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University of Bedfordshire: Social and Economic Impact

A Final Report by Hatch Regeneris
February 2020

University of Bedfordshire

University of Bedfordshire Social and Economic Impact

Hatch Regeneris is a leading, independent economics consultancy that provides robust, high-quality social and economic research, analysis and advice to the private, public and non-profit sectors. Hatch Regeneris are specialists in economic and social impact assessments, having carried out assessments for a variety of Universities, cultural organisations, and large corporations across the UK.

The report is based on the HM Treasury approved *value transfer* method. This involves applying the results of existing, robust impact evaluations to the activities and outputs for a similar intervention. In order to do this, we sourced appropriate evaluations, mapped the results of these against our impact themes, and applied them to the University of Bedfordshire. This is an accepted approach that has been used in many other University impact studies

This report contains the expression of the professional opinion of Hatch Regeneris (the trading name of Hatch Associates UK). It is based upon information available at the time of its preparation. The quality of the information, conclusions and estimates contained in the report is consistent with the intended level of accuracy as set out in this report, as well as the circumstances and constraints under which this report was prepared.

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Executive Summary

- i. The University of Bedfordshire makes **a significant social and economic contribution to the local and national economy**. In addition to its role as a large employer and educator of students, an important aspect of this socio-economic impact is the range and scale of research and knowledge exchange (KE) activities the University undertakes. This report has provided a review of key research and KE activities and, where feasible, has estimated the economic impacts generated.
- ii. Headline results of the analysis are set out below in terms of Gross Value Added (GVA).¹

¹ Gross Value Added is the key measure of wealth creation at the level of an organisation, sector or region. Broadly, it is measured as the sum of Earnings Before Interest, Tax, Depreciation and Amortisation (EBITDA) and Employment Costs, or as gross output less bought in goods and services.



1,500

ORGANISATIONS WORKED
WITH ON RESEARCH AND KE
IN THE PAST 3 YEARS



+49%

INCREASE IN RESEARCH
AND KE INCOME SINCE
2013



£70m

GROSS VALUE ADDED
CONTRIBUTED FROM
RESEARCH AND KE

THE FOLLOWING RESEARCH AND KE ACTIVITIES GENERATED GVA IN 2018/19:



£18m

ERDF PROJECTS



£16m

CPD/SHORT COURSES



£15m

RESEARCH
SPILLOVERS



£15m

CONTRACT
RESEARCH



£4m

GRADUATE
STARTS



£3m

CONSULTANCY



£1m

FACILITIES AND
EQUIPMENT HIRE



FOR EVERY **£1 RECEIVED** IN FUNDING FOR
RESEARCH AND KE ACTIVITIES, THE UNIVERSITY GENERATES
£6.50 IN NET ADDITIONAL GVA



PLUS

£370m

GROSS VALUE ADDED FROM CORE ECONOMIC
FOOTPRINT

- iii. Knowledge Exchange sits at the heart of the University of Bedfordshire's overall strategy, and close collaboration with its partners is a hallmark. This has placed the University in a prime role to help deliver on national and local priorities for economic development, and to respond to the increasing demands on the HE sector with respect to knowledge exchange. The University has worked with over **1,500 organisations over the past three years** including other HEIs, charities, government organisations and businesses. It has **increased its annual income from research and knowledge exchange by 49% since 2013.**
- iv. The report has examined five types of the University's KE activities and the ways in which these support economic and social impact, as follows:

Regional Economic Growth

- v. The University has played a critical role in the delivery of business support across the South East Midlands LEP (SEMLEP) area, making a key contribution to SEMLEP's showcase priority sectors and the national and local industrial strategy. The University is also an important asset in attracting regeneration and development funding into the region, having grown the amount of regeneration and development income by 25% over the past 5 years compared to a fall of 10% across universities in the East of England region.
 - **£6m** business support projects delivered over past 3 years
 - **£18.4m GVA** and **350 FTE Jobs** generated by these projects

