Council Scotland

Executive summary

This report was commissioned by British Council Scotland as an update to the report published in 2013 by the same authors, *A strategic analysis of the Scottish higher education sector's distinctive assets*.[1] The study assembles, and provides evidence for, an updated interpretation of the 'distinctive assets' of Scottish higher education. It provides a compelling and detailed snapshot of the achievements and activities of Scottish universities, acting on their own, in collaboration with each other and a broad range of public and private sector domestic and international partners. This narrative, together with the data and case studies, provide an explanation of why and in what ways Scotland is in the international top tier of higher education.

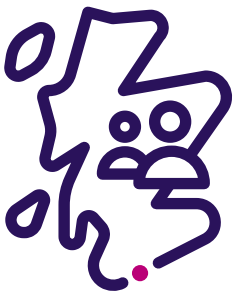
1
Kemp, N and Lawton, W (2013) A strategic analysis of the Scottish higher education sector's distinctive assets. British Council Scotland. Available online at: http://connectedscotland.org/wp-content/uploads/2014/06/scotland-report-a-strategic-analysis-of-the-scottish-higher-education-sectors-distinctive-assets.pdf

Five distinctive assets

To update this report, a wide consultative process was undertaken, and primary sources were used including interviews, roundtables and focus groups that covered every university in Scotland. Stakeholders from across the sector were involved, including public agencies with a higher education brief, the National Union of Students in Scotland and international students. Desk research included analysis of international, UK and Scottish higher education statistics and financing, global rankings and many official reports produced within Scotland and beyond. See Appendix A for the bibliography.

While Universities everywhere have areas of excellence, in this report, 'distinctive assets' are taken to be attributes that exhibit excellence while, additionally and uniquely, set the Scottish higher education sector apart from its main comparators. Interpretation is built around five distinctive assets:

1



Education as a national public good

This is a fundamental aspect of Scottish higher education. Wider societal benefits are prioritised over private gain in policymaking. This underpins the collaborative nature of the sector and is illustrated in Scotland's whole-sector approach to widening access for under-represented communities. This involves articulation from the college sector, university access programmes, outreach activities and recognition of prior learning, including in the workplace.

2

A whole-sector approach to quality enhancement and improving the student experience

Quality assurance and credit recognition procedures place student benefit at the centre of the university journey, from initial contact to alumni. Sector-wide quality enhancement initiatives are delivered by Quality Assurance Agency for Higher Education (QAA Scotland) and individual universities, and involve staff and students as stakeholders. Specific 'Focus On' projects complement broader Enhancement Themes. Initiatives include supporting research students, improving the distance learning experience, graduate employability and addressing the changing needs of a diverse student community. There is a whole-sector approach to improving learning outcomes, the student experience and student well-being. The student voice is effective.

3

Scottish research: World-class and local benefit

The distinctiveness of Scottish research lies in the juxtaposition of its excellence with the co-ordinated sector-wide approach to a national research strategy. Scottish university research output exceeds the UK average in the metrics around the Research Excellence Framework (REF) and capture of UK research council funding; it outperforms many comparator countries in publications per researcher and citation impact. Scottish research is increasingly internationalised and outward-looking while being tied to Scotland's needs.

4

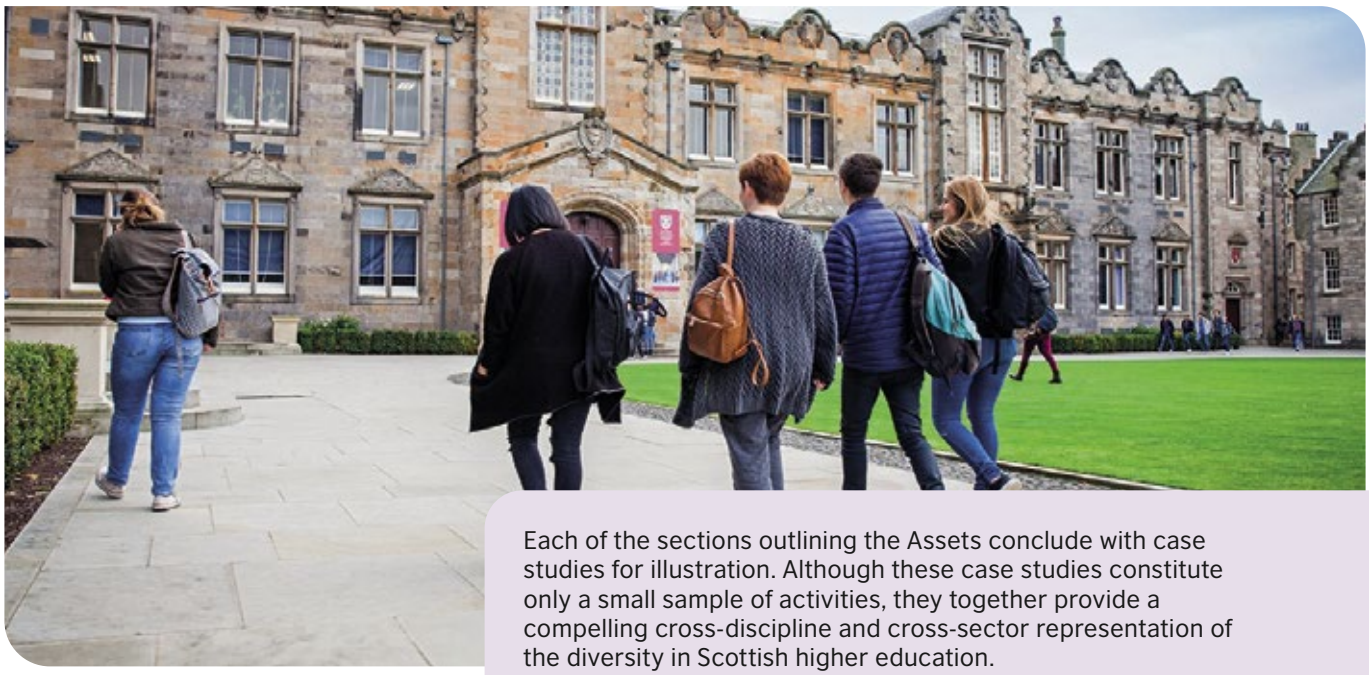
The positive interplay of international and local

International and national higher education activities at Scottish universities interrelate dynamically and benefit universities, international partners, international and domestic students, the Scottish economy and society more widely. Success in internationalisation is driven by university initiatives and government policy priorities, resulting in increasing numbers of international postgraduate students, international academic and research staff and research partnerships, particularly in STEM areas.

5

A focus on graduate skills and employability

The goal of graduate employability is embedded within degree programmes at Scottish universities. Initiatives have expanded since the 2013 report. Work placements, internships, industry-led projects and start-ups are supported. Collaboration between the higher education sector and employers (business, industry and public sector) is strong. Some 95 per cent of Scottish students are in employment or training within six months of graduation.



Each of the sections outlining the Assets conclude with case studies for illustration. Although these case studies constitute only a small sample of activities, they together provide a compelling cross-discipline and cross-sector representation of the diversity in Scottish higher education.

Key themes and findings

The public good

While other interpretations of distinctive assets are obviously possible, it is apparent that the current findings have more continuity than divergence with the 2013 report. A central overarching idea in both reports is that Scottish civic culture is informed by, and transmits, an essential idea of the public good.

Things are done differently in Scotland, not least the way higher education policy is shaped and executed. What is often referred to as the 'manageable size' of the sector continues to facilitate team-working and unity of purpose. The latter can be read as the national good, or national goals. Section 2 of the report outlines the notable relationship between the sector and the Scottish Government. What is distinctive, certainly within the UK context, is an acceptance that the mandates of the two entities should have a great deal of overlap. There is agreement that universities can and should deliver governmental priorities. This is not unheard of in many parts of the world, though in most of those place's universities operate as agencies of the state, without autonomy from government. In Scotland the coincidence of interests is (more or less) freely given.

Students at the centre

A key difference of emphasis in this report, compared with its predecessor, is that three of the five distinctive assets proposed here (distinctive assets 1, 2 and 5) are explicitly focused on students. Students in Scotland shape policy: the 'whole-sector approach' referred to in this report therefore includes the student voice.

This does not mean that Scottish higher education has undergone a wholesale transformation, in the seven years since the earlier report, into a student-focused endeavour. The transformation is a continuing process of improvement, and the role of students is now more apparent in real policy outputs. This leads to the basic distinction of what a student-focused sector means in Scotland. It is true that fee-paying students – and there are plenty in Scotland – require value for money. But Scottish higher education is not defined as a marketplace in which students are presented with their rights as consumers, encouraged to demand them, and to find fault when they are not met. Rather, student-focused means genuinely integrating the student voice into higher education policymaking so that it responds to their needs.

A focus on a positive and responsive learning experience extends into excellent employability statistics for Scotland's universities. As noted in the 2013 report, the success of the sector in this nationally constitutes a distinctive asset.

Research in Scotland

This report provides evidence that Scottish research ranks with the best in the world across many disciplines. The metrics of the REF and access to UK Research and Innovation funds both demonstrate better than average research performance.

Scottish universities also punch above their weight in accessing the Global Challenges Research Fund. Scotland's share of the EU Horizon 2020 spend was higher than its share of the UK population and it had a slightly higher proportion of success in applications than the UK average.

International indicators of Scottish research impact are impressive. On publications per researcher, share of international collaborative publications and citations per researcher, Scotland outperforms many other comparable countries. The increasingly outward-facing nature of Scottish research was emphasised in interviews and roundtables conducted for this work.

The research section in this report also demonstrates a further example of how Scottish political culture informs policymaking for higher education in a distinctive way. The discussion of industry-led innovation centres illuminates the dilemma of how to balance public and private interests in order to deliver economic impact as a public good. This comes into play when there is public sector support for national goals that have commercial inputs. Enhancing national economic performance and providing innovation support across all the regions and business sectors is complex. It concludes that this is a good example of policy designed to give equal weight to regional equity, the national public good, and commercial imperatives.

Internationalisation of the sector

The evidence of the sector's success at internationalisation is compelling, and it is highlighted here as a distinctive asset. International activities have increased rapidly and successfully since 2013, driven by entrepreneurial flair. Over the last four years, international student enrolments have increased by 16 per cent overall (non-EU by 22 per cent), the number of international academic and research staff is up 46 per cent and enrolments to Scottish degrees delivered internationally (via transnational education (TNE) have grown by 14 per cent. In particular, Scotland has attracted both master's and PhD students.

On a per capita basis, Scotland is second only to Australia for international student enrolments. Scotland has four universities ranked in the global top 200 and seven in the top 400 – second only to Switzerland (per capita). These are considerable achievements given the rapid growth in competition from Asia and Europe.

Scottish successes in internationalisation is again a consequence of a joined-up approach between universities and government. Universities have been able to take advantage of the strong reputation of the UK as an international study destination, while at the same time offering a clear 'Scottish differentiation'.

The positive interplay of international and local

International activities greatly benefit Scottish universities and Scottish society. Benefits accrue from new business links, quality enhancement in universities, research innovation and partnerships, cultural enrichment, employment growth and new revenue streams (both current and future).

National and international activities interrelate dynamically: the national funding of research and teaching contributes to the infrastructure that enables Scottish universities to compete and succeed globally. The sector's international engagement can be viewed as a 'virtuous circle of benefit' for Scotland in which each activity has potential to give rise to new opportunities and benefit.

Conclusions and Recommendations:

The report shows that Scotland can continue to build on the identified assets to further develop and strengthen international collaboration. Scottish higher education is recognised as one of the country's foremost soft power assets abroad. At home, higher education has a central place in transmitting the ideal of the public good. The Scottish government has already determined that responding to the Sustainable Development Goals is a policy goal and its commitment to a global agenda reinforces the country's distinctive credentials as a promoter of the 'international good'. As this report demonstrates, higher education has, and will continue to have, a central role in this policy development. The recommendations proposed at the end of this report detail the potential role that an International Education Strategy for Scotland could have in supporting this.

16%

Increase of international student enrolments over the last four years

1 Introduction

1.1 Background and methodology

This study was commissioned by British Council Scotland and undertaken by Neil Kemp and William Lawton. It is a follow-up exercise to the 2013 report *A strategic analysis of the Scottish higher education sector's distinctive assets*.[2]

Primary sources for this research were composed of briefings; interviews with academics, senior university administrators and staff at the main organisations involved in Scottish higher education, e.g. the Quality Assurance Agency for Higher Education (QAA Scotland), Scottish Funding Council (SFC), Universities Scotland, National Union of Students (NUS) Scotland, and the British Council; roundtables with universities, British Council Regional Education Advisers, and Connected Scotland member organisations; and focus groups with Scottish, other UK, EU and international students (see Appendix B). We are grateful to the universities who provided case studies referenced throughout this report.

Desk research included analysis of UK and Scottish funding and student enrolment data from the SFC, Higher Education Statistics Agency, UK Research and Innovation, and the funding councils; other statistics; global and national rankings; and a great number of reports produced within Scotland and beyond, including government and agency documents. See Appendix A for the bibliography.

1.2 The study

The earlier study in 2013 noted a great deal of pride in the Scottish ethos of higher education as a public good, as well as how this presented a contrast to more marketised higher education systems. At the time of interviewing the no-fees regime for Scottish and EU undergraduates came across in interviews as a source of pride and difference for Scotland.

The landscape of Scottish higher education has, unsurprisingly, changed considerably in the seven years since. A notable difference is that it is now more internationalised in terms of the number of universities involved and the breadth and depth of activities. This report attempts to capture these shifts as well as the continuity in portraying the distinctiveness of the Scottish higher education sector.

The earlier report identified five 'distinctive assets' of Scottish higher education.

1. A joined-up and collaborative sector, facilitated by its modest size and a Scottish ethos of education as a public good
Evidence for this included innovations in teaching, the Scottish research pools, a collaborative approach to quality assurance, the funding regime, a no-fees policy for undergraduates, and positive attitudes to the European Higher Education Area.

2. Quality assurance and credit recognition procedures that are owned by all Scottish universities
One aspect of this was the QAA Scotland 'Enhancement Themes' that are distinguished by placing benefit to the learner at the centre of considerations.

3. Graduate employability and employment
This portrayed the strong links between the higher education sector, business, industry and public sector employers.

4. Innovative structures and pedagogy
This included flexible learning for students in remote locations, specialist postgraduate programmes that build on research pool expertise, and addressing the specific needs of business and industry.

5.Research impact
This characterised Scottish research pools as constituting an innovative approach to research collaboration that utilises excellence to concentrate activity and stimulate collaboration between universities both domestically and internationally. It further documented Scottish success in accessing research funds from the UK research councils.

These five assets were distilled from a detailed examination of activities and areas of excellence. 'Distinctive assets' were not taken to be synonymous with 'excellence'; they were taken to be attributes that exhibited excellence and – additionally and uniquely – set the Scottish higher education sector apart from its main comparators. Excellence in higher education exists almost everywhere. But the above list of distinctive assets were proposed as a means of differentiating Scottish higher education in a crowded and competitive global higher education space.

2
Kemp, N and Lawton, W (2013) A strategic analysis of the Scottish higher education sector's distinctive assets. British Council Scotland. Available online at: http://connectedscotland.org/wp-content/uploads/2014/06/scotland-report-a-strategic-analysis-of-the-scottish-higher-education-sectors-distinctive-assets.pdf

The following list is an updated interpretation of distinctive assets from this study. It reflects the continuity and change referred to above.

1. Education is seen as a public good
This is a fundamental aspect of Scottish higher education and one that underpins both the collaborative nature of the sector and Scotland's distinctive approach to widening access. Both of these sub-themes are explored in some detail.

2. A whole-sector approach to quality enhancement and improving the student experience
This distinctive asset again brings together two sub-themes under a broader rubric. Fresh evidence is provided for QAA Scotland's wholly distinctive quality enhancement approach, as well as for the country's approach to student engagement, support and well-being.

3. Research culture: World-class and with social benefit
This section updates and reaffirms the metrics covered previously regarding research excellence and additionally provides evidence for how world-class research output is tied to Scotland's needs.

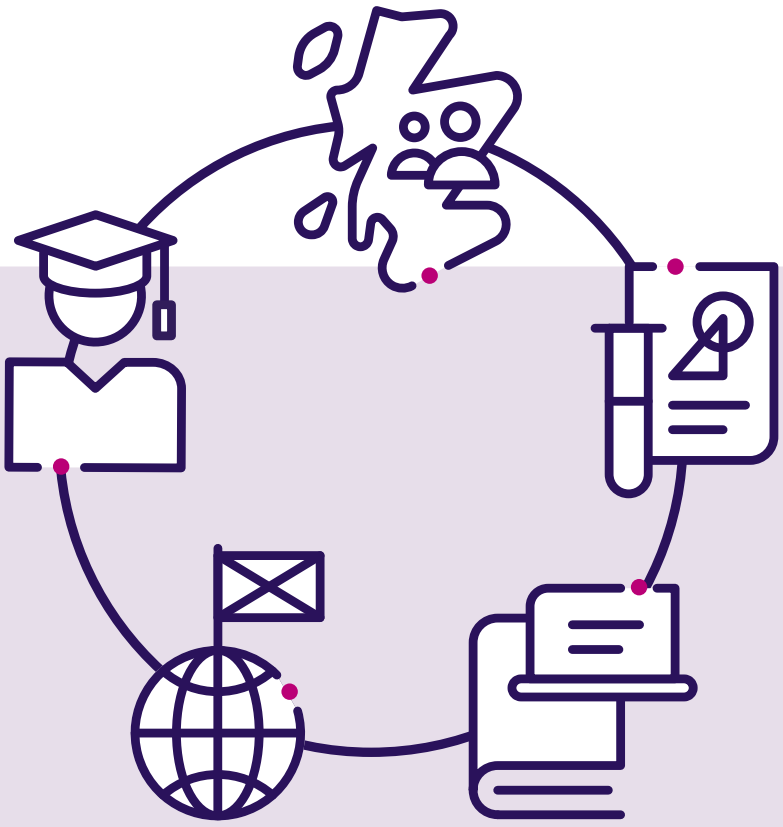
4. The positive interplay of international and local
This section demonstrates the ways in which Scottish higher education has become more international and external-facing and explores the dynamic inter-relationship between international and national activities. Case studies portray how benefits accrue to students, universities and Scottish society.

5. A co-ordinated focus on graduate skills and employability
Scotland's approach to graduate employability is innovative and distinctive; it has moved centre-stage in the national agenda. This update provides a greater focus on the role of institutions and national organisations in realising enhanced employability outcomes.

This report is simply structured according to the above five distinctive assets. The narrative employs both data and analysis. Each section incorporates case studies as illustrations of innovative and distinctive practices.

1.3 EU Exit ('Brexit') and Covid-19

The year 2020 was one of great uncertainty for Scottish higher education, most directly because of the Covid-19 pandemic but also because of the approaching final deadline of the UK's withdrawal from the EU. Both Brexit and Covid-19 will have a significant and prolonged impact on the delivery of Scottish higher education, locally and internationally. Although this constitutes a fast-moving landscape, we have included a discussion of these two events at the end of Section 2.



2
Scottish higher education: the changing context

2.1 Scottish higher education institutions and their global reputation

2.1.1 Brief overview

Scotland has 19 higher education institutions, including 16 universities and the Glasgow School of Art, Royal Conservatoire of Scotland and Scotland's Rural College. Based on population, this is the highest concentration of universities in Europe. The four 'ancient universities' of Scotland, St Andrews (founded in 1413), Glasgow (1451), Aberdeen (1495) and Edinburgh (1582), are the oldest in the UK except for Oxford and Cambridge. These four institutions all appeared in the top 200 of both the *Times Higher Education* and QS World University Rankings in 2020.[3] Edinburgh was highest, at 30th and 20th in the world, respectively. Per capita, this is the second-highest concentration of world-class universities anywhere. This is covered in some detail in this section.

Scotland's higher education sector has always been characterised by its diversity. In addition to the ancient universities and small specialist institutions just noted, the four 'chartered universities' (Dundee, Heriot-Watt, Stirling and Strathclyde) received university status in the 1960s. They are also research-active and have successfully attracted fee-paying students from the rest of the UK and beyond the EU.

Non-EU tuition fees have helped the ancient and chartered universities to manage recent reductions in public funding (see discussion below). Modern universities are generally more teaching-intensive and have a greater proportion of Scottish students. The Open University in Scotland is dedicated to open access, skills development and social justice, and is the most popular university in Scotland for flexible, part-time study.

Scottish universities educated 253,475 students in 2018–19 – an increase of 6,300 from the previous year.[4] Almost one-quarter (23 per cent) of these students were from outside the UK, a higher proportion than the UK average because of Scotland's higher proportion of non-UK EU students (8.5 per cent against 6 per cent for the rest of the UK). Some 59 per cent of enrolments at Scottish universities are female.

The Scottish higher education sector, in the global context, is highly and increasingly internationalised. The success of Scottish universities in internationalising is illustrated in Table 2.1. There is a greater proportion of international students enrolled (27.3 per cent) compared with the rest of the UK and other comparator countries, although Scottish universities recruit fewer non-EU international students relative to the rest of the UK. This is further reflected in the proportion of international staff, the expansion of TNE, Scottish participation in international research collaborations, and Scotland's high position in the main global rankings. All these areas are discussed in more detail in subsequent sections of this report.

Since the 2013 study there have been many changes in the operating environment of the sector including those related to policy, financing, institutional activities and the increasingly competitive positioning of universities around the world. On top of this, there is the uncertainty of

3
Times Higher Education (2019) Best universities in Scotland 2020. Times Higher Education, 30 September 2019. Available online at: www.timeshighereducation.com/student/best-universities/best-universities-scotland

See also www.topuniversities.com/where-to-study/europe/united-kingdom/top-universities-scotland

4
HESA (n.d.) HE student enrolments by HE provider 2014/15 to 2018/19. Available online at: www.hesa.ac.uk/data-and-analysis/students/table-1

5
Elsevier Analytical Services (2019) A Metrics-Based Assessment of Scotland's Science Landscape (2007–2016), page 49. Available online at: www.scottishscience.org.uk/sites/default/files/article-attachments/Scotland%27s Science Landscape Main Report.pdf

6
Scottish Funding Council (2019) GCRF funding for 2019–20. Scottish Funding Council, 20 August 2019. Available online at: www.sfc.ac.uk/news/2019/news-75970.aspx

7
Elsevier Analytical Services (2019), page 23.

Table 2.1: Comparison of universities in Scotland and rest of the UK according to a variety of measures

	Country Population (000s)	Number of universities	Number of universities in global top 400	Number of students (all)	Number of international students	Proportion international students
Scotland	**5,438**	**19**	**7**	**254,575**	**69,525**	**27.3%**
Rest of UK	60,998	150	41	2,130,495	481,970	22.6%

Source: *HESA (www.hesa.ac.uk/data-and-analysis/students/whos-in-he) and THE Global Rankings (2020)*

the UK's withdrawal from the EU and the 'existential threat' of Covid-19 (see below). This report seeks to draw out many of these and provide an assessment of how the Scottish sector is responding.

Along with successes there remain concerns, some impacting at present and others which will impinge in the medium and longer terms. These concerns and responses to them are also considered in the report.

2.1.2 The four-year degree

The Scottish undergraduate degree is four years in duration for most subjects. This leads to an honour's undergraduate degree, though many undergraduate degrees in Scotland are called 'Master's' degrees. The Scottish system also allows students to take a 'general degree' in three years.

The Scottish four-year system is in common with much of the world but in the UK context, it is distinct. It offers more flexibility and a broader knowledge base through a greater number of subjects. The first two years can be completed before having to specialise in the final two years. Changes can be made with no lost time. This flexibility was seen as an asset by both staff and students interviewed for this work; this point is revisited in Section 4.7.4. The four-year degree offers greater opportunities for study abroad and facilitates access for students with non-traditional entry qualifications, including international students. For many students it also presents the opportunity to engage in original research during the third or fourth year.

On the other hand, three-year undergraduate programmes can be preferred by international students on the grounds of lower cost – or the perception of it. Section 6.4 provides statistical evidence of this. The (partial) Scottish response to this – for students from the rest of the UK only – is an explicit offer for 'four years for the price of three'.

Scottish Master's degrees are an international success story in terms of recent enrolment growth (see Section 6), in spite of international comparability and recognition problems associated with the one-year taught master's degree programmes in the UK.

The role of the college sector in the delivery of higher education in Scotland is clearly distinctive. The integrated relationship between the college and university sectors is a distinctive asset of the Scottish system, and the significant role of colleges in widening access to Scottish higher education is discussed.

2.1.3 Research in Scotland

Scottish research is highly international and world-class: the share of publications involving international collaboration rose from 43 per cent in 2007 to 57 per cent in 2016 (67 per cent in Biological Sciences and 65 per cent in Physical Sciences).[5] Scottish universities lead hundreds of projects in more than 70 developing countries through UK funding from the Global Challenges Research Fund; £11.8 million was allocated to this in 2019–20.[6] This is discussed in more detail in Section 4.

Scotland outperforms the UK average in both the proportion of research output awarded the top grades in the Research Excellence Framework (REF) and in capturing UK research councils funding. Scotland outperforms the rest of the UK and other countries in research impact: an independent analysis in 2019 showed that Scotland had the highest average number (0.53) of publications per researcher in the decade from 2007 to 2016, and by far the highest number of citations per researcher in UK and comparator nations: 16.0 citations in Scotland, 12.2 in Netherlands, 12.7 in Wales, 11.3 in Ireland, 10.2 in Singapore, and 9.2 in England.[7]

2.2 Governance and government priorities

2.2.1 Education – a devolved responsibility

Scotland is a self-governing jurisdiction with tax-raising powers within the UK. Scottish education, like Scottish law, has always been distinct from that in other parts of the UK. Under the terms of the UK devolution settlement in 1999, education is a fully devolved function for which only the Scottish Parliament can legislate.

Spending is not restricted by devolution: Scottish universities take full advantage of funding that originates at UK level, just as they do with EU and other non-UK funding. It remains to be seen what impacts leaving the EU will have on Scottish and UK access to different types of EU funding and programmes, including the Erasmus Programme, although current arrangements and agreements are unlikely to remain unchanged.

The Scottish government leads on education policy and the SFC (a non-departmental public body) has policy-influencing and implementation roles in addition to its funding of further and higher education and research. Universities Scotland, the representative body of Scotland's higher education institutions, plays a vital role as campaigner, information source and interface between the sector and the Scottish government. A host of other national bodies and agencies, including NUS Scotland, QAA Scotland, Scottish Enterprise and Scottish Development International, all impact and/or implement Scottish higher education policy. The coherent and effective nature of these inter-relationships was a central theme of the 2013 report, and it appears again in Section 3 and throughout this update.

2.2.2 The Scottish government's priorities for higher education

The Scottish government shares the view that Scotland's universities are among the world's best.[8] The government's strategic priorities for higher education can be gleaned from various sources, notably the annual guidance letters to the SFC from the Minister for Further Education, Higher Education and Science. In the 2018–19 guidance letter, the priorities were:[9]

- delivering the aims of the Enterprise and Skills Strategic Board (which focus on 'skills alignment', i.e. identify demand and gaps in supply, and plan to bridge the gap)
- high-quality learning (STEM capability, digital skills and the screen sector are specified)
- widening access to further and higher education
- good governance in universities
- internationally competitive and impactful research
- knowledge exchange for innovation and entrepreneurism (the role of universities in driving business innovation).

Less precisely, the letter instructs the SFC 'to ensure that there is a clear line of sight between our investment in universities and their contribution to the delivery of our national priorities' in the National Performance Framework.[10] Each element of this Framework is mapped against the UN's Sustainable Development Goals (SDGs), and the way in which the Scottish Government aspires to realising the SDGs in the Scottish context is mapped out at great length in a paper from 2020.[11]

The call for 'good governance' in the priorities is interesting, as the 2013 report identified a recently completed review of higher education governance[12] as the sole significant point of widespread disagreement

8
See www.gov.scot/policies/universities

9
Scottish Funding Council (2018) Scottish Funding Council – Letter of Guidance 2018–19, 4 April 2018. Available online at: www.sfc.ac.uk/web/FILES/AboutUs/SFC_letter_of_guidance_2018-19.pdf

10
For a chart, see nationalperformance.gov.scot/sites/default/files/documents/NPF_A2_Poster.pdf

11
Scottish Government (2020) Scotland and the Sustainable Development Goals: A national review to drive action, July 2020. www.gov.scot/publications/scotland-sustainable-development-goals-national-review-drive-action.

