

Institution: University of Reading

1. Context and mission

As a research-intensive university, the University of Reading (UoR) mission is to achieve **an inclusive research environment that enables and recognises the conduct of excellent research that: changes our understanding of the world past, present and future; promotes innovation; and tackles current and future challenges facing societies**. Working across a broad disciplinary range and with partners across the world, our researchers explore ways to tackle climate change, improve human health, provide food security and understand human culture.

Institutionally, the UoR Strategic Plan 2020-2026 focuses on building a thriving **community** of colleagues and students, pursuing **excellence** in both research and teaching, seeking **sustainability** (environmental and financial) and being an **engaged university**, with impact beyond our campuses. We have strong roots in the Thames Valley, but we are also a global institution, with two overseas campuses, strategic international partnerships and collaborations with researchers in 162 countries.

During this REF period, we have fundamentally restructured our research to align with a new research strategy. Building on existing strengths, we have expanded into two new disciplines since 2014, Architecture and Global Development, with senior research leadership appointments in both. Our research now encompasses 35 distinct disciplinary areas, spanning the Arts and Humanities, Sciences, Life Sciences and Social Sciences. With around 4,000 staff (1,800 academic) and 22,500 students (including 1,500 doctoral researchers) by headcount, we are small enough to be collegial, but large enough to have critical mass in areas of strength, a strong infrastructure, and developmental and financial support for our researchers.

2. Strategy

Supporting the excellence of our research requires continued investment in the development and success of our staff and in our research infrastructure; growing our research income to enable this investment; and supporting the development of strategic partnerships, collaborations and engagement – both within and beyond academia – to increase the impact and reach of our work.

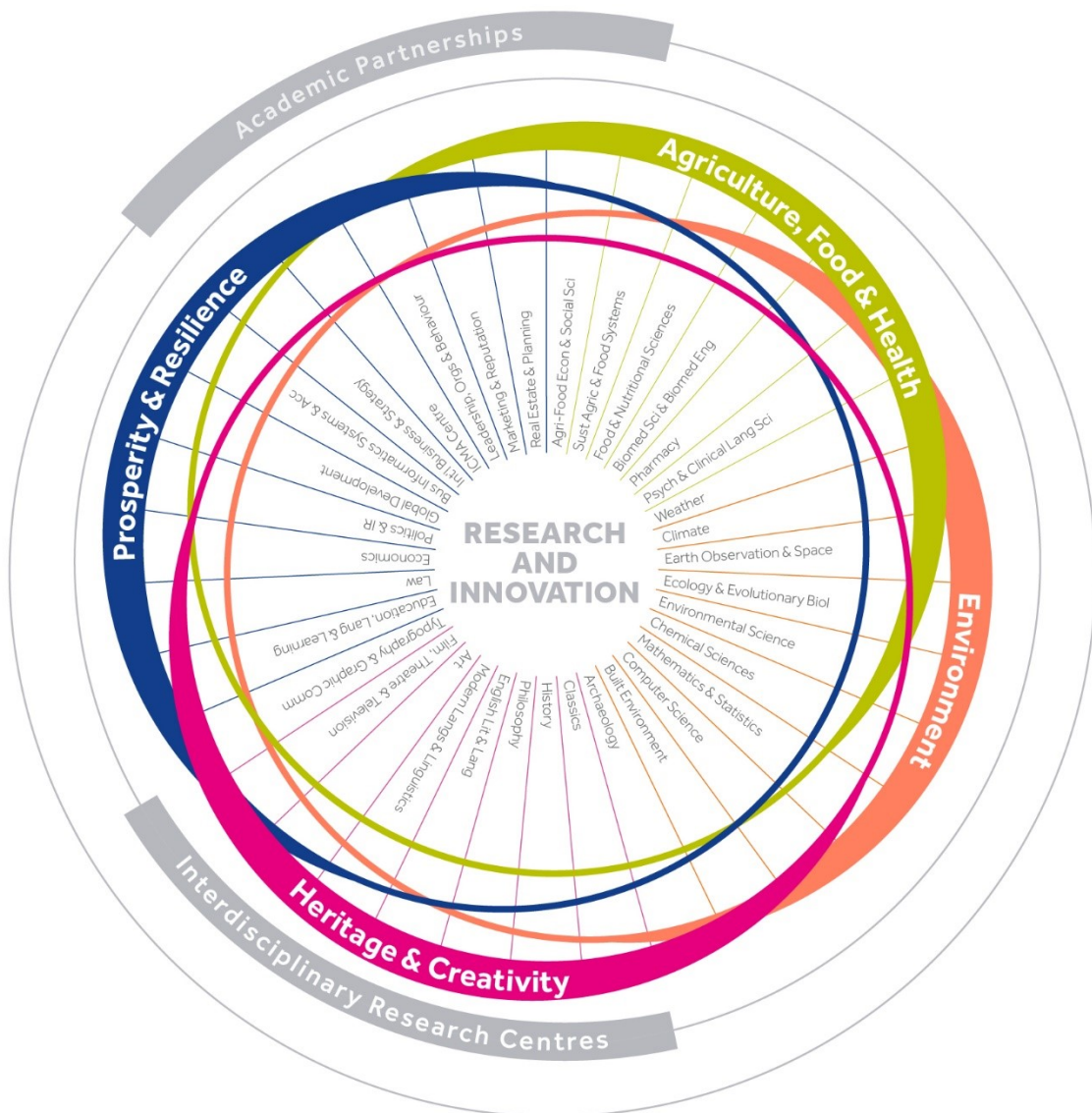
To achieve this mission, our research strategy has five pillars:

1. **Collaboration:** enhance joint working across disciplinary, geographic and professional boundaries;
2. **Openness:** conduct research ethically, with integrity and transparency;
3. **Impact:** realise the societal impact of our research locally, nationally, and internationally;
4. **Leadership:** strengthen the quality of our research by investing in the development of research leadership at all career stages; and
5. **Resource:** sustainably resource research activities and infrastructure to enable excellence.

We are radically refocusing and reshaping our research environment and culture to implement this strategy. We have transformed our research structures, dissolving the traditional Faculty structure and creating 35 Research Divisions under four institutional Research Themes. Each Theme speaks to a core area of excellence and is led by a Research Dean who is a senior leader in their field. Research Deans are responsible for leading, facilitating and driving research within their Theme, and work collectively to identify interdisciplinary synergies.

This structure reflects a profound transformation rather than simple administrative improvements, resulting from a reflective, consultative and iterative approach to structural change. The **Heritage & Creativity** and **Prosperity & Resilience** themes were created after a year-long, researcher-led consultation, while the **Environment** and **Agriculture, Food & Health** themes bring together long-standing and distinctive strengths. Together they function as intellectual catalysts across disciplinary boundaries, while supporting the specific needs of cognate disciplines.

RESEARCH AT THE UNIVERSITY OF READING



Interdisciplinary Research Centres

- Institute for Food, Nutrition & Health
- Centre for Integrative Neuroscience & Neurodynamics
- Centre for Literacy & Multilingualism
- Centre for the Mathematics of Planet Earth
- Walker Institute (climate resilience)
- Centre for Book Cultures & Publishing
- Centre for Film Aesthetics & Cultures
- Centre for Health Humanities
- Samuel Beckett Research Centre
- Centre for Cognition Research

Academic Partnerships

- British Museum
- Thames Valley Science Park
- Royal Berkshire Hospital NHS Foundation Trust
- EIT Food
- Agrimetrics
- Institute for Environmental Analytics
- European Centre for Medium-Range Weather Forecasts
- Meteorological Office Academic Partnership
- National Centre for Atmospheric Science
- National Centre for Earth Observation
- NERC Community for Engaging Environments

2.1 Collaboration

The first pillar of our strategy is Collaboration: driving forward new ways of working together and with others across disciplinary, geographic and professional boundaries, by focusing on:

1. Interdisciplinarity
2. Institutional academic partnerships, and
3. Individual academic partnerships.

2.1.1 Interdisciplinarity

Establishing our Research Themes was a strategic investment in **interdisciplinarity**: creating new structures and ways of working that foster interdisciplinary thinking. Each Research Dean is responsible for initiating and facilitating interdisciplinary dialogue and collaborations across their Theme. Together, they work to increase both visibility and awareness of shared research interests and methodological synergies across the University.

We have committed £160k/year to a dedicated **interdisciplinary research fund** that competitively allocates pump-priming grants for pilot projects through our **Interdisciplinary Research Centres (IDRCs)**. These are designed to stimulate creative connections across disciplines and innovative engagement between researchers, creating the critical mass necessary to address challenge-driven research across our full academic breadth. Each must meet stringent criteria, including evidence of work across Research Divisions to generate significant funding bids and projects, alignment with strategic priorities in one or more Research Theme, high staff engagement and clear research leadership and direction. Each IDRC is sponsored by a Research Dean, who provides advice and facilitates connections across the University and beyond.

