

Institution: Queen's University Belfast

1. Context and mission

1a. Introduction and Overview

Founded in 1845, Queen's has grown from a small cohort to a thriving multicultural community of 4,300 staff and 24,000 students, including 3,000 international students from 85 different countries.

Uniquely placed as a member of the Russell Group and Universities Ireland, it is a research intensive university with academic excellence across the breadth of disciplines, notably receiving seven ['Queen's Anniversary Prizes for Higher and Further Education'](#) in areas including shared education, cancer care, cyber-security, and ionic liquids.

Queen's is joint-1st in the UK for research intensity (Complete University Guide 2021) and has fifteen subjects in the global top 200 (QS World Rankings 2020). THE Impact Rankings (2020) found Queen's to be the 87th most impactful university globally for tackling the UN Sustainable Development Goals (SDGs).

1b. Size and Shape

Queen's is structured in three faculties, with research and teaching taking place within schools and interdisciplinary research institutes. Figure 1 depicts the FTE of REF submitted staff for each school. In 2016 the University implemented a radical rethink of its academic structures, including the establishment and empowerment of academic-led executive boards in the three faculties with collective responsibility for determining and delivering the strategic plans for their respective areas, and the creation of new multidisciplinary schools for cognate disciplines (see below – AEL, HAPP, SSESW, NBE).

Institutional level environment template (REF5a)

Arts, Humanities & Social Sciences	REF 2021 FTE	Engineering & Physical Sciences	REF 2021 FTE	Medical, Health & Life Sciences	REF 2021 FTE
Arts, English and Languages (AEL)	95.2	Chemistry and Chemical Engineering	38.7	Biological Sciences	71
History, Anthropology, Politics & Philosophy (HAPP)	82.3	Electronics, Electrical Engineering, & Computer Science	68.8	Medicine, Dentistry, & Biomedical Sciences	133.4
Law	46	Maths & Physics	68.7	Nursing & Midwifery	23.2
Management	64	Mechanical and Aerospace Engineering	39.8	Pharmacy	39
Social Sciences, Education, Social Work (SSESW)	75.2	Natural and Built Environment (NBE)	81.65		
		Psychology	35		
Global Research Institutes (GRIs)	The Institute of Electronics, Communications and Information Technology (ECIT)				
	Institute for Global Food Security (IGFS)				
	Senator George J. Mitchell Institute for Global Peace, Security and Justice				

Figure 1

The University hosts a broad base of core academic disciplines with porous inter- and cross-disciplinary connections. These can be broadly grouped into five strategic themes that summarise existing research strengths and future priorities:

- A healthy life for all
- Secure, connected intelligence: AI and the data revolution
- A symbiotic and natural world
- A transformative and productive economy
- Inclusive and cohesive communities

1c. Governance

Queen's chief ambassador is its Chancellor – Secretary Hilary Rodham Clinton – appointed in October 2019 as the first female post holder. It is led by the President and Vice-Chancellor - Professor Ian Greer – appointed in 2018, who is supported by six Pro-Vice-Chancellors and a Registrar and Chief Operating Officer. Research and innovation activity is overseen by the Pro-Vice-Chancellor, Research & Enterprise – Professor Emma Flynn – appointed in 2019.

Governance is underpinned by Charter and Statute and overseen by University Senate. Membership is drawn from academic staff, support staff and the student body of the University and ten appointed external lay members, who guide the strategic direction of the University, management of its revenue and property, and general conduct of its affairs (Figure 2).

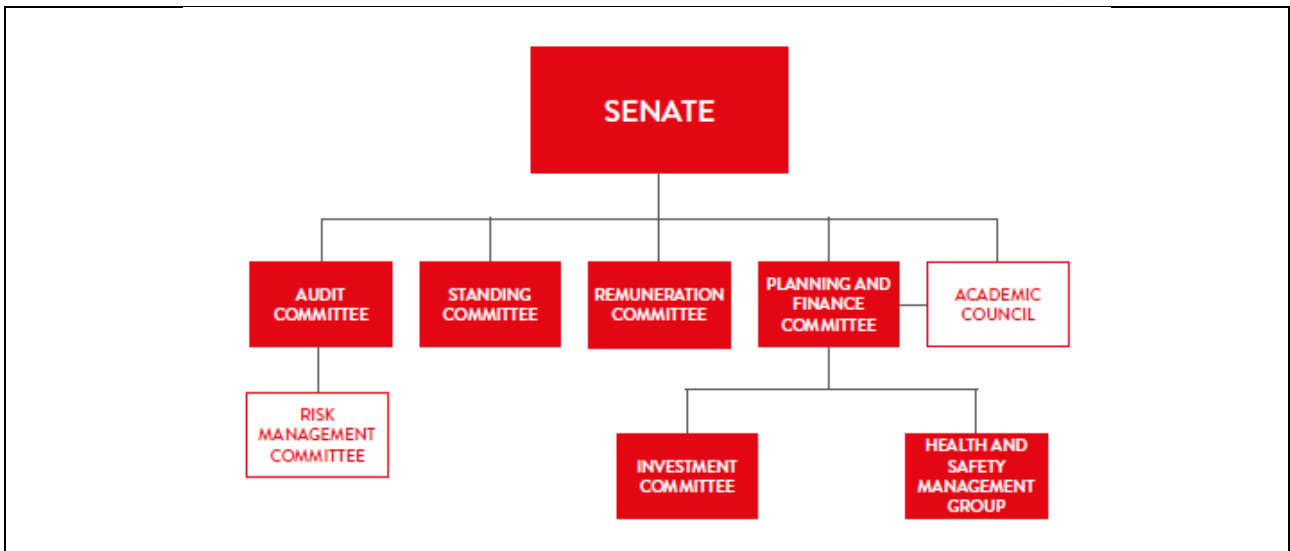


Figure 2

1d. Regional and local context

Queen’s is one of two HEIs in Northern Ireland (NI), with the Department for the Economy NI (DfE) fulfilling the role of government department and funding council. This assessment period has been one of challenge for the sector, due to the uncertainty caused by Brexit and Covid-19.