12
Scottish Government (2012) Report of the Review of Higher Education Governance in Scotland. Available online at: https://www.webarchive.org.uk/wayback/archive/3000/https://www.gov.scot/resource/0038/00386780.pdf

13
Higher Education Governance (Scotland) Act 2016. Available online at: www.legislation.gov.uk/asp/2016/15/contents/enacted

14
Scottish Government (2020) Letter to the SFC from Richard Lochhead, Minister for Further Education, Higher Education and Science, 3 June 2020. Available online at: www.sfc.ac.uk/web/FILES/AboutUs/Scottish_Government_letter_reviewing_coherent_provision_and_sustainabilty_03_Jun_2020.pdf

15
Scottish Government (2019) A Trading Nation – a plan for growing Scotland's exports. Available online at: https://www.gov.scot/binaries/content/documents/govscot/publications/strategy-plan/2019/05/scotland-a-trading-nation/documents/scotland-a-trading-nation/govscot%3Adocument/326205_SCT0319861220-001_%252BWR.pdf

between government and sector – with the exceptions of NUS Scotland and University and College Union Scotland, which supported it. The subsequent legislation, in 2016, included provision for staff and students to elect the chairs of university courts (the governing bodies), and for students and trade unions to be represented on courts.[13] Although university leaders felt this to be a rare instance of intrusion into institutional autonomy, not one of dozens of interviewees for this report broached the issue of governance. The sector has other concerns.

The arrival of the Covid-19 pandemic in early 2020 triggered a request by the Minister for the SFC to conduct a comprehensive review of further and higher education in Scotland. His letter of instruction covered the broadest possible scope:

Such is the scale of the external shock, it is clear to us all that existing models of funding, governance, collaboration and delivery will need to shift in order to meet new challenges and exploit new opportunities … I therefore invite the Scottish Funding Council to review how best it can fulfil its mission of securing coherent provision by post-16 education bodies … We expect this will cover future provision, delivery, outcomes and targets, funding models and support for research activity across the college and university sector in Scotland.[14]

At the time of writing (summer 2020), the SFC is gathering evidence for this major review.

The SFC's main tool to fine-tune and enhance alignment between governmental priorities and university activities are the annual outcome agreements it negotiates and signs with each institution. As reported in the 2013 report, the relationship between the SFC and universities changed radically in 2012–13 with the introduction of this outcomes-based approach to funding.

Interviews for this research yielded views on outcome agreements that were similar to those in 2013: they are generally accepted, with some criticisms, as part of the Scottish higher education policy architecture and continue to be enthusiastically embraced by NUS Scotland. The role of outcome agreements in delivering the widening access agenda is discussed in Section 3.

2.2.3 Prioritising the priorities: domestic and international

Foremost among the governmental priorities noted above is the need to widen access to undergraduate higher education for different socio-economic groups. This has been a consistent policy aim over many years. Individual university targets for widening access are set annually in the outcome agreements. The positive and collective manner in which the sector has responded to widening access is an illustration of the first distinctive asset proposed in this report, which is that education is widely seen as a public good (see Section 3).

The government also has a significant international objective for higher education that does not feature in the guidance letters to the SFC. Universities are named in a 2019 roadmap document, *A Trading Nation*, as key delivery partners in raising Scotland's exports.[15] This sets a target of increasing Scottish exports to 25 per cent of GDP by 2029 (about £25 billion more in exports).

The document states that Scottish higher education should diversify its markets away from 'an over-reliance on China' and towards markets where Scotland already has a presence, such as North America (identified as a priority market by the Universities Scotland International Committee), India and Malaysia. It notes three key activities to achieve this:

- international student recruitment
- research and business collaboration
- TNE (programmes delivered by Scottish institutions in different countries).

The Report *A Trading Nation* expresses a rational view of higher education's contribution to a national economy. But as with the instructions contained in the guidance letters to the SFC, and as with the broad acceptance of how public funding is tied to outcome agreements, it points to a broader issue about the relationship of higher education mandates to governmental mandates. In Scotland, what is distinctive, certainly within the UK context, is an assumption that these mandates should have a great deal of overlap. Stated another way, there is a high level of acceptance in Scotland that universities can and should deliver governmental priorities. Further, it is understood that this coincidence of interests is not only consistent with the ideal of university autonomy; it is essential to the Scottish ideal of higher education as a public good. No government–higher education sector relationship can be wholly without friction, and nor should it be. But this is a particularly Scottish approach to reconciling a close government–academy relationship that might in other circumstances (where there is little or no university autonomy, for example) be seen as problematic.

2.3 A shift from public to private funding

Of course, Scotland has not been immune to the funding constraints seen elsewhere in the UK and beyond. Concern over funding cuts (or 'flat money') in recent years was consistently expressed in the interviews and roundtable discussions conducted for this research. The SFC's total grant-spend for 2019–20 was some £1.03 billion for universities and £614 million for colleges.[16] This excludes a further £68 million for capital spending projects and a further £213 million from the Scottish government for Scottish and EU tuition fees.

The overall university spend indeed appears to have peaked in 2014–15, though the allocation for teaching was highest in nominal terms in 2019–20, as can be seen in Table 2.2.

In real (inflation-adjusted) terms, however, the picture is different. Audit Scotland calculates a seven per cent cut in overall funding, in real terms, between 2014–15 and 2017–18. This is a reduction of about £700 per student in real terms for the period. Table 2.2 indicates a similar decline in funding for teaching up to 2019–20, and with an overall real funding decline of 13 per cent. This and the parallel reduction in tuition fee support means that institutions in Scotland receive less public funding per undergraduate student than those elsewhere in the UK. A number of interviewees for this work pinpointed this as a concern.

A milestone was reached in 2017–18, when tuition fees (for non-EU international and all postgraduate students) replaced SFC grants as the single largest source of income for the sector (32 per cent versus 30 per cent). These fees are similar to those set by universities in the rest of the UK. This demonstrates that in spite of the Scottish government's commitment to tuition-free education for Scottish and EU students, Scotland has not escaped the wider international shift from public to private financing of higher education.

The net effect has been that the total income for the sector has continued to grow and in 2017–18 was estimated at £3.8 billion. But the consequences are uneven across the sector.

The four ancient universities (St Andrews, Glasgow, Aberdeen and Edinburgh), for example, have weathered the shift well because they are able to raise research funding as well as international fees. Their lower dependency on public funds means that St Andrews received only 15 per cent of its income from SFC grants in 2017–18. Audit Scotland also reported that three of these four 'routinely generate surpluses'.[17] The four chartered universities (Dundee, Heriot-Watt, Stirling and Strathclyde) have also been successful at recruiting non-EU international and 'rest of UK' students to fill the funding gap with tuition fees.

The other universities are more teaching intensive, have a greater proportion of Scottish students, and are more dependent on public funds. The shift to greater private financing has meant a drop in real income for these institutions, and the onus of delivering the government's priority of widening access rests most heavily on them.

Table 2.2: SFC funding allocations for universities, 2014–15 to 2019–20 (£ millions)

	2014–2015	2015–2016	2016–2017	2017–2018	2018–2019	2019–2020	% change since 2014–2015	% change in real terms*
Teaching	702	703	688	693	713	714	+1.7%	-6.7%
Research Excellence Grant	245	232	232	232	242	236	-3.7%	-11.7%
Research – other	51	52	47	47	54	49		
'Research and innovation' total	296	284	279	279	296	285	-3.7%	-11.7%
Strategic funding and other	90	67	64	61	49	33		
Total	**1,088**	**1,054**	**1,031**	**1,033**	**1,058**	**1,032**	**-5.1%**	**-13.0%**

Source: *Scottish Funding Council (n.d.) Final funding allocations. Example for 2019–20: www.sfc.ac.uk/publications-statistics/announcements/2019/SFCAN092019.aspx. Does not include capital spend or tuition fee support.*

**Calculated using a modest 1.09 multiplier in purchasing power difference over the five-year period. Actual UK inflation was higher, so this underestimates the decline in real terms.*

2.3.1 Economic impact of the higher education sector

Universities are a major economic and employment sector for Scotland: in 2016–17, they directly employed some 43,700 people, added an estimated £7.1 billion to the Scottish national economy and £1.5 billion in export earnings. At regional level, in Dundee for example, one in every eight jobs depends in some way on higher education sector-related activities.[18]

2.4 International and domestic rankings

Scottish universities have retained high positions in global rankings, although with some declines since the 2013 report, as assessed through analysis of a number of the main international ranking tables. Four Scottish universities make the global top 200 in the *Times Higher Education* World University Rankings and QS World University Rankings. This remains a considerable achievement for a small country in the face of very fast-growing international competition.

In Table 2.3 the total number of universities in the global top 200 for each country is compared with its total population (expressed in millions). The results show that Scotland is second only to Switzerland for this consideration. However, of note is that Scotland was top in 2013 on this scale, with five universities making the global top 200.

Table 2.3: Country population per university ranked in global top 200 for select countries

Country	Population (millions) per global top 200 university	Country	Population (millions) per global top 200 university
Switzerland	1.2	Ireland	4.9
Scotland	**1.4**	Canada	5.4
Netherlands	1.6	USA	5.6
Sweden	2.0	New Zealand	5.8
Australia	2.3	Denmark	5.8
Rest of UK	2.5	Austria	9.0
Singapore	2.9	Austria	9.0

Notes:

1. Country population data is the most recent provided by each country (typically 2018 or 2019).

2. University global top 200 are according to Times Higher Education Global Rankings 2020.

16
See www.sfc.ac.uk/funding/funding-allocations/funding-allocations.aspx

17
Audit Scotland (2019) Finances of Scottish universities, page 9. Available online at: www.audit-scotland.gov.uk/uploads/docs/report/2019/nr_190919_finances_universities.pdf

18
Universities Scotland (2017) Going for Growth: A summary of Universities Scotland's submission to the 2017 spending review, pages 1 and 3. Available online at: www.universities-scotland.ac.uk/wp-content/uploads/2017/11/Going-for-Growth-Spending-Review-Short.pdf

The excellent overall ranking of Scottish universities appears to derive from high scores for the metrics covering research citations and levels of internationalisation (which particularly reflects proportions of international staff and students). But relatively lower scores are apparent for metrics relating to the level of recognition by international academic peers.

The modest level of peer recognition was commented upon in the 2013 report. In spite of enhanced global activities by Scottish institutions, there is some evidence that recognition remains a challenge in some geographies. Comments received from leading international education professionals contacted for this study, and particularly those outside Europe (including Australia, India, Indonesia and the USA), suggested a relative lack of awareness of the high global standing of Scottish universities. This is discussed in Section 6.

Scottish universities together achieve an average overall 'score' in each of the UK domestic ranking tables that, on average, is greater than that for the rest of the UK.[19] This appears to be a consequence of successes in specific metrics, including better graduate employability, greater international outlook and higher entry standards.

2.5 Connected Scotland

Since the 2013 report, a development that again reflects the collaborative DNA in Scottish higher education was the creation of Connected Scotland. This is a strategic partnership initiative and is funded by the different partners, depending on the events or agreed projects. It involves Scottish Government, Universities Scotland, British Council, the Royal Society of Edinburgh, the SFC and Scotland's three enterprise agencies – Scottish Enterprise, Highlands and Islands Enterprise, and Scottish Development International.[20]

Connected Scotland has an international mandate that initially centred on increasing higher education exports through both student mobility and TNE. It now encompasses promotion and marketing of the quality and scope of the higher education sector, leveraging outward and inward missions, supporting institutions in internationalisation plans, and facilitating partnerships with other Scottish organisations to develop international links across teaching, learning and research.[21]

It may prove difficult to offer a verdict on the efficacy of Connected Scotland because it represents almost every national body with a stake in higher education. One interviewee for this research noted the divergence of the political culture of Scotland from the rest of the UK, which was formalised by devolution. In this context it was suggested that Connected Scotland may try to complement the 'Team GB' approach to export growth.

A related motivation for Connected Scotland may be a sense that Scotland needs to build broader international awareness of its world class system. Such messaging is part of the country's soft power toolkit (see below). Connected Scotland's biggest impact may be a less-quantifiable ability to co-ordinate governmental and higher education opportunities abroad so as to enhance the national brand. This is a crucial part of communicating Scottish higher education's distinctive assets.

Marketing of the Scottish higher education brand operates through a number of portals; the 'Study in Scotland' portal is now part of the broader national 'Scotland is Now' campaign.[22] This unified approach to the national brand was generally welcomed by sector representatives. Some feedback suggested that national funds to complement the large investment by individual universities for international activities could enhance impact.

2.6 Soft power and perceptions of Scottish higher education

A report on Scotland's 'soft power' in 2020 concluded that its universities are the 'crown jewel' in the country's array of soft power assets.[23] Scotland is home to more than 50,000 international students; the report noted that on a per capita basis its university rankings are 'virtually unrivalled'. For small nations, soft power is about niches and the ability to project influence in these areas – 'niche diplomacy' is a term for this practice. Higher education is clearly one of these niches. The report proposed that education and innovation belong 'at the heart of a new global narrative for Scotland'.[24]

It is not surprising that international and EU students already in Scotland know much about their host country. Student focus groups conducted for this study provided compelling anecdotal evidence that Scottish higher education belongs with the best in the world. EU students of course noted the importance of free tuition in explaining why they were studying at a Scottish university. But for both EU and international students, the reasons included prestige, intellectual culture, rankings, the approach to learning and style of teaching, contact with lecturers, flexibility of curriculum, expertise in their chosen subjects of study, enhanced employability and international marketability of their qualifications. The wider cultural attributes of Scotland – including history, architecture, the landscape, friendliness, and even precision in timekeeping (exotic to some students) – were also offered as factors that cemented their decisions.

2.7 Events foreseen and unforeseen: EU Exit ('Brexit') and Covid-19

2.7.1 Context

The changing landscape of Scottish higher education demands mention of both the UK's departure from the EU and the public health emergency triggered by Covid-19. The long run-up to Brexit afforded both universities and the Scottish government time to plan for various outcomes but the actual consequences remain unknowable throughout 2020.

2.7.2 Brexit

The Scottish government acknowledges that Brexit has the potential to have a significant adverse impact on the intake of students, the ability to attract talented staff and access to European programme funding, including for research.[25] In their International Framework, the Scottish Government empathises their commitment to strengthening collaboration with Europe.

All governments in the UK confirmed that EU students who commence study in 2020–21 will continue to be eligible for 'home' fee status and for financial support as per existing rules for the entirety of their programmes – in Scotland, until 2024–25 in most cases. But for those starting in 2021–22 (i.e. after Brexit fully takes effect), the Scottish government announced, reluctantly, that home status for EU students would no longer apply.

This change of status is significant for Scotland. The EU principle of non-discrimination has meant that governments are obliged to treat students from other EU countries the same as domestic students. (It does not apply to different jurisdictions within a member state.) Scotland has therefore been the only UK jurisdiction in which non-UK EU undergraduates have not paid tuition fees, and this has enabled Scottish universities to enjoy a clear competitive advantage in recruiting from the EU. Aberdeen, Glasgow and Edinburgh universities attract more EU students in absolute numbers than Oxford or Cambridge; in 2016–17, about one-fifth of Aberdeen's students were non-UK EU students – the highest proportion of any UK university (at 15 per cent, Queen Margaret University was fourth in the UK).[26] And quite independent of any fee-related advantage, EU nationals constitute an even higher proportion of staff at Scottish universities: 14 per cent of all staff and 25 per cent of full-time research staff.

The principle of non-discrimination cost the Scottish government approximately £97 million in tuition for non-UK EU students in 2017–18.[27] This is of course mitigated by the spending contribution that EU students make to local economies in Scotland, not to mention those who stay after graduation to work in professional jobs and pay taxes.

The government responded positively to the view from the sector that resources released by Brexit should be retained within the higher education system (for promoting widening access, for example).[28]

19
The rankings considered were Complete University Guide, Guardian University Guide and Times Higher Education UK (2019).

20
A roundtable discussion was held with this group in Glasgow on 11 November 2019.

21
See connectedscotland.org/about-connected-scotland

22
See www.scotland.org/study

23
McClory, J (2020) Gauging International Perceptions: Scotland and Soft Power'. British Council Scotland, page 17. Available online at: scotland.britishcouncil.org/sites/default/files/t0026_scottish_soft_power_doc_s1_v20.pdf

24
Ibid., page 24.

25
Somerville, SA (2018).

26
Highman, L (2018) 'EU students at UK universities: patterns and trends'. Centre for Global Higher Education, Policy briefing no. 5. Available online at: www.researchcghe.org/perch/resources/publications/pb5.pdf

27
Audit Scotland (2019), page 18.

28
Commissioner for Fair Access (2019) Building on Progress Towards Fair Access: Annual Report 2019, page 42. Available online at: www.gov.scot/publications/commissioner-fair-access-annual-report-2019-building-progress-towards-fair-access/

2.7.3 Covid-19

Over the first half of 2020, Brexit was abruptly and comprehensively displaced by the Covid-19 pandemic as the top public policy issue. The early responses from the higher education sectors in the UK have, understandably, tended towards mitigation of immediate financial disaster, notably in the context of loss of revenue from non-EU international students, but also through the loss of research grants, conferences, the release of students from accommodation contracts, and the issue of how many months or years it will take for a return to stability.

Talk of 'existential threat' to higher education did not, during summer 2020, seem far-fetched. The Convenor of Universities Scotland noted the sector's heavy exposure to the impact of Covid-19 because of the extent to which funding structures necessitated a reliance on international tuition fee income.[29] Universities Scotland estimated that a 50 per cent drop in the intake of international students would result in a loss to the sector of £435 million in 2020–21, or about 70 per cent of the SFC's annual teaching grant to Scottish universities.[30] In an inversion of the impacts of the public funding cuts noted above, this effect on international student recruitment hits the most research-intensive institutions the hardest. St Andrews University said at the height of the pandemic that it had already lost £25 million as a result of the coronavirus crisis – 'as serious a financial crisis as our university has faced in modern times'.[31]

What remains unclear is the medium to longer-term impact of Covid-19 on international student recruitment for Scottish universities. Recent student surveys indicate that many students, intending to study internationally, have indicated that they are merely deferring international study arrangements, not cancelling, waiting until more stable times return – which could be in 2021 or 2022. The factors that attracted such students to international study remain and there will likely be growing pent-up demand for places in the future. The question is how long they will be prepared to wait.

Together, Brexit and Covid-19 constitute a rare combination of circumstances, not least for higher education across the UK. The former imposes challenges to mobility from, and research collaborations with, Europe. The latter brings the challenges home and extends them to the sector's relations with the rest of the world.

Even so, the sector's responses have been rapid and impressive. The most visible immediate response to the pandemic was the rapid pivot to digital operations – not just in real-time distance learning but through innovations in pedagogy, assessments, recruitment activities and student support. The Scottish government released emergency funding for research; in Section 5 the contributions of Scottish academics and researchers to the race for a vaccine, for a testing regime and to an informed public discourse are discussed.

New data on widening access in April 2020 showed continued modest progress[32] and a reassertion from Universities Scotland that although Covid-19 had disrupted almost every aspect of normal life, university leaders will not allow it to derail this progress.[33] One of the early effects of the pandemic was to accelerate innovations in remote teaching and learning, and that will likely have a directly beneficial impact on widening access. There are reasons for cautious hope.

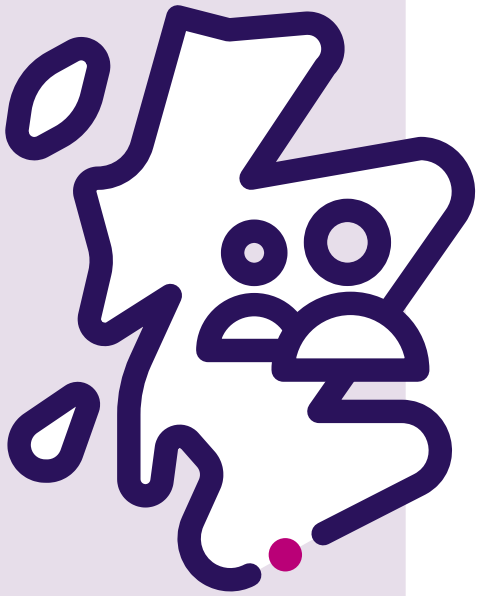
29
McIvor, J (2020) Coronavirus: Scottish universities 'could lose £500m' next year. BBC News, 4 May 2020. Available online at: www.bbc.co.uk/news/uk-scotland-52531159

30
Universities Scotland (2020) An existential challenge: The financial threat facing Scotland's universities as a result of Covid-19. Available online at: www.universities-scotland.ac.uk/wp-content/uploads/2020/04/COVID-19-HE-finances-v1.0.pdf

31
Adams, R and Carrell, S (2020) UK universities plead for billions of pounds in support. The Guardian 10 April 2020. Available online at: www.theguardian.com/education/2020/apr/10/uk-universities-plead-billions-pounds-support

32
Scottish Funding Council (2020) Report on Widening Access 2018–19. Available online at: http://www.sfc.ac.uk/publications-statistics/statistical-publications/2020/SFCST062020.aspx

33
Universities Scotland (2020) Covid-19 will not derail universities' progress on widening access. Universities Scotland, 6 April 2020. Available online at: www.universities-scotland.ac.uk/covid-19-will-not-derail-progress-on-widening-access



3
Distinctive asset 1 Education as a national public good

Summary points

- The defining distinctive asset of Scottish higher education is that it is widely understood as a public good.
- The public good ethos is consistent with a collaborative approach to public policymaking, an entrepreneurial approach to internationalisation and the aims of Scottish research output.
- Progress is being made in widening access to higher education in Scotland.
- There is a whole-sector approach to widening access to higher education in Scotland. The approach is based on an egalitarian vision, depends to a large extent on articulation from the college sector, and has targets, dedicated funding and a monitoring process.

3.1 Context

The defining distinctive asset of Scottish higher education – one that envelops the whole narrative of this report – is that higher education is understood by its core stakeholders to be a public good. This is not without its caveats: the partial shift from public to private financing of Scottish higher education was noted in Section Two.

But the Scottish ethos of education as a public good – as opposed to a transactional, instrumental or market-driven activity – also formed the centrepiece of the 2013 report. That report pointed out that the Scottish ethos is widely seen and articulated as a collective approach that stands in contrast to the more consumer-orientated university system found in other countries.[34] It can equally be set against the market-orientated private provision that is becoming dominant across the world – in Latin America, much of Africa and South and Southeast Asia (more than 60 per cent of higher education students worldwide are in the private sector). The Scottish ethos has more in common with higher education in parts of continental Europe, where commercialisation is resisted, and education is subsidised through general taxation to a greater degree.

Scottish distinctiveness when set against the rest of the UK can be overstated, especially in the international context. Scottish universities successfully market themselves abroad and compete for students as much as universities elsewhere.

An entrepreneurial approach to internationalisation is considered as essential in Scotland in responding to increasing competition, notably from Asia. Entrepreneurial activities are also a market response to the cut in public funding for higher education in real terms in recent years (discussed in the previous section).

But on the domestic front, the Scottish higher education system functions within a broader policy framework that empathises sustainable economic growth, well being and equity. The Scottish system also employs mechanisms that are focused on, and responsive to, the student voice; some of these are explored in this report.

Consistent with the public ethos is the spirit of collaboration that drives Scottish higher education, especially domestically but even abroad. This encompasses the government, public agencies, many elements of Scottish industry and the sector itself. This again was a core element of the previous report; seven years on, it should be re-emphasised that a collectivist approach to policymaking and policy delivery remains the default position. A number of sections of this report, including the following one on widening access, provide continuing evidence of this.

3.2 Evidence

3.2.1 A whole-sector approach to widening access

The Commission on Widening Access was created by the Scottish government in 2015 to deliver a plan of action on the objective of ensuring that people who live in the most deprived areas of Scotland have the same chance of attending university as those who live in the most affluent areas. The government had noted, in its 2014–15 legislative plan, that those from the poorest backgrounds were 'significantly under-represented' among university entrants in spite of the existing no-fees policies.[35]

The 2013 report noted that although widening access was already established as a policy priority, Scotland lagged behind the other UK jurisdictions, and that progress since devolution in 1999 had been 'relatively limited'.[36] The lack of progress continued until 2016–17; in fact, at many universities the figures for 2016–17 were not as good as for 2015–16. This led to a more interventionist approach that had an impact: the widening access figures for both 2017–18 and 2018–19 were significantly better, and a target figure for 2021 was met early (see below).

The commission's report, *A Blueprint for Fairness*, set the national target for widening access and recommended establishing the position of Commissioner for Fair Access. Its recommendations were accepted by the government in full. But the commission's underlying philosophy is of equal interest here and worth repeating. Access was acknowledged as a divisive issue with varying policy outputs. The commission stated its belief that equal access is 'fundamentally about fairness', is a 'social and economic good' and is 'compatible with academic excellence'. Inequality in higher education was 'unfair, damaging and unsustainable' and Scotland therefore had an undeniable 'moral, social and economic duty to achieve equal access'.[37] This is a clear expression of the Scottish ethos of higher education as a public good.

The commission's membership (encompassing think tanks, trade unions, voluntary sector, industry, local government, schools, college and university principals, NUS Scotland, the Scottish government and the SFC) also exemplified a typically collaborative, whole-sector approach to a policy issue.

The commission's national target is '20/20 by 2030', i.e. 20 per cent of entrants to both colleges and universities should be from the 20 per cent most deprived areas (set out in the Scottish Index of Multiple Deprivation and referred to as SIMD20) by 2030.[38]

The whole-sector collaborative process has been noteworthy, but actual progress on the national target is likewise positive. The actual 2017–18 figure was 15.6 per cent of full-time first-degree entrants to Scottish universities from SIMD20 areas, a noticeable increase over the 13.8 per cent in the previous year.[39] In 2018–19 it was 15.9 per cent. The interim target for 2021 is 16 per cent from SIMD20 areas and this target was met early.[40]

There are of course large differences between individual universities and between colleges and universities. For individual universities the interim target is a modest ten per cent by 2021. Some are already well beyond that: in 2017–18 the University of the West of Scotland had 29.4 per cent and Glasgow Caledonian University 23.5 per cent from SIMD20 areas. The University of St Andrews had a 50 per cent increase in SIMD20 entrants over 2016 levels.

The commission's recommendations included creating the role of a Commissioner for Fair Access (to lead 'cohesive and system-wide efforts to drive fair access in Scotland' – i.e. to challenge the sectors to do more and do it better) and a Framework for Fair Access (an open tool for the sector to use to build an evidence base from the bottom up).

34
Kemp and Lawton (2013), page 6.

35
Scottish Government (2014) One Scotland: The Government's Programme for Scotland 2014–15, page 4. Available online at: www.webarchive.org.uk/wayback/archive/3000/https://www.gov.scot/Resource/0046/00464455.pdf

36
Kemp and Lawton (2013), page 10.

37
Scottish Government (2016) A Blueprint for Fairness: The Final report of the Commission on Widening Access, page 7. Available online at: https://www.gov.scot/binaries/content/documents/govscot/publications/progress-report/2016/03/blueprint-fairness-final-report-commission-widening-access/documents/00496619-pdf/00496619-pdf/govscot%3Adocument/00496619.pdf

38
SIMD is a geographically based measure of relative deprivation arranged by postcode. Rural 'data zones' are larger in area; SIMD is less good at identifying small pockets of deprivation within those larger areas than it is in identifying urban deprivation. Because hardship exists in areas that are less deprived, some interviewees for this report described SIMD as an insufficiently granular marker of deprivation. For widening access to postgraduate study in particular, Universities Scotland in 2020 urged the government to introduce a better indicator than SIMD because postgraduate students could be decades removed from where they lived when first entering higher education. See www.universities-scotland.ac.uk/universities-scotland-responds-to-commissioner-for-fair-accesss-report-on-postgraduate-access. The SIMD indicator is unique to Scotland; that it is not used elsewhere in the UK makes data comparisons difficult.

39
Commissioner for Fair Access (2019), page 44.

40
Scottish Funding Council (2020) Report on Widening Access 2018–19. Available online at: http://www.sfc.ac.uk/publications-statistics/statistical-publications/2020/SFCST062020_aspxROWA_2018-19.pdf

3.2.2 Colleges and articulation to higher education

The role of the Scottish college sector in the delivery of higher education in Scotland is clearly distinctive. The relevance to widening access is evident in that students from SIMD20 areas are much more likely than students from wealthier areas to begin higher education in college rather than university. Colleges do not have degree-awarding powers but one-quarter of higher education places are provided by colleges through either Higher National Certificate (HNC) or Higher National Diploma (HND) programmes that lead to sub-degree-level higher education qualifications. Articulation agreements between colleges and universities permit HNC students to enter year two of a university degree programme and some HND students to year three.