2.1.2 Institutional Academic Partnerships

We have invested substantial time, senior commitment and strategic focus in nurturing important external relationships with non-HEI partners. Numerous new, sustainable partnerships have resulted, including:

- A formal partnership with the **British Museum**, complementing the construction of their Archaeological Research Centre on the University estate. This is the first research partnership that the British Museum has joined. It presents unique opportunities for UoR researchers, with both partners contributing equally to a joint research fund for pump-priming collaborative projects. Cross-institutional research is also supported by a joint workshop series and a British Museum Early Career Fellowship in Archaeological Materials Science.
- An extensive, multidisciplinary partnership with the **Royal Berkshire NHS Foundation Trust**. A Joint Academic Board oversees a shared annual budget of £500k and has supported 29 collaborative projects between 28 hospital clinicians and 33 University researchers across all four Research Themes during this REF period.
- A partnership with [Shinfield Studios](#), which is building the largest purpose-built film studios in the UK at the University's Thames Valley Science Park. The partnership offers unique opportunities for collaborations between University researchers from disciplines including Film, Theatre & Television, Computer Science and Henley Business School. This will provide opportunities for our researchers to collaborate directly with creative media professionals across the entirety of the production process.
- We are the North-West Europe Cluster lead of the €430 million **EIT Food collaboration**, with commercial and academic partners across Europe. Our leading role in establishing this network provides a framework for co-created research projects with partners ranging from multinationals and major supermarkets through to local Agri-Food start-ups, leading to 80 projects so far with nearly 100 partners.

We are also continuing to build on our existing strong partnerships:

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- Our relationship with the **Natural Environmental Research Council** (NERC) includes jointly leading the Engaging Environments Projects Platform and hosting large components of two national NERC Research Centres: the National Centre for Atmospheric Science (annual core funding of £2.3m) and the National Centre for Earth Observation (annual core funding of £0.98m).
- We are part of the **Met Office Academic Partnership** (MOAP), which includes four joint appointments and 23 Met Office scientists working at the University.
- Following a competitive process, the UK Government and the **European Centre for Medium-Range Weather Forecasts** (ECMWF) Council agreed that UoR is the preferred location for ECMWF Headquarters. Planning for this move is well advanced, with a final decision due in 2021. This would make us home to the world's largest cluster of research-to-operational weather and climate scientists delivering on national and international scales.
- We are a founding member and institutional host for **Agrimetrics**, one of the Innovate UK-funded Agri-Tech centres, and host the Institute for Environmental Analytics initiated with HEFCE Catalyst funding.

2.1.3 Individual Academic Partnerships

We continue to explore new ways to develop formal and informal collaborations. The UoR Thames Valley Science Park, established in 2016, is home to around 80 businesses, with one of the explicit attractions being research links with our academics. Along with institutional partnerships, we support and nurture smaller scale academic collaborations with partners in and outside of academia. For individual academics, targeted support from our Research and Enterprise Services Team and Knowledge Transfer Centre to forge new partnerships.

Our research strategy supports our institutional priority to be an **engaged university** in our city and region, with a focus on undertaking research with diverse local partners across the full breadth of our portfolio. Examples include thought leadership for Ethical Reading, a grassroots social enterprise created by and for local business (Philosophy); Artificial Intelligence models to reduce Did-Not-Attends by at-risk groups at the Royal Berkshire Hospital (Business School); partnership in the NIHR-funded Oxford and Thames Valley Applied Research Collaboration; and joint appointments, projects and studentships with the Diamond Light Source and the National Physical Laboratory.

International collaborations have also grown significantly in this REF period: international collaborative research outputs have increased from 40.3% of outputs during the REF 2014 assessment period to 53.3% of outputs during the REF 2021 assessment period (SciVal).

2.2 Openness

Openness is the second pillar of our strategy. We have a pioneering and sector-leading commitment to open research. We were the first UK university to publish a statement on Open Research (December 2018) and we were an early member of the UK Reproducibility Network, which we joined in January 2020. We are signatories to the Concordat to Support Research Integrity, on Openness in Animal Research, and are a member of the UK Research Integrity Office.

Our Committee for Open Research and Research Integrity (CORRI), chaired by a Pro-Vice-Chancellor, owns the governance and planning for this area. Our aim is to always be *as open as possible, as early as possible*, and we have an ambitious [Open Research Action Plan](#).

CORRI also oversees our robust ethics review and approval policies, together with policies and processes relating to research integrity. We have a specialised process for animal research projects and report annually on these to the Home Office. Our leadership in this area was recognised with Openness in Animal Research Awards from *Understanding Animal Research* in 2019 and 2020. Our commitment and expectations are set out in the University's Code of Practice in Research, refreshed regularly and published online, together with our annual statement of compliance with the Concordat on Research Integrity.

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We have adopted a policy on responsible metrics for research assessment based on the Leiden principles. This policy, spearheaded by a Pro-Vice-Chancellor for Research and Innovation, involves significant changes to HR / recruitment processes, as well as reward and promotion. To support open data, we established an institutional Research Data Archive in 2015 to host data that cannot be deposited in disciplinary archives such as the UK Data Service or NERC data centres (in addition to our open access institutional repository for publications (CentAUR)).