Comparably low levels of R&D investment in NI – relative to the rest of the UK - combined with SME dominance of the economy, places a disproportionate importance on public interventions. Queen’s is increasingly a critical conduit for these, providing skills and innovations to create wealth and support local industry, in partnership with NI’s regional economic development agency – Invest NI.

The growth of a sustainable knowledge economy in NI requires further investment in HE to drive social and economic recovery. Following the imposition of successive budget reductions since 2010-11, a comparative funding deficit has emerged which DfE acknowledges is in order of £34m, based on 2017-18 data, in comparison to England (Figure 3). Moving into the next REF assessment period, this will be a major focus for the University and its partners in NI.

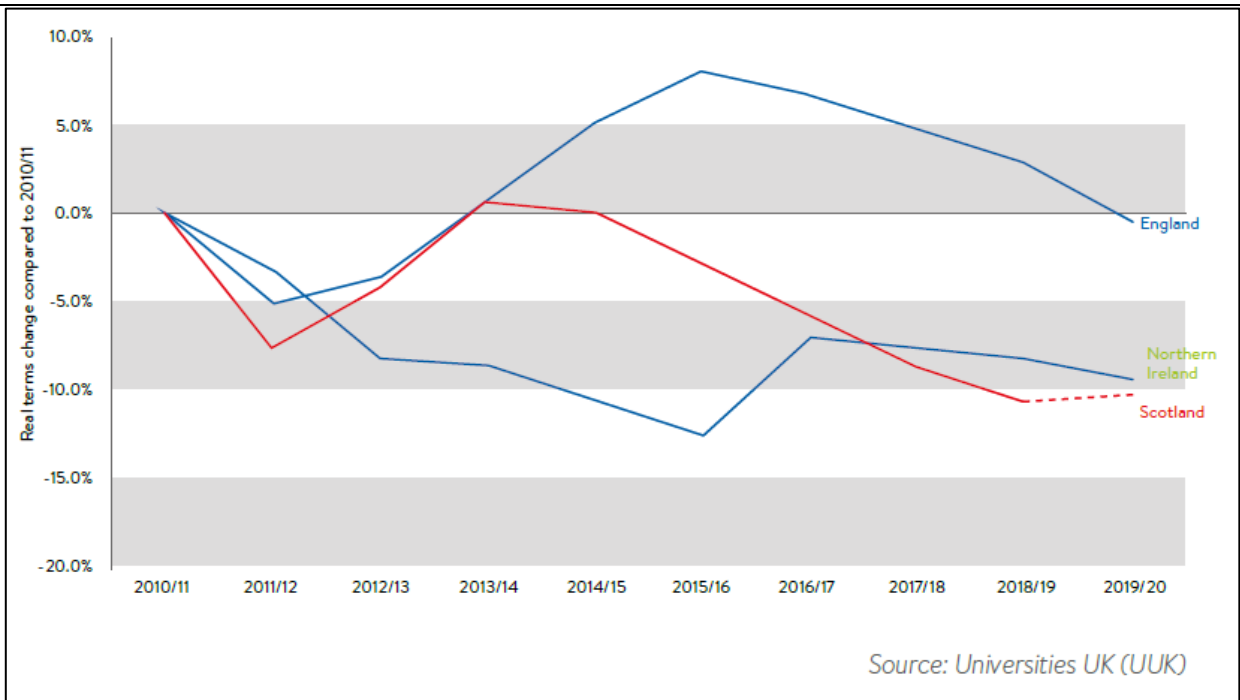


Figure 3

2. Strategy

2a. Strategic framework

An institutional Research Strategy was published following REF 2014 as part of the University’s [Corporate Plan](#). The Strategy focusses on three priorities, each informed by common cross-cutting themes (Figure 4). An agile approach was adopted to flexibly adapt to dynamic internal and external environments, exemplified by various auxiliary strategies and plans.



Figure 4

Sections 2b – 2d detail strategic developments during the assessment period. Areas of activity are porous and interconnected, but for ease of reference are summarised as follows:

- **2b. Research Ambition and Environment** (Priority 1, Priority 3 & Theme 3)

- **2c. Connecting to Tackle Global Challenges** (Priority 2 & Theme 1)
- **2d. Impact and Innovation** (Priority 2, Theme 2)

2b. Research Ambition and Environment

To facilitate a vibrant and integrated research environment there has been a concerted focus on ‘people’ and ‘research ambition’, with strategic interventions to attract, retain and develop promising talent, from postgraduate to professoriate, and ambitious targets to benchmark progress, including:

- **People:** A new holistic framework for academic career progression; investment in institutional fellowship schemes to attract the most promising global talent; a new Fellowship Academy to holders of prestigious independent fellowships; implementation of the ‘Concordat to Support the Career Development of Researchers’, including introduction of 10 guaranteed learning and development days each year for postdoctoral staff; a pilot ‘Postdoctoral Development Centre’ in the medical faculty; investment in fixed-term fractional posts to host global research leaders at Queen’s; and, a new Graduate School. These activities are detailed in ‘Section 3 – People’.
- **Research Ambition:** An ambition to deliver high-quality research in collaboration with our partners locally, nationally and globally underpinned by the highest standards of research integrity. Building on our core disciplinary strengths across the breadth of the University, and delivering on our commitment to facilitate inter-disciplinary and multi-disciplinary research. Further strengthening our research quality through establishment of interdisciplinary research platforms – GRIs and PRPs. A ‘Research Income Action Plan’, introduced in 2018, in recognition of an increasingly competitive sector environment, with renewed and targeted interventions. These activities and measures of progress are detailed in ‘Section 4 – Income, Infrastructure and Facilities’.