In 2017–18, 26 per cent of entrants to Scottish universities arrived via the HNC/HND college route; this figure was 42 per cent for entrants from the most deprived SIMD areas.[41] This involved a total of almost 10,000 students, a noticeable increase over the 7,700 at the time of the 2013 report, but short of the target of 1,000 more entrants per year.[42]

There are other caveats. Sixty per cent of the HNC/HND students enter four universities: West of Scotland, Glasgow Caledonian, Robert Gordon and Edinburgh Napier. But the main exception to the steady improvement in widening access has been what the Commissioner identified as a 'reluctance' at universities to offer HNC students full credit or 'advanced standing' to enter year two of degree programmes, and to year three for HND students. In the three years up to 2017–18, the proportion of HND students able to enter year three directly increased from 59.1 per cent to 64.3 per cent – well short of the 75 per cent target endorsed as a minimum goal. For HNC students able to enter year two, the proportion increased from only 28.7 per cent to 34.1 per cent. Almost two-thirds receive no credit.[43]

Some students do not want the full credit so as to allow more time to acclimatise to degree-level study. But the problem is also attributed to a poor fit between college and university curriculum, even in the same subject, and to condescension stemming from the perception of a cultural gulf between a university education and a professional or vocational education. The Commissioner for Fair Access expressed some disappointment with this and called for a 'step change in university practice and attitudes'.[44] In spite of this, articulation from college to university is a Scottish success story. An example from Abertay University is provided at 3.4.2.

3.2.3 Outcome agreements

Outcome agreements negotiated annually between universities and the SFC were introduced briefly in Section 2. They are an important and distinct part of the higher education architecture in Scotland. The clarity and transparency of the outcome agreements can be contrasted with governance arrangements in other systems.

Outcome agreements constitute a regulatory tool by which university activities are kept broadly consistent with Scottish government priorities. Foremost among these priorities is widening access, as is evidenced in SFC documentation,[45] as well as in a case study from Abertay University, below. As also noted in the 2013 report, views from the sector continue to be critically supportive of outcome agreements. The increasing workload attached to negotiating and finalising outcome agreements was seen as unnecessary by some interviewees. It was said that the agreements had become more prescriptive and cumbersome over time (as much as 100+ pages) and that in the context of diminishing real funding, they ask institutions to do more with less.

Perhaps consistent with their increasing bulk and complexity, it was also pointed out that outcome agreement targets are not always adequately monitored or enforced.

Some interviewees expressed the view that outcome agreements need to be streamlined and show more bite. But even critical voices see them as 'sensible' exercises that are worth doing because holding universities to account is legitimate. They are seen as 'enabling a conversation with the government' for 'civic goals' rather than being an imposition by government. They were said to have had demonstrably positive outcomes, not just in widening access but in more women entering STEM subjects, more men in education and a better undergraduate gender balance. They are transparent, publicly available and primarily student-centred exercises that enjoy a very high degree of acceptance across the sector – not 100 per cent support but seemingly close to it.

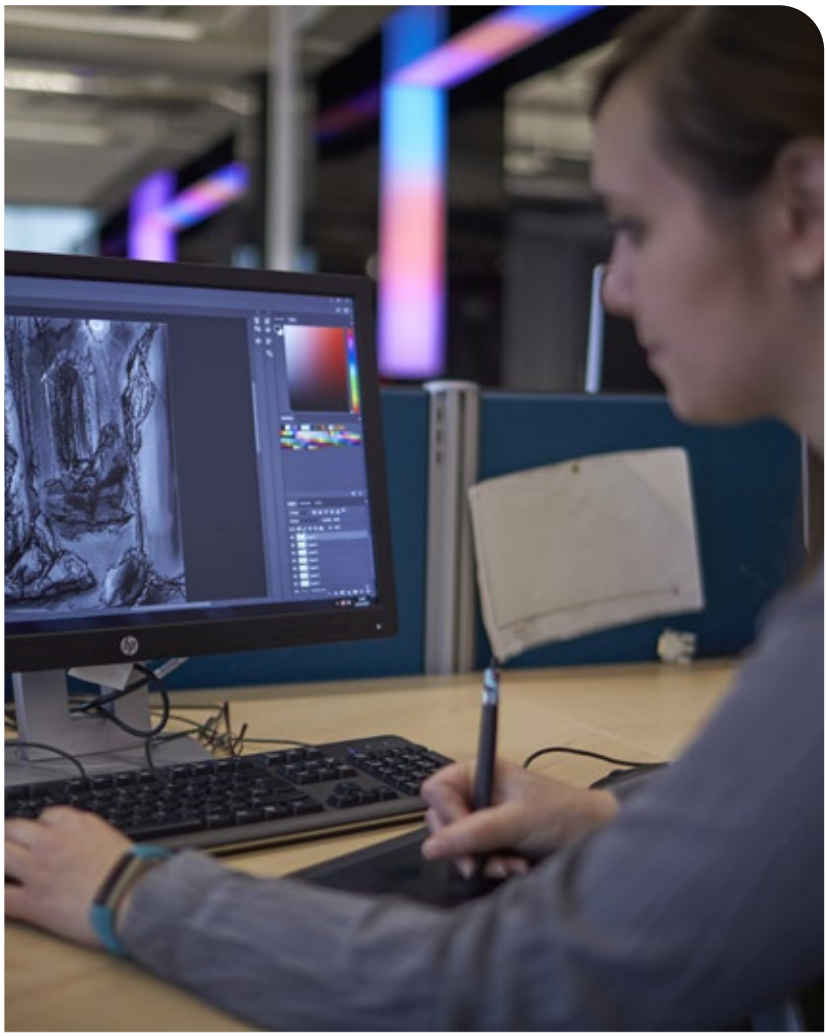
3.3 Conclusion

The Scottish approach to widening access is distinctive in a number of ways: it is based on an egalitarian vision with deep cultural roots, it articulates a specific national target, it is dependent on the close articulation from the college to the university sector, and it is backed up with dedicated funding and a mechanism to monitor progress on an annual basis through outcome agreements with individual universities and via annual reports from the SFC.

The statistics show that colleges provide a crucial access route into higher education and can play a powerful role in expanding the limited applicant pool resulting from the school attainment gap.

The 2013 report noted evidence, in some subjects, that articulation students perform better at degree level than those who experience only university study. In the rest of the UK, linkages between higher and further education do of course exist, including through the introduction of associate degrees. However the highly developed and integrated relationship between the college and university sectors, backed by government, is a distinctive asset of the Scottish system.

The Commissioner for Fair Access concluded in his 2019 annual report that 'In comparison with the more fragmented approach taken in some other higher education systems, Scotland's co-ordinated approach has been a model of successful policy implementation … The whole sector has demonstrated its full-hearted commitment to achieving fair access [and] this commitment should be properly recognised.'[46]



41
Scottish Funding Council (2019) Articulation from Scottish Colleges to Scottish Universities 2017–18, page 5. Available online at: www.sfc.ac.uk/web/FILES/statisticalpublications_sfcst062019/SFCST0619_Articulation_from_Scottish_Colleges_to_Scottish_Universities_2017-18.pdf

42
Ibid., page 8.

43
Commissioner for Fair Access (2019), page 17.

44
Ibid., page 8.

45
See, for example, Scottish Funding Council (2019) Guidance for the development of University Outcome Agreements: 2020–21 to 2022–23. Available online at: http://www.sfc.ac.uk/publications-statistics/guidance/2019/SFCGD212019.aspx

46
Commissioner for Fair Access (2019), page 4.

3.4 Case studies in widening access

3.4.1 The Open University in Scotland – Young Applicants in Schools Scheme

The Open University in Scotland (OUIS) refers to itself as 'Scotland's national widening access university'.[47] Widening access and equality of opportunity were the reasons the Open University was founded. These remain the core priorities for OUIS, followed closely by enhancing the skills needed for Scotland's future prosperity. In addition to its open access policy, OUIS offers flexible delivery and a school–university bridging programme, the Young Applicants in Schools Scheme (YASS). Students in S6 (with final year of secondary school) are able to choose from 30 first-year (Level 7) Open University courses that encourage independent learning. These include courses in Scots Law, Maths, Physics, Sport, Arts, Health and Social Care, and European languages. Delivery is online but individually supported; students choose when to study but deadlines exist. YASS is for motivated young people: courses last from five to nine months and require an additional work commitment of 6–12 hours per week on top of the regular school curriculum.

YASS started in 2007 with 30 pupils in ten Highland schools and has since reached more than 7,500 students from 275 schools in every part of Scotland. In 2019–20 it involved 1,200 students. The programme is free for students and is funded by the SFC.

YASS has proved to be an attractive curriculum addition for many schools, particularly small schools and those in remote areas which have difficulties in providing a breadth of course choices. YASS students can use specially designated Open University study spaces at a number of colleges around the country. Each space is free to use and has full IT resources.

The OUIS website provides feedback on YASS from students and teachers via a number of videos.[48] Students attest to the invaluable foresight the programme provides into university life, independent and online learning, organisational skills and time management.

3.4.2 Abertay – widening access through articulation

Abertay University in Dundee has the third-highest proportion of SIMD students in Scotland (after the University of the West of Scotland and Glasgow Caledonian). Abertay's automatic progression model for articulation from the college sector has been a significant success story in widening access. Every year, more than one-third of the university's new undergraduate students join from college, entering year two or three of degree programmes. Thanks to the links with local partner colleges, students on 'true articulation' routes progress directly with no loss of time or additional conditions, provided they successfully complete their HNC or HND programme. Abertay runs the Abertay College Transition programme, a free one-week course to help familiarise college students with university life before making the transition.

Cheryl Torano, a care-experienced single mother of two, joined Abertay's BSc (Hons) Ethical Hacking programme from Dundee & Angus College, and went on to her dream job as a Cyber Security Engineer at Brightsolid, a digital services and cloud hosting company based in her home city of Dundee. Cheryl commented:

47
See www.open.ac.uk/scotland/work-us

48
See www.open.ac.uk/scotland/study/young-applicants-schools/what-do-students-and-teachers-say-about-yass

Image: Courtesy of Universities Scotland

Moving on to Abertay from my college course felt like a completely natural progression and it really couldn't have been easier. Having young children, I rely on my family for childcare support and that meant studying and finding a job close to home was my only option. It was fantastic to be able to do all of that on my doorstep – coming through college and university has been life-changing for me and my kids.

Cheryl Torano

© Cheryl Torano

4
Distinctive asset 2 A whole-sector approach to quality enhancement and improving the student experience

Summary points

- Student-focused and sector-wide quality enhancement is a distinctive asset of Scottish higher education.
- 'Enhancement Themes' and 'Focus On' projects are unique Scotland-wide initiatives led by QAA Scotland to improve the learning outcomes and experience of students in higher education.
- Scottish universities all articulate a set of graduate attributes to be achieved. These are focused on graduate employability and also define what is expected from the student experience.
- There is a whole-sector approach to improving the student experience and student well-being. Initiatives also arise from individual universities. All of this together constitutes one of the distinctive assets of Scottish higher education.
- NUS Scotland places student well-being at the core of its mission. It is able to exercise its voice on behalf of students, for example, in establishing student mental health agreements in the annual outcome agreements. Its relationships with the other stakeholders in Scottish higher education is constructive and effective.

4.1 Context

The student voice was an important part of this research. Interviews and focus groups with students helped to determine the effectiveness of the activities – by the sector and individual universities – designed to enhance the student experience and student well-being. These activities together constitute one of the distinctive assets of Scottish higher education. They also amplify the first distinctive asset on inclusive collaboration discussed in the previous section.

The student-focused nature of 'quality enhancement' was proposed as a distinctive asset of the Scottish higher education sector in the earlier 2013 report. The achievements reported then have grown and refinements to the approach have been encouraged, developed and delivered.

The design and delivery of quality assurance across all Scottish higher education provides benefit to the student at the centre of all considerations. The underlying philosophy is that improvement of the student experience is always possible and can be best achieved through cross-sector collaboration: seeking feedback, evaluating information and data from university programmes and assessing performance. Hence 'student enhancement' is the central message.

At all levels, implementation operates through partnerships between all institutions, academic and other staff, students, national bodies and government agencies. Scotland's Quality Enhancement Framework underpins the student-centred approach, with the other supporting components comprising:

- enhancement themes
- enhancement-led institutional review (ELIR)
- institution-led review (ILR)
- student feedback
- dissemination and public information.

A development since 2014 has been the establishment of short (one-year) practical projects under the banner 'Focus On'. The topics for the annual projects are those identified as important through the ELIRs and ILRs.

This ethos of benefit to students is supported by the operation of the Scottish Credit and Qualifications Framework (SCQF). The comprehensive framework covers learning achievements in schools, colleges, universities and work-based learning; importantly it facilitates flexibility, enabling students to progress their qualifications through a variety of pathways. The SCQF also references against qualifications obtained in other jurisdictions – the rest of the UK, Europe and beyond, which supports students, wherever they might have previously studied, to access higher education more easily.

Students are also supported through each university having in place policies that define the desired attributes of their graduates; while this also happens in many countries, the approach in Scotland is distinctive in that the quality assurance system, underpinned by the enhancement themes, reinforces and helps embed the attributes for Scottish institutions.

Seen together, these activities and initiatives constitute a distinctive asset of Scottish higher education. They also amplify the first distinctive asset on inclusive collaboration discussed in Section 3.

4.2 Evidence

The Scottish sector works closely together: enhancement activities are delivered and owned by the sector from which there comes strong support, university staff interviewed were positive, student feedback was strong, the NUS representatives commended the approach and government organisations were similarly encouraging.

The approach is thorough and relatively labour-intensive, given the large numbers of staff and students involved from across the sector. It was clear, however, that staff involved accepted this because the benefits of working together are manifold, with positive changes delivering advantage for students and for the sector.

The enhancement-led approach to quality assurance for the Scottish higher education sector is distinctive as it represents a strategic move away from the more common metrics-centred approaches. It contrasts with other UK jurisdictions where, for example, institutions undertake a quality and standards review to provide evidence to the Office for Students that they are meeting the core practices of the UK Quality Code for Higher Education. In the USA the approach is management- and inputs-orientated and draws on metrics, including through peer-based reviews. In France internal and external regular reviews are undertaken, and in Australia universities mainly self-regulate against defined standards and other national agency requirements.

4.3 Enhancement themes

4.3.1 Introduction

The national enhancement themes are unique Scotland-wide initiatives that aim to improve the learning experience of students in higher education. Each theme is carefully selected, and all Scottish universities address them simultaneously. Institutional teams comprising academics, other staff and students work together to generate ideas and find innovative ways to enhance the learning experience of students. At the institution level the theme is explored and implemented around activities that link to the specific priorities and ambitions of the institution. Teams from institutions meet at regular intervals to share experiences. Support for the enhancement themes is provided by QAA Scotland, and there is a dedicated digital platform that details the approach and follow-up processes.[49]

Each enhancement theme runs for three years and operates across all quality assurance and review processes. The close involvement of all Scottish universities in each theme is possible because of the manageable size of the sector. Leadership of each theme is through the Scottish Higher Education Enhancement Committee (SHEEC) and managed by QAA Scotland. SHEEC includes participation from every institution, with four student members, representatives from NUS Scotland and Student Partnerships in Quality Scotland, together with other higher education bodies.

What is apparent is that involvement in enhancement themes and engagement with ELIRs has become embedded at all levels across the Scottish sector, supporting the identification of the approach as a distinctive asset. Many positive changes have been developed as a result of nationwide involvement in the delivery of each enhancement theme. Feedback from university staff and students involved is very supportive and there is a wealth of feedback in published reports to evidence this observation. The enhancement themes since 2011 are set out below. Examples of some specific institutional approaches and outcomes are also provided below.

Evidence for Enhancement: Improving the Student Experience (2017–20): this theme seeks to improve understanding of good practice and identify areas for improvement through reviewing data and feedback from that available within the Scottish sector.

Student Transitions (2014–17): this explored the needs of students at major transition points in their student journey – from preparing to enter university to moving on and commencing employment.

Developing and Supporting the Curriculum (2011–14): this considered how the curriculum is shaped and delivered, the needs of the students for whom the curriculum is designed and the support required for staff, and all in the context of the attributes that students should possess on graduation.

4.3.2 Glasgow School of Art and the 'Student Transitions' enhancement theme

The outcomes at Glasgow School of Art (GSA) provide an excellent example of how staff, students and alumni can work together to understand, develop, design and disseminate practical solutions to the problems identified through delivery of the enhancement theme. The GSA teams identified and addressed key areas of transition:

- 'Design your own future' project: identified the support needs for students as they transitioned out of GSA into a professional future. A *PechaKucha* conversation involving recent graduates, the Students' Association and the GSA enterprise team (and entitled 'If Only I'd Known') explored graduates' experiences of transitioning from GSA to their destination as a profession. One main outcome has been a new level of involvement of alumni with GSA and also greater support from the GSA enterprise team for recent graduates.
- 'Let's Talk about the PG Experience': this was a student led project that engaged with graduating and incoming postgraduate students to identify specific enhancement topics. Outcomes have included reform of the postgraduate curriculum and content for staff development activities.
- Transitioning from school to college: the particular needs of prospective and new students entering an art school were explored through the student-led GSA teams. A video resource[50] was developed, and this is now employed both for programme promotion and induction preparation of new students.

  Other outcomes noted by GSA through their work on the theme included:

  – proactively encouraging more students from 'widening access' groups to enter college through revising the approach and policies around articulation.

- greater engagement with other higher education institutions: as the theme was explored, collaboration with colleagues from similar interest institutions resulted in gaining a different perspective from their experiences, having a critical friend and facilitating greater dissemination.
- student involvement, which was imperative at all stages (as GSA lead tutor commented): 'Engage with students early and in a meaningful and empowering way; give students the opportunity to lead as well as to collaborate and draw on their innovative nature.

4.3.3 Some other institutions and enhancement themes

Robert Gordon University: Enhancing student employability is central to the university's mission. A key outcome of the 'Developing and Supporting the Curriculum' enhancement theme was the development of Employability Plus @ RGU as the institution's strategic-level approach; this has included greater engagement with employers, integration of work-related experience within courses, involvement of practitioners in course delivery and assessment, and the provision of careers education and support.

Another outcome, was to improve the use of the virtual learning environment for distance learning students. This included restructuring of online module materials into a more common format across the university.

University of Strathclyde: Teams of staff and students worked together as part of the 'Student Transitions' enhancement theme in an institution-wide approach to identifying some key challenges for the university. One outcome was to focus on STEM subjects, both to facilitate the transition into the university as well as to raise awareness in the first place. Engagement with industry and the community led to a number of initiatives being developed, including the Children's University, the Primary Engineer and Engineering Academy. These approaches involve industry mentorships, paid placements and also support articulation routes from further education colleges into the university.

Image: Grace Finlay (age 11) invented the 'Roll Over Bench' for the University of Strathclyde's 2016 Primary Engineer's Scottish Engineering Award

Abertay University: The Abertay Teaching and Learning Fund (ATLEF) was established in 2013 as a positive outcome from an ELIR at the university. The fund is competitive, and projects directly support teaching and learning enhancement, are aligned with strategic institutional priorities and also the enhancement themes. Student engagement in the ATLEF projects has developed over time, with students funded to undertake research and work as active members of project teams. Areas that projects addressed included 'Recognising Prior Learning' and 'Academic Support and Guidance'

49 https://www.enhancementthemes.ac.uk/about-enhancement-themes

50 https://vimeo.com/219069984

4.4 'Focus On' projects

ELIRs typically identify a range of areas for follow-up and development associated with delivery of the enhancement themes, which might have sector-wide implications. A QAA-led initiative since the 2013 report has been to establish 'Focus On'; these are shorter, annual projects that identify practical activities to help all involved across the sector make a real difference.

The projects are progressed through QAA Scotland, working in co-operation with universities and student associations. For each of the annual themes listed below a range of practical tools have been produced for use by all staff and students,[51] including publications, videos, charts and dissemination workshops.

A selection of outcomes for these are discussed in this section as well as in Section 7 (relating to graduate skills):

- technology-enhanced learning (2019–20) – exploring the way institutions approach technology-enhanced learning, particularly connections between strategy and practice. This is ongoing, due to the impact of Covid-19 and is now even more relevant.
- graduate skills (2018–19) – to ensure graduates are ready to contribute in a global society through the skills developed during their higher education experiences.
- feedback and assessment (2017–18) – what might students value most in the feedback they receive and what are the most appropriate developments in providing feedback?
- postgraduate research student experience (2016–17) - support for postgraduate students who teach, the needs of supervisors, how best to build research community, and student representation.
- collaborative activity (2014–15) – how to build learning communities at a distance, manage quality and risk, and share examples of practice.
- assessment and feedback (2013–14) – use of technology, consistency of policy and practice, and working in partnership with students' associations.

Creating cohesive collaborations between employers and universities will enhance students' graduate attribute development.

Enterprise Rent-A-Car

4.4.1 The postgraduate research student experience: Focus On project

Scottish universities take seriously the developmental needs of their research students, and a number of concerns were identified by universities through the ELIR process. These were drawn together in a tailored Focus On project, including specifically:

- training and support for postgraduate students who teach.
- support for staff who supervise research students.
- how best to build a research community for postgraduate students.
- student representation for research students.

The Focus On team, drawn from researchers and students from across Scottish universities, reviewed international best practice including approaches in Europe, the USA, Australia, New Zealand, Hong Kong and the rest of the UK. Experiences were shared between all Scottish universities to explore the variety of ways in which graduate students were supported.

Outcomes from the project were practical and included films and publications, workshops, advice on how best to establish a researcher community, and the importance of a cross-institutional strategy for the training and development of postgraduate students. The need to establish both real and virtual spaces for postgraduate students of all disciplines was highlighted as a major means to establish a community, to share experiences, enhance interdisciplinary exploration, improve representation and for more broad-based training.[52] The project highlighted a number of different approaches to enhance the quality of experience of postgraduate students across disciplines. The Scottish Graduate School for Arts and Humanities is an example of a Scottish initiative, relating to the Focus On project, that has had a beneficial impact on doctoral students.

Scottish Graduate School for Arts and Humanities: This supports the growth of a community for postgraduate students in the arts and humanities from 16 Scottish universities. It is the first national graduate school in the world established to support the arts and humanities.[53] The school provides funded opportunities, training events, internships and residencies for doctoral students designed both to enhance the quality of their current research and training, as well as future employability. Opportunities provided are delivered through partnerships with public, private and third sector organisations together; students are encouraged to establish networks locally, regionally and globally for future benefits.

The systematic and innovative approaches to identify and deliver Focus On projects provides further evidence that the Scottish approach to quality enhancement, and improving the student experience, is a distinctive asset of the sector.

4.5 Graduate attributes

Every institution in Scotland has defined its own set of graduate attributes, and these advise what might be expected from the student experience as well as indicating the wider approaches towards employability. The aim of providing clear expectations is to facilitate the development of all students at Scottish universities to be creative, entrepreneurial and highly sought-after by employers, and to help them become global citizens.

Graduate attributes were explored in detail as part of the enhancement theme 'Graduates for the 21st Century' and the ELIR of 2013–16 covering 'Employability and Graduate Attributes'. The outcomes of these activities have been inherent in the delivery of the new enhancement themes and Focus On projects since then, resulting in the refined approaches now delivered by each institution.

Universities in other countries also have policies defining desired attributes of their graduates. What makes the Scottish approach distinctive is that the quality assurance system, underpinned by the enhancement themes, reinforces and helps embed the approach in all Scottish institutions. As interviewees from the University of Aberdeen commented:

> **... graduate attribute research and development has been greatly facilitated by meaningful exchanges of practice at QAA Enhancement Themes conferences and events.**

4.5.1 University of the West of Scotland (UWS)

The university refreshed and devised a new set of graduate attributes, providing a matrix of expectations that aligned with the three corporate drivers: student success, research and enterprise, and global engagement. The approach then encapsulated in the university's core message: 'I am universal, work ready and successful; I am UWS'.

4.5.2 University of Aberdeen graduate attributes

A wide range of approaches, available to students, have been established at Aberdeen to facilitate the development of graduate attributes. These include core academic modules, multi-disciplinary modules, work placements, work-based projects and a suite of co-curricular opportunities.

The need for progressive skills enhancement, as students transition into, through and beyond university, resulted in the development and implementation of the bespoke, online skills development site 'Achieve'.[54] Its core aim is to increase the employability of Aberdeen graduates. Impact has come from partnering with employers, and sharing their perspectives has resonated with the wider university community and driven student engagement. The university has found employers to be effective allies in the development of graduate attributes, helping to shape its distinctive employability initiatives.

51
For comprehensive detail see: www.qaa.ac.uk/scotland/focus-on

52
www.qaa.ac.uk/scotland/focus-on/the-postgraduate-research-(pgr)-student-experience/training-and-support-for-postgraduate-students-who-teach-(pgwt)

53
www.sgsah.ac.uk/

54
https://www.youtube.com/watch?v=G54Unlkzwec

4.5.3 University of Glasgow

Teams of staff, students and employers identified the attributes which define the Glasgow graduate – the academic abilities, personal qualities and transferable skills that graduates will be encouraged to develop while at the university. A university graduate attributes matrix provides detail on how studies and extra-curricular activities will contribute towards the development of ten priority graduate attributes.

4.6 Teaching Excellence and Student Outcomes Framework

The Teaching Excellence and Student Outcomes Framework (TEF) was introduced for English universities as an exercise aimed at assessing teaching quality at universities and colleges and how well they ensure excellent outcomes for their students, in terms of both graduate-level employment or further study. The SFC, however, provided direction to Scottish universities that the Quality Enhancement Framework, a distinct approach for Scotland, remains the primary determinant for assessing the provision of quality learning for Scottish universities.

Participation in the TEF is voluntary for all UK universities, wherever located, and five Scottish universities participated in 2019. Their three gold awards and two silvers represented a higher average rating than in the rest of the UK.

4.7 A whole-sector approach to the student experience

4.7.1 Introduction

Interviews conducted for this research included a meeting with the President of NUS Scotland and three lively focus groups with students – in Edinburgh, Glasgow and Dundee. The unmediated student voice was most helpful in gauging the effectiveness of the activities and initiatives expressly designed around the student experience, including student well-being. These arise from the Scottish higher education sector as a whole and from individual universities. It is clear that, together, these activities and initiatives constitute one of the distinctive assets of Scottish higher education.

4.7.2 Some National Student Survey considerations

In 2020 the annual National Student Survey (NSS) for final-year undergraduates, conducted by Ipsos MORI, showed an 85 per cent student satisfaction score at Scottish universities. This was the highest in the UK, and Scotland was the only part of the UK where overall satisfaction increased over the previous year.[55] Even so, the NSS does not offer much insight into what is distinct about Scottish higher education, as the results from Scottish universities do not vary markedly from other parts of the UK. In 2017, 2018 and 2019, Scotland's overall student satisfaction levels were 85 per cent, 83 per cent and 84 per cent respectively. These compare favourably against the overall UK levels, by a percentage point.

Students in Scotland were happiest with learning resources and the quality of teaching; this also mirrored results elsewhere.

4.7.3 Scotland's inclusive approach

NUS Scotland places student well-being, in both further and higher education, at the core of its mission. Its relationships with the other stakeholders in Scottish higher education can be characterised as constructive and effective. This of course requires that the national student body is able to exercise its voice on behalf of students. The former President of NUS Scotland was a member of the Commission on Widening Access (discussed in Section 3). The Commissioner on Fair Access noted in a later annual report that the way in which all of the sector bodies, including NUS Scotland and the University and College Union, 'worked together has been impressive – a whole sector approach in spirit if not in every detail'.[56] That echoes closely a comment from NUS Scotland that their disagreements with the Scottish government were 'more about details than substance'.[57] NUS Scotland works directly with the government and SFC on shaping outcome agreements with universities.

In addition to widening access, NUS Scotland considers its recent successes to include enhancing student support mechanisms and campaigning for the mental health of students. Consideration of impacts on all students – international, LGBT+, disabled, everyone – is central to NUS Scotland campaigns from the outset.

