

Higher Education Innovation Funding (HEIF) 2016-17 onwards:

Institutional five year Knowledge Exchange strategy

This document was requested by HEFCE in August 2016, as detailed in the following publication: www.hefce.ac.uk/pubs/year/2016/201616/.

Name of institution	University of Oxford
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Section A: Knowledge exchange strategy

The strategy

1. Summarise the key aspects of your five year KE **strategy**, including:
 - a. Priority objectives.
 - b. How your KE strategy relates to the wider institutional mission and individual corporate strategies.
 - c. Key trends and drivers creating opportunities and challenges.
 - d. Likely key barriers and enablers to implementing your strategy.
 - e. The key activities by which you will realise your objectives, such as contract research, enterprise education, continuing professional development.

Overarching Goal

To use Oxford's world-class research base, outstanding networks and strong convening power in the dynamic exchange of knowledge for social, cultural and economic benefit.

Priority Objectives

1. To increase the relevance, visibility, uptake and real-world application of Oxford research
2. To enhance the innovation capacity, productivity and competitiveness of the businesses, public services, charities and communities with which members of the University engage
3. To develop staff, students and life-long learners able and willing to be innovative and entrepreneurial across many industry sectors and to create their own commercial or social enterprises
4. To realise the benefits of research on the local, national and global scale
5. To enhance dialogue and interchange between researchers and wider society; giving public constituencies a voice in research and how its outcomes are used, and improving the understanding between the academy and the public.

How KE is part of the wider institutional mission and corporate strategies

The University of Oxford Strategic Plan 2013-2018 has three core academic elements: - research, education and widening engagement. KE is given prominence. The *Strategic Plan* makes explicit the University's aims to deliver 'significant contributions to public policy-making and economic growth', to 'work effectively with other institutions and organisations, and to 'contribute effectively to the cultural, social, and economic life of the city of Oxford and the Oxfordshire region.'

The University agreed for 2013-18 two priorities which have helped further embed KE across the institution: (1) enhancing Global Reach, and (2) Networking, communication, and interdisciplinarity.ⁱ

KE is a key element in several University-level plans linked to the *Strategic Plan*. These include the *University Innovation Strategy*; the *Public Engagement with Research Plan*; the *Innovation Communication Strategy*; and the *Digital Strategy*. KE is a core part of the plans and budgets of the University's academic groups and enabling / professional services.ⁱⁱ

The University undertook in 2014 a substantive review of KE and innovation activities, led by a panel of five internal and four external academics and practitioners. The report to Council led to 55 time-framed implementation actions including the University's first *Innovation Strategy*.

Key trends and drivers creating opportunities and challenges. Enablers and barriers

KE is now embedded in the strategies and plans of our individual departments and faculties across the institution, driven by increasing academic engagement and interest and the enterprise of our students.

The Research Councils and HEFCE have helped to fund and reward activity that includes but goes well beyond 'tech transfer', and to position KE as an impact pathway for all disciplines. Project, doctoral centre, impact acceleration, CSFⁱⁱⁱ and HEIF awards to Oxford, and the impact component of the REF, have all assisted. HEIF has helped fund inter alia KE professional services and training to support our academics and researchers.

Our partners have increasingly seen KE as vital to their interests, including to business competitiveness and policy and services innovation more broadly.

Oxfordshire's Strategic Economic Plan^{iv} highlights innovation as the most significant likely source of growth and productivity gains in the county and the Thames Valley. (There are an estimated 46,000 employees in high tech industries in Oxfordshire; employment and GVA growth in high tech sectors is well above the national average^v). The Oxfordshire Local Enterprise Partnership (OxLEP) has prioritised several (successful) bids for research-driven innovation programmes and facilities in the City Deal and Local Growth Fund (LGF).

The Oxfordshire Social Entrepreneurship Partnership (OSEP) has been set up to help existing and prospective social entrepreneurs plan, develop and grow their businesses; the University, Brookes University and the Student Hubs are the core partners.^{vi}

KE is a major component in the strategic partnerships between the University and Oxford University Hospitals NHS Foundation Trust and between the University and the Harwell Campus.

KE is facilitated by

- *Oxford's research power and global reach*, which provide significant influence, access and convening power, crucial for two-way exchanges of ideas and people.
- *The breadth of Oxford's research profile and multidisciplinary connections* across not only the four Divisions (Humanities; Social Sciences; Mathematical, Physical and Life Sciences; and Medical Sciences) but also the Museums, the Bodleian Libraries and the Gardens, and Continuing Education.
- *Oxford's international make-up*. There are 8,000 students at Oxford from outside the UK and staff from 147 countries; and more than 250,000 Oxford alumni around the world (with over 200 alumni groups in more than 90 countries).

Oxford was adjudged through REF 2014 to have the UK's largest volume of world-class research. The University recently topped the Times Higher Education (THE) World University Rankings, the first time an institution from the UK has taken the accolade. We have 1,800 academics, 5,000 research and research support staff and over 5,700 postgraduate research students; and £2.8bn of external research project funding from more than 900 research funders across 46 countries.