Staff are supported to develop an independent, active commitment to open research through extensive resources, training and shared practice. The Research Engagement team in the Library provides support for bibliometrics, open publishing and data management, including publication and research data management websites, an Open Research Handbook and a series of locally-sourced Open Research Case Studies. Regular training is available for staff and research students, and an Open Access fund is available to support publication of both journal articles and monographs. We recognise excellence in open research through our biennial [Open Research Award](#), which has directly inspired similar competitions organised by the 2019 [National Open Science Festival](#) in the Netherlands and [University of Groningen](#) in 2020. Leadership and good practice are shared locally and nationally through the open research conferences we have hosted (2017 and 2019).

2.3 Impact

The third pillar of our strategy is to realise the societal **impact** of our research locally, nationally and internationally. Impact is valued as a crucial facet of our research excellence. Changes in approach and investment over the current REF period reflect a major transition designed to nurture a vibrant impact culture, and in this REF period we have invested significantly to boost research that is meaningful beyond the REF. This has enabled us to transform how we **lead, support** and **reward** impact, and our success was recognised through an Institutional Award for Impact from Emerald (Real Impact, 2018).

Impact leadership is embedded within all our Research Divisions. Each Division has an academic impact lead, who oversees and encourages impact at all career stages. The aim is to develop a sustainable pipeline of 'engaged' research, leading to a permanent step-change in impact culture. At institutional level, our Pro-Vice-Chancellors and Research Deans champion a culture of impact and two have REF impact case studies themselves within this submission. We have established a dedicated five-person impact team, with a senior impact manager and officers aligned to each Research Theme. They support the development of individual projects and embed impact throughout the research process, from concept to completion.

We also deliberately nurture triangular relationships between our researchers, our professional services and non-academic external collaborators. To conduct research with a clear understanding of societal, economic and environmental challenges and contexts that naturally drive impact, we strive for research co-creation and co-design with policy makers, practitioners, and the public and community.

In 2014, we allocated over £1m, and additional dedicated professional and academic resources, to our Building Outstanding Impact Support Programme (BOISP). This fund has so far supported 211 projects at all stages of maturity. During the lifetime of a BOISP project, impact is **supported** through targeted packages of mentoring, financial and professional support from the Impact Team, Research Deans, Research Communications and Engagement, and the Knowledge Transfer Centre. We work closely with our external partners to support impact from completed research and have made significant investments in capacity building, including training available to all academics.

We explicitly **recognise and reward** engagement and impact through our revised probationary review and personal titles processes, and through annual Research Impact and Engagement Awards (including dedicated awards for ECRs and PGR students). Since the establishment of the programme, a growing number of colleagues has been nominated for or won national and international awards for their research impact, as outlined in relevant UoA environment statements.

3. People

The fourth pillar of our strategy is to strengthen the quality of our research by investing in the **development of research leadership** at all career stages. Since REF 2014, we have transformed our approach to research leadership, providing wider opportunities and taking a highly collaborative and integrated approach to managing and supporting researchers. Specifically, we have refreshed and enhanced our approach to **senior research leadership, diversity and inclusion, support and opportunities for all staff**, as well as targeted approaches for **ECRs, research students and technical and professional staff**.

3.1 Senior Research Leadership

Research at Reading is led and represented by the Pro-Vice-Chancellor for Research. This position is currently held as the University's first job-share at executive level, with Professors Parveen Yaqoob and Dominik Zaum bringing complementary perspectives of a scientist and a social scientist to the role. Each of our four Research Themes is led by a Research Dean who is an experienced, senior research leader. The Deans sit outside of the departmental line management structures and are thus able to act as independent and influential voices for research within the institution. This role has a uniquely facilitative focus, with each Dean responsible for developing the distinctive research culture within their Theme, engaging in research mentoring and making interdisciplinary connections between researchers.

3.2 Diversity and Inclusion

UoR has strengthened its commitment to Diversity and Inclusion (D&I) across all activities, and in 2015 appointed a D&I Dean to lead on the development, implementation and evaluation of a D&I strategy. Institutionally, D&I is overseen by the Diversity & Inclusion Advisory Board, supported by an Athena Swan Self-Assessment Team, Race Equality Action Team, Disability and Neurodiversity Action Plan Group, and LGBT+ Action Plan Group. Members of the University Executive Board champion different protected characteristics, and all academic Schools have D&I champions, supported by very active Communities of Practice and staff networks (including Women@Reading, LGBT+ Network, BAME Network, Staff Disability Network).