To support an increasingly ambitious cohort of researchers in achieving these goals there was **significant strategic investment in professional support** during the period, notably through the Research & Enterprise Directorate, including new faculty-aligned teams with specific remits for bid development, industry collaboration, research impact and commercialisation. The scale and scope of professional support for research and innovation is also detailed in Section 4.

2c. Connecting to Tackle Global Challenges

Interdisciplinary research

A new ecosystem for interdisciplinary research was introduced, recognising that teams of researchers are required to address the biggest problems facing society. New Global Research Institutes (GRIs) and Pioneer Research Programmes (PRPs) were introduced to reinvigorate the research ecosystem and deliver a step change in quality.

Three GRIs were supported for an initial period of 5 years, delivering a concentration of world-leading expertise aligned with funder priorities, leading to notable increases in research income (see Table 1). They were subject to an external mid-term review in 2019 and forward plans have been developed for each GRI aligning with a new institutional strategy.

	% Increase in research income (2013-19)
Institute for Global Food Security (IGFS)	+21.8%
Senator George J Mitchell Institute for Global Peace, Security and Justice	+52.2%
Institute for Electronics, Communications and Information Technology (ECIT)	+41%

Table 1

PRPs were a flexible model for early-stage prospects, supported for 3 years. Six were launched in the period, four of which have begun to demonstrate significant global impact in the areas of social innovation, intelligent autonomous manufacturing systems, materials and advanced technologies for healthcare, and sustainable energy. These will be further embedded into research structures moving forward.

To support embryonic projects in core disciplines, an Interdisciplinary Pump Priming Fund was introduced and a Global Challenge Networking Programme facilitated cross-disciplinary engagement around themes.

Internationalisation and partnerships

Strategic interventions were adopted to increase and broaden our impact on key global challenges, including the introduction of a dedicated International Research Development Team and establishment of targeted action plans, including:

- an **EU Funding Action Plan** (2015) which established a regional network of thematic leads to support EU framework funding, five of whom are based at Queen's, as part of the NI Horizon 2020 Strategy, with institutional success including 103 awards with more than 700 partner organisations in 52 countries for a total value of £36m;
- a **Global Challenges Research Fund (GCRF) Strategy** adopted in 2018, providing pump-prime support for workshops, pilot projects, ECR training, and delegations to target countries, with success measures including 48 awards with more than 30 overseas partners in 21 different countries for a total value of more than £8.3m;
- strategic alignment with major education priorities e.g. **North America Strategy** which has seen almost £35m in research awards with US partners, including £2.5m for 7 projects funded by EC-Horizon 2020 with US based collaborators; and
- a focus on all-Island funding, as the only UK region with an EU land border, e.g. over £10m through the US-Ireland R&D Partnership Programme (USA, RoI and NI partners) and £7.9m for projects with RoI partners funded by Science Foundation Ireland (SFI).

Overall, during the period 2015-2020 Queen's received 1,042 awards involving EU and international collaboration and/ or funding with a total value of £172m. The percentage of income from EU funders is higher than research-intensive comparators (relative to FTE) and in line with sector income. International co-authorship has risen from 59% in 2016 to 67% in 2020 – the highest proportion in the Russell Group.

2d. Impact and Innovation

Building on a track record for societal engagement, Queen's has embedded a culture of 'impact and innovation' underpinned by high quality research.

Early-stage impact development and 'engaged research'

In 2016 Queen's invested in a dedicated team to further embed a 'culture of impact'. Their role includes supporting the articulation of impact to external audiences, facilitating engagement with stakeholders, and delivering learning and development opportunities, with a focus on ECRs.

In 2018, Queen's launched a fully-resourced **Engaged Research Action Plan (ERAP)** dedicated to establishing sustainable long term relationships with external partners, building on its status as a partner in the National Co-ordinating Centre for Public Engagement (NCCPE) and signatory to the Concordat for Engaging the Public with Research. Over £3m has been awarded to initiatives seeding partnerships and impact through internal funds alongside 'Impact Acceleration Accounts' or equivalent programmes funded by ESRC (£1m), EPSRC (£850k), MRC (£1.3m) and STFC (£60k). Responding to staff and partner consultation, sector-aligned engagement 'hubs' have been established e.g. the all-island '[Patient and Public Involvement Hub](#)' and the '[Heritage Hub @ QUB](#)', as well as secondments and practitioner appointments.

Knowledge exchange and collaborative research

An **Institutional Knowledge Exchange (KE) Strategy** sets out how Higher Education Innovation Fund (HEIF) investment from DfE is utilised to support regional economic development through support for academic staff and services for external stakeholders, e.g.:

- **Stimulation of SME engagement in R&D** through relatively small-scale programmes such as ‘knowledge transfer partnerships’ (Queen’s is UK’s leading provider with c. 50-60 live Innovate UK projects, 2020) and consultancy services (e.g. Invest NI Innovation Vouchers scheme). These are first points of contact for businesses new to R&D collaboration and provide routes to higher levels of engagement.
- **Brokering collaborative research partnerships** with larger firms through inward and outward secondments, research fellowships, development of collaborative research proposals, and jointly-funded studentships. This is supported by a faculty- and sector-aligned team of Business Alliance Managers who work with academics to encourage engagement with collaborative R&D and forge long-term, strategic relationships with critical NI and international corporates.
- **Leveraging public and private funding for joint centres** to act as anchors for R&D excellence in the region and attract foreign direct investment. For example, the University hosts industry-led ‘competence centres’ in agri-food and sustainable energy, a state-of-the-art Precision Medicine Centre with Invest NI and the Belfast Health Trust, and the UK’s Innovation and Knowledge Centre for cyber-security (CSIT).

