

Institution: University of Bedfordshire

1. Context and Mission

Mission

We maintain a research environment that supports our research objectives to:

- Impact on policy, practice, technological, social, economic and cultural development, regionally, nationally and internationally;
- Extend our income-generating capacity to include a sustainable and wide range of sources of research and knowledge exchange funding, from the private, public and third sector;
- Strengthen our curriculum and the learning experience, and thereby the capabilities and employability prospects of our graduates;
- Reflect the university's academic strength and standing to a range of external stakeholders and communities;
- Provide a basis for partnership-working within the university, with HEIs and other institutions;
- Support staff engagement and the continuous development of our team in the full range of research, knowledge exchange and public engagement activities, within their academic roles.

Research and academic enquiry underpins all aspects of our institutional mission to transform lives and make a positive impact on society. Our practice-based academic environment:

- Encourages leaders to create public debate and to challenge and inform existing policies and practices;
- Supports our partners and the communities we serve by providing high quality applied research to help them improve and grow and;
- Creates opportunities for our students to understand and develop their capacity for innovation.

We invest in research of excellent quality with the potential to impact positively on current and future challenges facing society; to directly influence policy making; and produce greater opportunities for impact by partnering with entrepreneurial organisations, and communities of practice.

The Institution

The University of Bedfordshire has two main campuses in Luton and Bedford, and smaller teaching sites in Aylesbury, Milton Keynes, London and Birmingham. We have 15,135 full-time undergraduate students and 4,700 Post Graduate (PG) students directly enrolled with the university with 12,703 in 2019/20 studying in partnership institutions. The university is highly active globally and growth has focused on geographical hubs in South Asia, South-East Asia, the Caribbean, the Middle East and Europe, with particularly high growth in our portfolio of partnerships in Egypt, Vietnam, Pakistan, Oman and Jordan.

The University has 1003.8 fte staff (1246.8 in 2014), comprising 34.1 fte (0 in 2014) research only contract staff, 64.2 fte teaching contracts (95.9 in 2014), 357.3 fte (531.2 in 2014) teaching and research staff. The remainder are non-academic professional service staff, with a very small number of tutors and hourly paid teaching staff.

In 2019-20, the University reported a total income of £140.85M of which £128.49m is from teaching and educational grants and contracts, £3.39m is from research grants and contracts income and £8.97m is from operating and investment income. Overall research total income has

increased from REF2014 £13,906,640 during the period of REF 2014 to £20,860,251 during REF 2021.

The economic context of operation

The university occupies a strategically important network of mid-sized towns, conurbations, and rural areas at the centre of the Oxford to Cambridge Arc. The main campuses are within the South East Midlands Local Economic Partnership (SEMLEP) area. The region has particular strengths in electronic engineering, aerospace, creative industries, food and drink, manufacturing and logistics.

SEMLEP has a regional economy of £50b GVA, the fastest growing population of any LEP outside London, the third highest start-up and survival rate in England and Wales, home to 83,000 businesses, of which 98.3% have fewer than 50 employees.

The area has higher than national average rates of employment, but has relatively low productivity rates compared with other LEPs, due largely to a proliferation of traditionally low 'productivity to number of jobs' sectors such as logistics and food and drink/service. Similarly, the majority of local authorities report below national average wages for citizens with, for example, Luton Borough Council reporting a substantial proportion of senior posts being filled by people living outside the region, whilst a majority of lower paid posts filled by local citizens.

Research investment and infrastructure

The university has recently invested £180m in the main campuses to develop its social learning spaces and research facilities. This includes a £40m purpose-built, four-storey STEM building. This opened in 2019 with 6000m² of teaching and laboratory space and allowed the university to offer a wider range of new science courses, including Pharmacology, Physics, Biochemistry, Chemistry, Geology and Mechanical Engineering. The building also includes a Science and Engineering Outreach Centre to promote the value of science and engineering to local schools. Other similar developments include a seven-storey £46m library, opened in 2016 at our Luton campus, where specialist support for researchers includes advice on open access options, mandate proposals, research skills, enhanced use of Scopus, Web of Science and obtaining specialist collections.

To meet its strategic commitment to new areas of research, and aligning with the Smart Cities Institute agenda of examining data-driven solutions across the OxCam Arc, the university opened the Renewable Energy Innovation Centre (RENEW) in December 2019. This is a co-funded, strategic partnership between the university and TWI Ltd with the aim of becoming a world-class hub for engineering-based, renewable energy research and development.

