

## The Impact of QR Funding for UK Research

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The UK punches above its weight in research, accounting for 15% of the world's most highly-cited articles, despite representing just 0.9% of the global population and 2.7% of R&D expenditure.<sup>1</sup> There are a number of factors at work leading to the UK's strength in research, not least the calibre of UK universities, four of which feature in the top 10 universities in the world<sup>2</sup>. Universities provide hubs for intellectual pursuits that have led to transformative advances for our society, and they engage the wider community, enriching our culture. These activities greatly benefit the economy – in 2014/15 UK universities, including their international students and visitors, generated £95 billion of gross output in the economy and contributed 2.9% of UK GDP.<sup>3</sup>

The dual support system, which provides research funding from two complementary streams, has been critical to the success of UK universities, providing a balance between specific research project funding and the performance-based, quality-related (QR) funding that enables strategic flexibility to advance research. QR funding is awarded to universities on the basis of research excellence, through the Research Excellence Framework (REF). Through this process universities also demonstrate the considerable social and economic impacts of their research, which are also taken into account to determine QR funding levels.

QR funding will play a key role in helping to meet the Government's commitment to invest 2.4% of GDP in R&D, by providing the stable underpinning of excellent research that enables universities to foster talent, develop strategic research activities, build competitive applications for project research funding, and leverage additional income from business, charities and others.

### Why does QR funding matter for UK research and innovation?

**Sustainability:** The long-term, flexible nature of QR funding is critical to the sustainability, and consequently long-term success of, UK research, particularly in the context of the Government's target to spend 2.4% of GDP on research by 2027. It underpins research activity in universities, helps to leverage additional funding from other sources, ensuring the continuation of academic appointments and areas of work outside of project funding, and supports the development of talent in new areas.

**Economic impact:** By enabling universities to leverage in funding, supporting partnerships with business and industry, and creating an environment that supports high-impact advances in research, QR funding maximises the economic impact of UK universities and UK research.

**Innovation:** QR drives innovation by de-risking the pursuit of novel approaches to research, including through responsive projects and the development of emerging research areas that may not be supported through current research funding bodies' priorities.

**Global competitiveness:** QR funding enables universities to act strategically, respond to opportunities and attract global talent, keeping the UK at the forefront of global research. This will be even more critical for the UK's global scientific standing post-Brexit. To some degree, QR funding

performs the function for UK universities that their substantial endowments do for our major competitors in the US.<sup>a</sup>

**Institutional and academic freedom:** QR funding gives universities freedom to capitalise on their strengths and pursue strategic planning, and provides academics with greater flexibility in their pursuit of academic and research interests (beyond simply responding to research funding calls), fostering research creativity, impact and excellence in myriad ways across the country.

### How does QR funding have impact?

**Collaborations and responsiveness:** QR funding provides strategic flexibility for universities to collaborate and undertake research with partners within and beyond academia, with the ability to co-fund projects and leverage funding, and enables responsiveness to emerging challenges and opportunities more swiftly than would be possible if subject to research funders' approval of individual projects. More broadly, it enables universities to collaborate with a range of partners, including charities (particularly via the Charity Research Support Fund (CRSF)), industry and SMEs (particularly via the Business Research Support Element (BRSE)), policymakers and international partners.

**Infrastructure and overhead costs:** QR funding enables long-term, essential investment in infrastructure in the UK research base, including pioneering technology, and supporting the development of the UKRI infrastructure roadmap. Investment in and maintenance of infrastructure, facilities and equipment are prerequisites for researchers to carry out, and make the most of, funding for specific projects, which does not include infrastructure support.

QR funding goes towards the overhead costs of projects funded by a range of sources, including charities, the EU and business, which do not usually include such costs. This is particularly important in the context of reductions in the percentage of the full economic cost (fEC) provided for research projects.<sup>4</sup> In 2016/17, for instance, fEC recovery at HEIs in England and Northern Ireland was at 71.8% for Research Council-funded projects, while the figures for industry, the EU and UK charities were 78.1, 65.2 and 60.7% respectively.<sup>5</sup> QR funding is vital to ensure the sustainability of research from these sources.

**Research talent and skills development:** The success of UK research, which is vital to the Industrial Strategy, depends on our ability to attract and nurture the most talented researchers from around the world. It also relies on a strong skills base to both generate advances in research and translate these into applications for societal benefit.