We face several major challenges and potential barriers common within the HE sector, such as the uncertainties related to Brexit, the impact of a potential economic slowdown, the challenges of building links with SMEs, HEIs being seen as unresponsive to industry (partly because of different timescales, cycles and drivers), short-term funding making it hard to recruit and retain skilled KE professionals, and significant pressures on university finances. KE at Oxford can be further challenging because we are not based in a big conurbation like London, Birmingham, Leeds or Glasgow, our world-standing can deter some organisations from thinking we would be interested in engaging with them, and government investment in the south-east (let alone 'the Golden Triangle') has become politically contentious. Our approach to overcoming these challenges is to work smarter and harder.

Four senior external experts from the USA, Ireland and the UK joined Oxford academic leaders to carry out a major review and suggest ways in which our KE culture and activity could be improved. 55 actions were taken as a result, e.g.

- The *University Innovation Strategy* was developed.
- Isis Innovation Ltd has been re-shaped; the new name - Oxford University Innovation (OUI) - and structure marks a fresh chapter for the company whose redefined role 'is to help University staff and students bring the benefits of their research and expertise to create impact in wider society.'^{vii}
- A senior role of Academic Champion for Public Engagement (PER) was established, as was the new post of PER Senior Facilitator and Coordinator. A *Public Engagement with Research* Plan was agreed and a PER Advisory Group set up (with two external advisers, from the University of Aberdeen and the Open University).

- *Enterprising Oxford. Supporting entrepreneurial connectivity*^{viii} has transitioned from a Science based to a University-wide initiative.
- The University works much more closely with OxLEP and the local authorities, and with science groups and businesses at Harwell and Culham. Oxford's PVC (R&I) has led the Innovation strand for OxLEP, convened the development of an Oxfordshire Green Paper on planning for innovation principles^{ix} and joined county delegations to Westminster and Whitehall making the case for investment in Oxfordshire and the Thames Valley.

KE has been seen holistically in the way we: manage activities supported by various impact acceleration accounts, health translation funds, OUI-administered innovation seed funds and the KE Seed Fund; pool experiences; cross-refer; and co-fund.

HEIF funding since 2011 has allowed the University to seed activity in areas far beyond the standard science model of KE with industry and cross-fertilise in innovative ways, e.g. the OUI's *Engaging with the Humanities* strategy or its incubator which has supported more SSH ideas than from the sciences.

Oxford's KE and Impact Committee (KEISC) reporting to Research Committee currently oversees nine cross-institutional KE programmes, and advises an independent senior officers group on the allocation of HEIF. KEISC and its working groups share good practice across the breadth of Oxford.

The key activities by which you will realise your objectives

Our KE activities, developed across departments and grouped under senior Theme Leads, are focussed on

1. Partnerships to foster research collaboration and the two-way movement of people and ideas
2. Technology transfer through new ventures and licensing (inclusive of all disciplines)
3. Innovation centres for KE, business incubation and growth
4. Regional Engagement to foster innovation and sustainable growth
5. Developing enterprise and entrepreneurship capacity and skills
6. Consulting and facility-based services to make available research expertise and facilities and build relationships
7. Public and social policy analysis and development
8. Engaging communities with our research to help build bridges between academics and wider society and increase the relevance of research and its benefits
9. Continuing and executive education for skills and leadership development

2. Provide further details on the **focus** of your key activities and expected contributions, such as:

- a. Target sectors (in business or public services or the third sector), technologies, or societal 'grand' challenges.
- b. Any geographical focus (international, national, regional, local).
- c. Any focus on particular types or groups of organisations (such as SMEs, large companies, whole industry supply chains, charities, community groups, public sector agencies, local authorities, local economic partnerships).

At the corporate level, there are five focal points for our KE activities:

1. *Sustainable economic growth in Oxfordshire*

The University has significant strengths in all main areas of the Oxfordshire high tech cluster: bioscience, computing, physics, materials, and engineering. We will work closely with individual companies, organisations such as the OBN^x and the Academic Health Sciences Network and bodies like the Satellite Applications Centre and the European Centre for Space Applications and Telecommunications. The University of Oxford-Harwell Campus Partnership Board will also help to drive strategy. We will work with the community in 'living lab'-type activities to test novel technologies (through MobOx; Smart Oxford; robotics trials, etc.).

Local strengths will be married with national and international initiatives, such as The Structural Genomics Consortium (SGC), involving Oxford and five other universities, five public bodies/charities and eight pharma companies, which recently won the 2016 Oxford AHSN Public-Private Collaboration Award^{xi}; the Oxford Centre for Information, where mathematicians, data scientists and engineers work with partners like Emirates Airlines; and the autonomous vehicles program with industry and government led by the Oxford Robotics Institute and spin-out OxBotica.

A key aim is to attract more multinationals to the region to work with us, and often then by extension with others in Oxfordshire or surrounds.

Oxford Sciences Innovation plc, which has raised £320m to date, will help identify the most innovative ideas coming out of the University and Harwell, and invest in them to build world-class companies.^{xii}

2. *The culture, heritage and tourism sector*

The University, especially through its libraries, museums and galleries (which attract over 3 million visitors per year) will continue to play a major role in shaping and delivering key parts of the regional culture and heritage and tourism plans.