An independent review of student support led to a Scottish government report in 2017, *A New Social Contract for Students*.[58] It was focused mainly on further education students. NUS Scotland were effectively engaged, again demonstrating the consistently inclusive and whole-sector approach to student affairs.

The report's eye-catching headline recommendation was the integration of student financing in further and higher education, such that students in both higher and further education should be entitled to a minimum income of £8,100 a year – an amount linked to the Scottish National Living Wage. College students

articulating to university would have their existing loans written off completely. In a partial response, the government earmarked £5.2 million for student grants in further education so that those in most need would receive the recommended minimum income. Further funding of £16 million was promised in 2019–20.

NUS Scotland has hosted the Student Mental Health Agreement (SMHA) project since 2015 under the Think Positive campaign. NUS Scotland's research on the mental health of students identified concerns with stress, anxiety and depression among some students in Scotland. Their campaign led to the inclusion, in the annual outcome agreements, of mandatory SMHAs to promote the well-being of students. This requirement was included in the government's annual letter of guidance to the SFC in 2018–19 with the expectation that the SFC should ensure that these arrangements are in place and are effective.

These agreements outline what universities are doing to change perceptions of mental health among students, challenge negative attitudes, and promote positive outcomes and supportive strategies to maximise student resilience. They offer plans and priority areas for the coming year, which students and staff can use to shape an environment which supports positive mental health and well-being.[59] The project is an excellent and distinctive example of specifically addressing the improvement of student mental health and well-being in the further and higher education sectors in Scotland.

4.7.4 Student focus groups

Section 2 noted the positive perceptions that domestic, EU and international students have towards Scottish culture and the international prestige associated with the higher education system.
This section offers a little more detail of such perceptions, with a focus on what is distinctive about Scottish higher education and how students benefit from it. These were gathered from a series of student focus groups held in Edinburgh, Glasgow and Dundee. Heriot-Watt, Edinburgh Napier, Queen Margaret, Edinburgh, Stirling, Glasgow Caledonian, West of Scotland, Strathclyde, Glasgow, Robert Gordon, St Andrews and Dundee universities were represented by Scottish, other UK, EU and international students at all levels of study. They were held in January 2020 – i.e. before the onset of the Covid-19 pandemic.

The focus group discussions were informally structured, beginning with perceptions of Scotland, Scottish society and culture, the reputation of the higher education system, and the reasons for choosing a Scottish university. The conversations then covered what is best and worst about the students' own universities, support systems in place for students who need extra help, the procedures used when things go wrong (within and outside the classroom), awareness of student unions and NUS Scotland, and student accommodation. The discussions were permitted to develop according to their own dynamics and momentum.

For the distinctive assets of Scottish higher education, students identified the four-year undergraduate programme, notably its flexibility in permitting selection of major subjects after two years – or even switching programmes – and its compatibility with the US degree structure, including for exchanges. A number pointed out the 'flexible learning' within Edinburgh Napier's MBA programmes in Scotland. Canadian and US students noted that constant classroom attendance was not a feature, which permitted part-time work. A Heriot-Watt student was on an inter-campus transfer from the Dubai campus (a 2+2 arrangement); this was seen as a remarkable opportunity.

For European and Asian students especially, the informality of relationships with lecturers was striking. They felt at ease in discussing work and seeking guidance: the relationships were described as being close to 'one of equals'. This is probably the case across the UK.

55
See www.officeforstudents.org.uk/advice-and-guidance/student-information-and-data/national-student-survey-nss/get-the-nss-data

56
Commissioner on Fair Access (2019), page 4.

57
Interview with Liam McCabe, President, NUS Scotland, Edinburgh, 13 November 2019.

58
Scottish Government (2017) A New Social Contract for Students: Fairness, Parity and Clarity. Available online at: www.gov.scot/binaries/content/documents/govscot/publications/independent-report/2017/11/independent-review-student-financial-support-scotland/documents/00527875-pdf/00527875-pdf/govscot%3Adocument/00527875.pdf

59
See, for example, the University of the West of Scotland Student Mental Health Agreement 2018–19: www.uws.ac.uk/media/5420/student-mental-health-agreement-2018-19.pdf

The balance between academic and practical elements (work placements and apprenticeships) was seen as positive. Postgraduate fees, including for MBAs, were said to be significantly lower than in the rest of the UK. It was apparent that many Scottish universities offer partial fee waivers to English students so that they pay no more over four years than they would for a three-year degree in England.

Criticisms of university student unions and NUS Scotland were apparent in the focus groups – and this was wholly consistent with the lower NSS scores on student unions across the UK. Students in STEM subjects appear less keen on political activities and, for some students, the myriad of student societies offer a more relevant focus for community and activity. Even so, it was apparent that NUS Scotland's prioritising of student support systems and student well-being that was noted above carries great resonance with students.

This can be illustrated through the feedback at the University of Dundee. The university has more than 200 student societies and sports clubs. The students we spoke to emphasised the caring and inclusive nature of the student experience, within and outside the classroom. The Academic Skills Centre and Careers Service are efficiently run; the latter hosts employer presentations, skills workshops and other events. The Dundee University Students' Association is engaged with student society events and employs a number of student experience and welfare positions, including a Vice-President of Student Welfare and Student Voice Support Officer. The students attested to the strong emphasis placed on mental health and well-being. Security is bolstered through alarm buttons placed around the campus. Commitment to improvement and responsiveness to student feedback, whether regarding security issues or healthy food options, was seen as a positive feature. Small details such as providing coffee and biscuits at the University Enquiry Centre are noted and appreciated.

5
Distinctive asset 3 Scottish research: World-class and local benefit

Summary points

- Research output in Scotland is highly dependent on the higher education sector. Its distinctiveness lies in the juxtaposition of its excellence with the co-ordinated sector-wide approach to a national research strategy.
- The performance of Scottish universities in research output exceeds the UK average as measured by the REF, capture of UK research council funding and access to the UK Global Challenges Research Fund.
- Scottish university research output is the highest of the UK Nations and outperforms many comparator countries in publications and citations per researcher and citation impact.
- Scottish university research is increasingly internationalised and outward-looking. The share of publications with international collaborators is more than half.
- The collaborative ethos of Scottish higher education is clearly evidenced in the ongoing research pooling initiative, the newer business-led innovation centres, and the coordinated responses to the Government's agenda on the climate emergency.

5.1 Context

The 2013 report examined the quality and impacts of Scottish higher education research via the two parallel UK-funded streams for research funding:

- block grants based on the REF exercise (distributed in Scotland by the SFC)
- competitively awarded grants from the UK research councils.

The performance of Scottish universities in both of these streams was presented as evidence of the high quality of Scottish research output.

In the years since, the comparative metrics on Scottish research have only improved, if modestly. Scotland outperforms the UK average in capturing UK research council funding and its share of funding is higher than in 2013 (although it has recently dipped). It remains obvious and indisputable that researchers at Scottish universities are hugely successful at accessing this competitive funding.

Scotland's performance in the 2014 REF was marginally superior to that in its predecessor, the 2008 Research Assessment Exercise. Scotland outperformed the UK average in the proportion of research output awarded the top grades. These developments are covered briefly below.

The Scottish Research Pooling Initiative, created by the SFC in 2004 as a response to increasing international competition, was portrayed in the 2013 report as 'a distinctive and major manifestation of the collaborative ethos in Scottish HE'.[60] Although there is now a move towards a more interdisciplinary and business-partnership approach to a national research strategy, research pools have been an effective and distinctive Scottish approach to research collaboration.

Placing research output from Scotland in international context paints an even stronger picture. A survey report by Elsevier for the Scottish Science Advisory Council in 2019 gathers together an impressive array of comparative data that demonstrates Scotland's performance in research impact. Scotland had:

- the highest average number (0.53) of publications per researcher in the decade from 2007 to 2016
- the highest citation impact among the UK nations and performs well against EU and non-EU comparators
- the highest share of top one per cent most cited publications in the world among UK nations, sitting comfortably among comparator nations
- the highest number of citations per researcher among comparator nations and well ahead of the UK average (16.0 citations in Scotland, 12.2 in Netherlands, 12.7 in Wales, 11.3 in Ireland, 10.2 in Singapore and 9.2 in England).[61]

Scottish research is highly and increasingly internationalised: the share of publications involving international collaboration rose from 43 per cent in 2007 to 57 per cent in 2016 (the figures were 67 per cent in Biological Sciences and 65 per cent in Physical Sciences).[62]

There are other research funding streams. A number of interviewees noted that Scottish universities punch above their weight in accessing the UK Global Challenges Research Fund. In 2019–20, £11.8 million awarded from this fund enabled Scottish universities to lead hundreds of projects in 81 developing countries.[63]

At EU level, Scottish organisations accessed €740 million (about £659 million) of the competitive budget from Horizon 2020, Europe's research and innovation funding programme from 2014 to 2020. Universities accounted for 75 per cent of the Scottish awards. Scotland's share, at 10.6 per cent of the UK total, was higher than its population share (but lower than some other small countries) and Scotland had a slightly higher success rate than the UK average in converting applications. The UK itself secured the second-highest level of funding after Germany.[64]

The importance of the higher education sector in research output in Scotland cannot be overstated. But Scotland's R&D is far more dependent on universities than is the case in the rest of the UK, and the Scottish government is the largest single source of university research funding in Scotland. While Scottish universities perform better than their counterparts elsewhere in the UK in accessing Innovate UK funding (by far the largest UK research council in funds distributed), Scotland overall captures a lower proportion of this money: 5.4 per cent of the value of UK grants between 2003–04 and 2018–19. The role of the private sector in explaining this is explored below.

5.2 Performance-based research block grants

The first part of the dual-support system for research funding is performance-based (or 'quality-related') research grants. The UK-wide assessment system is the REF, first used in 2014 to assess the period 2008–13. It is administered by the four UK higher education funding bodies: Research England, the SFC, Higher Education Funding Council for Wales, and the Department for the Economy in Northern Ireland. The actual amount of funding is set by each government; the block grant from the SFC is called the Research Excellence Grant (REG). In 2016–17 the SFC allocated £232 million through the REG, £278 million in 2017–18, and a lower £236 million in both 2018–19 and 2019–20.[65]

Like its predecessor, the REF is designed to concentrate funding: in England, more than half of the quality-related funding went to ten universities and 71 per cent to those in the Russell Group of universities in 2015–16.[66] In Scotland, 90 per cent of REG funding goes to seven

60
Kemp and Lawton (2013), page 39.

61
Elsevier Analytical Services (2019) A Metrics-Based Assessment of Scotland's Science Landscape (2007–2016), page 23. Available online at: www.scottishscience.org.uk/sites/default/files/article-attachments/Scotland%27s Science Landscape Main Report.pdf

Note that making international comparisons on research impact, including for numbers of publications and citations, is complex. Global university rankings and research impact reports employ different sets of metrics and methodologies. We have attempted to take such considerations into account in this study.

62
Ibid., page 49.

63
Scottish Funding Council (2019) GCRF funding for 2019–20. Scottish Funding Council, 20 August 2019. Available online at: www.sfc.ac.uk/news/2019/news-75970.aspx

64
See H2020 Country Profile dashboard at webgate.ec.europa.eu/dashboard/sense/app/a976d168-2023-41d8-acec-e77640154726/sheet/0c8af38b-b73c-4da2-ba41-73ea34ab7ac4/state/0

65
See https://www.sfc.ac.uk/web/FILES/announcements_sfcan102018/Guidance_-_University_technical_annex_2018-19.pdf

66
Technopolis Group (2018) Review of the Research Excellence Framework: Evidence Report. Available online at: assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/768162/research-excellence-framework-review-evidence-report.pdf

institutions (Aberdeen, Dundee, Edinburgh, Glasgow, Heriot-Watt, St Andrews and Strathclyde) and just over half is captured by Edinburgh and Glasgow alone.[67]

The 2013 report noted concern at the time about the Scottish government's intention that the majority of public research funding should be concentrated 'in a smaller number of universities with a track record of world-leading research'.[68] Many governments (in Russia, China, Turkey and elsewhere) have done this in order to maximise impact – specifically, to enhance the position of selected institutions in the international rankings. Interviews for this research suggested that the concentration of research funding into fewer institutions is considered less appropriate to the Scottish sector because the ancient universities already appear in the top 200, because the REG could be employed to counter the dominance of a few institutions in competitive UK and EU funding, and because of its potential divisiveness in a small and diverse higher education sector.

The 2013 report provided a comprehensive picture of the results of the 2008 RAE for Scottish institutions. For each academic unit of assessment, the location and proportion of Scottish research activity that was judged to be 'world-leading' (4*) and 'internationally excellent' (3*) was juxtaposed against the same measures for all UK universities. It was clear that in almost all units of assessment, some universities elsewhere in the UK outperformed the top Scottish universities. In Scotland, 48 per cent of all output was graded 4* or 3*; for the UK overall it was 54 per cent. Also clear was that although Edinburgh, Glasgow and St Andrews universities generally topped the Scottish side of the table, there was evidence of top-rated research throughout the whole Scottish sector.

One reason for the acceptance of the REF approach is that the results look better right across the UK. A full 77 per cent of Scottish research submitted to the REF was judged to be 'world-leading' (4*) or 'internationally excellent' (3*). When set against the 2008 RAE figure of 48 per cent, the impact of the change in methodology is inescapable.[69]

Perhaps a more valid comparison for the Scottish REF results is with the overall UK results. The bottom line is that Scotland's proportion of research graded 4* and 3* was marginally greater than the overall UK figure of 76.1 per cent. A closer analysis of the overall rankings based on 4* and 3* output, however, shows that the highest ranked Scottish institution, Edinburgh, was 13th among UK universities, with 83 per cent of output judged to be 4* or 3* quality. St Andrews and Heriot-Watt both had 82 per cent, and Glasgow had 81 per cent of output at either 4* or 3*, placing it 25th in the UK.[70]

Of the REF's 36 units of assessment, University of Aberdeen was top in 'Agriculture, Veterinary and Food Science', Strathclyde was top in Physics, and Glasgow was joint first (with Bath) in 'Architecture, Built Environment and Planning'.

A number of Scottish universities featured in the top ten: Dundee second in Biological Sciences; Stirling fourth in Agriculture, Veterinary and also Food Science; Strathclyde eighth in Civil and Construction Engineering; Dundee seventh and Heriot-Watt/Edinburgh (joint submission) were eighth in General Engineering.

Scotland also marginally outperformed the UK for 'impact': 85.8 per cent of output was judged to have an 'outstanding' or 'very considerable impact' on the economy, society and culture, against 83.9 per cent for the whole UK. The inclusion of impacts into research assessments has a high level of acceptance across the UK higher education sectors. There have of course been criticisms, including, for example, that an emphasis on more easily quantifiable economic impact disadvantages the arts and humanities in the competition for public funds.

This REF snapshot of the best Scottish universities in relation to the best from the rest of the UK is remarkably similar to the results we reported from the 2008 RAE. The best in the rest of the UK are world-class indeed but Scotland outperformed the UK average in the proportion of research output awarded the top grades. The headlines note that there is evidence of top-rated research throughout the whole Scottish sector. But the same can be said about universities in other parts of the UK and beyond. The next section shows that within the dual-support system for research funding, Scottish researchers continue to excel in securing competitive funding from the UK research councils.

5.3 Scotland's capture of UKRI competitive research funding

UKRI (UK Research and Innovation) is an umbrella co-ordinating body for nine UK research councils, including Innovate UK and Research England (a successor to HEFCE). Its 2018–19 spend for 'Research and Innovation Grants' was £2.8 billion.[71]

The 2013 report showed that in 2010–11, Scottish universities captured an average of 13.7 per cent of funding from the then seven research councils. In the case of the Science and Technology Facilities Council (STFC) the figure was a startling 22.7 per cent; for the Biotechnology and Biological Sciences Research Council (BBSRC) it was 15 per cent. On a per capita population basis (Scotland's population was then 8.4 per cent of the UK total) these figures confirmed the widely held belief that Scottish universities punch above their weight in accessing competitive research funding. Award capture rates in the humanities and social sciences were lower (nine to ten per cent) but still above the population base.

The research funding landscape has since shifted. Another widely held belief – and source of concern apparent through interviews for this study – is that the Scottish share of UK research funds is in decline. But the numbers show a more nuanced and less worrying picture. For three of the research councils (BBSRC, Medical Research Council (MRC) and Natural Environment Research Council), the Scottish share was greater than in 2010–11 for all five years between 2013–14 and 2017–18. For the BBSRC and MRC, it was significantly greater than in 2010–11.

Capture of STFC funding did decline from the very large proportion in 2010–11 but was still 15 per cent in 2017–18 – almost double the population base (Scotland's share of the UK population was a slightly lower 8.1 per cent in mid-2018). In the cases of the Engineering and Physical Sciences Research Council, Economic and Social Research Council, and Arts and Humanities Research Council, the Scottish share rose after 2010–11 and then declined to a level just above or below that of 2010–11. The most recent figures, for 2017–18, show the Scottish share at an average of 14 per cent – certainly lower than the 15.6 per cent in 2013–14 but still marginally greater than the share reported in the 2013 report. It remains indisputable that researchers at Scottish universities are hugely successful at accessing this competitive funding.

67
SFC figures in Muscatelli, A (2019) The Muscatelli Report: Driving Innovation in Scotland – A National Mission, page 19. Available online at: www.gla.ac.uk/media/Media_700300_smxx.pdf

68
Scottish Government (2011) Putting Learners at the Centre: Delivering our Ambitions for Post-16 Education, page 36. Available online at: www.webarchive.org.uk/wayback/archive/3000/https://www.gov.scot/resource/doc/357943/0120971.pdf

69
Marginson, S (2014) Game-playing of the REF makes it an incomplete census. The Conversation, 19 December 2014. Available online at: theconversation.com/game-playing-of-the-ref-makes-it-an-incomplete-census-35707

70
Calculated from REF 2014 overall ranking of institutions: www.timeshighereducation.com/sites/default/files/Attachments/2014/12/17/k/a/s/over-14-01.pdf

71
Figure based on a new method of reporting that makes comparisons with earlier years difficult. Previously, some councils reported decisions based on the number of applications in a year. These numbers are based on decisions made in a year, regardless of when applications were received. See www.ukri.org/funding/funding-data/decisions-on-competitive-funding

5.4 Funding for business and university–business partnerships

Private sector investment and UK funding that is explicitly tied to academic–business partnerships present a different story. Innovate UK is an arm of UKRI that funds businesses and research collaborations; it has by far the largest budget of the research councils – £1.2 billion in 2017–18 and £917 million in 2018–19. Innovate UK's annual report for 2017–18 indicates that Scotland captured six per cent of grant expenditure of £970 million in 2017–18,[72] while a more recent document gives Scotland's allocation for that year as £44 million, or only 3.8 per cent of the £1.2 billion total.[73] Similarly, the 2016–17 figure was four per cent. Regardless of apparently conflicting statistics, these allocations are only half of what might be expected based on a per capita spend.

A more positive picture arises from the Industrial Strategy Challenge Fund (ISCF), which launched in 2016. It is also managed by UKRI and is similarly intended to link university research with businesses. The aim is to find solutions to big global challenges ranging from artificial intelligence to green growth, to transport and ageing.

Public data provision on the ISCF is poor and ad hoc but Universities Scotland advises that as of April 2019 participants in Scotland had secured £88 million from this fund, or 7.2 per cent of the £1.2 billion total.[74] The Scottish Enterprise and Skills Strategic Board implied some dissatisfaction with this level of capture in noting that its member agencies needed to 'develop stronger support for and greater agility in accessing' the ISCF.[75]

5.5 Analysis

It is worth pointing out that even though Scottish universities outperform the UK average in both quality-related research funding and securing competitive grants from the research councils, Scotland still receives less overall research funding than the UK average. The explanation lies in the private sector. In 2016, when the Scottish population was 8.2 per cent of the UK, just under seven per cent of the UK total spend on R&D was performed in Scotland: £2.3 billion of £33.1 billion.[76] Across the UK, 67 per cent of R&D spend is done by the private business sector; in Scotland the figure is 46 per cent. Conversely, the UK higher education sector overall conducts 24 per cent of R&D, while for the Scottish higher education sector it is 46 per cent. In 2017, five companies accounted for 38 per cent of Scottish R&D expenditure.[77] In sum, Scotland's R&D is far more reliant on universities than is the case in the rest of the UK.

This reliance on the higher education sector for research funding is why some interviewees for this report attributed the marginal decline in Scotland's share of competitive UK funding between 2013–14 and 2017–18 to the overall real decline in public funding for higher education during that period. This purported causality is plausible but very hard to demonstrate.

Interviewees also pointed out that Scotland's business base is heavily reliant on SMEs (small and medium-sized enterprises) – two-thirds of which are sole proprietors.[78] In such a landscape it is far more difficult to undertake large-scale infrastructure projects. This profile is therefore a frequent explanation for the lower capture of investment for business in Scotland.[79]

5.6 Research pooling and innovation centres

A response by the Scottish government that harnesses the dominance of universities in research and innovation to the lower level of business-led investment in R&D was the creation of innovation centres (ICs) in 2012. These are industry-led partnerships with universities that respond to industry needs and priorities. In 2020 there are eight ICs that cover sectors including aquaculture, oil and gas, biotechnology, construction and data science – all areas considered to have good potential for growth in Scotland (an aquaculture case study is explored at the end of this section).[80] ICs aim to enhance innovation and entrepreneurship, create jobs and deliver economic growth. They support skills and training to develop a new generation of researchers, and fund Master's degrees and PhD provision. The SFC made a £120 million commitment to the IC programme, which is supported by Scottish Enterprise and Highlands and Islands Enterprise.

ICs represent a next-generation and distinct approach to a national economic growth and jobs creation strategy. The Research Pooling initiative begun in 2004 was a distinctive and collaborative higher education-focused approach with the same ultimate goals in mind. Reviews conducted of both ICs and research pools have pointed out their achievements and the challenges they face. The former suggested that ICs 'changed the landscape for innovation support in Scotland'.[81] The latter argued that although 'a collaborative ethos' was 'one of the key cultural shifts achieved' through Research Pooling, the 'alignment and integration' of the two initiatives would enable ICs to harness the quality in Scotland's research base and respond directly to the 'emphasis in the modern research landscape on interdisciplinarity [and] challenge-led funding'.[82] This is perhaps an inevitable recommendation. Research pools based on discrete areas of expertise have demonstrated the effectiveness of the collaborative ethos in Scotland; ICs represent a different, interdisciplinary and business-partnership approach to a national research strategy that meets national goals and provides a competitive advantage to Scotland globally.

The IC review acknowledged the difficulties in reconciling the 'perennial features of public sector innovation support'. Foremost among these are balancing income generation from external sources with delivering economic impact as a public good, and balancing the aim to enhance national economic performance with providing innovation support across

all regions and business sectors.[83] These are real tensions that do not just inform innovation support. They inform policymaking in Scotland more broadly; this is a testament to Scotland's vibrant political culture and its insistence that regional equity and the public good must take their places alongside commercial imperatives as legitimate policy goals.

5.7 Scottish research coordination – responding to the climate emergency

The Scottish Government declared a global climate emergency in April 2019 and has a net-zero emissions target by 2045. This is consistent with Sustainable Development Goal 13 – action on climate change – and is front and centre of the Government's Programme for Scotland 2019-20.[84] In addition to the capital investment needed to achieve net zero, the Government sees employment and investment opportunities as being at the forefront of developing – and exporting – low emissions solutions and processes.

Getting from here to there involves coordination as well as investment. The responses involve a complex myriad of bodies, such as the Climate Emergency Response Group (CERG), a broad network across Scotland's private, public sector, third sector, higher education, and membership bodies.

Three multi-disciplinary Centres of Expertise have been established to address specific concerns, explore inter-relationships and connect research with policy outputs.

- Climate change (the ClimateXChange – Scotland's Centre of Expertise for Climate)
- Water (CREW – Scotland's Centre for Expertise in Waters). Note that the Directorate of the Marine Alliance for Science and Technology for Scotland (MASTS) part of the Scottish Oceans Institute and described in Section 5.9 below is a CREW partner
- Animal disease outbreaks (EPIC – Scotland's Centre of Expertise in Animal Disease Outbreaks)

Considering the first of these, as an example, Scotland's centre of expertise for climate is the ClimateXChange (CXC); this is a Government-funded collaboration of 16 universities and research institutes such as the James Hutton Institute in Dundee.[85] The secretariat is based at the Edinburgh Centre for Carbon Innovation at the University of Edinburgh. Reducing greenhouse gas emissions is the core goal, as is advising on how climate change policies can make the most of Scotland's assets.

CXC runs a multi-disciplinary research programme in response to the Scottish Government's requests for evidence, and also acts as a

72
Innovate UK (2018) Annual Report & Accounts 2017/18, page 46. Available online at: assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/724703/18.1000_InnovateR_A_Print_Final_v2.pdf

73
UKRI (n.d.), Table 3.

74
UKRI presentation from summer 2019 provided by David Lott, Deputy Director (Policy), Universities Scotland, 9 January 2020.

75
Enterprise and Skills Strategic Board (2018) Working Collaboratively for a Better Scotland: Strategic Plan, page 34. Available online at: www.gov.scot/binaries/content/documents/govscot/publications/strategy-plan/2018/10/working-collaboratively-better-scotland/documents/00542105-pdf/00542105-pdf/govscot%3Adocument/00542105.pdf

76
Royal Society (2018) Research and innovation in Scotland. Available online at: royalsociety.org/~/media/policy/projects/investing-in-uk-r-and-d/regional/factsheets/research-innovation-scotland.pdf

77
Muscatelli, A (2019), page 30.

78
Scottish Government (2019) Business Statistics 2019. Available online at: www.gov.scot/news/business-survey-2019

79
Davidson, J (2019) Innovation nation: keeping Scotland at the forefront of science and technology research. Holyrood 12 November 2019. Available online at: www.holyrood.com/inside-politics/view,innovation-nation-keeping-scotland-at-the-forefront-of-science-and-technolo_14706.htm

80
A list of ICs is available at www.innovationcentres.scot

81
Reid, G (2016) Independent Review of the Innovation Centres Programme, page 3. Available online at: www.sfc.ac.uk/web/FILES/InnovationCentres/Independent_Review_of_Innovation_Centres_Programme_-_29_September_2016.pdf

82
Heathwaite, L (2019) Independent Review of the Scottish Funding Council's Research Pooling Initiative, page 18. Available online at: www.sfc.ac.uk/web/FILES/ResearchPooling/Independent_Review_SFC_Research_Pooling_Initiative.pdf

83
Ibid., page 42

84
Scottish Government (2019) Protecting Scotland's Future: The Government's Programme for Scotland 2019-20. www.gov.scot/publications/protecting-scotlands-future-governments-programme-scotland-2019-20/pages/5/

85
See www.climatexchange.org.uk

knowledge broker between researchers and policy. Through this, policy-makers have access to research beyond CXC, thereby assisting policy teams develop and implement such programmes as the Scottish Climate Change Plan, the National Energy Strategy and the Scottish Climate Change Adaptation Programme. The areas of expertise required are necessarily wide and include, for example, energy efficiency; electricity generation, storage and transmission; land use (agriculture and the carbon sinks of forests and peatlands); transportation; adapting to climate change, and evaluating which policies are effective.

5.8 Conclusion: An outward-facing research culture and a sense of place

The distinctiveness of Scottish research is not in its excellence, though the performance of Scottish universities in the dual support system demonstrates excellence across the sector. Distinctiveness lies in the juxtaposition of excellence with the co-ordinated sector-wide approach to a national research strategy that attempts to respond to both national development priorities and international challenges, whether in health or food security or other Sustainable Development Goals (see first case study, below).

Scottish research is outward facing. Its increasingly internationalised nature was emphasised in interviews and roundtables conducted for this work and is evidenced across many indicators. Some were mentioned at the start of this section, including the greater proportion of collaborative research papers than the UK average, the highest share of the most-cited publications in the world among UK nations, the quite rapidly growing share of publications that involve international collaboration – especially in biological and physical sciences – and the many dozens of projects under way through funding from the Official Development Assistance Global Challenges Research Fund (GCRF).[86]

Other international indicators include the high and increasing proportion of international staff and students at Scottish universities. Section 2 noted that Scotland's proportion of non-UK EU students was 8.5 per cent in 2018–19, against six per cent for the rest of the UK. The growth of non-UK postgraduate research students points to continuing expansion in international research collaborations. Section 6 notes the recent growth of non-UK staff at Scottish universities – up to 36 per cent in 2018–19.