Research structure

The university has four faculties; the University of Bedfordshire Business School; the Faculty of Creative Arts, Technologies and Science; the Faculty of Education and Sport; and the Faculty of Health and Social Sciences. Research is conducted within one of ten Research Institutes:

- Business and Management Research Institute (BMRI)
- Centre for Research in English Language Learning and Assessment (CRELLA)
- Institute of Applied Social Research (IASR)
- Institute of Biomedical and Environmental Science and Technology (IBEST)
- Institute for Health Research (IHR)
- Institute for Research in Applicable Computing (IRAC)
- Institute for Research in Education (IRED)
- Institute for Sport and Physical Activity Research (ISPAR)
- Research Institute for Media, Art and Performance (RIMAP)
- Research Institute for Smart Cities (RISC).

Each institute has a board that meets every term, attended by full/associate members, as well as professional service staff. They possess autonomy to create centres within their structure, organised to maximise and develop their emerging research strengths. Boards review progress against research plans and their contribution to REF and faculty objectives and plans. Reporting to the Research and Knowledge Exchange Committee, they also identify and discuss new research opportunities and initiatives, income generation and collaboration; review and respond to formal postgraduate student feedback and the contributions of research student representatives; and monitor aspects of equality and diversity relevant to the support and development of postgraduate students and staff.

Research focus

University research supports both social and economic development and productivity, and provides for a wider civic engagement throughout SEMLEP, the south east and the OxCam ARC, as well as having an international reach. Our specialist research areas include those that:

- Inform national policy and practice in social policy and social work, and public health;
- Examine and promote equality and inclusion in critical areas of public health and education;
- Support regional industries and organisations in many diverse sectors, from artificial intelligence and gaming to media and sport, through to engineering and manufacturing;
- Deliver highly specialised research in language education and assessment;
- Improve environmental sustainability, such as air and water quality, renewable energy and power management;
- Support and improve the performance and productivity of private business as well as public sector organisations.

We enhance and develop these specialisms through leading/participating in partnerships and co-funded projects and draw upon multidisciplinary research themes where appropriate (e.g. those between informatics and health practitioners, and business management and artificial intelligence research).

2. Strategy

In 2014, Academic Board set the below objectives within its post-REF strategy. This section provides evaluation and examples noted for each to show how we have progressed with support for research.



i. Sustain the performance of areas in which our research is demonstrated through external measures to have the greatest impact

- Within REF2014, the university submitted 11 UoAs. During REF2021 we will have nine UoAs, with research in UoA07 (Earth Systems and Environmental Sciences) and UoA18 (Law) being maintained and accepted for small unit exception due to size.
- Within a 2019 internal evaluation, the university's REF2014 highest rated UoAs for impact, UoA03 (Allied Health Professions, Dentistry, Nursing and Pharmacy), UoA22 (Social Work and Social Policy) and UoA29 (English Language and Literature) are expected to be amongst our highest performers for impact in REF2021, with UoA23 (Business and Management) also showing a strong increase, alongside UoA11 (Computing and Informatics).

ii. Increase levels of excellence achieved in research we undertake

- Our review also suggest that levels of output excellence are expected to be higher than in all UoAs submitted in REF2014. The university expects UoA03 (Allied Health Professions, Dentistry, Nursing and Pharmacy), UoA22 (Social Work and Social Policy) and UoA29 (English language and Literature) to again be among the highest performers and show an increase in levels of impact and percentage of outputs rated either 3* or 4*.

iii. Generate and invest in additional areas of research based on/related to, those specific strengths

QR funding that is not invested centrally is allocated to Faculties. In 2015 and 2016 this was through a formulaic process based on research performance at REF eligibility level, and high-level performance in REF 2014 (flexed by research cost weights) across outputs, PGR completion and income generation. Subsequent years focused on maintaining budgeted commitments. Examples are as below:

- Building upon successes in REF2014, IHR developed new programmes of research in healthy ageing in two specific areas – early years and older people.

in partnership with Luton Borough Council, IHR conducted a series of research studies in child health, investing in a joint Research Fellow post for the evaluation of the Luton Flying Start programme (0-5 years old). This resulted in a jointly-funded PhD studentship examining the role of fathers in child development. Prof Randhawa is also a co-applicant for a National Institute for Health Research-funded study (£3.7m) from the Public Health Research programme – Evaluation of the Ultra-Low Emission Zone and its Impact on Child Health.

The university has invested in the appointment of a Professor in Health & Ageing, and established a research programme related to frailty among older people, supporting Luton's BAME population and physical activity interventions for frailty and sarcopenia.