This concerted effort has driven significant progress, particularly in gender equity. We have increased female professorial grade staff from 30% (2016) to 35.85% (2020), significantly above the national average of 26.6% (HESA 2019). Likewise, we have increased the share of women in the upper pay quartile from 42% (2017) to 47% (2020), illustrating clear progress in increasing number of women in senior positions at the University.

We received an Athena SWAN Bronze institutional award in 2016 and progressed to Silver in 2020. Currently, 8 of 14 Schools hold an award (3 Bronze, 5 Silver) with a further 4 Schools working towards achieving an award by 2021. We are ranked 93rd (10th among UK Universities) in the Stonewall Workplace Equality Index (2020), up from 168th in 2017. While our proportion of BAME academic staff has improved over this REF period (up to 14% in 2018/19), we recognise that meaningful improvement in racial diversity remains a challenge for us, in common with much of the sector. We are members of the Race Equality Charter, having carried out a thorough self-assessment over 2017-18, and we are currently finalising a broad-ranging and consultative institutional Race Equality Review with colleagues and student representatives, led by Professor Yaqoob and the D&I Dean. We have also recently launched a equally thorough Disability and Neuro-Diversity Review, led by Professor Elizabeth McCrum and the D&I Dean.

Our staff demographics are as follows:

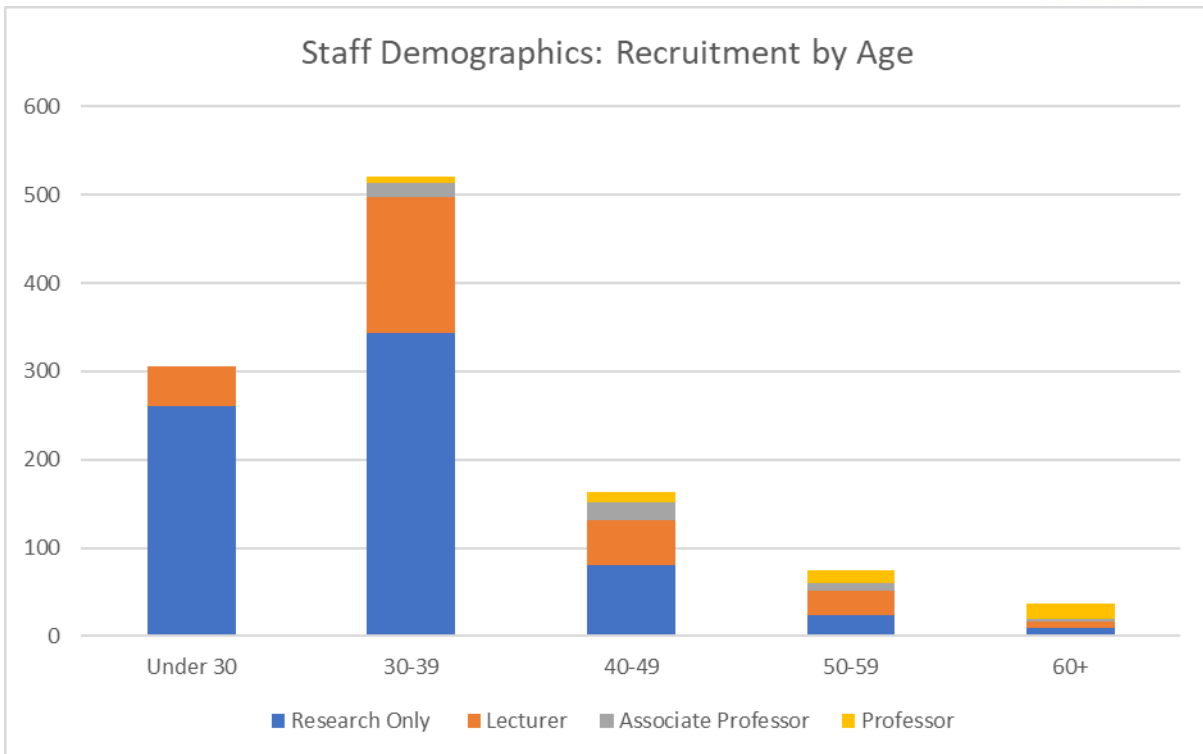


Figure 1. New recruitment during census period by age for staff by Lecturer, Associate Professor, Professor or Research-only