At EU level, the capture of Horizon 2020 funds generally requires collaborative partners in other jurisdictions; Scottish universities secured 11 per cent of the UK funding total throughout the lifetime of the programme. It remains to be seen to what extent the UK will associate as a third-country participant in the Horizon Europe successor programme starting in 2021.

The SFC's strategic plan for research is premised on the belief that an international perspective and presence are vital for the continuing strength of Scotland's research base. GCRF strategy is co-ordinated by the SFC on a sector-wide basis, and Scottish universities each have three-year strategies in place for GCRF funding. Supporting research pools in developing overseas links using SFC funds has been part of the national strategy. The more recent establishment of interdisciplinary innovation centres was conducted with an eye on 'challenge-led' funding tied to solving global problems.

Further evidence of Scotland's increasingly global reach is provided in the next section. The research case studies presented below exemplify outward-facing Scottish research excellence, driven not only by applications for the national good but for the world.

86
An interactive map of Scottish GCRF projects, devised at Edinburgh Napier University and searchable by both university and Sustainable Development Goal, is available at http://bruceryandontexist.net/SFC/VA41-OctoberDataTF/universities.html

5.9 Scottish Reasearch case studies

5.9.1 Scottish Aquaculture Innovation Centre

The Scottish Aquaculture Innovation Centre (SAIC) applies local expertise to both national and global challenges. It was set up in 2014 with £11.1 million from the SFC and funding matched by the industry itself. It is one of eight innovation centres, also supported by Scottish Enterprise and Highlands and Islands Enterprise, aimed at increasing the pace of innovation in sectors of economic and social importance in Scotland. A further £10 million of core funding was announced for SAIC's second phase of operation in November 2019, and it aims for a further £3.5 million for industry–academic applied R&D.[87]

Institute of Aquaculture, University of Stirling
SAIC is a collaborative body of 115 (and counting) businesses and organisations, including small food producers and processors, suppliers, supermarkets, multinationals, research institutes and almost every university in Scotland. SAIC is based at the University of Stirling, where the world-class Institute of Aquaculture, the largest of its kind in the world, is at the forefront of aquaculture research and teaching. Stirling's MSc in Sustainable Aquaculture includes options in aquaculture business management, sustainability, biotechnology and epidemiology. SAIC sponsors scholarships at Stirling and other universities and arranges work placements and workshops to introduce students to potential employers. Many Stirling graduates work with SAIC.

SAIC's mission is, first, about food security, which, as the Covid-19 public health emergency showed, can be an existential issue for any country. Aquaculture has a pivotal role to play in providing a cost-effective source of protein to emerging economies and achieving the second UN Sustainable Development Goal of eliminating hunger worldwide. SAIC also supports a number of other Sustainable Development Goals, including: 3 (Health), 8 (Decent Work and Economic Growth), 9 (Innovation), 12 (Responsible Consumption), and 14 (Life Below Water).

SAIC's mission is also tied to jobs, new career paths, and the Scottish economy. Food produced through aquaculture is hugely important to the UK (and Scottish) economy. After whisky, seafood is Scotland's second largest export, and farmed salmon is Scotland's and the UK's biggest food export. Farmed Scottish salmon contributes more to UK trade revenues than any other food product. In 2019, salmon generated £700 million of direct income for Scotland and supported 12,000 jobs, businesses and communities. Other species farmed in large amounts are rainbow trout and mussels.

The rationales for connecting industry with academic research are to ensure that resources go into the areas of highest importance to the aquaculture sector, to spark innovation and to increase measurable value – commercial, social or public – for the sector and the Scottish economy.

For its second five-year phase, SAIC's strategy is to:

- drive innovation through new sources of funding, bring partners together from across the UK and focus on engaging SMEs
- develop aquaculture skills and talent across Scotland through a focused programme of mentoring, support the growth of the Women in Scottish Aquaculture network, and work with schools, colleges and universities to build awareness of aquaculture as a career
- share innovation throughout the industry by organising workshops and conferences, and disseminate information in new ways.

SAIC's 'priority innovation areas' are:

- addressing environmental and health challenges, particularly sea lice and gill disease, and developing feeds that optimise fish health and nutrition
- unlocking additional capacity in Scottish aquaculture
- high-value shellfish and other non-finfish species.

The projects co-funded by SAIC all contribute to one of these priorities. The majority of the collaborative projects funded have involved more than one industry partner and half of them have involved more than one university or research institute. This is intended to spread the knowledge across the whole aquaculture sector. Funded research projects must appeal to commercial producers, and this is determined by getting industry to say what their problems are.[88] SAIC has provided a useful route by which academics and students become aware of industry's challenges and how applied research can respond to them.

University of the West of Scotland
SAIC is also co-funding a project, that is led by the University of the West of Scotland and supported by small seafood producers, to develop a biochemical monitoring tool to fight disease in fish farming. This technique, already used in human and veterinary medicine and agriculture, analyses biomarkers such as minerals or electrolytes in thousands of blood samples to create a digital database that can compare future blood samples with normal biomarkers. This allows the producers to identify health concerns and pre-emptively manage fish health. This scaling up represents a fundamental change to health management in fish farming based on proactive interventions. Improving fish health is a focus of the Scottish government's ten-year Farmed Fish Health Framework.[89] The university plans a spin-out company through Scottish Enterprise's High-Growth Spin-out Programme.

Other international impact
Abroad, SAIC researchers have helped develop fish farming in Malawi (a country with longstanding and interesting connections with Scotland). Scaling up shellfish production in Shetland involving the University of the Highlands and Islands has benefited from expertise at a hatchery in Tasmania. This is about both new export opportunities and sustainable jobs for Scotland's more remote communities.

SAIC has attracted interest from researchers and organisations with no links to aquaculture: mathematicians who work on models in epidemiology, physicists, pharmaceuticals, whisky makers and marine equipment suppliers. Technology developed for treating cancer in people has been adapted for fish; presumably in the future aquaculture technology may have application in human healthcare.

5.9.2 Scottish Oceans Institute, University of St Andrews

The Scottish Oceans Institute (SOI), established at the University of St Andrews in 2009, is a world leader in interdisciplinary research on the marine environment. It is the conduit through which research at St Andrews contributes towards understanding and managing the future of our oceans.

The SOI hosts the Directorate of the Marine Alliance for Science and Technology for Scotland (MASTS), one of the research pooling initiatives, as well as the Sea Mammal Research Unit (SMRU), the largest marine mammal science group in the world. The SOI develops scholarship, commercialisation of research and advanced teaching delivered at St Andrews.

Research interests cover the deep oceans to the coasts, the people who use the sea, and the biological and physical processes that make the oceans function. In 2017-18 alone, SOI researchers produced 119 outputs, of which 74 were from international collaborations. This research spanned Environmental Sciences, Physics and Astronomy, Social Sciences, Arts and Humanities, Medicine, Biochemistry and Molecular Science, Genetics, Earth and Planetary Sciences, and Agriculture.

In 2019 the SOI opened a state-of-the-art research and teaching hub, with aquarium and a visitor centre to engage children and adults and promote public understanding of the oceans (see photo). The Scottish Oceans Institute reinforces St Andrews' reputation as a global leader in the study of the marine environment and it epitomises Scottish higher education's distinctive asset of research that is world-class and provides local benefit.

87
See the SAIC website at www.scottishaquaculture.com

88
Science Scotland (2016) Scottish Aquaculture Innovation Centre. Science Scotland 19. Available online at: www.sciencescotland.org/feature.php?id=290

89
Scottish Government (2018) Scotland's 10 Year Farmed Fish Health Framework. Available online at: www.gov.scot/binaries/content/documents/govscot/publications/strategy-plan/2018/05/scotlands-10-year-farmed-fish-health-framework/documents/00535697-pdf/00535697-pdf/govscot%3Adocument/00535697.pdf

5.9.3 University of the Highlands and Islands – health and life sciences innovation

Since 2017 the University of the Highlands and Islands (UHI) has been developing a portfolio of health and life sciences innovation initiatives funded by a modest £9 million slice from the £315 million Inverness and Highland City Region Deal (itself comprised of £188 million from the Scottish government, £53 million from the UK government and £127 million from local partners). These projects are about impact, at home and abroad. They are intended to establish commercial, academic and clinical capacity and partnerships to deliver improvements in health, social care and life sciences. They respond to the need for affordable and effective healthcare by the dispersed population of the Highlands and Islands.[90] The university sees this as a strategic approach to supporting health and life science projects that have both local significance and global relevance.

More than 120 projects involving 60+ academic collaborators and 50+ commercial partners have generated £30 million in new research income. These include research in cancer, heart disease, immunology, active health and nutrition, behaviour science, remote and rural health, and user-led design.

One remarkable project is the development of a natural antibody therapy for liver cancers that significantly increases survival rates. This precision immunology rests on identifying the natural antibodies present in around ten per cent of the population that can be isolated and used to target some liver and pancreatic tumours.

The research involves screening healthy donor blood samples for the presence of the anti-cancer antibodies. Samples with high levels of antibodies are purified and pooled for use as a novel therapy in trials taking place in China, for which UHI has licensed the technology to Qingdao Hailanshen Biotechnology. Liver cancer is common and costly in China, with about 400,000 current cases – half of the world's total. This is the university's first intellectual property deal with a non-UK partner, for which UHI was a finalist in the PraxisAuril 2019 KE Awards. The UHI Institute of Health Research and Innovation also won the 2019 Scottish Council for Development and Industry award for Excellence in Research and Innovation.[91]

Another project, involves post-stroke atrial fibrillation monitoring to reduce the risk of further strokes. Still others are explicitly designed for applications in remote areas, including evaluating a self-management tool for chronic obstructive pulmonary disease with NHS Highland. The Highlands and Islands is an ideal location for UHI to develop these technologies with relevance to rural populations worldwide.

By 2022 a new UHI laboratory facility – the Life Sciences Innovation Centre – will be co-located at the 'Inverness Campus' (an innovation hub) with a new NHS elective care centre and a life science facility owned by Highlands and Islands Enterprise. This laboratory will play a significant role in expanding the range and scope of the commercial life science sector in the Highlands and Islands, in investment and job creation, and in delivering health and life science opportunities throughout the north of Scotland. The Highlands and Islands have a century-long history of health and life sciences innovation, but this is probably the biggest step change during that time.

5.9.4 University of Dundee – Drug Discovery Unit

The Drug Discovery Unit (DDU) at Dundee is a unique asset in the UK university system – a 'biotech-style' drug discovery organisation to translate world-class research science into candidate drugs in therapeutic areas of unmet medical need. It demonstrates cutting-edge research with international humanitarian application. The DDU was established in 2006 with funding from the university, SFC, Wellcome Trust, European Regional Development Fund, Wolfson Foundation, Scottish Enterprise, Scottish Universities Life Sciences Alliance and ITI Life Sciences Scotland.

The DDU has two strands of activity: one philanthropic in neglected tropical diseases and the other that pursues innovative solutions in commercially viable therapeutic areas. Major deliverables to date include a candidate drug with the potential to provide a single-dose cure for malaria, two candidate drugs for visceral leishmaniasis and a partnership with Takeda to develop a new candidate drug for Alzheimer's disease.

Project-based funding has come from the Wellcome Trust, Medical Research Council, Bill & Melinda Gates Foundation, Medicines for Malaria Venture, Drugs for Neglected Diseases initiative, the SFC and others.

5.9.5 Scottish universities – responses to Covid-19

Scottish researchers have been prominent in the scientific research responses to the Covid-19 pandemic. Their visibility in communicating research findings that impact on urgent public policy choices has been enhanced by the fact that health, like

education, is a devolved competency and that the Scottish government followed a fairly distinct set of policy responses that appeared to enjoy a sustained high level of public support. Universities at the forefront of the race to understand and combat the virus include Glasgow, Edinburgh, Dundee, Aberdeen and Strathclyde.

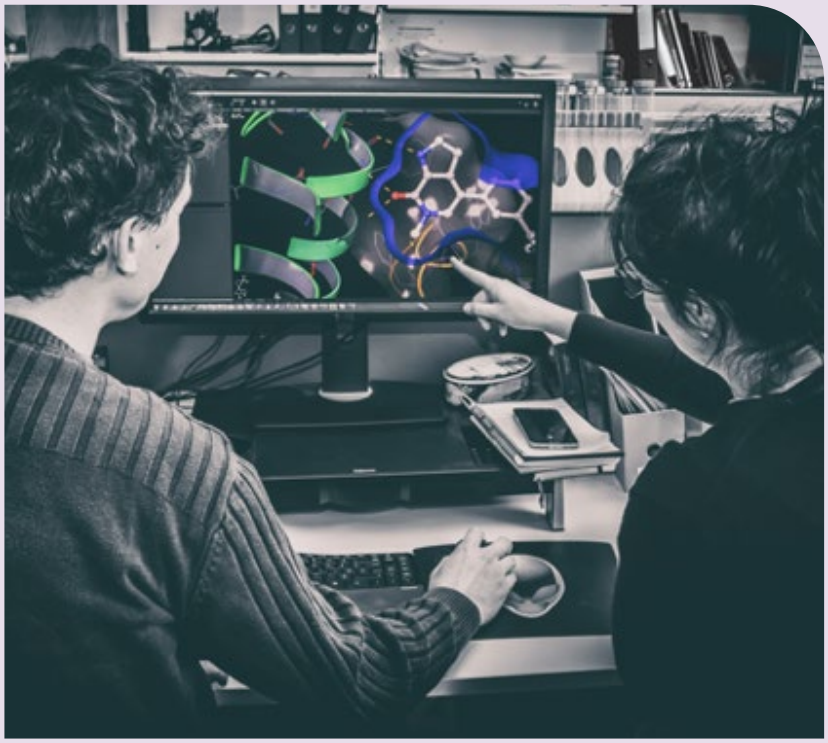
The MRC–University of Glasgow Centre for Virus Research[92] has a dedicated Covid-19 research programme that includes a Scottish surveillance programme, assessment of new antiviral drugs and monitoring for drug-resistant viral mutations (with the University of Dundee Drug Discovery Unit – see below), and participation in AFRICO19, a consortium project with Kenya, The Gambia and Uganda to support these countries in rapid diagnosis and gene sequencing to help with contact tracing and quarantine measures.[93]

At the University of Edinburgh, researchers in genomic medicine and molecular biology are addressing the lack of evidence over how much protection antibodies provide or how long immunity lasts after being infected. The goal is to create an antibody test which shows the likelihood of being infected more than once.

The Covid-19 Genomics UK (COG-UK) Consortium, for gene sequencing, has a large Scottish presence:

- MRC–University of Glasgow Centre for Virus Research
- University of Edinburgh
- NHS Lothian
- West of Scotland Specialist Virology Centre, NHS Greater Glasgow and Clyde
- Public Health Scotland
- Glasgow Lighthouse Lab is supplying diagnostic services for the UK's Covid-19 testing service. The Lighthouse Lab is led by the University of Glasgow, supported by the Scottish government, BioAscent and the University of Dundee.

The universities of Dundee, Edinburgh, Aberdeen and Glasgow are also part of a UK consortium studying the long-term (post-hospital) health impacts of Covid-19.[94]



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See University of the Highlands and Islands (n.d.) Health and Life Sciences Innovation Project Portfolio. Available online at: https://www.uhi.ac.uk/en/t4-media/one-web/university/research/health/uhi-health-life-sciences-innovation.pdf

91
See www.uhi.ac.uk/en/business/ric/research-specialisms/healthcare-innovation/news-and-events

We are grateful to Dr Gary Campbell, Vice-Principal (Strategic Developments) and Dr Adam Giangreco, Director of Health and Life Sciences Innovation, both at UHI, for useful conversations.

92
www.gla.ac.uk/researchinstitutes/iii/cvr/researchprogrammes/covid

93
See www.gla.ac.uk/researchinstitutes/iii/cvr/researchprogrammes/covid/africanglobalinfectioncovid-19

94
See www.phosp.org

6
Distinctive asset 4 The positive interplay of international and local

Summary points

- There has been great success in internationalisation since 2013 driven by institutions' own initiatives and government policy priorities.
- Successes include larger number of international Master's degree and research students, increasing numbers of international academic staff (particularly in STEM areas) and international research partnerships.
- Scottish universities achieve great success in the global ranking tables and are second in the world on a per capita basis.
- Local and international activities in education and research, that are mutually reinforcing, deliver many benefits both internationally and for Scotland.
- The net benefit to the Scottish economy of international education activities is over £2 billion per year. These confer other benefits including societal, cultural, educational, research and for trade.
- Positive collaboration with the EU has delivered many benefits to Scotland – helped raise academic standards, supported research, furthered internationalisation and delivered financial benefits.
- TNE enrolments have grown; however there remains potential for further growth, particularly for establishing international partnerships to support and deliver programmes.
- Subject areas in Scottish universities that attract global recognition include life sciences, veterinary science, earth and marine sciences, economics, politics, archaeology and humanities.
- The new city-regional deals and innovation centres offer potential for building and refreshing international research and teaching links.
- There exists a real commitment to extending the ethos of public good into an 'international good'.

6.1 Context

The Scottish higher education sector is extremely diverse, with universities, specialist institutions and colleges delivering a strong combination of research, teaching and support for all forms of knowledge exchange. In 2018–19 there were nearly 303,000 students enrolled in Scottish higher education institutions, including 49,000 of these in the college sector. Section 3 provides detail on how the sector is developing initiatives to encourage a wider social mix of domestic students to participate. Additionally, the Scottish higher education sector and national bodies have actively sought to grow internationalisation across the sector for the benefit of all students (domestic and international), for international partners, for Scottish society, the Scottish economy and the long-term benefit of all involved, essentially extending the ethos of public good into an 'international good'.

The drivers behind this are various:

- a need to respond to the challenging economic and political environment – both nationally and for each university
- a recognition that the nation, communities, universities and all students, whatever their nationality, benefit greatly from expanding internationalisation across the sector
- a real commitment to extending the ethos of public good into an 'international good'.

The Scottish Government's National Performance Framework has been developed alongside growing momentum for internationalism. The framework explicitly references the Sustainable Development Goals and the importance of Scotland being open to and connected with the rest of the world.

This section provides evidence of the sector's success at internationalisation and highlights this is a distinctive asset for Scotland. While internationalisation is an inherent component within each of the other distinctive assets identified, this section focuses on the unique interplay between the international and domestic landscape. While much of the drive to bring international benefit to the sector, and to link with national imperatives, has come from the universities, the support of national bodies, and the government's policy commitment, has also served to enhance impact.

6.2 Evidence

Scotland and Scottish universities have built on the successes highlighted in the 2013 report; the sector is more international and external-facing now than it was then and, as was recently reported,[95] 'Scotland's university sector is the crown jewel in its array of soft power assets'.

The evidence comes from across all the key activity areas for universities, supported by data, observed outcomes and professional comment. For example, international recognition of reputation of Scottish universities comes from their continuing high global ranking, relative to other countries – particularly those of a similar size. All the main attributes of internationalisation are very positive for Scotland:

- significant increases in the numbers of international research and teaching staff
- strong growth in international student enrolments, particularly at postgraduate levels
- new research partnerships and projects with global impact
- new regional centres that also encourage international engagement
- delivery of Scottish degree programmes internationally, through different modes of TNE.

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McClory, J (2020).

There are increasing numbers of initiatives involving universities co-operating with business and industry, across Scotland as well as the rest of the UK. The mix of activities include training, work placements, work-based projects, consultancies, research and development co-operation. Frequently these might embrace an international dimension to the co-operation, be it business-related, financial, academic or for global research impact. Additionally, Scottish universities, building on their business links, have supported both UK and international alumni to develop new start-up companies in Scotland. While it is not possible to say that Scotland does better than other nations, it is clear that Scottish universities and businesses are aware of and invest in building their relationships.

EU students: Positive policies towards EU students has resulted in many of these students coming to Scotland to study. They contribute directly to help raise standards, support research and internationalisation, and bring financial benefits, and many remain after graduation to contribute further to the country. Scotland is also an attractive destination for students from the rest of the UK at all levels and they make up 30 per cent of UK domicile research students in Scottish universities.

6.3 International staff in Scottish higher education

Scottish universities have been successful at internationalising their academic staff complement (research and teaching together). Overall in 2018–19 some 36 per cent of academic staff were of non-UK origin (see Table 6.1).

This enhanced internationalisation of staff supports the identification of this as a distinctive asset, and also enhances global rank position of Scottish universities. This trend to staff internationalisation has been apparent over the last five years as universities have grown and the Scottish proportions are above the UK average. Comparable data for other countries is not readily available, although German data indicates that approximately 12 per cent of academic and research staff are international.[96]

Note that Scottish universities also have a higher proportion of EU staff than the other UK Nations. Fourteen per cent of all staff (versus 12 per cent at English universities) and 21 per cent of full-time academic staff (versus 19 per cent at English universities).[97]

Faculties: The subject areas with the largest proportions of international staff in Scottish universities are engineering and technology (53 per cent), humanities and languages (44 per cent), biological, mathematical and physical sciences (42 per cent), business and administrative studies (37 per cent) and social studies (35 per cent).

EU academic staff in Scotland: The overall proportion of EU staff within the international staff complement is 57.1 per cent in Scotland, which is a similar proportion to the all-UK figure. In total terms, EU academic staff comprise 20 per cent of the 19,000 staff across Scottish universities. This proportion of EU staff has also increased over the last five years. There are variations according to subject with engineering and technology, biological and physical sciences, social studies, and humanities and languages having the largest proportion of EU staff.

6.4 International students in Scotland

6.4.1 Global comparisons

Scottish universities have long been popular with international students. Analysis of global data indicates that Scotland is second only to Australia as the leading destination country for students, based on relative population sizes. This is illustrated in Table 6.2, where the relative rankings were derived by comparing the total number of international students in each major destination country, with the total population of that country.

It is also notable that Scotland is very significantly ahead of all other leading student destination countries, particularly those of high repute and a comparable size e.g. Switzerland, New Zealand, Ireland, Singapore and all other EU countries. Note

Table 6.1: International (EU and non-EU) staff in Scottish higher education in comparison with all-UK higher education

	2014-15			2018-19		
	UK staff	International staff	Proportion international	UK staff	International staff	Proportion international
Scotland	**13,390**	**5,770**	**30.0**	**15,130**	**8,400**	**35.6**
All UK	139,195	54,995	29.7	147,970	67,645	31.2

Source: *www.hesa.ac.uk/data-and-analysis/staff/location*

that the current per capita proportion (see Table 6.2) for Scotland (1.3 per cent) represents good growth since 2013 when the figure was 0.9 per cent.

A review of UNESCO data from 2013 to 2017 indicates that over this period student international enrolment from Australia grew 52 per cent, Canada 40 per cent, New Zealand 29 per cent, the USA 26 per cent and the Netherlands 39 per cent. The figure for Scotland was 13 per cent for the period and for rest of the UK it was six per cent. A significant number of commentators attribute the lower growth rates for the UK as being due to stricter immigration policies for international students, including more stringent visa control and less access to post-study employment.

Many studies have identified the direct correlation between national immigration policies and international student mobility.[98,99] However, in spite of this being a UK-wide policy, Scotland has still managed to outperform significantly the rest of the UK.

This very high global position of Scotland, as represented in Table 6.2, is potentially under threat given the likely impact of leaving the EU, particularly as Scottish universities recruit 37 per cent of their international students from EU countries. The attractiveness of Scotland to EU students is due, in particular, to the favourable fees on offer in the country, coupled with the positive attitude prevailing in Scotland towards the EU. This suggests, in future there need to be strategies in place to reduce the impact on Scottish higher education institutions of a sudden drop in EU students.

Table 6.2: International (EU and non-EU) staff in Scottish higher education in comparison with all-UK higher education

Country	International students as percentage of total country population	Country	International students as percentage of total country population
Australia	1.5	Denmark	0.6
Scotland	**1.3**	Canada	0.6
Singapore	0.9	Netherlands	0.6
New Zealand	0.9	Ireland	0.4
Austria	0.8	France	0.4
Rest of UK	0.8	USA	0.3
Switzerland	0.6	Sweden	0.3

Notes:

1. *Country population data is the most recent provided by each country (typically 2018 or 2019).*
2. *Total numbers of international students were derived from the UNESCO UIS Global Flow of Tertiary Student data,[107] except for the UK and US data.*
3. *Data for Scotland and England was derived from HESA (2018–19).*
4. *US data from IIE Open Doors report of November 2019.*

96 www.research-in-germany.org/en/research-landscape/research-organisations/universities.html

97 HESA (n.d.) Available online at: www.hesa.ac.uk/data-and-analysis/staff/table-24

98 www.universitiesuk.ac.uk/news/Pages/UK-may-have-missed-out-on-up-to-%C2%A39bn-due-to-student-visa-changes.aspx

99 www.aph.gov.au/About_Parliament/Parliamentary_Departments/Parliamentary_Library/pubs/rp/rp1516/OverseasStudents#_Toc427230076

6.4.2 International students: charting Scotland's success

The overall growth rate (EU plus non-EU) for international enrolments to Scottish universities for the last five years has been 3.7 per cent per year, and this compares with the rest of the UK at 2.2 per cent pa.[100] While Scotland continues to recruit relatively larger numbers of students from the EU, the annual growth rate for these has been relatively modest, while enrolments from non-EU countries have grown at 4.6 per cent per year. The differences are clear in Figure 6.1.

Comparisons with other destination countries: Note the comparisons here are only with the rest of the UK. While additional insight might be provided in certain cases through consideration of other destination countries, this is limited by the impact of individual country immigration policies and political changes. For example, more favourable immigration changes in Australia have resulted in annual growth rates of 12 per cent since 2013; While in the USA there has been an overall decline in international students.

Each student source country is unique, and student recruitment requires a distinct and different approach to positioning and promotion by Scottish universities and support organisations; clear differentiation, relative to competitors, of the country and its universities is vital.

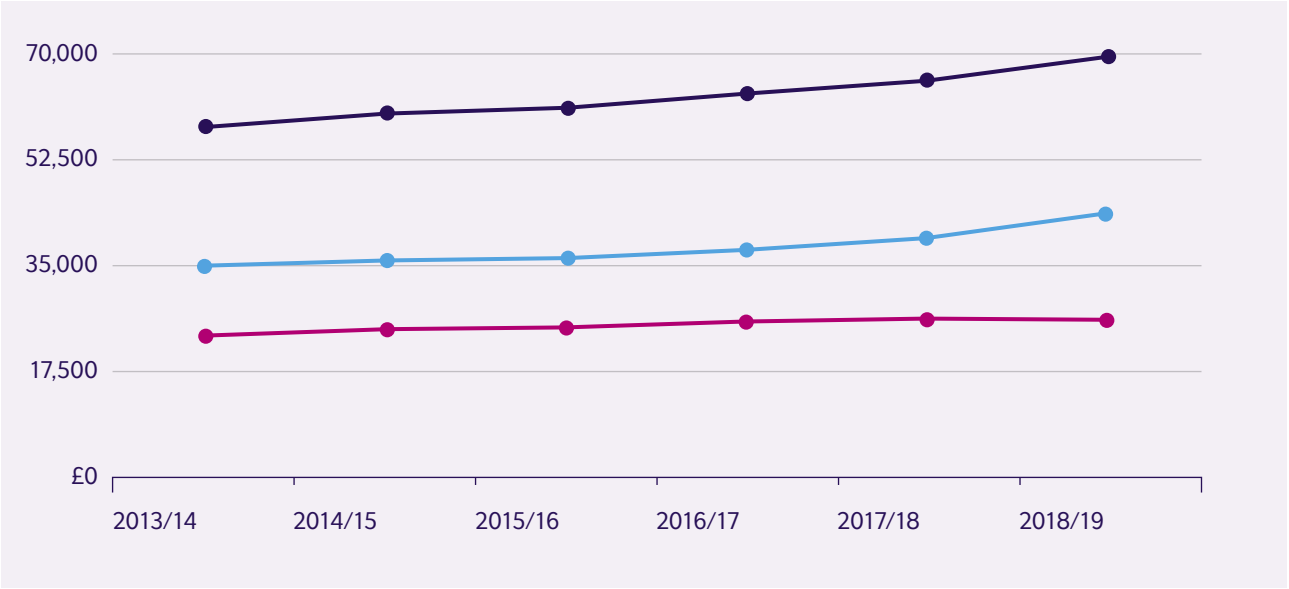
To succeed in the globally competitive market to attract students it is very important to have well-informed market intelligence, particularly to understand the different demand patterns for each major country, according to subjects and levels, any relevant successes and/or failures plus awareness of the activities of competitors and comparators.