The Oxford Research Centre in the Humanities (TORCH) has supported humanities scholars alongside cultural industry SMEs to improve tourism and the visitor economy in Oxfordshire and more widely.

The National Trust and the University have teamed up in a bid to enhance the visitor experience at historic properties in London and the South East of England. Over two years, Trusted Source will see Oxford academics working with the National Trust to explore ways of using research to improve visitors' enjoyment of and engagement with historic places, like Stowe Landscape Gardens.^{xiii}

An aspiration to set up The Oxford Centre for Heritage Research is part of the OxLEP Strategic Plan.

3. *Innovation in policy and management*

Oxford has approximately 1,000 social science researchers, the largest grouping of social scientists in the UK, spread across 14 discipline-focused and interdisciplinary departments and units, and the Colleges. Our social scientists and humanities scholars will lead a focus on

- *Organisational innovation*: transforming organisations and their strategies, policies and structures including better regulation of corporate or organisational governance, development of Corporate Social Responsibility, managing risk (environmental and actuarial – insurance and pensions), development of improved techniques in terms of management, accounting, investment, etc.;
- *Professional/ practitioner innovation*: working with practitioner communities (in, e.g. law, policing, social work and welfare, health service, policymaking, local government, education, entrepreneurs, business practice, international aid charities and NGOs) to provide transformative tools based on cutting-edge research to advance and improve their practice; and
- *Innovation in public policymaking*: promoting new thinking and innovation in the sphere of global public policymaking including regulation of financial systems at a State and international level, as well as ensuring more efficient public services (and cost savings) through government departments; and sustained programmes of policy advice offered by researchers to policymakers, e.g. giving evidence on Select Committees, working to develop specific policy with government departments, etc.

4. *Social entrepreneurship*

'There is enormous potential for universities to support social enterprise to bring about positive social change in communities' (Hughes, HEFCE, 2016).^{xiv}

The University is a founding member of The Oxfordshire Social Entrepreneurship Partnership (OSEP). OSEP is working closely with the Oxfordshire County Council,

Oxford City Council and OxLEP; UnLtd, Social Enterprise UK, HEFCE and the Cabinet Office; and the private and third sectors too, through organisations such as Barclays Bank, Santander, the ROBIN network and Collaborent. OSEP is driven by the passion of its members and their conviction that with support, encouragement, and access to resources and mentoring, individuals and small teams can do remarkable things, which have a huge positive impact on their community.

Oxfordshire is one of the UK's leading Hotspots for Social Enterprise (SE), recognised by Social Enterprise UK as the first county to achieve Social Enterprise "Place" ('a beacon of social enterprise activity').^{xv} It hosts the internationally renowned Skoll Centre for Social Entrepreneurship at Saïd Business School and the annual Skoll World Forum on Social Entrepreneurship. OSEP, with Collaborent, set out in May 2016 ambitious plans including more work with schools and O2i (which brokers links between businesses and schools), internships, international student exchange, locating more workspaces, and more structured and consistent impact measurement.

5. *Skills and enabling capacity*

We will focus on providing information, advice and training to enhance skills in KE and enterprise.

The Careers Service has been able to create 3500 engagements to date involving over 200 external organisations each year through students working on The Student Consultancy or via microInternships. While retaining entrepreneurial international students can be difficult, due to visa issues, Oxford leads the UK in endorsing Tier 1 (Graduate Entrepreneur) Visas; to date, 75 graduates have been endorsed, and at least two have created £1M+ companies and one employs over 16 people.

A major campaign is underway to help fund and support the Oxford Foundry, a hub for future student entrepreneurs from across Oxford (*'A place for encouragement, mentorship, and inspiration. A space where students can collaborate, create and develop the courage and confidence to do whatever they turn their exceptional minds to'*).^{xvi}

Continuing and executive education will build skills and confidence in innovation.

The Oxford Innovation Society will foster networks and learning.

Begbroke Science Park, the planned Bioescalator, the OUI Business Incubator and similar innovation spaces will help enhance skills, allow ventures to get started or to scale, and offer co-location for innovation partners.

In support of these five focal points and the myriad other activities initiated by our staff and students and their KE partners, academic leaders and KE professionals will help, wherever appropriate, to identify opportunities, make introductions, broker arrangements, train, advise and support; develop and manage key relationships with local authorities and the OxLEP and other institution-wide partners; and oversee continuous review and improvement of the KE strategy.

The University will take part in the second round of Science and Innovation Audits and this may help to frame future opportunities and priorities.

3. Describe the **evidence base** used to formulate this strategy, including:
 - a. Feedback from economic and societal partners.
 - b. Evaluations and reviews.

In 2014 the Oxford University Innovation Working Group examined the University's aspirations, activities and future strategy in relation to KE and its contribution to the innovation eco-system. The Group met with staff, students, former employees, graduates, collaborators and partners, regional bodies and businesses. The evidence base from the Review, the core recommendations and the work of the Implementation Group led to an Action Plan covering reward and recognition, entrepreneurship education and skills, professional services and support, and communications. The Review and the resulting *University Innovation Strategy*, approved by Council, are key inputs to our KE Strategy.

