#### Institution: Keele University

### 1. Context and mission

**Institutional history & mission:** Keele was the first publicly funded university of the post-World War II period, founded through an alliance of local popular demand, civic activists, and influential UK intellectuals and academics, notably the historian and social critic R.H. Tawney and Lord Lindsay of Birker, Keele's founding Principal and former Master of Balliol College, Oxford. Responding to the Barlow Report (1946), Keele was expected to meet the demands of a new kind of society, economy and world, gaining the sponsorship of three local authorities including Stoke-on-Trent City Council and Staffordshire County Council. Keele received two Royal Charters: in 1949 as the University College of North Staffordshire, and in 1962 as the University of Keele. In our 2019 Strategic vision we acknowledged that the challenges facing the world at the time of the university's foundation remain no less relevant today.

**Economic and demographic context:** Locally, the university continues to serve an economically and socially challenged post-industrial part of the English Midlands, with Stoke-on-Trent 13th in the UK Index of Multiple Deprivation (2019). Since 2017 Keele has led a civic partnership (the New Keele Deal) to deliver a programme of research and innovation-led local economic growth. This is the 3rd largest programme of its kind (investment value of >£8m p.a.) amongst 134 universities nationally (2018-19) (Higher Education Business & Community Interaction Survey) underpinned, in large part, by the rapid expansion of our Science and Innovation Park, construction of three additional innovation centres (giving 8 in total), and designation as one of 20 national University Enterprise Zones created in 2019. In supporting local economic growth, with a focus on the role of SMEs in economic prosperity, Keele draws upon an increasingly wide international footprint, based upon global research collaborations; major industrial partnerships (including with Siemens, Cadent, ENGIE) and relationships with over 300 SMEs, generating over £200m p.a. to the local economy (according to an independent economic impact assessment by HatchRegeneris, 2017).

The contribution of research at Keele to the business, cultural and health economies of the Midlands was recognised in 2017 via invitation to join Midlands Innovation, the group of the eight most research intensive HEIs in the Midlands (Aston, Birmingham, Cranfield, Keele, Leicester, Loughborough, Nottingham, Warwick), with Keele having one of the 6 Medical Schools within this grouping. Nationally, Research England has determined Keele's benchmark group for the Knowledge Exchange Framework to include 19 other research-intensive institutions (including York, Exeter, Durham, Leicester) based on disciplinary spread, relative research/teaching intensities, research income/quality and research infrastructure spend. Keele is the largest single site parkland campus in the UK with the largest integrated Science and Innovation Park.

**Size & Structure:** Keele's research and teaching is managed and delivered through **fourteen academic schools** grouped into three faculties: **Humanities & Social Sciences**, **Natural Sciences** and **Medicine and Health Sciences**. Around 11,000 students now study at Keele. 'The Keele Experiment' of the late 1940s was founded on excellent, engaging multi- and interdisciplinary education and the university continues to deliver against that commitment. Regularly ranked in the top 10 for student experience, Keele was awarded Gold in the Teaching Excellence Framework. We began 2019-20 ranked in the UK Top 10 for the Best Student Experience in The Sunday Times Good University Guide 2020, with six subjects ranked in the UK Top 20. 2019-20 also marked the second time in three years that the University was shortlisted for THE University of the Year. In 2019-20 50% of our £164m income was attributable to tuition fee income.

**Research focus, diversity, history and maturity**: REF2014 performance confirmed our status as a research-led university, with 71% of our submission at 3\* and 4\* and world leading research in all 17 units of assessments. Performance in Primary Care, Allied Health Professions, General Engineering and History was particularly strong, with Keele's Primary Care submission ranked

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third nationally (proportion 3\* and 4\*). Keele saw the third biggest sector percentage increase in mainstream QR funding following the outcome of REF2014.