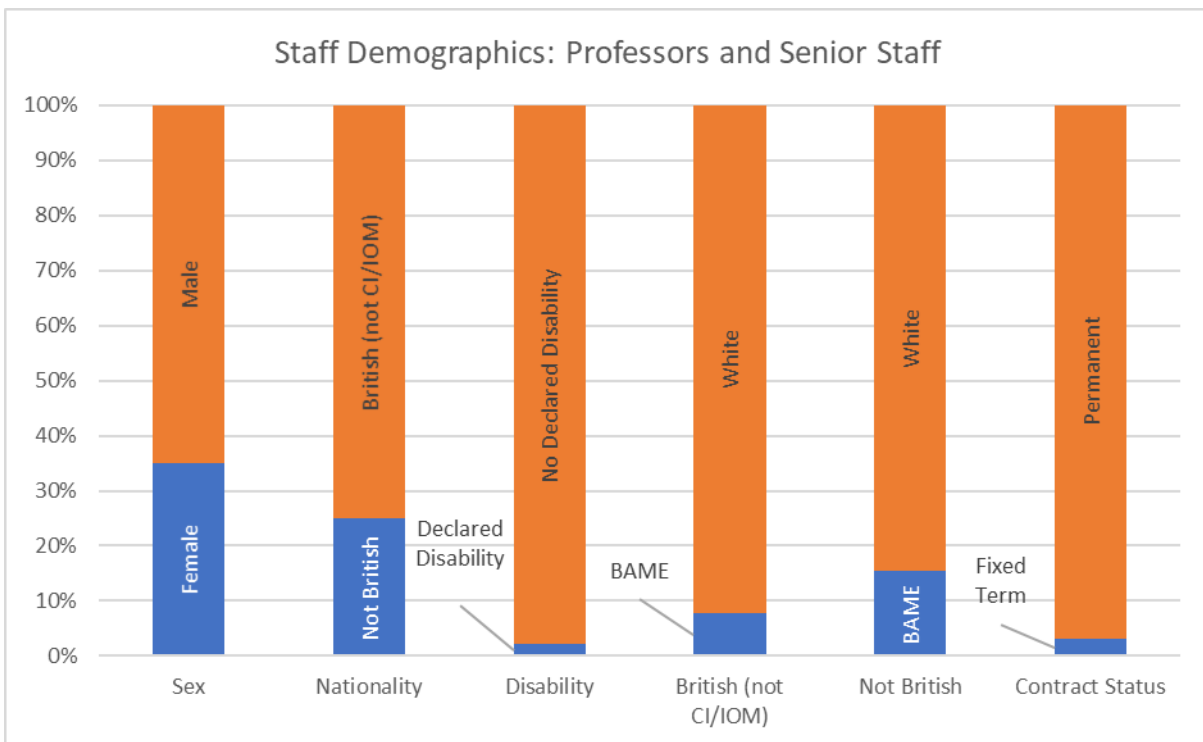


Figure 2. Senior staff population on the census date by sex, nationality, disability, nationality and ethnicity, and contract status

As detailed in our Code of Practice, our REF submission reflects our commitment to an inclusive approach to research, and we have returned all Category A eligible staff. Output selections are based on quality, assessed through a peer-review process and with regard to equality and diversity issues. In January 2020 we undertook an interim Equality Impact Assessment (EIA) based on our REF mock exercise, and where the EIA revealed statistical outliers, we have investigated these and reflected with UoA Leads on actions to reduce the potential for bias. In 2021 we carried out a further bias analysis on final output selections and discussed with UOA Leads to re-assure

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ourselves that potential for bias had been minimised. The outcomes of these exercises provided us with confidence that, overall, our processes are effective and inclusive.

3.3 Opportunities for all staff

Our HR Excellence in Research award is evidence of our commitment to researcher development. We were one of the first ten Universities to receive this award (2010), and one of only six to have continuously retained it since then. We were one of the earliest signatories to the new Researcher Development Concordat and are working to ensure that support for our research staff is fully compliant with the obligations it set out.

With our relatively flat peer-leadership structure, we have broadened leadership of our 35 Research Divisions, most of which map onto a UoA. Each has a Research Division Leader who is responsible for developing the research identity and long-term planning of the division, and who receives direct mentoring from their Research Dean. Impact Leads are also recruited to champion all aspects of impact within Research Divisions. Both are appointed through open recruitment processes, with early and mid-career academics actively encouraged to take advantage of these opportunities. In addition, we have dedicated committee spaces for which academic researchers and research staff can apply as part of our research governance processes.

Over this REF period, we revised our promotions processes, developing more transparent criteria and setting out a new academic probation process with clear, regularly reviewed objectives. We also introduced consistent annual Personal Research Plans across the University to support mentoring and career development for all researchers. Probation, promotion and reward processes explicitly take account of personal circumstances and are monitored annually regarding equality and diversity. This is complemented by an extensive research staff training programme, an open staff training programme and funding for participation in external programmes such as Aurora and StellarHE.