Our KE strategy and activity has been informed by an independent analysis of the Oxfordshire high-tech cluster which drew on contributions from local firms, local government, research establishments and investment and professional services communities.^{xvii} *The Oxfordshire Innovation Engine Update* (May 2016) of that (2013) report by the consultants SQW Ltd found good progress towards the targeted 30% uplift within 10 years in Oxfordshire's GVA contribution to the UK economy and substantially higher levels of public and private investment.^{xviii} SQW Ltd interviewed many of the University's clients and partners. They found 'stronger and more productive relationships between Oxfordshire's high-tech companies, the universities and research institutes' and commented that the University has 'increased its focus on commercialisation and local economic development' and taken 'significant steps' to improve its engagement with firms and with Harwell (adding 'positive comments' were now being made about interactions with the University'). Nonetheless, challenges remain in terms of transport, housing, office space and incubator space, and insufficient promotion of the strengths and opportunities of Oxfordshire's high tech economy (the Report stressed that the major players including OxLEP and the University need to become much better at communicating interest in KE and marketing the innovation successes in our region; adding, Cambridge and London do this far better). The University is working closely with OxLEP and in discussions with Whitehall to address these issues.

Key inputs to strategy come also from Research Committee and other principal committees, the Oxford University Innovation Board; OxLEP and its various committees; the Oxford-Harwell Campus Partnership Board; as well as regional partners' feedback on LGF proposals.

We have used recognised analysis tools in some areas – for example, the NCCPE's 'EDGE' tool^{xix} to map the effectiveness of our institutional support for PER, to set targets for where we want to be in 2018/19, and to identify the optimal interventions in the next

three years. Through our membership of the RCUK-convened Public Engagement with Research Catalyst Seed Fund network, including termly meetings, we can compare and contrast our situation and goals nationally.

Sharing of good practice and benchmarking in PER and other KE domains is also facilitated through the Russell Group Research Directors, Russell Group Communication Directors, the League of European Research Universities (esp. the Research and the Enterprise and Innovation communities), institutional membership of the National Centre for Universities and Business, the Big Innovation Centre and PraxisUNICO.

We attended the recent University Industry Demonstration Partnership (UIDP) conference in Atlanta to explore the value of joining that group.^{xx}

We keep track of our performance on the HE-BCI metrics and through HESA reports and informal exchanges with Russell Group counterparts we can benchmark and reflect.

KE projects and enabling services supported by HEIF through KEISC report quarterly on progress and annually on outcomes and lessons learned.

Direct feedback from partners through formal partnership governance boards has been useful in steering specific relationships and has alerted us to an opportunity and need for a more structured vehicle for obtaining regular feedback – which we propose to develop over the next HEIF period.

Positive and constructive feedback has come from the Research Councils on our operation of the various IAA funds we have received. This is used to continually develop and improve how we facilitate and accelerate our researchers' KE activities and impact

Our own experience, and the findings from the Dowling Review, are leading us to move on from a type of 'business development' focus, which had or implied a more short-term and singular strand of interaction than we now see as desirable. We are moving to much more of a partnering model, with relationship management to help organisations connect with all parts of the University, across disciplines and across units supporting KE. What might begin as a single researcher-external party interaction is increasingly looked at for much wider potential, and long-term mutual benefit. The Head of our cross-institutional KE Partnerships Theme writes:

We understand the essential role that an active and innovative partnering strategy plays in consolidating the international relevance of a major university in an increasingly competitive global market.

The breadth of Oxford's research activity ideally positions us to successfully engage across all major business sectors, public bodies and third sector organisations and we will deliver partnerships with a comprehensive range of companies, institutions, associations and networks.

We will provide dedicated and personalised support to help our partners navigate the full range of engagement options through research,

teaching, recruitment, executive education, networking, strategic development, philanthropy and investment.

Our aim, built on continuous review and improvement, is for strong, sustained and multi-layered partnerships with organisations of all sizes and kinds, generating mutual benefit, driving economic, social and cultural development, and creating jobs and wealth; showing the benefits of public investment in UK universities.

4. Provide details of the main intended **outcomes and impacts** of your strategy.

The headline outcomes and impacts of Oxford’s KE Strategy are presented below (as requested) against the three benefit areas listed in the PACEC Report to HEFCE 'Evaluating the non-monetised achievements of the Higher Education Innovation Fund' (2015).^{.xxi}

Qualitative Non-Monetised Benefits (from HEFCE, PACEC, 2015)	Headline Outcomes and Impacts
Business Benefits	<p>Create or scale-up new businesses started from University IP or staff and student know-how and entrepreneurship, for public benefit</p> <p>Develop technologies, products and services to drive innovation by public and private organisations and the third sector</p>
Social and Community Group Benefits	<p>Foster social enterprise in Oxfordshire for sustainable community benefit</p> <p>Co-produce research with public constituencies which is therefore responsive to public priorities and enhances understanding between academia and wider society, research quality and impacts</p>
Wider Economic and Social Benefits	<p>Stimulate inward investment to Oxfordshire and the UK more broadly through greater competitiveness and regional, national and international partnerships</p> <p>Produce skilled graduates and workers able and willing to be innovative and enterprising and enhance productivity</p> <p>Enhance the quality of life through public engagement with social and public policy challenges, and with the arts, culture and heritage and the creative industries</p>

To achieve these headline outcomes, along with the broader range of impacts set out in our Five Year Strategy, we will be taking a more coordinated and forward-looking approach to developing key strategic research and KE partnerships with business and other organisations. We will give more leadership and professional services' support to larger, long-term, corporate-level links with those organisations to achieve impacts on efficiency, innovation and productivity.