Since 2014, the university has underpinned research excellence through its Academic Schools. This has empowered academic researchers through sustained contact with disciplinary peers at all career stages, sharing the benefits this brings through the collegiality fostered by the common pursuit of excellent research and education, as well as opportunities for development through mentoring. Schools are the homes of networks and clusters of researchers and mature centres of disciplinary research excellence in their own right: for example, our Centre for Applied Entomology and Parasitology (School of Life Sciences) makes major contributions to world-wide research networks combatting malaria in Africa and managing sustainable crop protection at home and abroad; the Keele Policing and Academic Collaboration (School of Psychology) builds upon Keele's established reputation for Criminology, linking it to thought- and practice-leadership in the social psychology of crowd management; and the former Institute of Primary Care & Health Sciences, now integrated into the School of Medicine, forms part of the NIHR School for Primary Care (which Keele will lead from 2021) and 'the' (UK Centre of Excellence) Primary Care Centre for the charity Versus Arthritis. Academic Schools have also provided the basis of long-standing research partnerships with our external research partners, including those with the NHS: University Hospitals North Midlands (Stoke-on-Trent and Stafford). Robert Jones and Agnes Hunt Orthopaedic Hospital (Oswestry) and Midlands Partnership NHS Foundation Trust.

The University Research Strategy provides institutional level multidisciplinary drive to these research environments via three pan-university interdisciplinary research institutes to catalyse high impact research to meet the three global challenges of social inclusion, sustainable futures and global health. These three institutes, launched as recently as 2020. have already mobilised interdisciplinary approaches with tangible results, e.g. securing >£3m in GCRF/UKRI investment to pursue multidisciplinary research including that to understand and alleviate: non-communicable diseases in the Philippines (Global Health); the inter-continental migration crisis (Social Inclusion); water and environmental sustainability in Bangladesh (Sustainable Futures). The work of the three institutes is further supported by Keele's Institute for Liberal Arts and Sciences (ILAS), which supports interdisciplinary research through its Grand Challenges lecture programme, where distinguished international speakers provoke our academic and student community and our partners, to collectively engage in formulating research-responses to a wide range of societal and global challenges. ILAS also funds visiting fellowships, providing resource and capacity to innovative interdisciplinary collaborations. The university has invested in 20 of these in the last 3 years of the reporting period. For example, in 2017 seed-funded collaboration between primary care researchers and community social animators resulted in innovative, co-produced, arts-integrated research to understand and alleviate non-communicable diseases in the Philippines, our first of several significant UKRI GCRF funding successes.

### 2. Strategy

Achievement of strategic goals for research: Keele's research income has grown significantly to £132m over the REF period, an average increase of 24% per year compared to REF2014. The future trajectory for research income is strong, with almost £100m of grant applications for each of the last two years. In 2018-19 awards exceeded £23m for the first time (from a baseline of £16.6m in 2014-15). Keele is submitting to seventeen units of assessment in this REF. In 2014, Keele submitted 59% of its academic workforce to REF. In 2021, 76% of our academic workforce are recognised as having significant responsibility for research, with a 25% increase in staff FTE submitted compared to REF2014. Doctoral awards for REF2021 have increased by 79% compared to REF2014. The University has or is on target\* to achieve the following objectives in our current Research Strategy to 2023:

- Continued investment in research/impact infrastructure: now exceeding £115m
- >50% of research income via collaboration with no-HEI partners: achieved
- Value of grant successes per annum to reach £30m by 2023: currently £23m

- Research spend per annum to reach £25m by 2023\*
- An increasing level of strategic focus and investment in 3 global challenge institutes
- UKRI funding to reach 25% of total research income by 2023\*

The strategy also targets 80% of publications submitted to REF2021 ranked 3 or 4\*, with an average GPA of 3.5 across outputs, environment and impact.

In 2019-20 Keele researchers submitted 557 grant applications valued at £98m, 73% of these to UKRI and central government/NIHR. Keele leads its comparator group in NIHR funding awarded. The strategy has supported colleagues to secure several major grants/programmes including awards from UKRI (and its global challenges research fund) and NIHR. Of note are the following grant awards:

- 2013-present: Hellier Astrophysics at Keele: Planets, Stars and Galaxies, STFC Consolidated Grant, £1,167,019
- 2015: van der Windt Maximising Outcome for Patients with Shoulder Pain: Using Optimal Diagnostic and Prognostic Information to Target Treatment, NIHR, with Oxford, Birmingham, Hertfordshire, Royal Holloway Universities, £2,700,494, £2,063,231 to Keele
- 2016: Yeates Video-Based Examiner Score Comparison and Adjustment: A Complex Intervention to Improve the Dependability of Objective-Structured Clinical Examinations in Medical Education, NIHR, £939,547
- 2017: Bruce Enhancing Crop Diversity and Ecosystem Services to Promote Biological Control of Fall Armyworm in Smallholder Cropping Systems, BBSRC, with International Centre of Insect Physiology and Ecology, Kenya, £1,104,433, **£333,768** to Keele
- 2017: Mallen Improving Outcomes for Patients with Opioid-Treated Persistent Non-Cancer Pain: A Proactive Clinical Pharmacist-Led Primary Care Intervention; Prompt Intervention - Pharmacist-Led Intervention to Reduce inappropriate use of Opioid Medicines and optimise Persistent Pain Therapy, NIHR, with Birmingham, Nottingham, Royal Holloway, Southampton Universities, £2,499,608, £2,170,534 to Keele
- 2017, 2019: Tripet Target Malaria, Silicon Valley Community Foundation numerous awards >£3m
- 2018: Dikomitis, Price Empowering People with Cutaneous Leishmaniasis: Intervention Programme to Improve Patient Journey and Reduce Stigma via Community Education, NIHR, with Federal University Bahia (Brazil), Mekelle University (Ethiopia), Rajarata University (Sri Lanka), £4,576,819, **£1,664,973** to Keele
- 2018: Girling Place, crime and insecurity in everyday life: A contemporary study of an English town, ESRC, with Oxford, Edinburgh, UCL, £823,634, **£486,873** to Keele
- 2018: Miller Expediting Glycosaminoglycan Synthesis: Expanding Frontiers for Carbohydrate Chemical Biology, UKRI Future Leaders Fellowship, **£924,075**
- 2018: Palladino Maghreb Action on Displacement and Rights, AHRC, with Manchester, Edinburgh Universities and overseas collaborators: CREAD, RACINES, CARITAS, AMI, Sousse University, Notre Culture D'abord, £1,871,675, £442,268 to Keele
- 2019: Roddy Clinical and Cost-Effectiveness of Individualised Exercises and Foot Orthoses in the Treatment of Plantar Heel Pain: A Randomised Multi-Arm Multi-Stage



Adaptive Trial, NIHR, with Birmingham, Glasgow Caledonian, Lancaster, Leeds Universities, £1,874,873, **£1,542,591** to Keele

 2019: Fogwill (led by ENGIE) – Zero Carbon Rugeley: A major new development as a catalyst for a town wide smart local energy system, InnovateUK, £1,403,346, £199,336 to Keele

Achievement of strategic goals for impact: During the period, the university has led a nationally visible impact strategy, with a key focus on driving research and innovation-led growth and impact in the business, cultural and health economies it serves. The university has attracted over £36m of capital investment (from local and national public and private sources) to support this mission, alongside £15.8m of revenue funding to promote business investment in research and innovation-led growth. These investments form part of a series of civic partnerships with the Local Enterprise Partnership, local authorities, NHS and other commercial and civic organisations, collectively known as 'Keele Deals'. Between 2017 and 2021, the University has established Keele Deals on the economy, culture-led regeneration, health and care, and most recently a package of interventions to support post-Covid recovery. This approach has formed the basis of our Knowledge Exchange Strategy over the period, supported by local and national investment to support the role of universities in their local economies (providing >£8m p.a. in capital and revenue investment in 2019/20), underpinned by Higher Education Innovation Funding (HEIF). HEIF awards from Research England have increased by 300% through the university's KE performance over the period (reported via the HE-BCI Survey), from an allocation of £0.5m in 2015-16 to £1.5m (still capped) in 2020-21. This is a result of increased income over the period from collaborative and contract research with external partners (>£9m in 2019-20), research/innovation facilities use (>£3m in 2019-20) and research-related regeneration income (>£8m in 2019-20), which formed strong metrics in the university's KEF submission, particularly on research partnerships and local growth and regeneration. Our current KE Strategy provides realised investment priority to:

- A **Business Gateway**: a single easily navigable way for businesses to connect with Keele's research community.
- >£16m investment to relocate our business school to the science park to provide a purpose-built home for research-based, business-university interactions, opened in 2019 on Keele's Science and Innovation Park, comprising the new home for Keele Business School, a Smart Innovation Hub and Keele's sixth Innovation Centre, now forming part of a University Enterprise Zone via £0.9m of Research England investment.
- >£2m investment in SME research and innovation support and leadership programmes: to increase SME-led research and development investment locally.
- >£20m investment in a campus-scale Smart Energy Network Demonstrator and 'Living Laboratory': in partnerships with Siemens, Cadent, ENGIE and 16 SMEs (each sponsoring a PhD Graduate Researcher) to realise our ambition to create Europe's largest smart energy network demonstrator (with Siemens), underpin Keele's emergence at the forefront of smart energy systems collaborative research, and the first UK trial site for blending hydrogen into the gas network (Cadent).
- A £1.3m investment in a new platform for Open Health Innovation with the NHS: to provide a new regional health and MedTech innovation infrastructure, building on the nine life sciences companies on the Science and Innovation Park, including Cobra Biologics, one of the main UK manufacturing bases for the Oxford-Astra Zeneca Covid vaccine.

**Facilitation of research and impact:** The 14 schools and 3 pan-university institutes described above, and their leadership, form the basis of academic facilitation of our research strategy, led by the Pro Vice-Chancellor Research & Enterprise. Alongside formal governance oversight via



faculty and institutional-level research committees, research strategy delivery and performance are nurtured via an informal Research Leaders' Network, convened by the PVC R&E. Professional support services for research and KE is provided by the **Directorate of Research**, Innovation and Engagement (RIE), established in 2015 which led the implementation of restructured research support services to create the Research and Innovation Support Enhancement (RaISE) team in 2017, drawing together all research development and support functions into a single cohesive unit. Alongside core functions, this team includes an embedded partnership development team which supports engagement and impact. An internally funded Impact Acceleration Fund (equivalent to a Research Council Impact Acceleration Account) has invested >£400K in the last 3 years to facilitate the creation and curation of research impact, with support from the partnership team and an annual 'Celebrating Impact' conference. The team works in conjunction with dedicated units such as the Medicine and Health Faculty's Impact Accelerator Unit and their Public and Patient Involvement and Engagement team, recognised for its field leadership (one of ten sites selected to develop new national standards for public involvement work). Public engagement has been further supported via Keele's Public Engagement and KE Champions, created during Keele's successful funded participation in the UKRI SEE-PER programme (2017-19).

Future plans: In the coming period, research and impact will be increasingly driven by the institutes of Social Inclusion, Sustainable Futures and Global Health. The Global Health research programme has won more than £10m since 2017, exemplified by ECLIPSE, a £4m NIHR-funded project, rich in community engagement, designed to alleviate the parasitic disease of Leishmaniasis across three continents. Plans include tailor-made global health research strategies for each school in the Faculty of Medicine and Health Sciences, a leadership role in digital and continued commitment to work with Low- and Middle-income countries. Sustainable Futures will build upon work in food security (including a new centre) and sustainable governance, while extending work on low-carbon energy, which has secured >£20m external funding, developing a centre for hydrogen research, and advanced sustainable materials, building on Keele's 'Sustainability Institution of the Year' status and profile. Social Inclusion will deliver a Keele Deal for Inclusion following funding from UKRI's public engagement and placebased partnerships programme that will address the BEIS/UKRI road-map commitment to placemaking. A new Digital Society Institute is planned, made possible with over £15m investment secured from structural and national funds to construct the latest innovation centre on our Science and Innovation Park.

**Open Research:** Open research has developed significantly during the period both in terms of infrastructure and culture. The university's Symplectic repository provides a comprehensive platform through which to manage and access open research. There is proactive, highly effective management of open access arrangements between the Library, RIE and the research community, which recognises that communication and sharing of information are vital to the strategy. An annual Open Access Week held since 2016, provides opportunities for sharing best practice and enabling researchers to discuss and plan for key future developments. A new data management system complements the Symplectic open access repository. Enhancing open research practices is part of our approach to research integrity.

Sustaining and enhancing a culture of research integrity is embraced as a transparent safeguard of research excellence. Keele is a signatory to DoRA (Jan 2018), underwriting its commitment to a responsible, balanced approach to the use of research metrics in decision making. Ethics review and oversight is a significant dimension of integrity. The university has been responsive to researcher feedback on the need to reform earlier arrangements, and since 2017, has developed a new, risk-based system of ethical approval, modelled on ESRC's framework, which is both robust and responsive to the diverse research portfolios of schools and institutes. Reflection on integrity processes is encouraged through seminars, guest speakers, training sessions and good practice sharing. The university has developed a robust, fair Research Misconduct Procedure and research integrity is part of normal research behaviour. To make visible, manage and direct this culture change, the university became (2019) one of the first to



join the UK Reproducibility Network, with an academic leadership role (0.2 FTE), supported by Faculty Integrity Champions.