CPD and Apprenticeships

- **10th highest revenue and CPD days** of all HEIs in UK, when adjusted per academic staff member.
- **120 apprenticeships** delivered per year, generating £1.4m revenue per annum
- CPDs and apprenticeships supported **£16m in GVA**

opportunities to students; the University has the largest offer of apprenticeships in the SEMLEP area.

vi. The University is an important provider of workforce development support, which benefits employers and employees alike by boosting skills and productivity. This is done primarily by

- delivering **CPD/short courses** to businesses, supporting over 160 clients on this in the past year, and
- providing **apprenticeship**

Entrepreneurialism

- vii. The University provides a range of support services to both businesses and students to help **improve their entrepreneurial skills and job prospects, with the aim to drive up productivity**. This includes providing work experience placements and delivering specific entrepreneurialism training programmes.

Research with Impact

- viii. Through its research, the University aims to help solve both global and local challenges and to influence policy and strategy. Two key areas that the University is focussing on are **health and climate change**.
- ix. The University focuses much of its research on tackling local challenges such as high still-birth rates, teenage pregnancy, child obesity and mental health issues.
- x. The University's research on climate change primarily focuses on the development of energy technologies, given its academic expertise in this area and the strengths of local businesses in transport and engineering. This is helping to develop technologies to reduce greenhouse gas emissions and influence environmental legislation.

- **Productivity improvements** from one year's cohort of graduates is around **£90m** over their working life
- The University recorded **144 graduate start-ups** in the last year, the fifth highest of all universities nationally when adjusted on a per academic basis. These start-ups supported an estimated **£4m in net additional GVA**, employing **590 people**.
- The University generated **£4.8m in income** from consultancy and contract research, an increase of over 50% over the past 5 years compared to a sharp decline across the region. This supported around **£15m in GVA benefits**.
- For the University's own research activity, based on wider evidence of research impact, it is estimated that the University's research could support **£15m in productivity benefits**.

Regional Engagement

- This partnership working has an important impact on the **economy**; through the development of strategy, provision of skills, and delivery of business support;
- **society**, through developing the local arts and culture sector and addressing health and wellbeing challenges;
- and **place**, through supporting inward investment and inclusive growth.

xi. The University aims to establish long term and strategic relationships with its civic partners in order to play a proactive role in addressing socio-economic issues. Given the University's role as a provider of a pipeline of skills and talent, its knowledge of and relationship with the local business base, expertise in key priority sectors, and its facilities, the University is a **critical partner to these organisations**.

Economic Footprint

- xii. The University also generates economic impact from the expenditure flows attributable to the University, including direct effects, indirect/supply chain effects, induced/personal expenditure effects, and the student and visitor spend effects.
- In total, the University supports **5,100 gross FTE jobs and £370 million in GVA in the UK**, of which 2,000 jobs and £150 million in GVA are in the SEMLEP area
 - For **every direct job** at the University, **a further 3.5 gross jobs are supported** in the wider UK economy.

Illustrating Impact – Drax UK

- xiii. To illustrate how this impact arises in practice, and the various ways that the University engages with other organisations, we have produced a series of short case studies throughout the report to bring these economic and social impacts to life. An example of this is the Knowledge Transfer Partnership (KTP) work the University has done with Drax Technology.

Drax Technology KTP

Drax are one of the UK's leading independent providers of integrated fire protection, alarm management and other life safety related solutions. Key clients include Honda, the NHS, and a range of Universities across the country.

Drax initially got in touch with the University of Bedfordshire to recruit skilled graduates to help develop their software development capabilities. Whilst they approached other Universities, it was **Bedfordshire's strengths in computing, software**

and technology that attracted Drax to work with them. Following further discussion with the University, as well the company's strategic aims of achieving significant growth in the next 3-5 years in an extremely competitive market, Drax recognised that in order to remain competitive and grow, it needed to innovate. More specifically, it needed to better understand and profile its customers, and harness and exploit the Internet of Things, Machine Learning, and AI to create and market new products and services.