Through these interventions, Queen’s has increased appetite for engagement in collaborative research activities during this assessment period. Indeed, for the period 2014-20, it ranks 11th in the UK for total value of Innovate UK grants offered (5th by total value as lead partner) with £25m and 9th in the sector for total value of contract research income received from the public and third sector - £71.1m (HE-BCI 2016-17 to 2018-19).

Queen’s regional economic anchor status is exemplified by its role in the [Belfast Region City Deal \(BRCD\)](#). Negotiated between UK and regional government, six councils, and HE/FE institutions, the £1bn Deal consists of four strands: Infrastructure, Tourism, Employability and Skills, and Innovation and Digital. The latter of which Queen’s jointly leads with Ulster University, comprising a suite of five projects with a common thread of digital innovation, which will receive over £200m capital funding. These are detailed further in Section 4.

Commercialisation and innovation

Queen’s is renowned for its top-tier research commercialisation ecosystem. A centrally-based research commercialisation team provides support from “idea to innovation” including: managed invention disclosure process; expert support with IP protection; one-to-one support from sector aligned business development experts to develop a commercialisation strategy; support in executing licences or spinning out new entities via the University’s highly successful spin-out vehicle – [Qubis Ltd.](#); and access to campus-based business incubator space for early-stage commercial ventures arising from Queen’s research.

The University is taking an increasingly leading role in delivering enterprise programmes across the UK and Ireland including ‘Lean Launchpad’ - a rapid pre-accelerator customer-discovery platform – which the University has been invited to deliver on behalf of Innovate UK. Queen’s is lead partner in the ‘North by Northwest’ consortium of universities which accounts for 25% of the UK’s intellectual property income from HEIs.

Queen’s is one of the few HEIs to generate significant profit from commercialisation activity (£25m+ in 2019-20) and [Octopus Ventures Entrepreneurial Impact Ranking](#) found Queen’s commercialisation ecosystem to be the UK’s most effective in 2019 and 2020. As measured by HE-BCI figures, Queen’s has generated, on average, £7m in IP income and £15m in IP revenue

per annum over the past six years, ranking top 10 in the UK on both measures. Spin-outs have drawn down £85m p.a. in investment (top 5 in UK), achieved £224m in turnover (top 3), and employ 1,961 FTE staff (top 3). The University has instigated over 90 spin-out companies, three of which have been publicly listed on the London Stock Exchange (Kainos, Andor Technology and Fusion Antibodies). These outcomes have been achieved from a smaller research income base relative to many peers and within a region with the lowest levels of R&D investment in the UK.

2e. Future strategic goals for research and impact

The University is currently developing a new strategic plan which will articulate ambitions for the next 10 years and establish a framework for the delivery of its institutional vision – to conduct leading-edge education and research, focused on the needs of society.

The over-arching theme of the strategy will be ‘**Social and Civic Responsibility, and Economic Prosperity**’. This will inform three priority areas of ‘Research & Innovation’; ‘Education and Skills’; and ‘Global Reputation and Partnerships’, supported by four enablers – ‘Sustainability’; ‘People’; ‘Infrastructure’; and ‘Technology’. A *draft version* of the framework for Research & Innovation is outlined at Figure 5.

Locally, this will involve a focus on supporting the recovery of NI from recent challenges and driving the growth of a knowledge-based economy with new strengths and skills, for example through Queen’s role in the Belfast Region City Deal. Globally, the University will reassert its commitment to addressing the most pressing needs of society and further align its education, research, operations and outreach activities in critical partnerships to address the UN SDG goals.

Within the ‘Research & Innovation’ priority area, the University will use its strengths to deliver high-quality outcomes (disciplinary, societal, environmental and economic) in five strategic themes. This will be achieved through a focus on people, research quality, partnerships and place.