- We invested in the interdisciplinary and cross-departmental Substance Misuse and Ageing Research Team (SMART) to deliver strategic research programmes focused on priorities identified by stakeholders, including older people with alcohol problems.
- In 2015, the university was appointed academic lead for a £25m, UK-wide programme Drink Wise, Age Well (DWA) which ran from 2015-2020 with the aim of reducing alcohol-related harm in older people. The research programme changed Public Health England policy and its recommendations now inform professional practice aimed at reducing harmful drinking among older people.
- Our investment in CRELLA has led to a new generation of assessments encompassing

digitally mediated assessments. For example, Khabbazbashi and Galaczi (2020) compared different models for scoring spoken performance which informed the automated marking of digitally delivered speaking tests, new research in socio-cognitive test validation frameworks to research inter-test comparisons in professional (medical) domains, enabled the UK General Medical Council to assess its suitability for their own professional registration purposes

- Stemming from existing research in environmental science and computing and our newly emerging theme/UoA of engineering, the RENEW is a co-funded strategic partnership between the university and TWI Ltd, based at their Cambridge headquarters, examining digital transformations of energy production and uses.

iv. **Identify additional areas for development that represent the next set of potential excellence**

Linking to regional and national policy/frameworks (e.g National/Local Industrial Strategies), we have identified thematic networks, within which our institutes may also develop new perspectives and areas of expertise, as:

- Health and demographic change;
- Future cities;
- The creative economy;
- Safe and inclusive societies;
- The bio-economy.

This approach supports interdisciplinary research through specialist expertise. For example:

- ISPAR and IHR regularly work together to develop interdisciplinary research projects, such as 'Tailored Interventions to Reduce Sitting Behaviour in People with Type 2 Diabetes: A Randomised-controlled Feasibility Study', funded by Diabetes UK.
- Similarly, the National Centre for Cyberstalking Research (within IRAC) is interdisciplinary in nature, drawing upon expertise working in different fields including computer science, psychology, sociology and law. They have conducted funded projects that include the Bedfordshire Cyber Awareness Programme, funded by the OFS/HEFCE and led to the publication by UUK of guidance for Universities: *Changing the Culture: Tackling online harassment and promoting online welfare*.

Professional Services Support for Research

Research and Knowledge Exchange (KE) support

- Research collaborations, networks and partnerships with the wider community are supported internally and externally by the Innovation and Enterprise Service (IES), created to provide more effective central professional services to support research collaborations and also provide a more consistent and supportive approach to grant capture and post-bid contract management.
- Our centralised and cost-effective approach to research institute support, underpinned by a university-wide CRM system for external organisation contacts, staff development and support for research funding and research degree provision.
- Our research is applied and therefore achieves direct impact, but also achieves impact through KE and public engagement (e.g. research consultancy; accessing research facilities, or support for regional development through research into the region's SME community).

Work conducted in 2020 by an independent economics consultancy suggested that for every £1 received for R&KE activities, the university generated £6.50 in additional Gross Value Added in the region. Also that the university has:

- Worked with over 1500 external organisations and businesses over the last three years in some financial way (e.g. by benefiting from our research in funded programmes, CPD and consultancy)
- Generated over £18m of regional development funds to utilise research expertise to stimulate the regional economy
- Contributed £70m gva to the regional economy, including £16m from CPD consultancy and £4m from student start-ups

Open Access Research Publishing Policy

- We make our research widely available and where appropriate include open access fees into all research proposals
- Learning Resources and Service Excellence manage and support the use of the institution's open access, cloud-based repository.
- We provide training and guidance on Open Access for publishing, reviewing current practice and updating our Open Access Policy when required.

Resources

There are established print library collections at all four libraries consisting of journals, databases and books. Two thirds of all library acquisitions are now purchased in digital format and accessible to researchers over the internet from wherever research takes place.

Ethical Research Policy

We maintain a culture of research integrity that secures the value of our research.

The university joined UKRIO and is signatory to the Concordat to support research integrity in 2019 to:

- Ensure research integrity practices are up to date and in-line with the sector's best practices;
- Promote good academic practice to PGR students and staff through training;
- Include regular checks of work (by using Turnitin), and;
- Enforce the university's research integrity policy.

University Research Ethics Committee (UREC)

During 2016, a comprehensive review of research ethics processes was conducted by members of UREC, made up of members of the professoriate, institute staff, professional services staff and external members.

The review recommended a consistent approach be used across all faculties, with the separation of taught course ethics processes from those applied in cases of staff and PGR students. School Ethics Panels are now responsible for further assessment and oversight of UG and PGT ethics proposals, recording outcomes and reporting to UREC; Research Institute Ethics Panels are responsible for assessment and oversight of staff and PGR proposals.

UREC receives annual reports from its subcommittees in the schools and institutes and provides institutional oversight and advice.