We will invest in new innovation centres, fully integrated into the Oxfordshire 'Knowledge Spine', to create new jobs, increase business investment, and drive up productivity and turnover. Success measures will include throughput of tenants as ventures grow and connections they retain to the University.

OUI will create new ventures including enterprises in the social sciences and humanities, which grow in size and value. Seed and investment funds and spin-out equity management will focus on adding IP value and long-term impact. Impact measures include jobs created; GVA of the businesses; and applying new ideas that improve the quality of life, business efficiency and competitiveness.

Consulting and making available specialist facilities and services will help clients solve discrete technical, commercial, or economic problems; inform public and social policy and strategy; help organisations with process optimisation to ensure economy, efficiency and effectiveness; and speed-up the development of new products.

We will work closely with OxLEP and other bodies to help inform planning, create jobs, enhance heritage and cultural businesses and tourism revenues, foster enterprises with social benefit goals, and work on implementing technology and 'smart city' solutions that improve liveability.

We will connect and extend our programmes designed to support entrepreneurs and entrepreneurship among the students and staff of the University, improving the skills of our graduates, and increasing support for student-driven start-up and scale-up companies. We will continue to strongly support the Tier 1 (Graduate Entrepreneur) Visa scheme.

Public engagement with research will help influence both research and the policies, products and services that may follow to better reflect public interests, strengthen democratic citizenship and attract the community into scientific, policy, cultural, artistic and other domains.

Continuing and executive education will help address national priorities around skill development, enhancing the skilled leadership required for the UK to be competitive.

The *Oxford Innovation Communications Strategy* will celebrate activities internally and attract potential new partners and collaborators.

5. How is your institutional strategy aligning with **national priorities**, such as:
- Addressing the Government's economic growth and productivity agenda, including spatial dimensions to productivity – local, national & international, and innovation and skills.
 - Priorities of the UK Research Councils and Innovate UK.

Our Strategy places strong emphasis on collaboration across sectors and the two-way movement of people and ideas. This activity is funded in part here at Oxford by the UK Research Councils and Innovate UK through project funds, new centres (like NQIT), KTPs and Catapults.

Arising from the Dowling Review, government wants to 'see greater collaboration with businesses to provide the new technology and higher-level skills that are vital to raising our national productivity.'^{xxii} These are focal points for our strategy – to enhance technology transfer, consultancy, facility-based services, and continuing and executive education.

KEISC will at its next meeting be considering the report by Professor Trevor McMillan and his group on good practice in technology transfer, developed as part of HECFE's University KE framework.

Devolution is seeing the University work very closely with LEPs (mostly OxLEP and the Midlands for us) and players in the region more generally. Sustainable economic growth in Oxfordshire and the regional culture, heritage and tourism sector are two of the focal points for us (as discussed above). Local clusters, such as in Applied Superconductivity, assist both research and KE. The University will be leading the Oxfordshire Science and Innovation Audit project.

RCUK funding is assisting KE and partnerships in doctoral training, including via the ESRC DTC and placements as part of the BBSRC DTP. We are looking to create more such opportunities for our students, building on the work of the Divisions, the Careers Service and the Said Business School.

Public Engagement with Research is a key priority for RCUK (and indeed for all research funders who signed the *National Concordat*^{xxiii}) - and for Oxford. Our PER Program has support from the RCUK Catalyst Seed Fund (CSF) and the CSF Network coordinated by NCCPE. CSF has so far contributed to the development of Oxford's PER site and on-line training resources – see <http://www.ox.ac.uk/research/public-engagement> - and the inaugural Vice-Chancellor's PER Awards. The University recently embarked on its first three-year PER Plan.

Our focus on driving innovation goes well beyond technology-based businesses, and into retail, services, government agencies and the third sector. Government, too, wants to see organisational innovation, professional/ practitioner innovation, and innovation in public policymaking. This where the breadth and depth of our research base and networks will be significant.

Social enterprise activity at Oxford, and county-wide through OSEP, aligns well with national priorities around sustainability, charitable partnerships, skills and employability. UUK's current Review of Skills will likely further highlight demand and the benefits of in-curriculum and co-curricular social enterprise programs.^{xxiv}

Management of KE

6. How does your HEI **monitor** and evaluate its progress in knowledge exchange, including assessing outputs, outcomes and economic and societal impacts?

Please describe the policies, procedures and approach you have in place to measure progress, evaluate outcomes and identify lessons learned. Please also outline any key performance indicators (KPIs) that you may have defined. This should include methods to set, track and evidence achievements against intended outcomes and impacts in question 4 above.

The University Research Committee has overarching responsibility for setting strategy and policy for KE. The Committee reports annually to Council on research and widening engagement KPIs and targets.