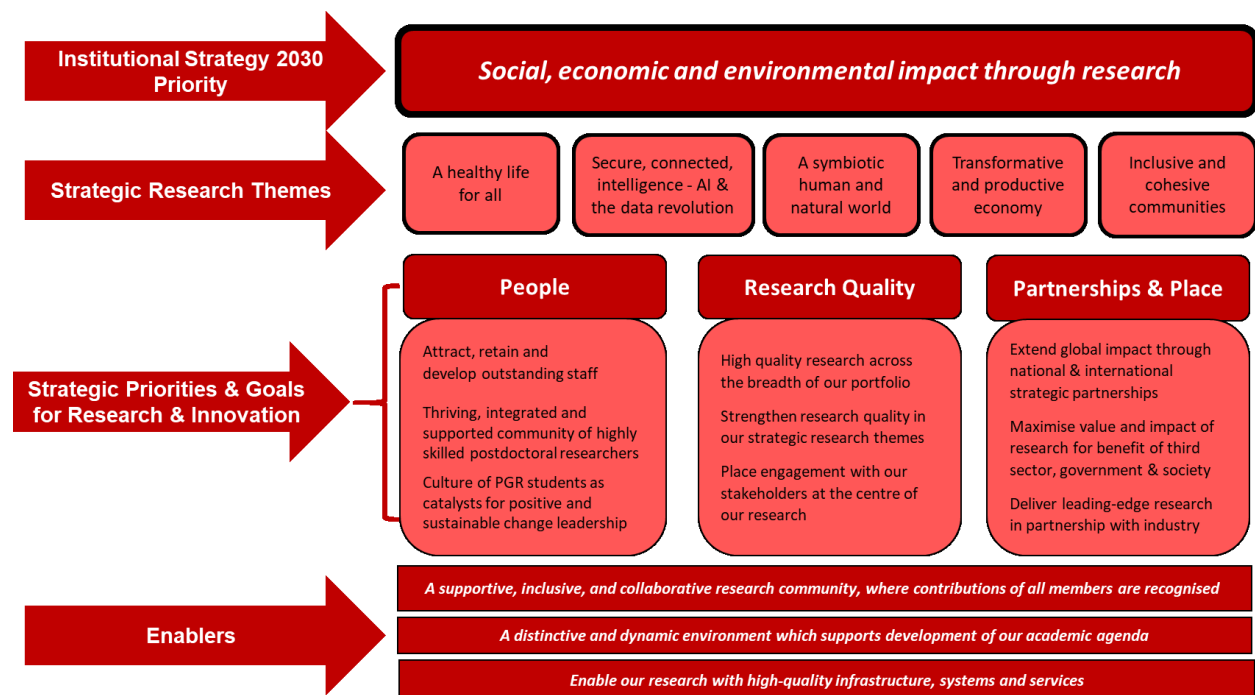


Figure 5

Strategies that enable the delivery of research and innovation plans will include:

- An **Enterprise and Knowledge Exchange Strategy** which recognises the increased focus of funding bodies and the UK Government on the translation of research into real

world impact. It will seek to build upon existing KE excellence and secure UKRI funding, particularly through the Levelling-Up agenda to work in partnership with critical stakeholders in NI, to strengthen the innovation ecosystem and develop strategic investment plans for economic growth and prosperity.

- The University’s first **Research Culture Action Plan (RCAP)**, formally launched in January 2021, aims to put Queen’s at the forefront of a sector-wide effort to develop a positive research ecosystem. It addresses explicit challenges with the current internal and external research culture and commits to tangible actions aimed at diminishing these in the years ahead. It is owned by the entire research community and will adopt an agile and iterative approach to implementation, informed by twice-annual surveys of staff.

2f. Institutional approaches to other sector priorities

In addition to the strategic priorities detailed above, Queen’s is a committed supporter of sectoral efforts to address a range of policy priorities, as outlined in Figure 6 below.

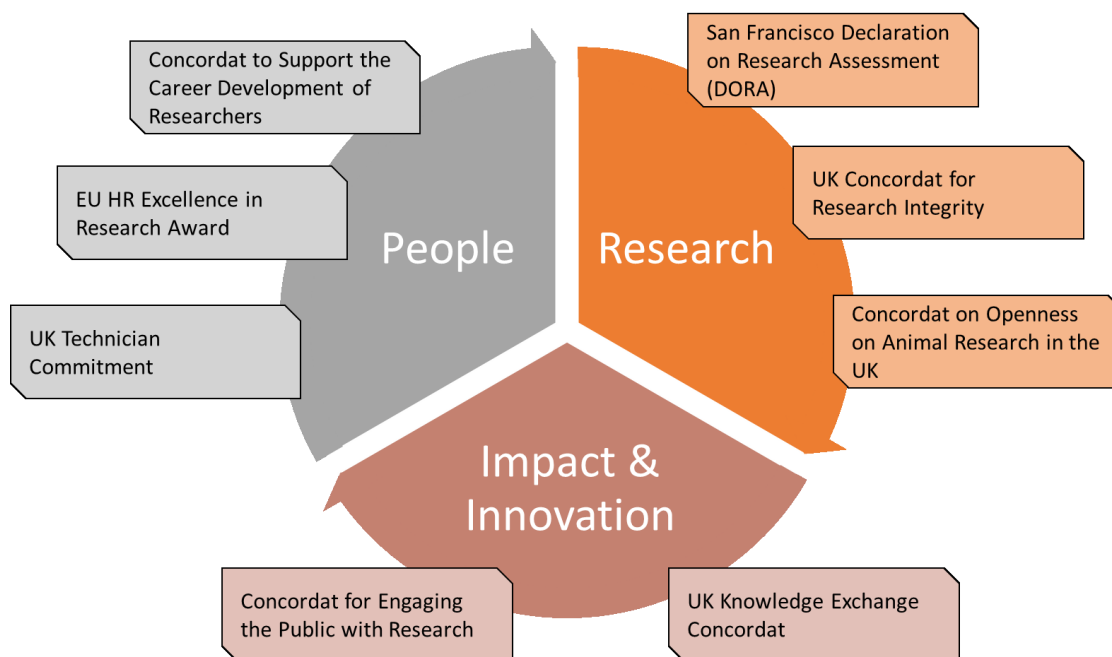


Figure 6

Open research

An [institutional open access \(OA\) policy](#) is supported by a dedicated team who deliver advice and training and monitor ongoing compliance. During the period OA has been embedded as the norm, with a module on OA being a mandatory component of staff training and 95% of publications subject to the OA Policy for REF meeting compliance. The University is a signatory to the San Francisco Declaration on Research Assessment (DORA) and has published [institutional principles](#) on responsible use of metrics.

Research integrity

Queen’s reports annually on its compliance with the Concordat to Support Research Integrity, and has established associated [regulations, policies and codes of practice](#). Staff and students are expected to adhere to these processes and are made aware of their existence via relevant webpages and induction programmes. Research is audited to ensure compliance with legislation and institutional policies. This ensures research is conducted, managed and reported robustly, and where identified, good practice is shared. Where a potential breach is identified the Regulations Governing the Allegation and Investigation of Misconduct in Research are implemented and used to investigate the breach.

3. People

3a. Staff development

The University launched a new institutional 'people and culture' strategy in 2018. '[People First](#)' is delivered by the [People & Culture \(P&C\) Directorate](#) and its implementation is informed by regular [staff surveys](#) (2016 and 2019) and feedback from an institutional '[Staff Forum](#)'.