QR funding plays a key role as the only funding stream available to support the supervision of all postgraduate research students, in addition to supporting researcher development activities, the creation of fellowships and the recruitment of talented academics. It is also critical for the retention of talented academics in between fixed-term research grants. This is important both to provide career stability and to ensure the continuation of valuable lines of research, especially in areas that receive less project funding.

**Interdisciplinary research and emerging research areas:** The inherent flexibility of QR funding provides room for the exploration and rapid development of new research areas and approaches, without prohibitive levels of risk for institutions. It has supported researchers working across

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<sup>a</sup> Harvard's endowment is worth [\\$39.2bn](#); Stanford's is [\\$26.5bn](#); and Princeton's is [\\$25.9bn](#).

disciplines to catalyse noteworthy advances in research, and enabled universities to identify and invest in emerging research fields, including through the creation of new centres of research. The role of QR funding to support interdisciplinary research endeavours is particularly valuable in the context of the creation of UKRI.

## The impact of QR funding at UCL

Over the last five years, UCL has received over £120m a year, a total of £670m, in QR funds (see table below). For 2018-19, £139m was awarded: £86m of mainstream QR funding, £29m of charity research support funds, £3.8m of business research element funds, and £20m of research degree programme (RDP) supervision funds.

Year	2014-15	2015-16	2016-17	2017-18	2018-19
<b>UCL QR funding</b>	£124m	£132m	£134m	£141m	£139m

This funding has played a key role in advancing research at UCL. It has enabled UCL to deliver on its ambition to inspire research leadership, cross disciplinary boundaries and generate economic and social impact from research.

Using QR funding we have invested in emerging areas of research, established new institutes addressing pressing issues of societal concern, fostered cross-disciplinary projects to tackle global problems, and nurtured talented researchers and academics – activities that would not have been possible on the basis of project research funding alone. The stability and continuity of QR funding enables strategic investment in institutional priorities that underpin research excellence.

The examples below provide a small sample of QR-enabled activity at UCL and its outcomes. While it is not usually possible to directly track the past spending of QR funding in a detailed way, the following research activities are underpinned by QR and would not have been possible without it.

## UCL case studies

### QR funding underpins capacity to secure industry partnerships and leverage funding

Investment in research infrastructure and talent using QR funding ensures that universities have capacity to bid for and deliver large research proposals, leveraging major grants and fostering collaboration. For example, the [UCL Queen Square Institute of Neurology](#) receives £4.8m of mainstream QR funding annually, which has supported investment in research talent, facilities and the development of collaborations. UCL has formed partnerships with a number of medical charities and industry partners, which have been key to leveraging further funding.

From 2010 to 2016, such partnerships contributed £30m in research funding to UCL's Faculty of Brain Sciences, with more than £14.5m going to UCL's Institute of Neurology. Commitments from industry to partner with UCL, including a pledge from Eisai Co., Ltd. to invest £6.5m over five years, were crucial to the Institute of Neurology securing a £29m award from the UK Research Partnership Investment Fund. This grant will bring together the UCL Institute of Neurology and the UK Dementia Research Institute at UCL, and will provide spaces for laboratories, drug discovery and experimental

neurology. In so doing, the grant will support interdisciplinary research across the university to find better ways to diagnose and treat patients with neurological disorders.

### QR funding enables the creation of impactful new research activity

QR funding enables the creation of institutes, initiatives and programmes to provide novel insights and inform policy internationally. Project funding for research is not sufficient to create such strategic institutional initiatives because there is no stability or continuity of funding.

An example at UCL is the [Institute for Innovation and Public Purpose](#). Part of the Faculty of the Built Environment (which received £5.6m in QR funding in 2017/18), IIPP was established with QR funding, and explores how public policy and economic growth can be driven by public purpose, through interdisciplinary research and working with a number of international partners. These include the European Investment Bank, Innovation Norway, the Singapore Government, the Brazilian Government, the Mo Ibrahim Foundation and the UN Sustainable Development Solutions Network. IIPP:

- is **informing policy development of the UK's Industrial Strategy** (research was cited in the Industrial Strategy White Paper) and Institute Director Professor Mariana Mazzucato is co-chairing the UCL Commission for Mission Oriented Innovation and Industrial Strategy, which is considering how to transform the 'grand challenges' in the UK's Industrial Strategy into concrete 'missions'. The Commission receives no external funding and would not be possible without UCL's QR funding. The Commission was cited by the Prime Minister, in her May 2018 speech on science and the Industrial Strategy, as pioneering the missions-based approach.
- has been instrumental in the implementation plan for a new Scottish National Investment Bank
- is informing the **development of Horizon Europe research policy** (the successor to Horizon 2020) through a report commissioned by the European Commission setting out a mission-oriented approach for the EU's new research and innovation programme. The Institute has also set up a global Mission Oriented Innovation Network of partners from a range of global public organisations, which aims to bring public purpose and innovation into the centre of government machinery.

### QR funding supports capacity development to tackle global challenges

By supporting projects funded by the Global Challenges Research Fund (GCRF), QR GCRF funding enables capacity development to tackle the world's major challenges. In 2017-18, UCL received £3.9m in QR funding specifically for GCRF-funded projects. One such project was the [RELIEF Centre](#), which received £138,000 in QR funding that year, complementing £551,000 of ESRC GCRF project funding.

The RELIEF Centre focuses on how to measure prosperity and growth in Lebanon, given its exceedingly high proportion of refugees, including via measures of wellbeing, employment and education. Led by the [UCL Institute for Global Prosperity](#) – and in collaboration with the American University of Beirut and the Centre for Lebanese Studies – the Centre works with local communities to design and implement interventions to improve prosperity, and to develop a new generation of scholars trained to work across disciplines. In its first year, the Centre has held several workshops and published a number of reports.

Other UCL projects supported by QR GCRF funding in 2017/18 include:

- [ULTRA](#): This project aims to create a low-cost platform to allow low-income countries to manufacture vaccines at a cost of goods of 15 US cents or less. It has been supported by a £12m grant from the Gates Foundation and, in 2017/18, £361,000 of QR GCRF funding.
- [FASt-Mal](#): £73,000 of QR GCRF funding went towards this £290,000 EPSRC GCRF-funded project to develop an artificially intelligent system to rapidly and reliably diagnose malaria in hospitals across sub-Saharan West Africa, to support its accurate, prompt treatment.
- [Centre for Education and International Development](#) at the UCL Institute of Education: £1m of QR GCRF funding supported the centre's work on the contribution of education to issues such as social justice, equalities, health and gender. The centre's research on school effectiveness and its impact on poor children has informed the work of DFID, UNESCO and the World Bank, while current projects include the development of a framework for gender equality in education, and a capacity building project to end gender violence.

### QR funding develops talented researchers

Investing in the development of researchers is important for the research community to thrive – particularly in the context of ensuring the necessary talent pipeline to reach the Government's commitment to spend 2.4% of GDP on research by 2027.

At the [UCL Institute of Education](#) (which received £7m in QR funding in 2017-18), QR funding has contributed to supporting researcher development activities (which are not otherwise funded) including workshops, mentoring, funding personal research and scholarship time, and funding study leave for staff. Workshops have supported researchers to understand both how to develop and manage collaborative research bids and projects (thus underpinning ability to win research grants) and how publications are assessed for the Research Excellence Framework, supporting enhanced research excellence.

### QR funding supports interdisciplinary research

Interdisciplinary research is increasingly recognised as crucial for tackling societal issues. At UCL, QR funding has contributed towards four 12 month Junior Research Fellowships (coming to a total of £172,312) each year at the [UCL Institute of Advanced Studies in the Humanities and Social Sciences](#). The institute is part of the Faculties of Arts and Humanities, and Social and Historical Sciences, which together received £13.5m in QR funding in 2017/18. The fellowships foster cross-disciplinary thinking from across the humanities and social sciences (fields that traditionally receive less research funding, for both projects and fellowships).

One fellowship has explored opinions on how European political institutions have been shaped by researchers, policy makers and state-builders. This led to public engagement on issues including the French elections via a variety of news outlets, including the BBC and The Spectator, and the researcher has produced a book manuscript, separate book chapter and a journal article.

Another fellowship considered the experiences of chronic pain sufferers, and modern and medieval models of incurable pain. This work has led to publications including a journal article, a book and a separate book chapter, and the researcher has been asked by Amsterdam University Press to develop a new book series. To stimulate wider dialogue on the themes considered by the fellowships, the institute has also held a number of seminars and events.