The University Ethics Policy is applied across all faculties, schools and institutes. and incorporates the requirements of the Concordat to Support Research Integrity.

Future strategic goals for research and impact over the next five years.

- Recent organisational change has seen the installation of a new Vice Chancellor, Professor Rebecca Bunting, a new senior staff structure and the ending of the previous University Strategic Plan 2017-20
- In 2021 our focus is to devise a new corporate strategy and sub-strategies in research and KE
- We expect to continue our investment in excellent research with the capacity for positive impact and our support for a sustainable research community and infrastructure in which:
 - ❑ The research we invest in should be considered, or have the potential to be, excellent in quality and impact;
 - ❑ Our current areas of excellence are sustained;
 - ❑ Our research in psychology as a self-standing subject, engineering, and life sciences grows in size and quality.

3. People

Underpinning our research culture, the university seeks to:

- Support continuity and leadership in its major research institutes;
- Support early career researchers;
- Develop/monitor processes that support equality and diversity in research;
- Facilitate long-term relationships with national and international service providers and research funders;
- Foster high quality in its research disciplines, underpinned by appropriate technical and information resources;
- Support the development of strong PhDs and masters by research, research culture and quality training and supervision.

Research Leadership

Following REF2014, the university reviewed its policy on promotion to senior academic titles and since 2014, 13 Professors and 13 Readers have been appointed, of which five Professors and 12 Readers have been internally promoted. All 14 of those staff that currently remain at the university will be returned under REF2021.

We have maintained the full academic role at entry grades and largely avoided teaching-only contracts in all but a small number of specific cases in which practitioners offer a specific non-research-active value to learning.

Through the Academic Workload Planning Framework, the allocation of research time is discussed during annual performance and development reviews and agreed in alignment with the University's strategic research goals. This ensures that research ambitions of staff are facilitated as the opportunity is there for all to propose new and sustainable trajectories in research, without a pre-allocated time-allowance that would deter early career researchers and those starting research at a later point in their careers.

The university has been an 'Investor in People' organisation since 2008, achieving gold standard in 2011, which was successfully re-accredited following an assessment in 2014. Reassessment took place in 2019 and the university is currently evaluating additional external benchmarks..

We encourage researchers to take leadership roles that enable them to inform/steer the university's research development through a sustained commitment to equality and diversity in theme and practice. The university has formal recognition agreements with Unison and UCU

and long-standing and effective arrangements for consultation and negotiation with members of both unions.

Support for early career researchers (ECRs)

In addition to the Organisational Development and Training Staff Development programme, early career researchers are supported through a mentoring and career development programme (<https://www.beds.ac.uk/ihr/research-mentorship-scheme/>) in which they are offered advice on areas such as developing a research strategy and attracting funding for projects.

Equality and Diversity

Central to the university's preparation for REF2021 is its established commitment to the principles of equality and diversity within its mission. That is to say, to reduce the inequalities of outcome which result from socio-economic disadvantage, and as formulated in the Public Sector Equality Duty created by the Equality Act 2010, i.e. to have due regard in this, as in other functions, to the need to:

- Eliminate unlawful discrimination, harassment and victimisation and other conduct that is prohibited by the Act.
- Advance equality of opportunity between people who share a characteristic and those who do not.
- Foster good relations between people who share a characteristic and those who do not.

Much of the university's research is focused directly on improving equality and equity. Our commitment to equality and diversity in health and social policy *per se* underpins our strategic commitment to research in areas of health and public policy in, for example, investigation of the representation of black and minority ethnic groups in healthcare education and the workplace, and research into factors, barriers and enablers that affect the implementation of clinical commissioning policy to reduce health inequalities in the NHS.

As part of our commitment to equality and diversity in research, the university has organised its preparation for REF2021 to ensure academic leadership of senior researchers is recognised and used appropriately, to secure transparency, consistency and accountability at each stage.

All EDI-related training is under review to ensure it continues to be fit for purpose and provide the latest knowledge and skills. Particular attention is focused on a revision and updating of Unconscious Bias training which will be provided to all academic staff so that recruitment and selection and promotions are free of unintended bias and fully based on merit.

Under the Head of People Development, a new staff strategy is emerging that aims to bring together training and development across the university - including for our research community - as well as review the range of accreditation and policies to support research staff. For example:

- Preparations are in hand to commence our Athena Swan application. This initiative will provide a significant level of support for staff engaged in research and, whilst the focus will clearly be on female staff, it also provides an opportunity to ensure staff from across all protected groups are afforded access to opportunities to get involved in research and are adequately supported in every way to continue and progress their research endeavours.
- In 2015, the university reviewed and regained its Positive About Disabled People and Stonewall accreditation and is considering further awards as part of the work programme of the Equality and Diversity Committee.