Table 6.3 sets out top-level enrolment proportions for select leading student source countries for Scottish universities, in comparison with the rest of the UK. What is clear is that for all these countries Scottish universities have significantly outperformed other UK universities. However, this rate of annual growth is less than that for the previous five years (i.e. the period to 2012–13), no doubt due to the prevailing stricter immigration procedures prevailing since 2011. Considering some of the implications of Table 6.3 according to each country:

USA and Canada: Scottish universities have continued their great success in recruiting students from North America. The 2013 report also identified these achievements but commented that enrolments were mainly confined to just three universities (Edinburgh, Glasgow and St Andrews). Six years on this remains much the same.

China and Hong Kong: It is clear that Scottish universities have successfully grown enrolments from both China and Hong Kong, albeit from a lower starting point. However, the total proportions still remain less than for the rest of the UK, indicating possible potential for further growth.

Figure 6.1: International student enrolment trends for Scottish universities according to non-EU and EU source countries



Source: *HESA database*

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The HESA data employed for international student enrolments to the UK for this study was accessed via the British Council–SIEM portal. These data also include international students on shorter-term mobilities.

Table 6.3: International students in Scotland compared with the rest of the UK, proportions according to leading source countries, with annual growth rate for the five-year period to 2018–19

	Scotland			Rest of UK		
	2018/19	Proportion (%)	Five-year annual growth rate	2018/19	Proportion (%)	Five-year annual growth rate
Total (all countries)	**13,390**	**5,770**	**30.0**	**15,130**	**8,400**	**35.6**
China	12,460	17.9%	7.7%	116,585	24.2%	6.7%
USA	7,915	11.4%	5.2%	22,735	4.7%	1.8%
Germany	3,860	5.6%	2.2%	14,545	3.0%	-0.9%
France	2,870	4.1%	5.3%	15,360	3.2%	1.8%
Italy	2,490	3.6%	13.2%	14,345	3.0%	6.8%
India	2,350	3.4%	9.5%	25,565	5.3%	5.6%
Ireland	2,060	3.0%	-2.6%	8,085	1.7%	-3.6%
Spain	2,020	2.9%	9.9%	11,665	2.4%	7.1%
Canada	1,615	2.3%	3.0%	6,665	1.4%	0.3%
Greece	1,545	2.2%	-1.3%	9,255	1.9%	-1.4%
Nigeria	1,470	2.1%	-6.6%	10,290	2.1%	-9.5%
Malaysia	1,380	2.0%	-0.6%	13,620	2.8%	-3.2%

Source: *HESA database*

India: Scottish institutions have made significant efforts in recruiting from India and have met with some success although there remains potential for further growth.

Nigeria: Recruitment from Nigeria had been a real success in the five-year period to 2013, driven by the demand for oil sector-related programmes and in those universities with strong interest in the energy sector. However, the decline in oil prices (coupled with the stricter UK immigration regulations) has impacted strongly on recruitment from Nigeria.

EU students: Over the last five years Scottish universities have recruited EU students at a steady growth rate, albeit at a lower rate than in the previous five years. As is clear from Table 6.4, Scotland has been more successful than the rest of the UK in these endeavours and for each major EU country. However change is under way, attributable to the impact of Brexit; note that EU enrolments started declining from 2017–18, and this trend downwards looks likely to continue.

6.4.3 Levels of study

While Scottish universities have grown successfully all their international enrolments, it is at the postgraduate level where increases have been most pronounced, in particular involving non-EU students. Over the last five years postgraduate research student numbers have grown at an annual rate of 3.4 per cent while those following postgraduate taught programmes achieved a 5.2 per cent growth. These levels are above growth rates achieved for the rest of the UK.

There are also significant variations in recruitment successes according to levels of study and the source countries involved. Table 6.4 provides the overall enrolments and some of the main country variations that underpin these data; these are discussed below.

Other undergraduate recruitment: Scotland achieves success in recruiting 'other undergraduate' students from both EU and non-EU countries. For the latter this seems to be driven by larger numbers of US students on short-term programmes, mainly following study abroad programmes.

The higher proportions of EU students are likely to be dominated by short-term mobility within Erasmus+ exchanges. Brexit could have more of an impact now that the UK is no longer part of the Erasmus+ programme. It remains to be seen what support funding for exchange programmes will be available from national resources to compensate.

The 'non-EU other undergraduate' enrolments include a large number of Chinese and other students following pre-sessional English programmes (PSE). However, Scottish universities would seem to be behind the rest of the UK for recruitment to these programmes, which are important, as they provide an important pathway for undergraduate studies.

Undergraduate enrolment: Scotland has been successful in recruiting EU undergraduate students, and at a similar level to that for the rest of the UK (see Table 6.5), but Scottish institutions fall behind in terms of non-EU undergraduate recruitment (for the rest of the UK these comprise 42 per cent of enrolments but in Scotland only 32 per cent – see Table 6.4).

Scottish universities attract a large cohort of US undergraduates. However, just three Scottish universities account for nearly 90 per cent of US enrolments to Scotland (i.e. Edinburgh, St Andrews and Glasgow). In contrast, EU undergraduate students are spread across all Scottish universities. As with the rest of the UK, Brexit will almost certainly have an impact on undergraduate recruitment from the EU.

Non-EU enrolments: Scotland enrolled proportionately fewer undergraduate students, from some leading non-EU undergraduate source countries, including China, Hong Kong and Malaysia, compared with the rest of the UK. This underperformance was identified in the 2013 report and, while growth has been achieved since then, there remains opportunities for enrolment increases. However, a barrier to recruitment, repeated in interviews by university staff, was the four-year degree, relative to the three-year programme in the rest of the UK. Even if there are total fee reductions on offer from Scottish universities, the extra living costs and opportunity cost of the extra year, remains significant for a student.

Scottish universities have been active in growing new transfer partnerships (see Section 6.7.4) but the challenge of lower total recruitment remains. There is some evidence that the benefits of the four-year programme are not always understood by intending students. There is potential that this could be addressed as part of a national promotional drive.

Postgraduate taught programmes: The last five years has seen Scottish universities growing postgraduate recruitment at a relatively higher rate than the rest of the UK, although this has been a period of 'catch-up', given the relatively low starting position in 2012–13.

EU enrolments and North American enrolments have proceeded relatively well and, while there has also been good growth from other leading non-EU source countries, including for China, India and Hong Kong, proportions are still lower than for recruitment to the rest of the UK.

Table 6.4: International students in Scotland and rest of the UK (EU and non-EU) compared, according to levels of study and associated proportions (proportions in brackets) for 2018–19

Totals/ Proportions	All countries: enrolments and (proportion)		EU enrolments and (proportion)		Non-EU enrolments and (proportion)	
	Scotland	Rest of UK	Scotland	Rest of UK	Scotland	Rest of UK
Total enrolments*	69,525	481,970	26,025	141,215	43,450	340,595
Other undergraduate	9,800 (14.1%)	41,930 (8.7%)	3,590 (13.8%)	15,250 (10.8%)	6,170 (14.2%)	26,565 (7.8%)
Undergraduate	28,575 (41.1%)	224,600 (46.6%)	14,550 (55.9%)	81,480 (57.7%)	14,035 (32.3%)	143,050 (42.0%)
Postgraduate taught	22,180 (31.9%)	156,640 (32.5%)	4,995 (19.2%)	27,255 (19.3%)	17,160 (39.5%)	129,085 (37.9%)
Postgraduate research	8,970 (12.9%)	59,280 (12.3%)	2,890 (11.1%)	17,230 (12.2%)	6,085 (14.0%)	41,895 (12.3%)

Source: *HESA database*
**Rounding errors in these data might result in small discrepancies in totals*

Postgraduate research student enrolments: the annual rate of growth for international research students is stronger for Scotland and including with larger proportions now coming from non-EU countries (see Table 6.4). Enrolments from the US are particularly good but, again, to the same small number of Scottish universities mentioned above for undergraduates. There has also been positive growth of postgraduate student enrolments from China, Italy, Spain, France, Saudi Arabia and Nigeria and, for these, to a wider mix of Scottish universities.

6.4.4 Subjects in demand

Scotland attracts international students across all major disciplines in similar proportions to the rest of the UK, although with a few notable differences:

- Postgraduate research students: the areas where Scotland leads for the UK include biological sciences, history and philosophy programmes. Also, while international enrolments to doctorate programmes are relatively high in Scotland, there are smaller numbers involved in physical and mathematical sciences, engineering and technology.
- Postgraduate taught programmes: Scotland does proportionately better than the rest of the UK for most areas of medical, biological and life sciences, history and philosophical studies and creative arts. However, in social studies and management, smaller proportions of students follow postgraduate programmes in Scotland.
- Undergraduate students: Scotland enrols more veterinary students than the rest of the UK. Scottish successes are also apparent in the life, medical and biological sciences, social sciences, languages and humanities. The gaps fall in areas related to creative arts and business.

6.4.5 Student recruitment: international positioning

Scotland has successfully increased international enrolments over the last five years. Feedback from across the sector suggested a few reasons for this:

- Strong entrepreneurial drive by individual universities, in part necessitated by the reduction in domestic funding of Scottish universities.
- Growth from a lower base, given the previous relatively modest numbers of students recruited from some major source countries with high demand (e.g. China, Hong Kong and India).
- A 'joined-up' Scotland, with staff working together through the International Committee of Universities Scotland, the Scottish Universities International Group (SUIG), and with investment support from Scottish national organisations and government.
- Strong commitment to internationalisation within Scottish universities, engaging all staff, and supported by dedicated international teams.
- Scottish universities being able to utilise the international reputation of the UK as a study destination, while at the same time offering a 'Scottish differentiation'.
- The 'Scottish brand' strength, particularly in North America, as well as engagement through select initiatives in a number of countries.
- Fee levels – no fees for EU undergraduate students and, for non-EU students, competitive fee levels
- Scholarships – a good availability of scholarships offered by individual universities and at UK and Scotland level.

6.5 Rest of UK students in Scottish higher education

Scottish universities are popular with students from the rest of the UK. As seen in Table 6.5, the numbers of such students enrolled in Scotland was 31,885, and this represents over 16 per cent of total higher education enrolments in Scotland, and these enrolments have grown at an annual rate of 3.2 per cent for the last four years. This compares with the much smaller proportion of Scottish students across universities in the rest of the UK, and the declines in their enrolment rate.

Scottish universities have positioned themselves as attractive options for students from the rest of the UK, even though these students must pay tuition fees. Over recent years many Scottish universities have developed attractive scholarship packages targeting students from the rest of the UK, including only charging three years' fees for a four-year undergraduate programme – essentially on par with total fees for the rest of the UK.

More detailed analysis of the HESA data provides some interesting findings for the period to 2018–19, which show the popularity of Scottish universities as a destination for students from the rest of the UK:

- students from the rest of the UK account for 23 per cent of total UK domestic enrolments to postgraduate (taught) programmes in Scottish universities.
- students from the rest of the UK account for 29 per cent of total UK domestic enrolments to postgraduate (research) programmes in Scottish universities.
- students from the rest of the UK account for 14 per cent of total UK domestic enrolments to all undergraduate programmes in Scottish universities.

Table 6.5: Comparison of UK domestic student enrolments to Scottish and rest of UK universities in 2018–19 according to proportions and annual growth (since 2014–15)

All countries: enrolments and (proportion)			
Country of student domicile	**Numbers enrolled**	**Proportion of total**	**Annual growth**
Scotland	**163,470**	**83.7%**	**1.5%**
Rest of UK	31,885	16.3%	3.2%

Source: *HESA https://www.hesa.ac.uk/data-and-analysis/students/where-from*

6.6 Outward mobility of Scottish students

Scottish institutions, as part of their drive to internationalise, have prioritised encouraging more of their students to participate in outward mobility programmes and gain new international experiences, for periods from a few weeks to a full academic year. A similar prioritisation was also apparent across universities from the rest of the UK, showing comparable international successes.

The proportion of internationally mobile students from Scotland, relative to all enrolments, was approximately 2.3 per cent of the total higher education population; this was the same as for the rest of the UK. When this figure is compared with other countries that engage in outward mobility, Scotland and the rest of the UK are about average, in terms of proportions, for countries such as Canada (2.3 per cent), Australia (two per cent) and the USA (1.7 per cent). However, many European countries are significantly higher, for example France (four per cent) and Germany (over five per cent).

The overall numbers of outwardly mobile students across the UK increased by over 50 per cent for the three years from 2014–15, totalling approximately 54,000 students in 2017–18. Scottish universities grew their numbers of mobile students by 18 per cent (to 5,769 students). While this growth was positive, it fell short of that achieved in the rest of the UK.

The main reason for this could be that Scotland, in 2014–15, had been significantly ahead of the rest of the UK in terms of numbers per institution, but strong growth in many institutions in the rest of the UK has reversed the trend. What is positive is that students from Scottish universities spend on average much longer on their international education experiences. For example, approximately 75 per cent of mobile Scottish students spent more than three months on their mobility experience in 2017–18, while the equivalent proportion for the rest of the UK was less than 50 per cent. However, just two universities accounted for 45 per cent of all Scottish outward mobilities (Edinburgh and Glasgow), with only very modest numbers involved from the rest of the sector. This suggests any future approaches should seek to increase involvement of all Scottish universities.

Erasmus supported outward mobility

Blair Clark studied Law at the University of Edinburgh and participated in the Erasmus Exchange programme, studying in the Netherlands. As Blair commented,

> **This opened my eyes to the possibility of studying, living and working abroad. It made me more internationally minded**

He followed his undergraduate experience with a Master's degree in International Security and Law in Denmark; this was supported through the Erasmus+ Master Loans scheme. In the future Blair intends to focus on the field of security and particularly conflict-resolution. He is confident that his international experience will play in his favour. As Blair commented, 'From meeting different, interesting people and learning new things every day to being part of both a multinational and also the local national community.

6.7 Transnational education

6.7.1 TNE in the UK

The UK is the lead country for TNE globally and in 2018–19 there were approximately 670,000 students enrolled on these programmes delivered outside the UK. However, these data require brief clarification for analysis and comparison of the relative Scottish position to be made.

Delivery modes: TNE can be viewed as encompassing three overarching delivery modes – international branch campuses, distance learning (including e-delivery) and delivery partnerships (e.g. validation, franchises and dual degrees). In reality, most TNE programmes are delivered through various blends of these delivery modes. Scottish institutions are actively engaged in TNE and their programmes are delivered through all the main delivery modes.

Domination of two UK universities: Oxford Brookes University (OBU) reported over 260,000 enrolments in 2018–19, the large majority of these being students enrolled through the OBU partnership with ACCA. The University of London International Programmes (ULIP) enrols over 40,000 students internationally which are classified as 'distance learning' although there are many international partners supporting the delivery of ULIP degrees. Inclusion of these two providers can mask the overall position of individual providers, hence the comparisons made in this report do not include them.

6.7.2 Scottish TNE activities

Scottish universities have been successful in delivering their degree programmes globally through various modes of TNE, and the growth rate of three per cent per year (since 2013) is similar to that for the rest of the UK. The current total enrolment to Scottish TNE programmes was 42,775 in 2018–19 HESA Aggregate Offshore Record data (Appendix C), which, although significant, is proportionately less than for the rest of the UK. When total international students enrolled on Scottish degree programmes are considered (i.e. on Scottish campus and TNE) the proportion of TNE as a fraction of total international enrolments for Scottish universities (35 per cent) is less than that for those in the rest of the UK (41 per cent).[101]

The reasons for the smaller Scottish TNE proportions are various but one is the much lower number of TNE institutional delivery partnerships involving Scottish institutions (ie relative to branch campuses and distance learning provision). This would indicate that Scottish universities have opportunities to pursue, particularly as international partnerships can bring a diversity of other institutional benefits.

It is clear from the HESA data (Appendix C) that there are a number of Scottish universities that have experienced good growth over the last five years, notably the universities of Edinburgh, West of Scotland, Queen Margaret, Glasgow and Glasgow Caledonian. The universities of Stirling and Aberdeen have also done well.

International TNE enrolment growth for Scottish universities has been achieved through engagement in different priority countries and mixes of modes and approaches to delivery, compared to that for the rest of the UK. This is largely because Scottish institutions have achieved their successes through responding to changing patterns of global demand, exploiting their own niche positions, offering diverse delivery approaches to suit student needs, and with focus on specific countries. Some examples include:

- The University of Edinburgh has developed a suite of fully online Master's degree programmes that are proving very popular in North America and across Europe.
- The University of the West of Scotland has grown enrolments very rapidly through targeted new collaborations in India and Sri Lanka.
- Glasgow Caledonian University enrolments are focused on Oman, South Africa and Mauritius.
- The University of Glasgow has successfully grown new delivery partnerships in China and Hong Kong.
- The University of Aberdeen opened a new campus in Qatar (2017) that already has over 500 students (2018–19).
- The University of Stirling, among several initiatives, has a successful programme of media studies in Vietnam.

Heriot-Watt University remains the leading Scottish university for TNE delivery. Enrolments to the campuses in Malaysia and Dubai have grown, and this has led to increasing inter-campus mobility, a trend that the university has positively encouraged through its approach. It does not refer to 'branch campuses' – all its operations are identified as 'Heriot-Watt University'.

101
In the comparative data employed above the OBU undergraduate partnership enrolments are excluded (as explained in the text).

Heriot-Watt University and inter-campus mobility

Siddharth Kulakami studied at school in Dubai and then Heriot-Watt University's Dubai campus to follow a degree in Mechanical Engineering. He chose Heriot-Watt due to both its reputation for engineering and because its global programme allowed him to transfer flexibly to other campuses. The flexibility of the offer and the opportunity to travel and study in Scotland reinforced his decision to make Heriot-Watt his first choice. Following graduation his family are now based in Texas, and he is enrolled for a MEng degree at the University of Toronto. He plans to become a professional engineer on completing his postgraduate studies.

Edinburgh Business School MBAs

In spite of the global decline in demand for MBA programmes, the Edinburgh Business School MBA from Heriot-Watt is still the most popular internationally delivered UK MBA, with more than 5,000 students enrolled in over 100 countries[102] – from Azerbaijan to Saint Kitts, Togo and Zimbabwe. The programme's success is built on:

- flexible delivery modes
- modular structure, allowing students to complete at their own pace
- meeting the needs of different countries and students
- offering lower fees for students in low-income countries
- utilising the strong brand profiles of Edinburgh Business School and Heriot-Watt University internationally.

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The Heriot-Watt University MBA is probably the most popular from Europe, and possibly leads US universities for international delivery. However, data to make international comparisons is not available outside the UK.

6.7.3 Levels of study and modes

Nearly 45 per cent of all TNE enrolments involving Scottish universities are at the postgraduate level (31 per cent for postgraduates in the rest of the UK); for Scotland this includes an impressive 1,635 doctoral students. In terms of delivery mode, Scottish universities have a larger proportion of students following distance learning programmes, than their counterparts in the rest of the UK, and Scottish distance learning enrolments have been growing at a faster rate than elsewhere.

University of Glasgow TNE programmes in East Asia
The university operates three TNE partnerships in China and Singapore, delivering to students in-country. The aim is to offer students from around the world access to a Glasgow degree. Each partnership arrangement combines the best of the university systems involved, with students benefiting from research, teaching and professional support from both partners. The Joint Graduate School with Nankai University in Tianjin is the first UK postgraduate programme established on a Chinese university campus; the Glasgow College, UESTC (Chengdu) is a partnership with the University of Electronic Science and Technology of China (UESTC); and the University of Glasgow Singapore (UGS) is a partnership with Singapore Institute of Technology. The benefits to the University of Glasgow include reputation and profile raising in the country and region; collaborative research opportunities; internationalising staff through opportunities to gain overseas experience; two-way student mobility, including visits and exchanges; new relationships with local businesses and international organisations; and revenue generation for both partners.

6.7.4 Transfer programmes

UK universities have benefited greatly by recruiting international students through transfer programmes, and Scotland has been very successful. Transfer programmes are most common for undergraduate recruitment; however, comparisons between Scotland and the rest of the UK are not straightforward, given the different durations of the respective undergraduate degrees. Generally, these programmes are an important means of growing international undergraduate enrolments, with the additional benefit that transfer students are more likely to proceed to a Master's degree.

Transfer programmes broadly involve two types of arrangement. The first is where the student's prior learning is recognised and the enrolling university decides which year(s) might then be exempt. The second involves some form of institutional partnership where the initial year(s) of the programme are delivered at the partner before transferring to Scotland (typically referred to as 1+3, 2+2, etc.).

In Scotland approximately one-third of new non-EU undergraduates commence their undergraduate programme in years 2, 3 or 4 of the degree programme; the equivalent proportion for the rest of the UK is a quarter. The leading source countries for transfer students to the UK (including Scotland) are China, Hong Kong and Malaysia.

Further review of Scottish data, relating to undergraduate transfer programmes, indicates:

- 49 per cent of international transfer students in Scotland commence in year two and 44 per cent in year three
- 60 per cent of all new undergraduates from China transfer into Scottish universities directly into years two or three, with the largest proportion of these transferring into year three. By comparison Chinese transfer undergraduates in the rest of the UK represent 40 per cent of the cohort
- transfer students from Hong Kong account for 21 per cent of new enrolments and for Malaysia it is 48 per cent
- non-EU transfer arrangements are led by Glasgow, Strathclyde, Edinburgh and Edinburgh Napier universities, and together they account for nearly 60 per cent of Scottish transfer enrolments
- EU undergraduate transfers: nearly half of these were from France, 12 per cent from Germany and the rest spread in smaller numbers from across EU countries. The largest proportions of EU transfer students were at West of Scotland and Edinburgh Napier universities

The implication of the above proportions is that Scottish institutions overall are doing well in the recruitment of transfer students and also from the main source countries; however, these enrolments are concentrated on a small group of universities. Scotland recruits proportionately fewer non-EU international undergraduates than the rest of the UK. This is, perhaps, an indication that the messages of both the attractiveness of Scottish undergraduate degrees and the flexibility available through transfer could be made more prominent.

6.8 Global ranking of Scottish universities

6.8.1 International and domestic rankings

As discussed in Section 2, Scottish universities have retained high positions in the global ranking tables, although with some declines since the 2013 report. These data indicate four Scottish universities ranked in the top 200 globally (for 2019 Times Higher Education World Rankings and 2019 QS World Rankings) and with eight in the top 400. In per capita global terms only Switzerland is ahead. This is a great achievement for a small country in the face of very fast-growing international competition.

6.8.2 Subject and related reputation

The Times Higher Education Global and QS World University Rankings employ metrics that include research impact, peer recognition and levels of internationalisation (this last metric based on student and staff complements). There are many other ranking tables and two other leading rankings are those of CWTS Leiden and ARWU Shanghai; both have principal metrics based on research impact and outcomes (particularly publications and citations). These rankings indicate that Scottish universities achieve relatively lower overall positioning. However both CWTS [103] and ARWU [104] provide research impact rankings for subjects and, similarly, the Times Higher Education Global and QS World University Rankings allow for subject comparisons, based on their specific metrics. In analysing and comparing these individual global rankings, certain trends become apparent.

For the following subject areas, Scottish universities achieve relatively high international rank position (i.e. four universities included in the top 200 of one of the global rankings (or as indicated below):

- Medicine and Medical Sciences
- Human Biology
- Veterinary Science: ARWU places Edinburgh fourth and Glasgow 29th globally
- Earth and Marine Sciences
- Economics
- Politics and International Studies
- Philosophy (and Religious Studies): QS ranks St Andrews sixth globally
- Archaeology
- English Literature and Language: QS places Edinburgh ninth globally.

Other notable areas with relatively higher rankings include human biology and environmental sciences.

103 www.leidenranking.com/ranking/2019/list

104 www.shanghairanking.com/ARWU2019.html

6.9 Linking national and international

6.9.1 Introduction

Most universities with global ambitions, wherever they might be located, seek to deliver both national and international imperatives. This is certainly the case for Scottish universities. However, the relationship between national and international is complex, dynamic and each benefits the other. For example, degree programmes in priority niche areas, developed to meet Scottish national needs, will be attractive to students from countries where such provision might be limited. Similarly for research where an international partnership involving Scottish subject expertise might offer access to equipment, additional expertise or field research not available in Scotland – and vice versa.

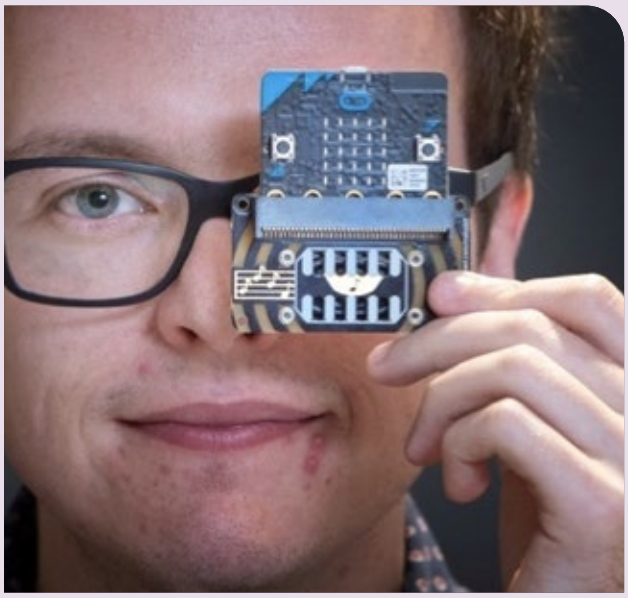
The evidence provided throughout this report clearly demonstrates the achievements and benefits deriving from the international successes of Scottish universities. New investments in university research and education capacity in Scotland can all enhance international attractiveness and benefit both the Scottish and international partners. A number of initiatives are described below that illustrate how investment primarily for domestic benefit has led to greater international engagement.

Also presented below are a number of case studies that explore how some international initiatives delivered from Scotland seek to address wider sustainable development and humanitarian concerns.

6.9.2 City Region Deals in Scotland

These deals seek to stimulate long-term strategic approaches to improving regional economies in Scotland. Each deal is tailored to the city and region, reflecting their individual strengths and weaknesses; investments and interventions are planned to support positive, transformative change. Activities follow agreements between the Scottish government, the UK government and the local government operating in collaboration with universities, colleges and the broader public sector.

International activities might evolve from these and also catalyse innovation. A selection of deals serves to illustrate the scope and reach of the initiatives and indicates their international appropriateness.



Edinburgh and South East Scotland City Region Deal
This deal involves a commitment of over £1.3 billion over 15 years. In addition to government, delivery partners include universities and colleges, local authorities and the private and third sectors. A major initiative is 'Data Driven Innovation'.

Data Driven Innovation: University of Edinburgh and Heriot-Watt University
A major initiative within this is the £350 million Data Driven Innovation (DDI), which the University of Edinburgh, through partnerships with others, is working towards establishing the region as the data capital of Europe. DDI addresses major global challenges, from food production and climate change, to space exploration and genetically tailored healthcare. The theme and aspirations are global and national at the same time. The University of Edinburgh hosts four innovation centres, including the Bayes Centre, which will involve up to 600 world-leading applied data science researchers and staff from organisations across the public, private and third sectors into the one facility. The fifth innovation centre within the project, the National Robotarium, is located at Heriot-Watt University.

University of Stirling – National and international benefits
The university is at the centre of a number of initiatives as part of the Stirling and Clackmannanshire City Region Deal. This deal will see over £200 million invested, part of which will include support for a new Aquaculture Innovation Hub, with the Institute of Aquaculture, University of Stirling (see Section 5 for more detail). This is a key industry for the region and for the Scottish economy. Aquaculture expertise from Stirling is already highly sought after internationally.

Environment, heritage and policy
Heritage is an important area of strategic investment for Scotland and the region, and with high international impact. The University of Stirling is a frontrunner in the subject; its Cultural Heritage programme is an interdisciplinary research programme with high international impact and involves partners locally, across the UK, with Europe and beyond. The research addresses national and global challenges, exploring the complex relationships between, past, present and future. The university is Scotland's sole provider of undergraduate and postgraduate degrees in heritage, digital heritage, heritage and environment, and heritage and tourism. It also supports both doctoral researchers and post-doctoral fellows in the heritage field. Further national and international impact is achieved through heritage research partnerships, including involving the Palace Museum in the Forbidden City in Beijing.