Key changes during the period include a new approach to academic career development - '[Academic Progression](#)' - was designed in consultation with staff and takes a holistic view of individual contributions beyond traditional, narrow metrics such as publications and income. Revised policies on Workload Allocation and Flexible Working were introduced 2020 to further complement the principles of this approach.

There are two equal career pathways within this – 'Research and Education' and 'Education Only'. Academic 'profiles' tailored to disciplines and career stage define the standards expected in three areas – teaching, research and, notably, the new category of 'citizenship', which recognises and incentivises leadership skills, collegiality, impact, and contribution to the discipline.

All staff enjoy access to a range of resources, without restriction, including a '[Career Development Hub](#)', the [extensive 'Learning for All' programme](#), and access to online resources such as 'LinkedIn Learning'.

To recognise exceptional performance, contribution and accomplishments, there are [flexible schemes](#) for managers to make annual performance awards or smaller-value instant, recognition awards. An annual suite of 'Vice-Chancellor's Research Prizes' was launched in 2015 to recognise outstanding achievements in research through financial prizes and recognition at an annual awards ceremony.

3b. Early-career researchers (ECRs)

Support for ECRs is organised across three areas – fixed-term research staff, independent fellows, and those recently appointed to their first full academic post.

Queen's is a committed signatory of the '**Concordat to Support the Career Development of Researchers**' and holds the EU HR Excellence in Research Award. Postdoctoral research staff are guaranteed 10 annual development days, which they can use for bespoke development needs that they identify with support from P&C, and benefit from a '[Researcher Development Framework](#)'. An institutional forum of researchers represents postdoctoral issues to the PVCR and an annual showcase is held as part of 'National Postdoc Awareness Week'. A pilot 'Postdoctoral Development Centre' was trialled in the medical faculty from 2017 to provide a hub for all aspects of the 'postdoctoral experience' and, due to its success, will be rolled out institutionally in 2021-22.

To attract the next generation of research leaders and increase the number of staff holding **independent early-career fellowships** during the period, there was targeted recruitment to institutional schemes (see Table 2 below) and a new '[Fellowship Academy](#)' (2020) was launched to support independent fellows across three main themes: research funding, leadership development, and networking and impact. The combined effect of these interventions has been a step change in the University's performance in attracting independent externally-funded fellowship awards, i.e. in the relatively short period since the additional institutional support was introduced, applicants from Queen's have been awarded seven independent 5-year fellowships (UKRI FLF, RAEng, EPSRC), representing a substantial rise from previous years.

Scheme	Total investment	Fellows Recruited	Start-up funds	Permanent post subject to meeting criteria?	Additional benefits
Queen’s University Research Fellowships (2014 – 2019)	£5.4m	15	£20-40k	Lecturer after 4 years	Enabling Fund for discrete projects
Vice-Chancellor’s/Patrick G Johnston (MHLS) (2018 – 2021)	£3.6m	9	£40k	Lecturer after 3 years	Access to Fellowship Academy
Illuminate: The Vice-Chancellor's Fellowships (2019 – 2024)	£3.67m	7	£20-50k	Lecturer after 3 years, Senior Lecturer after 5	Access to Fellowship Academy PhD studentship

Table 2

Staff appointed to their first full academic post benefit from the same support as established colleagues, alongside tailored programmes including: the ‘Fellowship Application Support Programme’ for those applying to independent fellowship schemes; the ‘Global Research Training Programme’ for ECRs engaged in research addressing global challenges; and the ‘iCure’ programme which supports them in developing innovations with commercial potential.

3c. PGR students

A new [Graduate School](#) was launched in 2015 to provide a hub for postgraduate community and development, covering the spectrum from application and recruitment, fees/ funding, academic training and development, employability and careers, and pastoral advice and guidance.

The School is based in its own building – the restored and remodelled Victorian Lynn library – a fully-accessible space with modern, hi-tech meeting and group study rooms, a silent study area and social spaces creating a vibrant hub for intellectual exchange and collaboration.

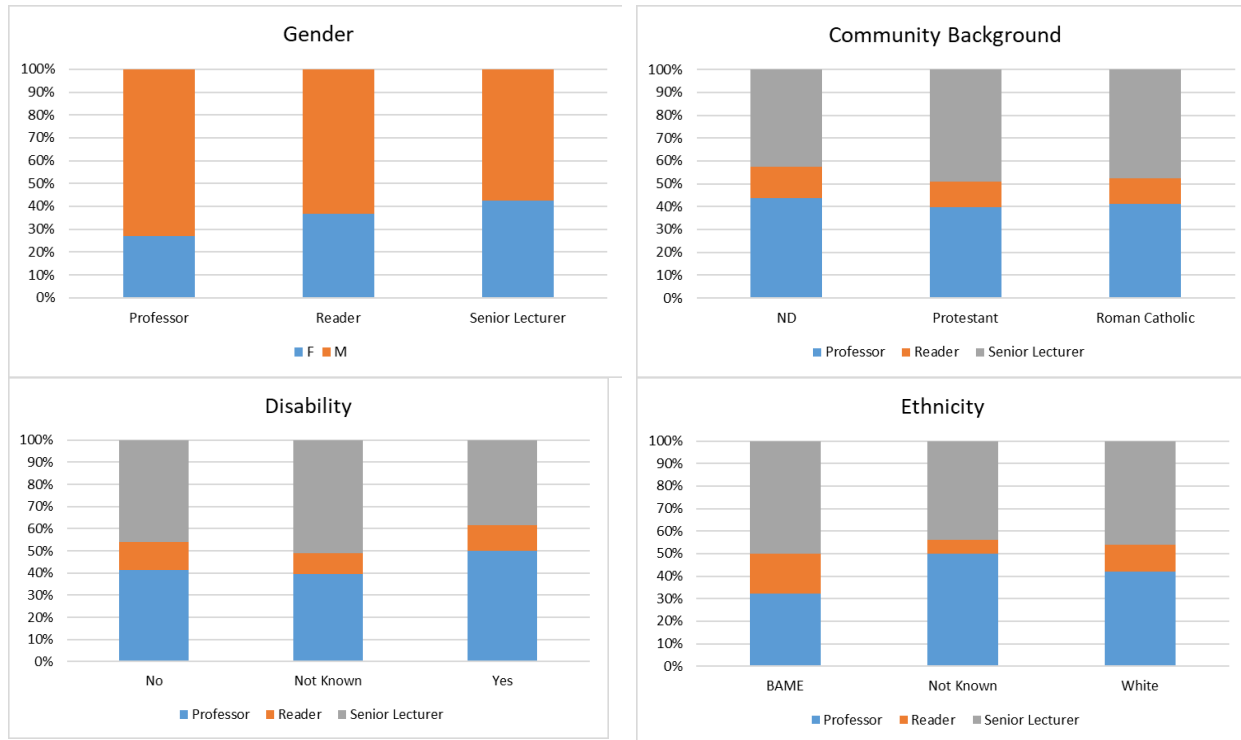
Queen’s offers places on over [15 flagship doctoral training programmes](#), centres and partnerships. More than 100 students are currently engaged in a range of training programmes supported by major funders, and places are available for 2021 entry to collaborative training partnership schemes funded through UKRI schemes with HEIs across the North of England, Scotland, Republic of Ireland and industry partners.