# 3. People

Equality, Diversity, Transparency: Training and Career Progression Support for highperforming, reflective, creative people is at the heart of Keele's research strategy. Keele researchers are developed initially through a programme of induction, and subsequently by mentoring, which has focused on research support since 2017. The university has invested in coaching opportunities, particularly for colleagues who aspire to return to research after a period of interrupted productivity. Academic schools have clear expectations around research excellence, productivity and the engagement agenda (which includes Public Engagement with Research). School support is guided by agreed expectations attached to excellent research. engagement and impact performance at different career stages. These expectations shape clear pathways through induction, probation and to promotion. Heads of School manage and support integrated academic careers through annual appraisal processes for all academic career grades, which prioritises the development of research plans for those with significant research responsibility. Research plans are informed by the university's research strategy and priorities: they look at least three years ahead, plan for the completion of high-guality outputs appropriate to the discipline or interdisciplinary fields, identified (appropriate to career stage) funding opportunities, as well as pathways to network- and partnership-building, engagement and impact. Heads of School conduct and coordinate appraisals and work collaboratively with School Directors of Research to review the ongoing plan, in turn reinforced by mentoring and professional support from the RaISE team. All research plans are sensitive to different expectations between full-time and fractional contracts, as well as periods of absence and processes of return. All factors are considered equitably when assessing an appropriate time allocation in the workload model to support research and scholarship opportunities, including significant research responsibility. All managers undergo training for unconscious bias, to assist them in their day-to-day managerial responsibilities for research but also in connection with REF preparation.

**Benchmarks:** Keele's staffing strategy is guided by Keele's People Strategy (2015-20). This strategy commits the university to principles of equality, diversity and transparency. The strategy, and the university's ethical commitment to becoming a beacon workplace of equality and diversity, has provided a continuous point of reference in developing our Code of Practice for REF2021. This begins with gender equality: Keele has been a member of the Athena SWAN charter since 2005. The university currently holds an institutional Bronze award (2017), with one silver and 12 bronze departmental awards. The university upholds an ongoing commitment to external female leadership development (Aurora). It holds promotions workshops targeted towards females but open to anyone and runs a female-only promotion mentoring scheme. Women returning to research after a period of maternity leave can be supported by the Academic (Maternity) Returner's Fund. The University annually reports on and actively manages its gender pay gap. The university has instituted an LGBTI Role Models and Allies programme and is a level 2 Disability Confident employer.

The university secured a bronze Race Equality Charter award in May 2019 (one of 14 in the sector). Part of its ongoing commitments include race equality mentoring for the university executive by members of Keele's Race Equality Charter Self-Assessment team, joint Senate and Council sessions to consider progress and plans. Keele is playing a leading role in a race equality PGR initiative within Midlands Innovation. Keele's Race Equality Action plan details a programme of actions to reduce the gap in submission rate for REF2021 and eliminate it for the next REF. The proportion of BAME staff with significant responsibility for research is now higher than the overall proportion of eligible BAME staff. In REF2014, the submission rate for BAME staff (82.4%) than non-BAME (72.2%). There is also a higher BAME staff population in 2020 compared to 2014. The promotions committees for Senior Lectureships, and Professors

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and Readerships, chaired by the Vice-Chancellor, annually review progress against the institutional targets for gender and BAME.