Dementia and ageing research and development
The University of Stirling has a global reputation in the field of dementia and ageing; activities involve world-leading research and knowledge exchange, development of commercial opportunities and intellectual property. Part of this has been building strong international partnership networks. The Dementia Services Development Centre (DSDC) was formed in 1989 and supports over 300 industry clients in 23 countries, offering evidence-based consultancy in dementia design and care. The DSDC specialist team of architects, care practitioners, designers and nurses work with researchers and industry to improve the lives of people living with dementia. This is achieved through the development of product and building accreditation schemes, industry bespoke training, consultancy, licensing of IP and international events. Over 15,000 people worldwide have now been trained through the DSDC evidence-based training module for dementia care. The flagship Master's programme in Dementia Studies attracts multidisciplinary practitioners from all over the world who join an online learning community, with several hundred alumni whose work now learns from and contributes to DSDC research.

Image: Professor Alison Bowes awarding the DSDC 'Gold' Dementia Design Accreditation Certificate to Grancreer Retirement Living, Tokyu Land Corporation (Tokyo 2017).

6.9.3 International humanitarian initiatives from Scotland

Scottish universities and the Scottish government have a long history of working with and supporting international development activities; more recently this has been crystallised through placing the UN Sustainable Development Goals at the centre of national policy and planning. Scottish universities have individually supported many initiatives. Some recent humanitarian areas of engagement include the provision of support for fragile states, refugees and asylum seekers. Some specific examples of university led activities are provided here.

Queen Margaret University, Edinburgh - Health in situations of fragility

The University's National Institute for Health Research Unit on Health in Situations of Fragility focuses on contexts where displacement, conflict, pandemic disease or weak capacity makes the delivery of vital health services especially challenging.

Working with collaborative partners at the American University of Beirut, Lebanon, and the College of Medicine & Allied Health Science, Sierra Leone, the Unit brings together expertise from research clusters in health systems development and psychosocial wellbeing, integration and protection to develop a comprehensive 'systems for health' approach to addressing fragility and building resilience. The Unit is especially focusing on two commonly neglected areas of health provision in these contexts - mental health and psychosocial support, and the treatment and prevention of non-communicable diseases - and is working to inform policy making and care delivery regarding mental health and NCDs in real time in Sierra Leone and Lebanon, before extending its impact to fragile settings globally.

Image caption: Community Health Workers Taking Part in Participatory Research in Freetown, Sierra Leone, August 2018

University of Dundee – Humanitarian Scholarships
These scholarships support students to study at both master's and doctorate levels. Working with the British Council, the programme encapsulates the Higher Education Scholarships for Palestinians programme, where the university provides full fee waivers for master's and doctoral students. Full scholarships for tuition fees and living costs are available from the university, again for students at both master's and doctoral levels. The programme co-ordinator, says:

... the Humanitarian Scholarship programme enables refugees to study at the University of Dundee with financial security, as well as an opportunity for a fully transformative experience in both their academic and personal lives.

University of Strathclyde – Asylum Seeker Scholarships
The University of Strathclyde operates an Asylum Seeker Scholarship.[105] The impetus arose from the Strathclyde Students' Association; it is run and funded in conjunction with the Scottish Refugee Council and The Carnegie Trust. It is aimed at prospective students in the Glasgow area, young and old, who are awaiting the outcome of an asylum claim (and would normally be subject to international student fees). This scholarship is consistent with the Scottish Government's New Scots Refugee Integration Strategy, which is premised on the idea that the integration of new arrivals should begin before status is confirmed by the UK Home Office.

The Asylum Seeker Scholarship covers tuition fees for the duration of the programme, travel costs, and study expenditures. Each recipient is assigned a mentor for guidance and support. Between 2014 and 2019 the scholarship was awarded to 34 asylum seekers.

105
See www.strath.ac.uk/studywithus/scholarships/asylumseekerscholarship

Image: Rawad Qaq [right], a Humanitarian Scholar from Syria

University of Strathclyde – Solar energy and the SDGs

One billion people live without access to electricity. University of Strathclyde students have been involved in solar power projects in Rwanda, Malawi and Gambia. The team in Rwanda – with students from engineering, political science, and business – developed an 'Energy Box' microgrid in a Rwandan village.[106] It is a response to the problems of energy wastage from solar home systems while at the same time others cannot afford them. Through the microgrid electricity can be bought and sold using mobile phones. The Strathclyde team were finalists at the IEEE 'Empower a Billion Lives' competition in 2019.

Some 60 homes and businesses in Malawi's Central Region can now access electricity through a solar PV microgrid - the first of its kind in the country. This stable and low-carbon energy was installed by engineers from the University of Strathclyde, with Malawian partners, as part of the £1.3 million Scottish Government-funded Rural Energy Access through Social Enterprise and Decentralisation project (EASE),[107] itself part of the Scottish Government's Malawi Development Programme. The aim of this social enterprise, which builds upon previous collaborations with Malawian NGOs, is to provide sustainable and life-changing energy to one million people in 10 years.

The Gambia Solar Energy Project[108] is an initiative from Strathclyde's Department of Electronic and Electrical Engineering which has installed solar electricity at Gambian schools (some 70 per cent of Gambians lack electricity). This is part of Strathclyde's 'Vertically Integrated Projects for Sustainable Development' programme, through which students gain academic credit while participating in real-world research challenges associated with the UN Sustainable Development Goals.

University of Edinburgh – Supporting refugees from Syria

Students and staff from the University of Edinburgh have been working as volunteers to provide direct support for Syrian refugees and asylum seekers, assisting them to settle into their new life in Scotland. The Syrian Futures Project was the idea of a member of staff of Syrian origin. Syrian Futures offers support and guidance in high needs areas including improving access to education and employment, offering English language training, developing social skills and engaging with wider Scottish society. Two examples relating to education and employment are:

University student volunteers take part in the Befriending Scheme with Syrian teenagers and the wider community to assist them settling into education, to raise their confidence, self-esteem and to engage them with wider society through organising culture nights, educational trips and university visits. The University's Widening Participation Team offer these teenagers the opportunity to experience university life and take advantage of help and support, as they consider all their options in further and higher education. Involvement has proved a bonus for students of Arabic at the University for it has given them a unique opportunity to practice their conversational Arabic and learn more about Arab life and culture.

Images: Left: Gambia Solar Energy Project, University of Strathclyde.
Right: Young Syrian refugees attending a pre-Open Day event at the University of Edinburgh to brief on higher education in Scotland, admission's procedures and life as a university student.

Employment access: Many Syrians in the UK come from well-educated or professional backgrounds, some of them were teachers, professionals or business owners. They face multiple barriers including language, a lack of recognition of their educational or other qualifications and the very different professional culture of the UK. Syrian Futures works with local and national partners to support Syrians as they navigate their way through an unfamiliar job market and into employment. Support includes professional internships and volunteering opportunities, all with specialist support tailored to their needs; free English language classes and cooperation with government agencies in order to remove the obstacles to employment that so many highly qualified Syrians face.

Since the onset of COVID, Syrian Futures has provided support online, these include English language courses for refugees and asylum seekers in the UK which, while open to everyone, specifically target women with childcare responsibilities and a Global English Language programme that prioritises Syrian refugees in Jordan, Lebanon, Turkey and Syria, delivered in partnership with the International Syrian Association for Education Development.

Other examples

There are many other excellent examples of diverse humanitarian and SDG related initiatives in all Scottish universities. A selection includes:

University of St Andrews: A Refugee Entrepreneurial Fund has been set up to support start-up health-related projects for Syrian and/or Palestinian refugees in the Middle East[109]; additionally there are scholarships for asylum seekers and refugees.[110]

University of Stirling: Stirling University Student Action for Refugees[111] encouraging students to volunteer and provide support for refugees in the community, and to improve the lives of refugees.

Edinburgh Napier University: designing and building sustainable housing for refugees fleeing conflict and environmental disaster supported by the Royal Academy of Engineering.[112]

106
See https://glasgowcityofscienceandinnovation.com/strathclyde-students-trial-energy-box-microgrid-in-rwanda

107
See ease.eee.strath.ac.uk/about

108
See www.strath.ac.uk/engineering/electronicelectricalengineering/ourinternationalprogrammesprojects/gambiasolarenergyproject

109
See cpcs.wp.st-andrews.ac.uk/research/refugee-entrepreneurial-fund

110
See www.st-andrews.ac.uk/study-abroad/sanctuary

111
See www.stirlingstudentsunion.com/clubssocieties/societies/8980

112
See www.napier.ac.uk/about-us/news/fff-refugee-shelters

Image: Young Syrians attend a tailored English language programme at University of Edinburgh.

6.10 The benefits of internationalisation

6.10.1 Background

The internationalisation of higher education can deliver great benefits for all involved: students (Scottish and international), Scottish and international partner universities, and for the countries and the wider societies where they are located. The analysis above demonstrates the tremendous asset that the internationalisation of higher education has been for Scotland, and in distinctive ways. Here we offer a brief overview of the benefits that might accrue.

Educational benefit: the great diversity of international students and international staff enhances the 'feel' of the campus, offers new approaches to teaching, improves quality of education experiences and also stimulates inter-cultural understanding. For example, project work within degree programmes will draw on a wider mix of international contexts and applications; new teaching and research co-operation will evolve; new languages will be learnt; and first-hand experiences through study mobility and internships will evolve.

Economic benefits: Revenue accrues to Scottish universities and communities from student fees and living expenditure. Those students that stay on in Scotland for employment after graduation will also pay taxes, and they will most likely work in higher-added-value and professional jobs. Future benefits to Scotland will also derive from business and trade linkages as well as increased numbers of visitors and scholars.

Universities Scotland estimated (2016-17) that the country's universities added £7.1 billion to the Scottish economy and employed 43,700 people. Within this the net economic benefit of international students to Scotland[113] was estimated to be £1.9 billion for the cohort recruited in 2015-16,[114] and 'education exports' had grown recently at approximately ten per cent per year.[115] Direct fee income (from non-EU international students only) accruing just to the higher education sector was estimated to be over £600 million per year (2017-18)[116] and with spending and other items an addition to this.

Employment benefits: Both Scottish and international students benefit through their enhanced employability deriving from their international experiences. Locally, jobs are generated in the communities surrounding universities; there will be demand growth for professional and higher-level skills associated with universities, including for academic and research staff. In Dundee, for example, one in every eight jobs depends in some way on higher education.[117]

Cultural benefits: The close mixing and engagement between Scottish and international students on campuses across the country facilitates the sharing, exploring and better understanding of cultural diversities, and similarly for Scottish students when they undertake programmes of study overseas. Bridges built and friends made through these experiences also offer new links and partnerships for future benefit.

Societal benefits: The wider Scottish society, where institutions are located, benefit through the presence of many international students and academics. For example, many become involved in local communities, for sport, volunteering and faith groups.

Economic and societal benefit – national and international, an example

Xavier Bionix is aiming to become a global enterprise that offers high-tech custom-made solutions and innovations for the healthcare sector. The business is currently at the prestart-up phase working on a custom-made 3D printed external fixator (medical stabilising frame). To date they have managed to find a potential development partnership with a company in Dundee and are in the process of drafting patent applications.

113
The net economic benefit, in this context, includes the direct, indirect and induced economic benefits less the public costs associated with hosting international students. For Scotland this includes the costs of providing subsidised places for EU domiciled students.

114
London Economics (2018) The costs and benefits of international students by parliamentary constituency: Report for the Higher Education Policy Institute and Kaplan Educational Pathways. Available online at: www.hepi.ac.uk/wp-content/uploads/2018/01/Economic-benefits-of-international-students-by-constituency-Final-11-01-2018.pdf

115
Scotland's Export Performance Monitor (May 2019).

116
Audit Scotland (2019).

117
Universities Scotland (2017), pages 1, 3.

The founder, Dr Firas Bakri, originally from Jordan, studied a Master's in Orthopaedics at the University of Dundee. Firas chose MCh Orth in Dundee as it was the only university he found in the UK that had the facilities and staff to support his specific research idea. During his research he managed to produce various prototypes that enabled him to prove the concept. Through his time researching for his degree he discovered that the entrepreneurial ecosystem and network of support at the university and in Scotland was well developed and could help realise the commercial potential of his project. Upon graduation he enrolled in the on-campus summer business accelerator programme (run by the university's partners Elevator), which helped him further shape and validate his business idea whilst expanding his business network.

I came to Scotland because it has what I always dreamt and wanted from a country to establish my business. The people here are nice, humble, generous and supportive, the state (government) is progressive and very keen on supporting entrepreneurs establishing their businesses through various enterprises backed by the government.

Dr Firas Bakri

6.10.2 Alumni and the longer term

Students returning home after graduating will generally be more employable and will generate wealth in their countries, including through paying taxes. Research on the wider benefits of international students indicates that students greatly value the international networks of fellow alumni and contacts made while studying; these might also further their own business interests.

The large majority of students maintain a great loyalty to their alma mater. Each Scottish alumnus is a potential ambassador for Scotland and should be nurtured. A positive experience while in Scotland also means they will promote Scotland to others as a study destination. Many keep in touch, return to visit and even seek to enrol their children. Postgraduates, particularly research students, are very likely to establish future international collaboration with their previous university, supervisors and fellow researchers.

Scottish universities have some of the strongest networks of alumni in the UK. They are able to draw on the Scottish diaspora for their wider interests, as reflected in the presence of such a strong cohort of North American students in Scottish universities. A Scotland-wide approach for long-term alumni engagement has real potential, given the great loyalty to Scotland of its international alumni, and the modest size of Scotland but, as many countries have found, this requires investment, motivation and continuity to make work. Some universities have achieved this; for example, the Watt Club of Heriot-Watt University alumni has members in over 190 countries.

The University of Strathclyde runs an 'Alumnus of the Year' competition in celebration of the contributions which the university's alumni make in their chosen fields. In 2019 this was won by Joyce Msuya, (Pictured here). UN Assistant Secretary-General and Environment Programme Deputy Executive Director. Previously Ms Msuya worked for 20 years with the World Bank, where she led international economic and environmental strategies, particularly in Africa. Ms Msuya, from the foothills of Kilimanjaro in Tanzania, graduated from the University of Strathclyde in 1992 with a degree in Biochemistry and Immunology. She received her Alumna of the Year award during a graduation ceremony at the University in June 2019.

7
Distinctive asset 5 A focus on graduate skills and employability

Summary points

- The future employability of graduates is a priority for all Scottish universities and is embedded within their teaching, learning and outreach strategies.
- There is a collective effort involving national organisations, institutions, employers, staff and student groups to deliver the best employment outcomes for graduates.
- Individual universities have developed innovative approaches to support their graduates and alumni to become entrepreneurs, including for their own start-up companies.
- Many degree programmes involve work placements, internships or projects in conjunction with business and industry.
- Work-based learning initiatives are in place that enhance preparation for employment, including graduate apprenticeships.

7.1 Context

Among the factors that students consider when choosing a university, employment prospects are at the top. However, a degree is no longer enough to make a graduate stand out in national or international labour markets; enhancing the employability of students, through both academic and wider support activities while at university, does make a difference. Scottish higher education providers have a strong track record in encouraging the development of employment-related competencies, including progressive pathways from education into the workplace.

The 2013 report identified graduate employability as a distinctive asset for Scotland, and the research and analysis for this update demonstrates that it remains a clear priority. Essentially, all the approaches in place across the sector to enhance graduate employment identified in 2013 have been further developed through innovations by the universities, involvement of national organisations and employers, stronger government commitment, and investment. These are discussed below.

7.2 Evidence

7.2.1 Introduction

The evidence for a co-ordinated focus on graduate skills and employability as a distinctive asset is compelling. It is based on quantitative findings and, more subjectively, through exploring the collective drive of national organisations, institutions, employers, university staff and student groups. These work together, in mutually reinforcing approaches, to deliver great outcomes for Scottish graduates.

Data on graduate employment, graduate incomes and unemployment provide the measurable outcomes discussed in section 7.2.2. Other countries also implement employability strategies for graduates, but what is distinctive in Scotland is the totality and commitment of the national approach, with investment and strategies developed that focus on the development of relevant graduate skills. A contributing factor is the 'manageable' size of Scotland and the limited number of higher education providers; this facilitates direct engagement between key institutions, organisations and employers.

7.2.2 Some quantitative evidence

The most recent 'performance indicators' for the employment of new graduates, produced for the UK by HESA (2016–17), indicates that 95.3 per cent of Scottish university graduates were working or studying (or both) six months after completing their studies (higher than for the rest of the UK, where the average was 94.5 per cent).[118] Certain institutions did exceptionally well, with the Royal Conservatoire of Scotland reporting a tremendous 99.2 per cent and the University of Stirling reporting 97.1 per cent. Some 44 per cent of recent graduates were either in microbusinesses or SMEs,[119] a consideration that Scottish universities address in their approaches to enhancing employability.

Across key indicators Scotland had the strongest performance of the UK nations; in 2019 unemployment in Scotland was lower and the rate for young people the lowest in the UK. Further indication of national success comes from data relating to skill indicators (Scotland's Future Skills Action Plan):[120]

- Scotland is ranked top of 36 OECD countries for the possession of high-level qualifications
- Scotland has more people (47.4 per cent) aged 25–64 educated to tertiary level (levels 5–8) than any other country in Europe
- the proportion of Scotland's working-age population with a degree or professional qualification increased from 16.8 per cent in 2004 to 29.6 per cent in 2018.

7.2.3 Scotland – working together

The paragraphs below offer a brief overview of the sectors, organisations, government groups and employers who work together to enhance graduate employability. Their dynamic inter-relationships constitute a distinct Scottish approach to employability.

The higher education sector
The higher education sector has embraced the need to ensure its graduates are wanted by employers, flexible in their thinking and equipped with the skills for both existing and emerging employment needs. Universities Scotland summarised this as follows:

Every Scottish university has employability embedded as a core part of their learning and teaching strategies. Each institution also has a set of graduate attributes which they look to develop in every student irrespective of their course or discipline studied, including being a reflective learner and problem solver and being able to use analysis and enquiry techniques effectively. These are the kind of wider 'soft' skills that employers look for.[121]

Enhancement of employability is delivered through a number of complementary approaches:

- embedding employability in the curriculum: courses developed that meet the needs of industry and business, additional activities that reinforce graduate employability
- working with employers, including work placements, internships, alumni engagement and other guest speakers
- encouraging entrepreneurship and supporting business start-ups, particularly for new graduates.

University outcomes agreements
The alignment of skills provision in higher education with the needs of the economy is prioritised in the SFC's Outcome Agreements (see also Section 3), in which universities are required to respond to the current and future labour market needs of employers and the economy. The agreements set out a commitment to increasing the proportion of

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118 www.hesa.ac.uk/news/05-07-2018/employment-of-leavers-tables

119 Association of Graduate Careers Advisory Services (2020) The Scottish Graduate Labour Market. Available online at: https://issuu.com/agcas_00/docs/the_scottish_graduate_labour_market

120 Scottish Government (2019) Scotland's Future Skills Action Plan, pages 18, 24. Available online at: www.gov.scot/publications/future-skills-action-plan-scotland-evidence-analysis-annex

121 www.universities-scotland.ac.uk/bite-size-briefings/giving-graduates-the-skills-they-need/

students entering graduate-level occupations, enhancing their skills for the workplace and developing students for a competitive international labour market.[122]

Graduate attributes
Since the 2013 report, a continuing emphasis has been placed by Scottish universities to set out graduate attributes. Each university produces its own set of attributes, with graduate employment as a central theme. This was discussed, with examples, in Section 4.

Quality Assurance in Scotland
The work of the national quality assurance agency, QAA Scotland, was discussed in Section 4. The leading role of the enhancement themes and the Focus On projects were explored as key means of enhancing the quality of the student experience, shaping university activities and improving graduate outcomes. Within these, improving graduate employability has been and remains a priority. For example, 'Graduates for the 21st Century' was an enhancement theme (2013–16) and 'Graduate Skills' was the Focus On project for 2018–19. The team-working approach has ensured that improving graduate employability is core to each institution's activities. Some of the successes are reviewed below.

Work-based learning
A priority for Scotland has been to initiate work-based learning pathways to meet the needs of business and industry, and address priority areas for the economy. One well-co-ordinated initiative has been the development of graduate apprenticeships; these involve establishing partnerships between the higher education sector and Scottish government agencies responsible for skills and enterprise. The scheme was launched in 2017 and has quickly taken off: in 2018–19 there were 13 Scottish universities involved in partnerships with 346 employers.

Scottish Credit and Qualifications Framework
The 2013 study stressed the importance of SCQF in providing a flexible approach to lifelong learning in Scotland.[123] Seven years on it continues to recognise prior learning, including for in-company education and training undertaken.

This asset was seen as supporting mobility, facilitating progression through higher and professional education and ultimately securing employment. The SCQF approach also helps remove barriers between universities, the college sector and employers, and thereby offers students more choice of study options.

International recognition of the Scottish approach to a unified qualifications framework has facilitated employment mobility, professional body recognition and close institutional relationships. Examples are projects with the European Qualifications Framework and others involving Bahrain and Hong Kong. The clear SCQF benchmarking within the European Qualifications Framework has facilitated successful engagement with EU member states on European Commission Erasmus+ projects.

Scottish government focus on employability
The expansion of work-based learning and support for individuals seeking to upskill and reskill is facilitated by the Enterprise and Skills Strategic Board.[124] This was created in 2017 to maximise the impact of the collective investment that Scotland makes in enterprise and skills development, and to deliver inclusive and sustainable growth for the country. The Enterprise and Skills Strategic Board ensures that the activities of all Scotland's enterprise and skills agencies are aligned. One activity has been to encourage a shift to a more demand-led skills system, able to respond more flexibly to current and future skills needs.

Employer engagement
A common feature of all the innovations involving graduate employability has been the vital relationship with employers, and this appears to have grown significantly since the 2013 report. More degree programmes now involve work placements, internships, work-based projects or other projects identified by business and industry. Employers are involved directly with universities in supporting the development of degree programmes, presenting guest lectures, running workshops and seminars, collaborating with graduate apprenticeships and growing other work-based learning initiatives. An example is that from Edinburgh Napier University.

Edinburgh Napier University
Degree programmes at Edinburgh Napier Business School are designed with, and reviewed by, industry partners to help ensure that all the graduates are highly valued by employers. Entrepreneurship is embedded within all programmes, and students are given multiple opportunities to utilise their classroom learning to solve real-life business challenges. This results in many students undertaking work-based learning experiences during their studies.

For students not able to engage in a longer-term placement, more compact work-based learning opportunities are offered. For example, students might spend several weeks engaging with businesses to solve real-life challenges, such as marketing a new product or helping to identify a suitable growth model strategy for a company.

Beyond the curriculum, students have a range of exciting business-focused activities with which to engage. For example, Napier's 'Legal City Challenge' experience has seen teams of students compete against each other to complete a number of challenges at legal firms across Edinburgh.

Wendy Morrison graduated with a BA (Hons) Business Management, and undertook a six-month placement with Acumen Financial Planning in her third year, commented:

I enjoyed the finance and accounting modules, which sparked my interest in Acumen. The technical aspect combined with softer skills definitely appealed to me. Acumen also offered the opportunity to sit Chartered Insurance Institute exams during the placement. These qualifications are essential to give financial advice, so I felt this would give me a head start in applying for jobs.

My placement has guided me into a career I didn't even know existed, which suits my skill set, and has presented opportunities which I will pursue after university.

Wendy Morrison

122
Scottish Funding Council (2019) University Outcome Agreements: Summary of Progress and Ambitions Report 2019. Available online at: www.sfc.ac.uk/web/FILES/outcome-agreements-1920/Progress_and_Ambitions_Universities_2019.pdf

123
https://scqf.org.uk/media/2czjfrud/scqf-a4-purple-leaflet-final-july-2014-web.pdf

124
www.gov.scot/publications/working-collaboratively-better-scotland/

7.3 Sector activities

The activities in the overview presented above are reflected in very practical outcomes. The following sections set out some evidence of the distinctive approaches adopted across the sector and their impacts.

7.3.1 Enhancement themes

The importance of the employability agenda is reflected well in the enhancement themes that are central to the quality assurance system in Scotland; some specifically address employability, and for others it has emerged as a necessity. Section 4 includes a brief discussion of enhancement themes and the involvement of institutions, staff teams and students in their delivery. The 'Employability' theme was initiated in 2004, and 'Graduates for the 21st Century' was particularly pertinent, and these developments continue.

The 'Student Transition' theme (2014–17) identified the transition from university to employment as a major concern of students that needed to be addressed. A case study in Section 4 considered GSA students teamworking with alumni and employers to develop approaches for GSA to prepare students for employment. GSA implemented the recommendations. An interesting outcome, welcomed by all, was greater alumni involvement as advisers to students during their studies.

7.3.2 'Focus On: Graduate Skills'

QAA Scotland's 'Focus On: Graduate Skills' project is another good example of how the 'joined-up sector' in Scotland addresses priority national and international concerns, in this case employability. The approach outlined below demonstrates the distinctiveness inherent in the system of identifying key issues and team-working to achieve results.

As indicated in Section 4, the graduate skills project[125] was conceived as a practical means to explore the increasing mix of skill sets identified by employers, the needs of SMEs and start-ups, and the requirements for graduates to be adaptable in the face of rapid technological change. A key question, 'How might higher education institutions most effectively embed skills inside and outside of the curriculum for graduates of all disciplines?' was explored through the lens of identified priorities:[126]

- equality and diversity: how can students from all backgrounds develop skills that will help them to secure and sustain success in the workplace?
- readiness for employment (graduate and digital skills): how might skills be embedded inside and outside the curriculum for graduates from all disciplines?
- global perspectives: how might Scottish graduates be enabled to work in a global society, and that the Scottish sector is informed by global events?

The project involved consultations with key stakeholders – current students, alumni, university staff and employers (some 600 individuals). In terms of graduate skills the findings included:[127]

- most students and graduates said that their institution had prepared them for the workplace, with a broad range of skills (including transferable or 'meta' skills), industry-relevant experience and knowledge, and a 'work-ready' mind-set
- graduates were positive about the links with industry of their universities, for example, through teaching staff using their own industry experience and contacts for the benefit of students
- 80 per cent of employers rated Scottish graduate preparedness for the workplace as good or excellent, and 83 per cent indicated they valued the specialist skills and knowledge and contribution of graduates to business growth
- digital skills were seen as extremely important – using digital software, analysing data and collaborating in digital environments
- current students were able to understand cultural differences and to interact with people from different backgrounds.

As students reported:

The University is full of people from all different cultures, ethnicities, and genders, and all of these aspects are cherished and celebrated, so that anyone can feel welcome.

When I take a 'back seat' I realise how much I have learnt that can be directly applied to many jobs from teaching to finance to law.

This Focus On project also identified a number of areas for follow-up in the coming period. These include:

- extending and further strengthening student–employer links. There were many good examples of work placements and internships and these were highly valued; providing more would be greatly welcome.
- students appreciate more ways to record and evidence skills and achievements, thereby attracting greater employer recognition (seen as particularly important for digital skills).
- given the costs and limited provision of international experience for students, it was suggested that more attention could be paid to developing 'internationalism at home' for students including, for example, more internationalisation of the curriculum.

7.3.3 Employability enhancing initiatives from Scottish institutions

Support for alumni as new entrepreneurs
As mentioned previously, a number of Scottish universities have developed specialist units and teams to continue to support their recent alumni as entrepreneurs through provision of practical advice, contacts, guidance and access to business mentors. Some good examples of new start-up companies by alumni are provided in the case studies below as well as in Section 6.

University of Glasgow
The Student Enterprise team within the Careers Service at the university helps students to start and run their own businesses. Advice and expertise on legal, business and financial planning, investment sources, external professional advisers and support networks is provided. Pooja Katara was supported by the university with her business, SENSEcity, in 2017. SENSEcity provides a new approach to tourism through embedding augmented reality within guidebooks for walking tours. Pooja's approach has been to develop a walking tour of Glasgow, complete with guidebook, that includes a digital app which allows the images and 3D animations within the guidebook to come to life using augmented reality technology. Pooja's guidebook and app currently have 18,000 active users and have achieved a five-star rating on the App Store and Google Play. The support that Pooja received from Glasgow's Student Enterprise team allowed Pooja to further develop her business, and she plans to expand the model to other UK and international cities.