Its subcommittee for KE and Impact (KEISC) is responsible for cross-institution monitoring of progress in KE. It oversees the competitive process for allocating HEIF funds against the KE strategy and actively supports the KE agenda, recommending actions to the Research Committee.

The divisions and services monitor performance against plans, report annually to Council, and review performance in discussion with the Senior Executive during the VC's Planning Round.

Budget Heads and KE Theme Leads are accountable for quarterly and final reports to KEISC on HEIF-supported activities.

OUI management report to the OUI Board and the Board reports to the University Planning and Resource Allocation Committee (including on KPIs such as disclosures, patents, licenses, spin-outs, pipeline deals, equity value, consulting agreements and revenue, external investment and jobs created).

KE objectives and outcomes are scrutinised during three and five yearly divisional and faculty/departmental reviews; those review panels include external members.^{xxv}

We keep track of our performance on the HE-BCI metrics. Through HESA reports and informal data exchanges with Russell Group counterparts we can benchmark and reflect.

Particular activities are monitored in different ways – e.g. we use online analytics and pop-up surveys on the University Innovation and Partnership site^{xxvi} and *Enterprising Oxford* (with e.g. 40,000 users in the last 12 months)^{xxvii}, social media monitoring (e.g. to assess the #StartedinOxford campaign)^{xxviii}, and repeat business measures in several areas of the HE-BCI, e.g. consultancies, CPD and contract research.

The table below sets out how we will track and evidence achievements against the key outcomes and impacts described in Question 4.

Headline Outcomes and Impacts	Methods to track and evidence achievements
<p>Create or scale-up new businesses started from University IP and staff and student know-how and entrepreneurship, for public benefit</p> <p>Develop technologies, products and services to drive innovation by public and private organisations and the third sector</p>	<p>HE-BCI metrics (KPIs) on</p> <ul style="list-style-type: none"> • Start-ups (and initial and subsequent management and investment) • Collaborative research • Contract research • Licensing • Consulting • Facility-based services <p>Impact case studies (selected for the <i>Oxford Impacts series</i> or the next REF)</p>
<p>Foster social enterprise in Oxfordshire for sustainable community benefit</p> <p>Co-produce research with public constituencies to enhance understanding between academia and wider society, research quality and impacts</p> <p>Enhance the quality of life through public engagement with the arts, culture and heritage and the creative industries</p>	<p>Number, scale and value-add of social enterprises in Oxfordshire</p> <p>Progress against targets set using the NCCPE EDGE PER tool</p> <p>Impact case studies (selected for the <i>Oxford Impacts series</i> or the next REF)</p>
<p>Stimulate inward investment to Oxfordshire through greater competitiveness and regional, national and international partnerships</p> <p>Produce skilled graduates and workers able and willing to be innovative and enterprising and enhance productivity</p>	<p>OxLEP data on the value of business in the region (KPI)</p> <p>Value to Oxfordshire of tourists visiting from overseas</p> <p>Entrepreneurship education programs - participation rates and satisfaction levels (KPIs)</p> <p>Destination of Leaver from Higher Education (DLHE) question on how prepared the leaver feels for starting their own business (KPIs)</p> <p>User statistics and satisfaction levels for <i>Enterprising Oxford</i> (KPIs)</p>

	<p>Oxford results in the national student survey on entrepreneurship support (KPI)</p> <p>Continuing executive education programs - participation rates and satisfaction levels (KPIs)</p>
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7. How do you propose to increase **efficiency and effectiveness** of KE over the funding period?

Please consider the following areas in your response:

- a. Internal: building or streamlining capacity and coordination.
- b. External: collaboration, including the use (or not) of shared or pooled services.
- c. Use of good practice materials or networks.
- d. Disinvesting and focusing on priority areas of KE.
- e. Building on past successful approaches.
- f. Any other areas.

Our Five-Year KE Strategy includes the following *Effectiveness and Efficiency Plan*

1. Give greater priority in KE strategy and resource allocation to our vision of KE as *the dynamic co-production of knowledge for greater social and economic benefit* (giving less emphasis to the traditional uni-lateral model of knowledge transferred from the academy)
2. Stress the importance of 'joined up thinking and action' including by giving priority in resource allocation to those KE activities that are demonstrably well planned and coordinated across organisational units and which deliver results
3. Develop further the interrelationship between the different University KE activities to create greater links and synergies between them and to provide more of a 'pathway' for external participants, i.e., as businesses and social/community groups develop and progress, different activities become more appropriate to them. 'The activities can be seen as an upwards 'escalator' along which the participants travel.' (cf. the October 2015 PACEC Report to HEFCE)^{xxix}
4. Give greater emphasis to consistently seeking and acting upon internal and external customer feedback
5. Use professional networks internally and externally to share, compare, learn and continuously improve planning and operations, and collaborate on the provision of KE-related training and delivery of KE
6. Set aside funds for independent evaluations of major KE activities to assess and improve VFM and delivery against stated aims

7. Prioritise making it as easy as possible for third parties to enter into KE-related agreements with the University, reducing the extent of bureaucracy and delays as experienced or perceived by businesses and social and community groups, based on a greater understanding of the perspectives of the various parties involved
8. Identify early on those strategic relationships which would benefit most from dedicated stewardship by senior academic leaders and KE professional services staff
9. Be willing to invest in often small-scale, short-term experiments/ new initiatives / pilots to test out new ways of working and assess their efficacy and potential long-term value, and equally to end activities which are not fit for changing times or delivering excellent outcomes.