3d. Equality, diversity and inclusion

The University’s [Equality, Diversity and Inclusion \(EDI\) Policy](#) fosters equality of opportunity and treatment to protected groups. Institutional policies, procedures and job descriptions are procedurally screened for compliance with statutory obligations. A dedicated [Diversity & Inclusion Unit](#) in P&C supports implementation of the EDI policy and other initiatives, including:

- Work-life balance policies and services;
- Bullying and Harassment and Anti-Harassment; and,
- Mandatory E&D training, e.g. annual online EDI and Unconscious Bias courses.

EDI is central to Queen’s REF Code of Practice, which was developed through staff consultation and learnings from REF 2014 (where Queen’s submitted one of the highest proportions in the sector – 95%). As well as committing to fully-inclusive 100% submission in REF 2021, the Code clarifies that decisions made for REF have no bearing on e.g. career progression. Regular equality impact assessments have monitored the distribution of outputs between individuals. As requested by the panel, figures have been collated for professors and senior staff by protected characteristic, as depicted in Figures 7 – 10.



Figures 7 - 10

The University invests in programmes to support equality for all protected groups, including staff networks for staff who identify as [LGBTQ+](#), [BAME and international](#), and [female](#), and institutional commitment to sector frameworks as outlined in Table 3.

Unlike the rest of the UK, Northern Ireland does not yet have gender pay gap reporting regulations in place; however, the University strongly supports equal pay for all and recognises it should operate a system that is free from bias and based on objective criteria. Queen’s has conducted regular Equal Pay Audits since 2009 (next scheduled for Spring 2021) and an institutional Working Group has led efforts that have resulted in a narrowing of the professorial pay gap in recent years.

Gender	Queen’s holds one of only 19 Institutional Silver Athena SWAN Awards, renewed in 2019, and 14 Departmental Awards (3 Gold, 6 Silver, 5 Bronze). The Queen’s Gender Initiative (QGI) represents female staff to the University; leads the development of action plans to advance gender equality; and delivers bespoke mentoring and career development training. It is leading on institutional efforts to understand and mitigate the impact of COVID-19 via a major institutional survey which occurred during 2020-21.
Sexual Orientation	Queen’s is a Stonewall Diversity Champion and launched an LGBTQ+ staff network in 2018 - ‘PRISM’ , which won ‘Best LGBT Initiative’ at the NI Equality and Diversity Awards, 2019.

Gender Identity	Queen’s launched its Trans Equality Policy in 2016 and won a national Universities Human Resources (UHR) Award in 2019 for its work to provide equality for those who identify as transgender or transsexual.															
Ethnicity and Country of Origin	The University’s first BAME and International Staff Network was launched in 2019 - ‘iRise’. Queen’s secured institutional membership of the Race Equality Charter in 2020 and will apply for ‘Bronze’ accreditation in 2023.															
Disability	The University’s Disability Action Plan promotes positive attitudes towards, and encourages participation from, disabled staff and students.															
Age	As requested by the panel, the figures below outline the age profile of new appointments during the census period (c. 1200 total): <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th>20-34</th> <th>35-49</th> <th>50-64</th> <th>65+</th> </tr> </thead> <tbody> <tr> <td>Academic (T&R)</td> <td>41.6%</td> <td>46.6%</td> <td>11.1%</td> <td>0.8%</td> </tr> <tr> <td>Research</td> <td>73.8%</td> <td>22.8%</td> <td>3.4%</td> <td>0.0%</td> </tr> </tbody> </table>		20-34	35-49	50-64	65+	Academic (T&R)	41.6%	46.6%	11.1%	0.8%	Research	73.8%	22.8%	3.4%	0.0%
	20-34	35-49	50-64	65+												
Academic (T&R)	41.6%	46.6%	11.1%	0.8%												
Research	73.8%	22.8%	3.4%	0.0%												

Table 3

4. Income, infrastructure and facilities

4a. Research income strategy and outcomes

Research strategy during the period set ambitious targets for grant income to facilitate a sustainable research ecosystem. Recognising the challenging economic climate, a ‘Research Income Action Plan’ was introduced in 2018 to further consolidate a shift in focus from quantity to quality of research applications and secure large-scale, multi-institutional grants from major funders. The Plan focussed on creating an environment where research grant capture is fully enabled and rewarded, with the highest quality support. Activity undertaken includes:

- Enhanced peer support for development of research ideas and mandatory internal peer review of all applications to UKRI and equivalent funders
- Formation of internal ‘funder liaison groups’ for each UKRI research council, chaired by a senior member of the professoriate closely linked to the funder, in order to centrally coordinate funder intelligence and engagement
- Peer-led ‘action learning surgeries’ tailored to the specific funder/ PI(s) to provide in-depth feedback on specific applications, develop peer reviewing skills, develop peer networks etc.
- Allocation of leveraged support to deliver strategic research agenda

As part of this strategy, the University has managed to increase overall research income, shift the portfolio towards high quality funding sources, extend grant activity amongst staff, and increase quality of academic output as measured by standard citation metrics:

- Increased annual research income from £64m in 2014-15 to £90m in 2019-20
- Increased UKRI success rates from 25% in 2015-16 to 28% in 2018-19 despite significantly increased application values from c. £100m to c. £120m
- Citation score of 52.2 (ranked 324th) in the THE World University Rankings (2015) increased to 84 (ranked 216th) in 2021

4b. Professional support for research

A dedicated [Research and Enterprise Directorate \(R&E\)](#) was established in 2011 to help secure the University’s vision for excellence and impact in research. During the assessment period there has been significant additional investment in R&E aligned to strategic priorities (c. £1.2m). R&E now comprises approximately 80 staff across 9 teams specialising in discrete areas as outlined in Figure 11 below. Support for research also includes dedicated teams including Research Finance (Finance Directorate), Researcher Development (People & Culture) and Faculty-based support.

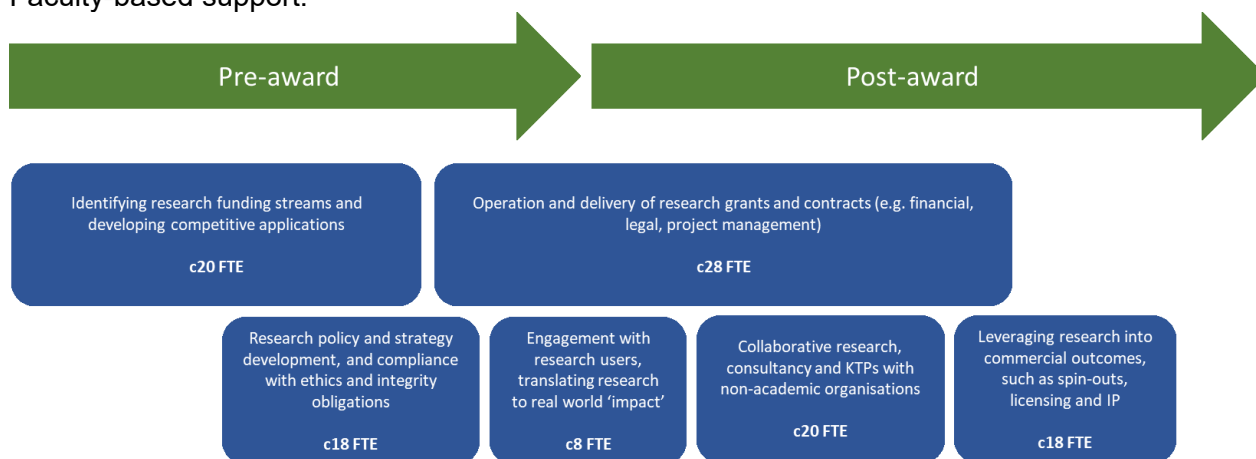


Figure 11

In addition to leveraged external funding (e.g. IAAs) there are a range of internally resourced strategic funds for activities such as conference fees and travel, preparing large-scale grant applications, seed funding for interdisciplinary collaborations, and consolidating relationships with external partners.

4c. Infrastructure, facilities and equipment

The Estate at Queen's includes c250 buildings over 100 acres. Investing £700m over a 20 year capital development programme, Queen’s has some of the best campus facilities in the UK and Ireland across sites encompassing the main campus in South Belfast, the Belfast City Hospital and Royal Victoria Hospital, and city-centre adjacent Titanic Quarter.

Major projects completed during the assessment period include a new School of Biological Sciences and the Institute for Global Food Security (£39m); a new home for the School of Law and institution-wide teaching and social space (£15.7m); and, a redeveloped Computer Science Building acting as an integrated hub to support expansion in STEM subjects.

Queen’s is leading on three of the five projects (worth over £200m) in the Innovation strand of the Belfast Region City Deal:

- [Advanced Manufacturing Innovation Centre \(AMIC\)](#): new manufacturing technology development through the innovation phase and ensure real-world industrial challenges, based on market need, are solved through cutting-edge research.
- [Global Innovation Institute \(GII\)](#): co-innovation between researchers and industry in digital technologies, including AI and data analytics, with a particular focus on applications across the One Health spectrum, spanning human health and agri-food.
- [Institute for Research Excellence in Advanced Clinical Healthcare \(iREACH\)](#): unified capability for clinical research, bringing together academic, industry, NHS and government stakeholders to create a unique ecosystem for testing new drugs through their development life cycle and integration into care pathways.

Investment in leading-edge equipment is recognised as critical to delivery of Queen’s research ambitions. Over the past few years, under the leadership of the PVCR, and with the support of

Institutional level environment template (REF5a)

fundings and partners, Queen's has invested significantly in infrastructure and now has a substantial portfolio of research equipment (>£100m). Major developments in the period include: the establishment of five 'core technology units' in medical sciences; leading the NI component of the ESRC Administrative Data Research Centre; and a £2.1m EPSRC award in 2020 to develop a £5m high performance computing (HPC) facility with Ulster University.