University of Dundee
A number of initiatives are under way with emphasis on work-based learning. The mission of the university's Centre for Entrepreneurship is to improve the employability and self-reliance of students, staff and recent graduates by developing enterprise skills. The centre focuses on businesses located in Dundee, especially those from the creative industries, digital technology and life science sectors. Activities and support include an annual venture-pitching competition, with start-up funding awards for new business ideas. Success stories from international graduates include:

125
See QAA Scotland: www.qaa.ac.uk/scotland/focus-on/graduate-skills

126
QAA Scotland (2019) Focus On: Graduate Skills – Views from students, graduates and employers. Available online at: www.qaa.ac.uk/docs/qaas/focus-on/focus-on-graduate-skills-views-from-students-graduates-and-employers.pdf

127
Ibid.

PitchMe

PitchMe is a talent ecosystem created to support inclusive employment and continuous reskilling for the future of work. It is one of the first talent platforms helping candidates use personal data to find a dream job. By analysing a range of digital sources, it identifies the skills a person has and might need to be improved to qualify for a particular occupation. The founder, Dina Bayasanova, a University of Dundee alumnus, started the company in 2017 and has grown the business to be revenue-generating. PitchMe won an MIT Inclusive Innovation challenge and was a finalist at the Europas Awards for Hottest EDtech Startup in 2019.

My time at the university was essential for the development of the project. Research skills and critical thinking which I had developed during my studies now help during my entrepreneurship journey. I was also inspired by the challenges that my fellow students/alumni faced.

Dina Bayasanova

Cturtle

Cturtle was developed to help students who seek to pursue university studies abroad by supporting cultural and other adjustments. Xiaoxiao Zhang, who completed a Master's degree at Dundee, founded Cturtle and, after graduating, she stayed in Scotland to develop her start-up. Her motivation was her own experience of difficulties in adjusting to a new culture while pursuing studies in Scotland. She participated in the Enterprise Challenge and received the 'New Idea Award' and in the Venture competition in which she won the 'Business Student' award. As Xiaoxiao says:

Coming to Scotland, the only things I brought along with me were three bottles of soy sauce and a massive duvet. I also got lost at the airport. That made me think 'surely I'm not the only one who had to face such problems'. So, I carried out research among 500 students which showed that they faced problems similar to mine such as difficulty in choosing a university, feeling like an outsider as well as struggling to integrate into local life and learning community. I wanted to make a difference to Chinese students' lives by making their acclimatisation in a foreign country easier and less stressful, which is why I started developing Cturtle.

Xiaoxiao Zhang

The Royal Conservatoire of Scotland
The undergraduate leavers survey found that 99.2 per cent of Royal Conservatoire of Scotland (RCS) graduates were working or studying (or both) six months after completing studies. To achieve this, RCS offers opportunities and activities aimed at enhancing graduate employability, improving enterprise and developing competencies. These include:

- providing opportunities for public performance for students through collaboration with professional bodies, conservatoires, theatre and orchestras
- offering cross-programme modules to ensure students gain experiences of a wide variety of artistic skills, working across artistic disciplines
- developing business skills as many graduates will be in SMEs or self-employed. This included introducing professional skills covering self-promotion, marketing and developing, and maintaining a professional web presence
- providing professional placements with community organisations in order to expand understanding and adaptation of performance and composition for different kinds of audiences and venues
- improving future career management through understanding concerns such as tax, contract law, royalties and copyright, business planning and arts fundraising.

Other practical initiatives at RCS include:

Make It Happen Month takes place at the RCS. This involves evening seminars, workshops and events to help get student ideas, projects, companies and collaborations off the ground.

Bridge Week is an annual event during which the resources and facilities of RCS are handed over to students to programme a week of new, interdisciplinary performance. The aim is to encourage students across disciplines to collaborate, devise new works and present at an annual festival.

Large-scale practical collaborations: every two years, students from RCS collaborate with students from the GSA, University of Glasgow and the BBC Scottish Symphony Orchestra to perform. These performances have been live-streamed by the BBC.

8 Conclusions

This report has provided an updated interpretation of the 'distinctive assets' of Scottish higher education. This interpretation bears similarity to the one offered in the previous exercise conducted in 2013. In both instances, the central proposition is that higher education in Scotland has a central place in transmitting the ideal of the public good.

8.1 The public good

The public good ideal that underpins Scottish higher education was explored in Section 3. It does not, of course, mean that Scottish higher education is a merry, collectivist and tension-free endeavour. Competing interests exist, friction is managed, and the mandate of higher education is not synonymous with that of government. But the manner in which Scottish higher education policy is developed and implemented reveals a constructive relationship between the higher education sector and the government and its agencies.

A threat to the autonomy of the academy is rarely perceived in the negotiations over policy to realise national objectives, such as widening access. But the distinctive Scottish contribution is that delivering governmental priorities is more than just accepted: it is an essential ingredient in the Scottish ideal of higher education as a public good. Not every academic, senior manager or student will agree with this characterisation. But most do.

The distinctiveness of Scottish higher education is often evidenced by degrees of difference from its closest neighbours rather than by absolutes. The compelling evidence of a public-good foundation for higher education policy in Scotland exists alongside a competitive spirit and an entrepreneurial approach to university operations such as international student recruitment. These days, it could not be any other way.

8.2 Quality enhancement and improving the student experience

Student benefit is at the centre of Scottish quality assurance considerations for all stages of the university journey. Again, there is a whole-sector approach, this time co-ordinated by QAA Scotland. The 'Student Transitions' enhancement theme positively impacted on the widening participation agenda and resulted in innovations for graduate employability, including through alumni. An innovation since 2013 has been the targeted 'Focus On' projects that have included supporting research students, improving the distance learning experience, graduate employability and addressing the changing needs of an increasingly diverse student community.

8.3 Graduate skills and employability

The employability initiatives identified in the earlier report have been expanded by universities, national organisations, employers, and government commitment and investment. All Scottish universities embed graduate employability within degree programmes.

Work placements, internships, industry-led projects and start-ups are supported, and some excellent specific examples developed by Scottish universities to support the transition to employment were provided in this report. Cross-sector collaboration is strong and some 95 per cent of Scottish students are in employment or training within six months of graduation.

8.4 The student voice

The student voice in Scotland is heard and it is effective. Students are increasingly engaged in decision-making at both individual university and system-wide levels. At sector level they have shaped the widening access agenda, Outcome agreements, mental health initiatives, the enhancement themes and Focus On projects for quality assurance, and the graduate employability agenda. Much of this is not only a testament to the energy, focus and political astuteness of NUS Scotland and the student unions at universities; it also demonstrates the government's and the sector's eagerness to engage students so as to arrive at policy outputs that are workable, effective and broadly accepted.

8.5 Research

Section 5 discussed a number of metrics that illustrate the international excellence of Scottish research output. But the distinctiveness of Scottish research goes beyond this. Yet again it lies in the juxtaposition of excellence with the co-ordinated sector-wide approach to a national research strategy that attempts to respond to national and regional development priorities and international challenges.

The Scottish Research Pooling Initiative was portrayed in the earlier report in 2013 as an effective and distinctive Scottish approach to research collaboration. Scottish innovation centres, a next-generation strategy based on interdisciplinary business partnerships, likewise represent a distinct approach to a national economic growth and jobs creation strategy. The mobilisation and coordination of research expertise in response to the Scottish Government's policy agenda on the global climate emergency was discussed with reference to the ClimateXChange research and knowledge exchange network.

The research case studies presented in this report encapsulate local and highly specialised expertise that responds to the national agenda and has global applications consistent with the Sustainable Development Goals.

8.6 The positive interplay of international and local

The international activities of the Scottish higher education sector have increased rapidly since the 2013 report, delivering benefits in Scotland. National and international activities and initiatives interrelate dynamically: national funding provides the base infrastructure that enhances the ability of Scottish universities to increase international academic and research collaboration along with staff and student exchanges and recruitment. International engagement can be viewed as a 'virtuous circle of benefit' for Scotland in which involvement in one activity has potential to give rise to others (see Figure 8.1). Each activity in turn benefits Scotland for cultural, academic, societal, economic and trade reasons. Sections 5 and 6 provided evidence of successful internationalisation in the growth in numbers of EU and international academic staff, international student enrolments, outward mobility of Scottish students, new TNE initiatives and international research collaborations.

A visible sign of success of the Scottish sector is the increasing number of international students on Scottish campuses. On a per capita basis, Scotland is second only to Australia as a study and research destination for international students. It is advisable that maintaining this position against ever-growing competition is a strategic priority for Scotland.

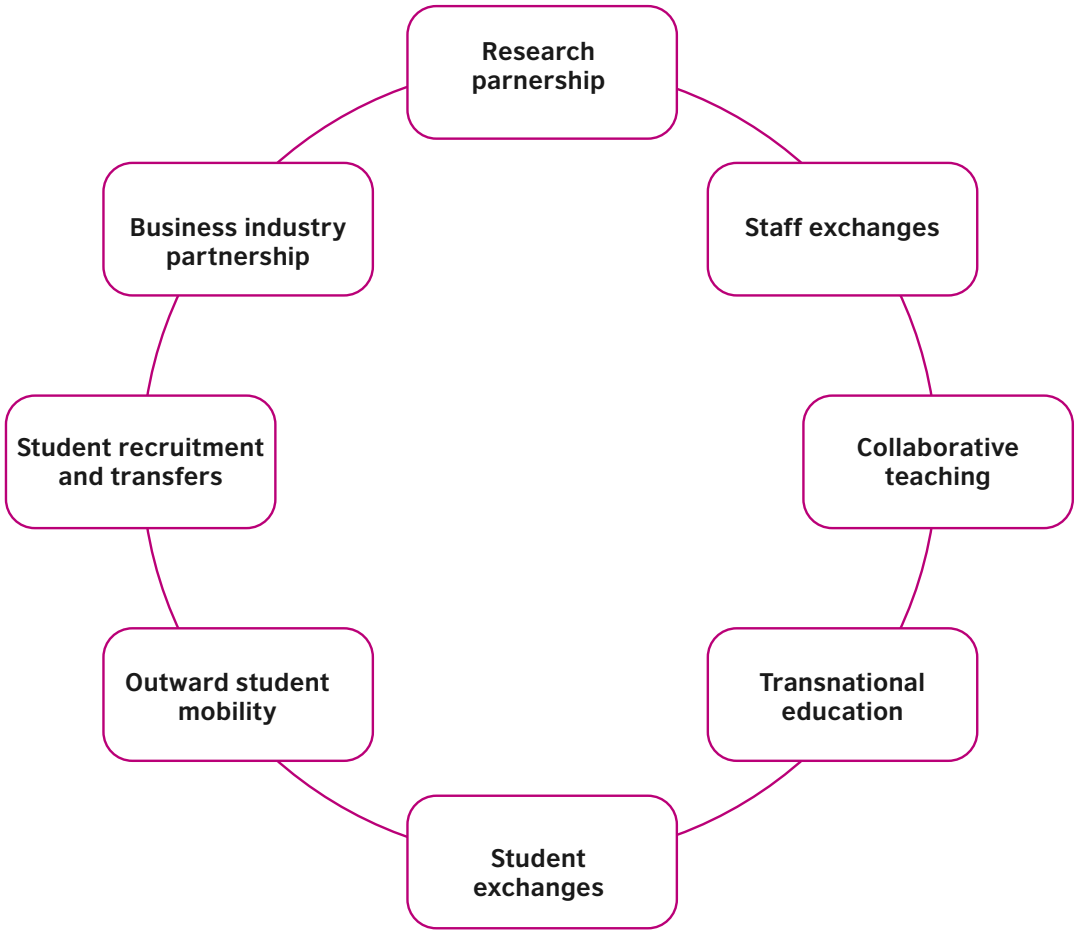
International enrolments on Master's and PhD programmes have risen well. There is still room to grow undergraduate recruitment. Scottish universities are better known internationally for life sciences, medicine, humanities, social sciences and arts. The challenge is to promote stories relating to innovations in physical sciences, engineering, computing and renewable energy technology. This would drive new research partnerships, more industry engagement and recruitment.

Scottish universities have maintained high overall global rankings, but there have been recent declines. This should be addressed, as rankings have become linked to international reputation and drive at least some prospective student decision-making.

8.7 An international higher education strategy for Scotland

Scotland's universities promote themselves internationally as individual institutions and via the Brand Scotland and Education UK umbrellas. Scottish higher education remains one of the country's foremost soft power assets abroad. At home, higher education has a central place in transmitting the Scottish ideal of the public good. The Scottish government has already determined that responding to the Sustainable Development Goals is a policy goal. The government is in an excellent position to build on these by developing an integrated international education strategy for Scotland. This could be complementary to, and build upon, the Scottish Government International Framework and the UK International Education Strategy. The strategy could encompass universities, sector organisations, businesses and government. The international higher education promotion strategy would form part of

Figure 8.1: The virtuous circle of institutional benefit for international higher education activities



this and build upon the Scotland is Now and Study UK campaigns. Such commitment to a global agenda reinforces the country's distinctive credentials as a promoter of the 'international good', but the role of higher education in this could be made more explicit.

There is potential for a Scottish international education strategy that could specify country prioritisations with specific activities tailored to opportunities in each of the target countries. In regard to recruitment, for example, while diversifying source countries is vital, it is likely that China and India will be top providers of students for a while yet. Scotland needs to have a strong presence in these countries. For US student recruitment, Scotland is well ahead of any other country and needs to invest to protect this lead.

Where the distinctiveness of Scottish higher education is less known, a nuanced promotional strategy is required. It could exploit the power of 'Brand UK' for higher education while differentiating and articulating distinctively Scottish messages.

EU countries could be a priority in order to respond effectively to the likely sharp decline in EU student numbers from autumn 2021, when free tuition for EU undergraduates will be withdrawn.

Scotland has a strong national brand profile in Europe. This could be further built upon.

Any strategy for internationalisation should include the importance of developing new partnerships to facilitate new research collaborations, grow TNE programmes, develop transfer programmes for degrees, and supporting outward mobility.

There is potential to increase the international profile of the national and international success shown in this report. This is apparent through feedback from education professionals abroad and international students in Scotland. The potential benefits of an international strategy also come into focus in a post-Brexit, post-Covid context. The pandemic already triggered a comprehensive 'Review of Coherent Provision and Sustainability', launched in 2020.[128] An opportunity to apply the findings of the review to an international strategy presents itself. The sector-wide partnership under the umbrella of Connected Scotland demonstrates an ability to work together internationally. A sector-wide strategy would logically follow; this has been included in the recommendations in this report.

Alumni engagement

International alumni are an important part of international engagement. But engaging alumni in a sustainable way over years is notoriously difficult and labour-intensive. Resource-rich universities, notably in the USA, are good at it. In Scotland it is variable, although some universities offer examples of good practice for both UK and international alumni. One way forward is not to supersede these activities but to maximise benefit through a Team Scotland approach. A coherent national approach for alumni engagement could be further developed, supported and delivered. It could be consistent with, and join together, existing governmental, sector and institutional alumni initiatives.

It is key to universities in Scotland continuing to 'punch above their weight' in international engagement. The partnerships involving Connected Scotland and the Scottish Universities International Group have demonstrated the ability to work together internationally. An international higher education strategy could harness their collective capabilities and knowledge.

8.8 EU Exit and Covid-19

Brexit and Covid-19 together constitute challenges for the higher education across the UK – regarding staff and student mobility, most certainly, but also other considerations such as research collaboration. Both events remain far from resolution in autumn 2020. Earlier in the year it seemed that many prospective internationally mobile students intended to defer rather than cancel study plans, which suggests a higher than normal demand in a few years. But this is a fast-moving landscape.

On the positive side, the pandemic unleashed a torrent of energy in 2020 from higher education sectors everywhere. Academics and administrators completed the 2019–20 year with great imagination and innovations in pedagogy, assessments and student support, and worked through the summer to ensure that universities would resume operations in autumn. The Scottish government released emergency funding for research, and Scottish academics played a crucial role in vaccine and testing research and in communicating knowledge to the public.

128
Scottish Government (2020) Letter to the SFC from Richard Lochhead, Minister for Further Education, Higher Education and Science, 3 June 2020. Available online at: www.sfc.ac.uk/web/FILES/AboutUs/Scottish_Government_letter_reviewing_coherent_provision_and_sustainabilty_03_Jun_2020.pdf

Image: Courtesy of Universities Scotland

9
Summary of recommendations

Scottish higher education is recognised as one of the country's foremost soft power assets abroad. At home, higher education has a central place in transmitting the ideal of the public good. The Scottish government has already determined that responding to the Sustainable Development Goals is a policy goal and its commitment to a global agenda reinforces the country's distinctive credentials as a promoter of the 'international good'. As this report demonstrates, higher education has, and will continue to have, a central role in this policy development. The following recommendations outline a number of initiatives that could help support this.

1. The report findings indicate the need for an integrated international education strategy for Scotland. This could be complementary to, and build upon, the Scottish Government International Framework and the UK International Education Strategy. The strategy could encompass universities, sector organisations, businesses and government. The partnerships involving Connected Scotland and the Scottish Universities International Group have demonstrated the ability to work together internationally. An international higher education strategy could better harness their collective capabilities and knowledge in this area. An enhanced international higher education promotion strategy could form part of this and build upon the Scotland is Now and Study UK campaigns. Points to consider include:

- a systematic approach to expanding international partnerships would be highly beneficial. The aim is to encourage new Scottish TNE initiatives, research collaborations, student exchanges, internships and student articulation/transfer arrangements
- a critical assessment of which countries to prioritise for individual activities should be based on market intelligence and analysis as they relate specifically to Scottish interests. For example, while it is likely that China and India will remain top student source countries (including for research students), greater country diversification is advisable
- where the distinctiveness of Scottish higher education is less known, a nuanced promotional strategy is required to utilise the international reputation of 'Brand UK' while differentiating and articulating Scottish distinctive assets.

2. A strengthened promotional approach to support the strategy could include:

- the distinctive assets identified in this report
- the global achievements of Scottish higher education
- the successes of graduate employability
- the full breadth of Scottish academic and research expertise
- Scottish universities appear to be best known internationally, in both research and teaching, for life sciences, medicine, humanities, social sciences and arts. A broader international awareness of the wider areas of excellence in Scottish higher education would deliver new research partnerships, greater industry engagement and international staff and student recruitment
- the benefits of the Scottish four-year undergraduate degree including its breadth and flexibility.

3. There is substantial room to increase outward mobility of Scottish domicile students. Approaches for growth of both academic and work placements could be developed.

4. The existing commitment to the Sustainable Development Goals by both the Scottish government and the higher education sector would benefit from, and be more apparent through, investment in targeted international partnerships and activities.

5. EU Exit: The report findings suggest a specific strategy for future engagement with the EU in research collaboration, student exchanges, and for the recruitment of students and staff would be useful.

6. A coherent national approach for alumni engagement could be further developed. This could be consistent with, and join together, existing governmental, sector and institutional alumni initiatives.

7. Consideration could be given to assembling data covering research income and expenditure from all sources and made easily accessible from a single source. Although the Scottish government and its agencies produce a large amount of high-quality data and analysis on higher education, it remains difficult to extract Scotland-specific data in some areas. Total research income and expenditure from all sources (Scottish and non-Scottish, public and private) is an example. Consideration could be given to assembling such data to be accessible from a single source.

8. The recent decline in some global rankings could be investigated in order to better understand the reasons and suggest necessary actions to reverse.

Appendix A Bibliography

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Appendix B
Individual and group interviews and consultations

1. Individuals

Name and designation	Institution
Wendy Alexander, Vice-Principal International	University of Dundee
Professor Philip G Altbach, Research Professor and Founding Director	Centre for International Education, Boston College, USA
Professor Anne Anderson, Vice Principal Emerita, University of Glasgow	British Council Scotland Advisory Committee
Dr Gary Campbell, Vice-Principal Strategic Development	University of the Highlands and Islands
Almut Caspary, Lead Higher Education and Science	British Council, EU Region
Ali Clark, Head of Student Recruitment	University of Stirling
Professor Robert Coelen, Director, Centre for Internationalisation of Education	University of Groningen, Netherlands
Dr Ailsa Crum, Director of Membership, Quality Enhancement and Standards	QAA Scotland
Leighton Ernsberger, Director Education and English	British Council, East Asia
Richard Everitt, Regional Director, Education & Society	British Council, Wider Europe
Dr Stuart Fancey, Director of Research & Innovation	Scottish Funding Council
Jenny Fernandes, Head International Recruitment	University of Aberdeen
Dr Adam Giangreco, Director of Health and Life Sciences Innovation	University of the Highlands and Islands
Professor Jorge Sáinz González	Universidad Rey Juan Carlos, Spain
Janette Harkess, Director of External Relations	Royal Conservatoire of Scotland
Carolina Jiménez, Head, Education	British Council, Spain
Ailsa Kienberger, Head, Education and Society	British Council, Germany
David Knowles, Director, Opus Consulting, Jakarta	Indonesia
Natasha Kozlowska, Education Manager	British Council Scotland
Ruth Krahe, Director, London Branch,	DAAD, Germany
Sheila Lumsden, Deputy Regional Director	British Council EU Region
Alan Mackay, Deputy Vice-Principal International and Director of Edinburgh Global	University of Edinburgh
Professor Brad MacKay, Vice-Principal, International Strategy and External Relations	St Andrews University
Professor Craig Mahoney, Principal and Vice-Chancellor	University of the West of Scotland
Liam McCabe, President	NUS Scotland

Name and designation	Institution
Ruth Moir, Assistant Principal, International Development	Heriot-Watt University
Christian Müller, Deputy Secretary General	DAAD, Germany
Dennis Murray, Senior Fellow	LH Martin Institute, The University of Melbourne, Australia
JJ Nandi, Director, MBIEN Ltd, New Delhi	India
Professor Andrea Nolan, Principal	Napier University Edinburgh
Rowena Pelik, Director, Nations and International and Director, Strategic Projects	QAA Scotland
Josie Pilcher, Student Recruitment & Internationalisation Officer, University of Edinburgh	Scottish Universities International Group
Rachel Sandison, Vice-Principal, External Relations	University of Glasgow
Catherine Saracco, Head Education	British Council, France
Professor Sir Peter Scott	Scotland's Commissioner for Fair Access
Professor Nigel Seaton, Principal and Vice-Chancellor	Abertay University
Satish Sharma, MBIEN Ltd, New Delhi	India
Kate Signorini, Depute Director for Strategy, Planning and Resources	Open University in Scotland
Dr Kartar Singh, Director International	SRM Institute of Science and Technology, Kattankulathur, India
Susan Stewart, Director	Open University in Scotland
Ian Thomson, Head of International Office, University of Glasgow	Scottish Universities International Group
Professor José M Torralba, Professor of Materials Science and Engineering	Universidad Carlos III Madrid, Spain
Bernd Wächter, Director	Academic Cooperation Association, Brussels
Professor Richard Wells, Vice Principal (International Partnerships)	University of Aberdeen
Dr Rebekah Widdowfield, Chief Executive	The Royal Society of Edinburgh
Hans de Wit, Director, Director	Centre for International Education, Boston College, USA and Netherlands
Professor Neville Wylie, Deputy Principal Internationalisation	University of Stirling
Lucy Young, Head of Education	British Council Scotland

2. Connected Scotland round table
Glasgow, 11 November 2019

Scottish government

Ben Goonesena, Policy Officer, Trade and Investment Delivery Division, Directorate for International Trade and Investment

Sinead McInally, Policy Officer, University Research and Knowledge Exchange, Higher Education and Science Division

Nic White, Head of International Team, Higher Education and Science Division

Scottish Development International

Tahira Nasim, Project Manager, International Education

Dr Clive Reeves, Partnerships

Scottish Funding Council

David Beards, Senior Policy Officer

Royal Society of Edinburgh

David Beards, Senior Policy Officer

Universities Scotland

Elisa Chirico, Connected Scotland Project Officer

David Lott, Deputy Director Policy

3. Universities round table
Edinburgh, 12 November 2019

Name and designation	Institution
Brian Green, Deputy Associate Principal	University of Strathclyde
Dr Emma Källblad, Executive Officer Strategy and Policy	University of St Andrews
Professor John Lennon, Dean of Glasgow School for Business and Society	Glasgow Caledonian University
Joanna Morrow, Deputy Secretary	University of Stirling
Scott Parsons, Director of Strategy and Marketing	Glasgow School of Art
Jared Philippi, Head of International Development	Heriot-Watt University
Kenny Stewart, Assistant Director (Communications, Public Affairs & Policy)	Open University in Scotland
Dr Chris Yeomans, Deputy Director Edinburgh Global	University of Edinburgh

4. Round table at The Royal Society of Edinburgh

15 January 2020

Name and designation	Institution
Professor Alice Brown, Former Chair, Scottish Funding Council	Former Vice-Principal, University of Edinburgh
Professor Graham Caie, Professorial Research Fellow in English Language and Linguistics	University of Glasgow
Dr Sandro Carnicelli, Senior Lecturer	University of the West of Scotland and Member of the Young Academy of Scotland
Dr Alison Elliot, General Secretary	Royal Society of Edinburgh
William Hardie, Policy Advice Manager	Royal Society of Edinburgh
Dr Allison Jackson, Head of Research Operations	University of Glasgow and Member of the Young Academy of Scotland
Dr Alice König, Senior Lecturer in Latin & Classical Studies	University of St Andrews and Member of the Young Academy of Scotland
Professor Stuart Monro, Deputy Chair of Court	University of St Andrews
Professor Sir David Wallace, Member of Court	University of St Andrews and Former Master, Churchill College Cambridge
Professor Lesley Yellowlees, Council Board Member, Scottish Funding Council and Head of College of Science & Engineering	University of Edinburgh

Student Focus Groups

i. Edinburgh, 15 January 2020

Name and institution	Country of domicile
Diana Tanase (Edinburgh)	Romania
Jasmine Reay (Edinburgh)	England
Andrej Gregus (Edinburgh)	Slovakia
Ciella Ying (Edinburgh)	England
Wongani Mzumara (Edinburgh)	Malawi
Ritika Garg (Heriot-Watt)	Dubai and India
Siddarth Kulkarni (Heriot-Watt)	Dubai and India
Christie Etukudor (Heriot-Watt)	Nigeria
Jasmine Khamuani (Heriot-Watt)	Pakistan
Karan Kumar (Heriot-Watt)	Dubai and India
Abimbola Ayo (Napier)	Nigeria
Kellie Elhai (Napier)	USA
Titilayo Adeniyi (Napier)	Nigeria
Sofia Papaioannou (Napier)	Greece
Steffy Angel Rajamani Girija (Napier)	India

ii. Dundee, 16 January 2020

Name and institution	Country of domicile
Gemma Ambrosini (Dundee)	Scotland
Heather Doughty (Dundee)	Spain
Shiwen Ng (Dundee)	Malaysia
Zack Mulyeko (Dundee)	Kenya
Yuet Ying Chau (St Andrews)	Hong Kong
Michele Kee (RGU)	Malaysia

iii. Glasgow, 16 January 2020

Name and institution	Country of domicile
Susie Strait (Stirling)	Canada
Aislinn McAleer (Stirling)	Northern Ireland
Monica Hofvind (Stirling)	Norway
Andrew Barclay (Strathclyde)	Scotland
Britany Rittel (Strathclyde)	USA
Magdalena Hudek (Strathclyde)	Croatia
Pedro Hernandez Gelado (Glasgow)	Spain
Georgia Beckett-Hill (Glasgow)	England
Marzuq Ungogo (Glasgow)	Nigeria
Yiming Liu (UWS)	China
John Ayanaba (UWS)	Ghana
Amina Abdessalam (UWS)	Algeria
Rongtityar Rith (GCU)	Cambodia
Oyekanmi Paul Ogedengbe (GCU)	Nigeria

Appendix C
TNE enrolments in all Scottish universities and for all modes of delivery, and annual growth rates

Scottish university	2013–14	2018–19	Annual growth
Aberdeen	275	1,280	36%
Abertay	1,410	1,130	-4.3%
Dundee	1,525	1,285	-3.4%
Edinburgh	1,020	2,955	23.7%
Edinburgh Napier	4,910	5,775	3.3%
Glasgow	735	3,020	32.7%
Glasgow Caledonian	3,295	4,195	4.9%
Glasgow School of Art	215	205	-0.9%
Heriot-Watt	17,100	12,210	-6.5%
Highlands and Islands	75	200	21.7%
Queen Margaret	1,310	3,205	19.6%
Robert Gordon	2,395	2,700	2.4%
Stirling	510	1,015	14.8%
Strathclyde	1,990	1,255	-8.8%
West of Scotland	130	2,345	78.3%
All Scotland total	**36,895**	**42,775**	**3%**

Source: *HESA AOR (2018–19)*