8. Related to efficiency and effectiveness in the institutional or professional infrastructure for KE (not academic), please set out:

- a. The **total number** of UK HEIs with which you **collaborate** in KE

Our estimation is that we have at least 850 active KE collaborations involving one or more UK HEI and that we have collaborations with the great majority of UK HEIs.

In estimating this total number we have used some of the same sources of information used to collect data for the annual HEBCI return, supplemented by direct information from Business development teams and colleagues involved in managing some of our major collaborative projects.

While we do not regard this evidence base as complete, it clearly reflect the facts that we have research collaborations with almost all UK HEIs and deliver KE with a large majority of them, building on these collaborations.

- b. Outline your strategy for maximising **collaboration** with other UK HEIs as the means to achieve greater efficiency and effectiveness in KE. Describe specific, major collaborations that are particularly significant to delivery of your strategy

All of our research themes and academic divisions emphasise KE as part of their collaborations with other HEIs.

Our major collaborations in the Medical Sciences include multi-lateral consortia with HEIs, medical charities and pharmaceutical companies. Examples of such collaborations are

- (a) *the "Target Enabling Packages" initiative* (funded by Wellcome Trust) to prioritise novel targets and disseminate/ cross-share the outputs. In one single programme, we are involving and connecting across 15 HEI/ research

institutes.^{xxx} We also have involved GSK, Vernalis, Pfizer, Janssen, AbbVie, UCB, Charles River and other industrial groups; and

(b) *Innovative medicines initiative (IMI)*. Oxford is a member of 18 IMI funded projects in partnership with the group of EFPIA companies. There are 22 UK universities involved in these 18 consortia.

The UK QTech initiative has significant KE/Innovation components involving nine academic partners and ca. 24 industry/government partners. Industry collaboration is a core part of cross-HEI projects led by Oxford as part of the Square Kilometre Array project, supported by STFC grants.

In Social Sciences we are involved in collaborative projects with regional partners Reading University, the Open University and Oxford Brookes University, through the ESRC funded Impact Acceleration Account. There are 28 projects that involve a number of other UK HEIs in addition to the regional partners.

In the Humanities our KE collaborations with other UK HEIs include the Thames Valley Country House Partnership, a major initiative to help heritage properties grow their income and attract new audiences through drawing on academic expertise to interpret their wealth of historical artefacts, and a highly innovative KTP with the National Trust. The newly AHRC-funded Creative Multilingualism programme has six HEI partners and around 15 external partners from across the UK, regionally and locally.

We have cross-institutional initiatives in entrepreneurship education and social entrepreneurship and these involve a network of around 50 UK HEIs including the Universities of Cumbria, Coventry, Sheffield Hallam, Plymouth, Northampton, Manchester, Nottingham Trent, Edge Hill, Bristol, Greenwich, York St John and the University of the Arts in London, together with national organisations such as UnLtd and Social Enterprise UK, and regional partners including SMEs, local councils and the Oxfordshire LEP. We also collaborate with other UK HEIs in KE initiatives through our doctoral training centres and block grant partnerships.

We have a strong portfolio of European funded KE projects in which we collaborate with other UK HEIs as well as European partners. These include 81 Horizon 2020 projects (including a number that are still in the preparation phase) and 13 active FP7 projects involving non-HE partners.

Section B: Use of HEIF 2016-17 allocation and future HEIF priorities

9. Please complete Table A of Annex A2 (available to download as an Excel file at www.hefce.ac.uk/pubs/year/2016/201616/) with the attribution of HE-BCI **outputs** to infrastructure categories, and to HEIF **inputs**.

10. Please complete Table B of Annex A2 (available to download as an Excel file at www.hefce.ac.uk/pubs/year/2016/201616/) with the breakdown of how you are using HEIF in 2016-17 by expenditure and infrastructure categories.

11. Please add any explanatory notes here on how you have completed Table A and B that will help in aggregating your information with that received from other HEIs to form a sector-level database and overview.

12. How is your HEIF 2016-17 allocation being used to deliver the strategy set out in Section A, and what are your anticipated **priorities** for use of HEIF in future years?

2016-17 funding bids were invited from Theme Leads only; budget units worked together on coordinated, cross-University proposals. KEISC recommended support for half of the activities proposed. The 2016-17 HEIF allocation is being used to deliver on the five priority objectives outlined above (Q.1), and is leveraging significant cash and in-kind resources. The largest allocations are to support the development of strategic partnerships with business, innovation centres for incubation and cross-sector collaboration and services to support academics' and researchers' consultancy with a wide range of organisations.

If the HEIF allocation to Oxford were increased, we would be able to support more researchers to enhance impact through KE, provide greater stewardship to multi-layer long term relationship with businesses, public services, charities and communities, helping our partners navigate the full range of engagement options and enhance the region's inward investment programme.