Facilitate relationships with service providers and funders

Following a review of REF2014, two senior roles were created to reflect specific commitments and approaches to research. The role of Director of Innovation and Enterprise, with a remit to integrate research and KE/innovation to deliver university objectives in both areas. Reporting to the Director to ensure complementarity, a broadened role of Head of Research Development extends leadership of the Research Graduate School to include support for researcher development more generally.

Fostering high quality research

Following REF2014, a review of research institute membership, focus and management took place as part of a programme of research development and intensification. Research institutes identified focal areas for activity and developed programmes to support researchers already producing high quality and high-impact research outputs, offering expert knowledge and mentoring while also building capacity for early career researchers with the potential to produce excellent research.

The university is a signatory to the Concordat to Support the Career Development of Researchers and a member of Vitae. All training and development activities provided across the university (both centrally and at research institute level) to support both PGR students and research staff are mapped to the Vitae RDF, which allows for the identification of training and support needs. The university's 'Training – Assisted Study and Request for CPD Policy' was updated in 2014 and 2018. It is applicable to staff on full-time, part-time and fixed term contracts.

The university participated in the CEDARS survey in 2019-20. Most areas covered by the survey (including staff development for research-active staff and researchers) were seen as having a positive effect on staff members' professional growth. An action implementation plan based on areas needing improvement is now being developed by senior staff. This includes a university-wide research mentorship programme (launching in late 2020-21) and an enhanced training programme for mid-career academics.

In 2013, the university received its HR Excellence in Research Award. Since then, its action plans have been consistently approved for implementation and we continue to maintain this award.

Development of strong research student culture, quality training and supervision

University-wide research skills development training is provided through the Research Skills Development Programme (RSDP), introduced in January 2019 and mapped to the RDF, covering all four quadrants of the planner. The programme (currently comprising over 30 sessions) is tailored to a variety of research skill proficiency levels, from PGR students to ECRs and mid-career researchers.

In addition to the training programme of research support, one-to-one sessions are provided for those whose commitments prevent them from attending regularly scheduled sessions, but who need to complete their training. Training sessions are organised in semester blocks, with each session held at least three times a year; some sessions (e.g. supervision training) are held monthly. Research institute directors and PGR leads monitor attendance and encourage staff to update their training at the earliest opportunity <https://www.beds.ac.uk/ies/we-mean-business/academic-journey/academics/research-development-training>.

4. Income, infrastructure and facilities

- The work of IES is governed and directed by the university's strategic plan and the university's HEIF Strategy. Within IES, a central bid support unit assists researchers to access research funding information, bid for/secure funding and successfully manage costings and contracts to deliver excellent research. All external research funding bids come through this unit.

- IES also has a business partnership unit and a corporate project team. Staff from these teams provide access for researchers to many external relationships within the region and beyond, and act as a 'front door' to the university for external organisations.
- For the first time since 2014, university funding applications in the year 2019-20 saw a fall, owing to the withdrawal/re-focus of funding streams due to Covid-19. However, despite the unprecedented challenges posed by the pandemic, the university submitted 121 bids for funding.
- Researchers log their interests with IES and then 'horizon scan', sending any suitable opportunities to them directly. Approximately 500 specially selected research bidding opportunities are sent to academics annually and within the terms of reference for each Institute is a requirement for a member of IES to attend each institute board meeting, where income generating opportunities are discussed.
- IES provides a post-bid project management function aimed at harmonising the approach to research project management across institutes, reducing risk to reputation of the university as well as mitigating financial clawback related to project non-compliance. This entails a series of internal 'soft-audits' and focuses upon working with the PI to understand a range of qualitative and quantitative areas of the research project and provide assurance that areas typically related to failing research projects, such as poor relationships with funders or partners, are avoided. The central audits are confined to the top 20 research projects in terms of size, with institutes responsible for evaluating the management of smaller projects

Institutional-level resources and infrastructure and Facilities

From initial recording on our Research Management Administration System to publication on our Open Access Repository, we make our research available to ensure reproducibility. We run reinforcement training on experiment design and complementary academic development courses. Datasets are examined in accordance with GDPR and other policies and made accessible as possible, together with methodologies, structures and metadata.

This cross-usage of physical infrastructure also works in both directions and at our new (2020) Aylesbury campus, we partner with (e.g.) Stoke Mandeville Hospital for access to specialist medical facilities, as well as utilising a range of other specialist facilities within our RENEW Institute at TWI Ltd headquarters.