Leadership: Developing opportunities for leadership is a key commitment of the People Strategy. Set against strategic conversations that considered the challenges of organisational culture, Heads of School have been increasingly trained in research leadership, development of the next generation of research leaders, and mentoring. A strategic research leadership training programme developed between Keele and Advance HE has been taken by 20 colleagues with key leadership responsibilities across the university. This developed into a bespoke Transitions to Leadership Programme which ran for the first time in 2020, with 15 colleagues participating. The programme includes project work which will have a direct bearing on the strategic development of the research environments in which participants are transitioning to leadership. The HR Excellence in Research Award, held since 2013, was successfully renewed in April 2020. The offer from these programmes is also available to PGRs and early-career colleagues, in line with the more inclusive direction established by Vitae's new Concordat in 2019-20 (Keele was one of the first signatories). This has been consolidated in the new action plan that we will deliver over the coming three-year period. To reinforce this, a new Masters in Higher Education Practice has developed a significant programme of work to develop early career colleagues in professionalising their approach to research. The university employs a Researcher Developer to coordinate these activities for academic staff, and PGR students. The Researcher Developer and PVC R&E lead an oversight group, coordinating and monitoring responses to the development and implementation of actions around the Concordat.

Postgraduate Research: In 2016 Keele appointed a new Strategic Lead for Postgraduate Research to work with the PVC R&E, to develop and enhance the research and training environment for our PGR cohort. This role achieved important results: in the 2019 PRES survey, Keele ranked 10th out of 103 institutions. Our supervision was rated very highly by our students. achieving 3rd place overall; we were also top quartile for research culture, research skills and further opportunities. To build further on this success, the university established and invested in the Keele Doctoral Academy. The Academy provides a unified platform for PGR support, governance, and training. Working with Schools and Faculties, it continuously reviews, monitors and develops the systems and processes used by (and for) PGR students and supervisory staff. It also works with the Keele Postgraduate Association (one of only 3 Postgraduate only student unions in the country) to foster an inclusive community for students. These responsibilities are delivered by an Academic Director, the KDA Manager, a Postgraduate Officer and the Researcher Developer, who work from RIE. This underlines the strategic alignment of the KDA with the wider research mission, providing opportunities for research students to connect with the communities of interdisciplinary researchers across the university. The KDA works closely with ILAS to promote interdisciplinary modes of work, shared through an annual Keele postgraduate conference that promotes an ambitious blend of original research and public engagement skills. The next phase of KDA's work (2021-23) will both enrich and focus the doctoral training offer, building (for example) on Keele's successful contribution to the ESRC NWDTP, Links@Keele, which explores the unique skill-mix of ethnography in interdisciplinary programmes of research. Keele's membership of DTPs (AHRC, ESRC, EPSRC, NERC, STFC) provides access to training resources that extend beyond Keele. This includes placement opportunities that can provide invaluable opportunities for career development and pathways to impact.

### 4. Income, infrastructure and facilities

**Professional support**: All Keele Researchers are supported by the Directorate of Research, Innovation and Engagement who manage the RaISE structure of research support. RaISE provides consistent service standards, policies and procedures, including adherence to principles of equality and diversity in providing professional support: the same principles are observed by schools, faculties and technical assistance in providing access to scholarly and operational infrastructure. RaISE, alongside academic research management, aims to support high-quality, diversely constituted and increasingly large-scale, applications for research awards

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and facilities funding to meet the challenge of the changing research landscape. Working with the DVC, PVC R&E and Deans, RaISE ensure full alignment of priorities and resources to the university's strategic research priorities.

Capital and facilities investment: The university has invested significantly in new infrastructure and facilities over the period: £45m in the new David Attenborough Laboratories (Life Sciences) and the Central Science Laboratories (Faculties of Natural Sciences and Medicine & Health Sciences): a £34m state-of-the-art investment that has freed up significant laboratory space for dedicated research-intensive activity. World Class Laboratory and Capital Infrastructure Funding have been strategically invested in specialist research equipment and in our research infrastructure through internal competition. Keele is committed to infrastructure and equipment sharing, has a collaborative arrangement with Liverpool University Technology Directorate and is a member of the Midlands Innovation technology database. Internationally, Keele's Macromolecular Structure Research Group has a close relationship with some of the world's most powerful facilities for such work including the Institut Laue Langevin (ILL) and the European Synchrotron Radiation Facility (ESRF); a majority of the group is located within the Partnership for Structural Biology (PSB) in Grenoble under secondment/joint appointment arrangements. The PSB offers outstanding facilities for interdisciplinary research on biological systems. Taken together with over £20m of capital investment to create a living laboratory for smart energy systems, in partnership with Siemens, Cadent and ENGIE and the £16m relocation of our business school as part of a wider programme of science park and university expansion, Keele has been able to realise >£115m in capital, facilities and related revenue investment over the period to support research and impact.