If the HEIF allocation to Oxford were decreased, we would have to consider further cuts to early stage development/ proof of concept /demonstration seed funds, though this funding is vital in addressing the 'valley of death' in the UK^{xxxi}; and scale back KE education and training programs (where demand already exceeds supply).

Section C: Additional information

13. Please summarise the institutional equality and diversity policies that relate to knowledge exchange activities, and provide web links to any published policies.

All papers presented to KEISC are required to include consideration of the impact on equality for all matters for decision.

We use the University's Equality and Diversity network to audit the representation in our Oxford Impact case studies and to suggest additional KE projects to improve the representation of any minority constituencies. The outcome of the audit indicated that the profile of our case studies reflected the overall profile of the University.

We have run special activities to support specific groups, such as the women entrepreneurs strand in Research in Conversation.

We ensure that we maintain a balance on appointments panels and panels involved in major KE initiatives.

We have been successful in gaining Athena Swan awards and use the experience of this to inform our policies and approach to supporting our academics in relation to KE activities.

Information about our equality and diversity policy and general approach may be found at <https://www.admin.ox.ac.uk/eop/>

14. Please give any additional comments on any matter related to KE strategy and/or the use of HEIF.

A five-year HEIF allocation would allow, for the first time in quite a few years, long-range HEIF planning, longer-term resourcing, new initiatives with time to develop and be evaluated, and, also crucially, help retain skilled staff currently on otherwise very short-term contracts. The recent experience of year by year funding has made it hard to plan long term (although we have done), and has led to an uncertain environment for staff.

NOTES

- ⁱ <https://www.ox.ac.uk/about/organisation/strategic-plan?wssl=1>
- ⁱⁱ Boards of the four Academic Divisions (Humanities; Social Sciences; Mathematical, Physical and Life Sciences; and Medical Sciences), the Gardens, Library and Museums (GLAM) and Continuing Education; and University Administration and Services.
- ⁱⁱⁱ <https://www.publicengagement.ac.uk/work-with-us/current-projects/catalyst-seed-fund>
- ^{iv} <http://www.oxfordshirelep.org.uk/content/strategic-economic-plan>
- ^v <http://www.sqw.co.uk/insights-and-publications/oxon-innovation-engine-update/>
- ^{vi} <https://www.osep.org.uk/>
- ^{vii} <http://innovation.ox.ac.uk/about/>
- ^{viii} <http://www.eship.ox.ac.uk/>
- ^{ix} <http://www.ox.ac.uk/news/2016-05-05-oxfordshire-green-paper-outlines-vision-region-innovation-engine>
- ^x <http://www.obn.org.uk/>
- ^{xi} <http://www.oxfordahsn.org/about-us/oxford-ahsn-best-public-private-collaboration-award/>
- ^{xii} <http://www.oxfordsciencesinnovation.com/>
- ^{xiii} <https://www.nationaltrust.org.uk/ktp>
- ^{xiv} <http://blog.hefce.ac.uk/2016/09/07/higher-education-an-agent-of-positive-social-change-in-a-complex-world/>
- ^{xv} <http://socialenterprise.org.uk/social-enterprise-places/certified-places/oxfordshire#Town%20Drive>
- ^{xvi} <http://www.sbs.ox.ac.uk/school/about-sa%C3%AFd-business-school/oxford-foundry>
- ^{xvii} http://www.sqw.co.uk/files/2613/8690/7243/Oxford_engine.pdf
- ^{xviii} <http://www.sqw.co.uk/insights-and-publications/oxon-innovation-engine-update/>
- ^{xix} <https://www.publicengagement.ac.uk/support-it/self-assess-with-edge-tool>
- ^{xx} <https://www.uidp.org/>
- ^{xxi} <http://www.hefce.ac.uk/pubs/rereports/Year/2015/heifeval/Title,105779,en.html>
- ^{xxii} <http://www.raeng.org.uk/news/news-releases/2015/july/break-down-barriers-to-university-business-collabo>
- ^{xxiii} <http://www.rcuk.ac.uk/Publications/policy/perConcordat/>
- ^{xxiv} <http://www.universitiesuk.ac.uk/policy-and-analysis/Pages/review-of-skills.aspx>
- ^{xxv} https://www.admin.ox.ac.uk/media/.../Procedure_for_Departmental_Reviews.pdf
- ^{xxvi} <https://www.ox.ac.uk/research/innovation-and-partnership?wssl=1>

^{xxvii} <http://www.eship.ox.ac.uk/>

^{xxviii} <http://www.ox.ac.uk/research/started-in-oxford>

^{xxix} October 2015 PACEC Report to HEFCE, p81 -
<http://www.hefce.ac.uk/pubs/rereports/Year/2015/heifeval/Title,105779,en.html>

^{xxx} Universities of Dundee, Glasgow (Beatson Institute), Queen's University Belfast, Cardiff, Sussex, Newcastle, Institute of Cancer Research, Manchester, Cambridge, Queen Mary, UCL, Diamond Light Source, Sanger Institute.

^{xxxi} See *Bridging the valley of death: improving the commercialisation of research* is available at: www.publications.parliament.uk/pa/cm201213/cmselect/cmsctech/348/348.pdf