3.4 Early Career Researchers

Feedback on our HR Excellence in Research award commended our institutional support for ECRs. All ECRs have mentors to oversee their development and access to dedicated support schemes, including training and career development advice and specific ECR output prizes. In addition, they are prioritised for support from our Research Deans' funds and travel funds, and have a reduced teaching load to enable necessary training and development of a personal research identity. We award ECR-specific prizes annually, including a research output award and Research Impact and Engagement Award. ECRs are also given specific support to apply for external awards and fellowships.

3.5 Technical Staff

Our institution-wide pool technician system is available to all researchers. A founding signatory of the Technician Commitment, we are one of a small number of universities holding a Science Council Employer Champion award, and have adopted the new Institute of Science and Technology Registered Practitioner scheme for our Arts technicians. Our leadership in this area is recognised by our seat on the National Technician Development Centre Governance Board and membership of the Trailblazer Group for the recently approved HE Technician Apprenticeship Standard.

3.6 Research Students

We are home to a thriving, diverse community of research students. Over this REF period, we awarded over 1,900 doctorates (including professional doctorates), an average of 274 per annum, up from 218 for REF 2014. These students, from 106 countries, are both integrated into the disciplinary research environment and provided with targeted support through our Graduate School. The contribution of research students is celebrated with an annual Doctoral conference, University awards for PhD researchers of the year, a dedicated Research Impact and Engagement Award, and the annual Fairbrother Public Lecture given by a PGR student. Over the REF period, publications authored or co-authored by research students made up 12-15% of annual

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publications in the University's institutional repository. The Henley Business School's DBA programme is only one of 11 worldwide accredited by AMBA.

PGR development is supported through an extensive Reading Researcher Development Programme with over 90 different courses, including PGR Leadership, PGR Women's Development and Preparing to Teach. Funding is available for research travel and access to specialised instrumentation. We participate in multiple Doctoral Training Partnerships and Centres across the full breadth of our disciplines. Over the REF period, these include:

- AHRC South West and Wales Consortium;
- ESRC South East Network for Social Sciences;
- NERC Quantitative Modelling in Ecology and Evolution partnership;
- NERC SCENARIO DTP in the Science of the Environment; and
- BBSRC Collaborative Training Partnerships led by Waitrose and Berry Gardens.

Major partnerships we have led or co-led over this period include:

- Leverhulme Trust Doctoral Programme in Climate Justice;
- Mathematics of Planet Earth EPSRC CDT; and
- BBSRC FoodBioSystems DTP.

Over £4m is available annually for internal fee and studentship support, providing all, or the majority, of the fees for around a quarter of our PGR students. The quality of the PGR experience at Reading is consistently endorsed in the biennial UK Postgraduate Research Experience Survey and International Student Barometer survey, in which the Graduate School had an overall satisfaction level of 98% (2019).

4. Income, infrastructure and facilities

The final pillar of our research strategy is to resource research activities and infrastructure sustainably so we can continue to support both areas of existing strength and new research. Institution-wide resource is broadly separated into three areas: professional and research support services, innovative processes and mechanisms to support research practice, and our outstanding facilities and platforms for research.

4.1 Professional Services

The underpinning principle of services for research at Reading is to provide specialist, personalised, researcher-centred support, appropriately targeted to each researcher's career stage and discipline. Since REF 2014, the University committed an **additional 23 FTEs** to research professional services. We use a partnership model, with Theme-specific staff within each unit, to provide researchers with support and advice over the full research lifecycle. These additional staff have been used both to grow and align our existing professional services and to create several new teams to provide new levels of specialised support.

The largest single group of professional staff supporting research are based in Research and Enterprise Services (RES). The Research Development team within RES is responsible for support and guidance for individual researchers to identify and secure research funding. RES is also home to the Impact team (see section 2.3) and Research Contracts. Other specialist support for research is found across the Library (including Research Engagement), Museums and Collections; the Knowledge Transfer Centre; Research Communications and Engagement; Strategic Projects; Research Intelligence (production, monitoring and analysis of research data); and Digital Technology Services.

4.2 Internal Resourcing for Research

We draw on our extensive assets and trusts for strategic allocation to research priorities. Over this REF period, we have provided **over £7m** in internal research support through our **Research**

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Endowment Trust Fund (RETF): both strategically against Research Theme priorities and through competitive processes open to all researchers. The fund has been used for fellowships, pilot projects, development of grant proposals, PDRAs, pump-priming, Open Access support and impact acceleration.

Further institutional funding is available through the **Annual Research Equipment and Infrastructure Fund** (normally around £1m/year). Introduced in 2015, this fund supports investment in research equipment between £50k and £500k and is allocated through an open and competitive process.