## QR funding attracts talented academics

The success of UK research depends on our ability to attract the most talented researchers internationally. QR funding facilitates the creation of posts for academics in particular research areas. Dr Dominic Papineau was recruited from the US to a joint lectureship between the [UCL Department of Earth Sciences](#) and the [UCL-Imperial College London Centre for Nanotechnology](#). These are part of the Faculty of Mathematical and Physical Sciences, which receives significant QR funding – £14.7m in 2017/18.

Dr Papineau has established a research group with support from UCL for the study of the origin and evolution of life during early Earth history – the creation of this group would not have been possible without QR funding. In 2017 Dr Papineau's group reported in *Nature* evidence for the world's oldest fossil – at least 3.77bn years old – a discovery that has attracted international media coverage and attention.

## QR funding supports international impact and collaborations

### *ReMap Lima*

QR funding can also support research impact beyond the UK and enables the provision of strategic institutional awards, such as the [UCL's Bartlett Faculty of the Built Environment's](#) biennial Bartlett Research Materialisation Grant. This £50,000 grant supports research staff from at least two schools or units across the faculty to collaborate on a model, prototype, exhibition, installation or pavilion.

In 2015 this grant supported a project called 'ReMap Lima', involving two departments and external partners, which has supported the use of technology to map and visualise two marginalised areas in Lima, Peru. The project brings together academics, researchers and inhabitants to expand the possibilities for spatial analysis and explore tools that support a more participative and sustainable planning process.

### *Centre for Editing Lives and Letters*

QR funding has also supported international collaborations that would not otherwise be possible, for example through the [Centre for Editing Lives and Letters \(CELL\)](#), which develops projects focused on making archives matter. There is very little project research funding in the UK available to support such research, making the QR funding that goes towards the Faculty of Arts and Humanities (of which CELL is a part) particularly crucial. The Faculty received £4.0m in QR funding in 2017/18.

Research at CELL, with international partners including the Warburg Institute, Columbia University, Johns Hopkins University's Sheridan Libraries and the Princeton University Library, has included the Archaeology of Reading in Early Modern Europe project, exploring historical reading practices, and Building a Library Without Walls, documenting Thomas Bodley's efforts building the legendary Bodleian Library at Oxford University.

## QR funding supports emerging fields of research

QR funding is a key enabler of interdisciplinary research on which emerging fields of endeavour thrive. At UCL we have harnessed the flexibility of QR funding to target funding at areas that UCL considers to be of significant strategic priority, in particular cross-disciplinary institutes that harness expertise from across UCL's academic community and support emerging research fields. Often these

institutes leverage considerable further research funding. QR funding enables UCL to establish these institutes, which would not otherwise be supported by research grant funding, through the provision of space, recruitment of academic leaders and ensuring academic time to deliver research:

#### *Institute for Global Prosperity*

The [Institute for Global Prosperity](#) seeks to re-evaluate the way we think about prosperity, and provides evidence-based research, focussed on real-world problems, that can bring novel thinking to bear on what prosperity means. QR funding contributed to the institute's establishment costs of £783,000 and subsequent activities. The initial investment in IGP has leveraged further funding, including £5m from ESRC for the aforementioned IGP-led RELIEF Centre (further supported by a £300,000 British Academy grant), which aims to improve the prosperity of Lebanon and involves international partners. These grants have further led to the securing of a 3-year Leverhulme Early Career Research Fellowship.

In addition, £100,000 in philanthropic funding from JP Morgan has financed the development of prosperity metrics work in East London and led to the establishment of the IGP-led London Prosperity Board, an innovative partnership with London government, public agencies, businesses, the third sector, and local communities.

Other work led by the institute includes the creation of the successful BBC world service/Radio 4 programme My Perfect Country, which has now completed three series and goes out to 210m people worldwide; establishment of the Fast Forward 2030 programme, which supports young entrepreneurs to become the next generation of leaders; and delivery of a series of three CPD short courses, as well as the MSc in Global Prosperity and PhD programme.

#### *Centre for Behaviour Change*

The [Centre for Behaviour Change](#) works to advance cutting-edge cross-disciplinary research, teaching and training in behaviour change. The centre brings together the breadth and depth of academic expertise in behaviour change at UCL to address key challenges facing society, including smoking cessation, alcohol reduction, cybersecurity and transport. The Centre is part of the Faculty of Brain Sciences, which receives substantial QR funding – totalling £22.7m in 2017/18.

The Centre has been particularly successful in its applications for research funding, having been awarded over £48m in funding for research grants led by the Centre since 2014, with £8m as Lead Investigator and £40m as Co-Investigator. It also provides consultancy and training services and has increased its income from these activities to over £200,000 won in contracts in 2018 across the public, private and third sectors. Since the launch of the Summer School in 2014, the CBC has trained more than 360 participants from 22 countries and across six continents in the principles of behaviour change at its annual summer schools.

#### *Institute for Risk and Disaster Reduction*

The [Institute for Risk and Disaster Reduction](#) brings together at least 70 academics across 12 departments involved in world-class research and practice in risk and disaster reduction, spearheading research and teaching in the field.

QR funding enabled the IRDR to invest over £150,000 in the Cascading Crises project and research team. Outputs of this included a practical guide on writing an emergency plan (authored by the

Institute's Professor David Alexander and downloaded over 10,000 times), contributing to the UN Office for Disaster Risk Reduction Guidelines on National Risk Assessment. The project also resulted in an IRDR report on wide-area power failures for emergency planners. This report has been used by UK policy makers and highlighted as the key document to support California Wildfires Response and Recovery by the US National Library of Medicine.

QR funding also enabled the IRDR to invest over £80,000 into Italian earthquake research, which unravelled how stress changes and fault interactions control intervals between earthquakes. In addition, a £100,000 QR GCRF award to the IRDR in 2018-19 allowed the institute to expand the scope of its research projects on the Rohingya Exodus.

#### *Global Governance Institute*

The [Global Governance Institute](#) seeks to make a major intellectual contribution to the emergent field of global governance research, having established itself as a leading research platform on the topic and a distinctive venue for public policy dialogue. QR funding contributed to an internal grant of £600,000 in 2013 to facilitate GGI activities for 2013-2020.

The Institute has staged or co-hosted numerous public events (23 events in 2017-18 alone, facilitated by expenditure of approximately £15,000), highlighting important issues in global governance and featuring high-profile scholars and experts; has published a Major Works Collection on Global Governance; co-hosted the inaugural meeting of the UK Network on the Prohibition of Torture; and runs the MSc in Global Governance and Ethics.

The initial QR investment in the GGI has also leveraged prestigious grants as part of major international research consortia. This includes a €321,000 Horizon 2020 grant on global governance and the EU, and €63,000 as part of a Jean Monnet network award.

#### *Centre for Digital Humanities*

The [Centre for Digital Humanities](#) brings together a vibrant network of researchers at the intersection of digital technologies and humanities, seeking to produce applications and models that make new kinds of research possible.

The centre enables research using the Office for National Statistics (ONS) Longitudinal Study, the largest longitudinal data resource in England and Wales; collaborates with departments across UCL to run the interdisciplinary MA/MSc in Digital Humanities; has held a number of events, including a series of seminars and a digital humanities hackathon.

The CDH has received a number of awards, including a European Succeed Award Commendation of Merit for the project to conserve, digitally reconstruct, transcribe and publish the Great Parchment Book manuscript.

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<sup>1</sup> [https://www.elsevier.com/research-intelligence?a=507321&utm\\_source=EC&utm\\_medium=EC-BEIS&utm\\_campaign=EC-BEIS](https://www.elsevier.com/research-intelligence?a=507321&utm_source=EC&utm_medium=EC-BEIS&utm_campaign=EC-BEIS)

<sup>2</sup> <https://www.topuniversities.com/university-rankings/world-university-rankings/2018>

<sup>3</sup> <http://www.universitiesuk.ac.uk/policy-and-analysis/reports/Documents/2017/the-economic-impact-of-universities.pdf>

<sup>4</sup> <https://www.hepi.ac.uk/wp-content/uploads/2017/11/HEPI-How-much-is-too-much-Report-100-FINAL.pdf>

<sup>5</sup> [https://www.officeforstudents.org.uk/media/1866c816-2c9f-423f-8f28-fe37a232e477/ofs2018\\_28.pdf](https://www.officeforstudents.org.uk/media/1866c816-2c9f-423f-8f28-fe37a232e477/ofs2018_28.pdf)