Within each Theme, the Research Dean is responsible for creating and implementing processes and mechanisms targeted to the needs of their disciplines. In this way, together with Institutional-level funding, targeted funding and support is available for all scales and stages of research:

- **Theme-level seedcorn funding** is available through an annual allocation from the RETF (above). These micro-grants are used to pump-prime very early stage and “risky” projects in response to Theme priorities.
- **Grant development colleges** have been introduced across each Theme to improve success rates for major responsive-mode grants, using our own researchers as first-stage peer reviewers prior to grant submission. This way, we have improved our UKRI success rates to 30% for three of the last four years since 2016/17.
- **Theme-wide projects:** Deans undertake targeted strategic projects to meet needs within their Theme. One example is the 4-year Digital Humanities Project (2018-22) within Heritage & Creativity, targeted to strengthen engagement with digital technologies.

Many of these funds are designed to unlock access to further research infrastructure or funding, and we are committed to allocating these internal resources in a fair and transparent manner. Members of all key decision-making bodies have undertaken unconscious bias training and, where we have sufficiently robust data, we are now running EIAs on the outcome of such exercises.

4.3 Facilities and Platforms

Our research infrastructure reflects our disciplinary breadth. It includes: high-performance research computing; farms; controlled environments; specialist analytical and research laboratories; designated outstanding museums and special collections; performance and theatre spaces; archaeological field schools; functional brain imaging facilities; the meteorological observatory; the food pilot plant; a BioResource unit; several NHS clinics; and the University Library.

Three research infrastructure platforms in particular are used by multiple disciplines. The **University Museums and Special Collections** encompass UoR’s three museums (Museum of English Rural Life (MERL), Cole Museum of Zoology and Ure Museum of Greek Archaeology) and substantial Special Collections. These include archives, rare books and manuscripts, and are home to three Designated Collections (Arts Council 2018): the MERL, the Archive of British Publishing and Printing, and the Samuel Beckett Collection (the world’s largest collection of resources related to the playwright). In addition, we have significant specialist Lettering, Printing and Graphic Design Collections within our Typography department, including ephemera, pictorial isotype and non-Latin typefaces.

As well as providing an outstanding research resource, our museums and collections provide a powerful platform for public engagement and local partnerships. Since 2014, they have benefited from significant internal and external investment: the MERL, together with Reading Museum, have been allocated £1m of investment from Arts Council England through the National Portfolio Organisation scheme. The physical space for the MERL has also been significantly upgraded through a £1.8m award from the Heritage Lottery Fund for a comprehensive gallery refurbishment, completed in 2016.

The **Chemical Analysis Facility** is an institution-wide instrument suite bringing together 34 high-end instruments across six platforms (electron microscopy, NMR spectroscopy, mass spectrometry, X-ray diffraction and scattering, optical spectroscopy and thermal analysis).

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Technical specialists help academics to develop novel analytical methodologies across biological and physical sciences, environmental and soil sciences, medical research and archaeology.

The **Reading Functional Imaging Facility** is an advanced neuroimaging suite designed around expertise in interdisciplinary research using innovative multimodal imaging of the brain and body and supports research and diagnostic applications beyond neuroscience. It houses a recently upgraded comprehensive Siemens 3T whole-body MRI suite, separate labs for electroencephalography, neurostimulation, pain physiology and biological assaying, while enabling the combination of all modalities. We have invested over **£1.3m** in this facility over this REF period.

We have also invested in specialised disciplinary facilities, including:

- the **University farm** (£5m), particularly the Centre for Dairying Research and Crop Research Facilities;
- a **University Collections Project** (£500k), to devise and implement a sustainable approach to maximise the research value of the University's distinctive museums and collections;
- a **New Health and Life Sciences Building** (£55m), which also provides a new, modern home for the Cole Museum of Zoology;
- a **Behavioural and Experimental Social Sciences** lab, which includes technical equipment to allow participant responses along with the recording of physiological data; and
- **modernisation of the University Library** (£40m), improving access, IT technology, and study and research spaces, particularly benefitting our Arts and Humanities disciplines.

4.3 Research Income

The changes that we have made over this REF period have significantly increased the competitive research income we have been able to attract, and our annual income per T&R FTE has grown by 13% between 2013/14 and 2019/20. Detailed disciplinary outcomes are contained in our UoA statements.

Conclusion

During the current REF period, we have built new structures to deliver our institutional commitment to putting collaborations, impact and openness at the heart of our whole research cycle. We have developed new ways of working that enable us to undertake collaborative research across both disciplinary and institutional boundaries, strengthening partnerships and innovation.

In parallel, we have continued to progress our existing priorities of broadly-based research excellence and increasing research income. In doing so, we have transformed our research leadership and culture and are in a position of strength to support regional, national and international social and economic welfare and recovery after COVID-19.