Hence, the Innovate UK funded Knowledge Transfer Partnership (KTP) was established with the University in order to enable Drax to undertake the innovation it required to achieve its objectives. The company partnered with some of the academics at the School of Computer Science Technology at the University to gain access to leading knowledge in IoT, ML, AI and digital capabilities, something which the company did not possess in-house. **As well as providing this expertise, the University also helped to elicit good project practices** including helping to clearly define the scope of the project, assistance with documentation and reporting, as well as leading on the recruitment process for staff.

"The KTP has transformed what we do with software development and technology in general. The impact to our business cannot be overstated" – Alex Cother, Director, Drax Technology

The KTP has been an enormous success for Drax, and has had a significant impact on the business. It has **delivered one new product to market so far**, a centralised dashboard visualisation called Safeview that can monitor and analyse all activities occurring with any specific asset (eg fire, false alarms, etc.) on a client's premises anywhere in the world in real time and alert them, if required. Safeview has been received very well with several orders being placed in the first few weeks of launch. The KTP has also created the pathway to developing a whole suite of software based compliance tools, and has **facilitated the transformation of the business** by shifting from a PC based platform to a web based platform.

As well as these immediate product and market benefits, **the KTP has also resulted in longer term benefits to Drax**. The KTP, has helped to educate and upskill the existing staff and department in terms of the project delivery and management, which will be vital for the business going forward as they continue to innovate. Further, Drax has been able to **justify the recruitment of two software developers and a business development manager** as it looks to continue its transformation and growth in the region.



1. Purpose of the Report

- 1.1 Hatch Regeneris has been appointed to examine the social and economic impact of the University of Bedfordshire's research and knowledge exchange activities.
- 1.2 As one of the largest employers in Luton and the second largest university in the SEMLEP area by student numbers², the University of Bedfordshire plays an important role in the local and regional economy. In the context of a greatly enhanced policy emphasis on universities' wider social and economic roles, this report seeks to evidence and to quantify this economic role for the University of Bedfordshire.

Our approach

Focus of the report

- 1.3 There are a wide range of channels through which the University of Bedfordshire supports the economy. Broadly speaking, we can think of this in two ways:
- Firstly, the economic contributions arising from its role in driving local expenditure (e.g. from its supply chain and its students) – *demand-side* impacts
 - Secondly, the impacts on the *supply-side* of the economy, driven by funded interventions with businesses and other organisations – supply-side, or *knowledge exchange* activities.
- 1.4 The University works with over 1,500 organisations on research and knowledge exchange and in the past three years has secured £32m in funding from organisations to support this activity. The key task for this report has been to draw together evidence on these activities, and the economic impacts secured.
- 1.5 To some extent, the demand-side impacts are incidental and flow as spin-off benefits from the scale and spending power of the institution. Whilst these benefits are significant in themselves (and, for completeness, we assess them briefly in Section 9 of the report), the emphasis within this report is on the impacts of proactive, strategic research and knowledge KE.

Our approach

- 1.6 In conducting impact assessments, universities in the UK have typically focussed attention on their anchor roles and on quantifying their demand-side contribution. Knowledge exchange in particular has received much less attention other than in mandatory evaluations of individual programmes.
- 1.7 Hence, we commenced the study with a scoping stage of work, working with the University's Innovation and enterprise department to define the methodology and research tools, given the University's specific research and KE activities and the data and resources available to us for the impact assessment. The starting point was to understand the **range of KE interventions** pursued, large research projects undertaken and to establish what was available by way of existing material, and, importantly, contact details for beneficiary organisations. For example, the University delivers a wide range of impressive KE interventions, providing everything from CPD to consultancy support to access to premises and equipment. This range of intervention types brings with it a correspondingly diverse set

² Second only to The Open University, where the majority of students are based off campus

of **motivations and objectives** for businesses engaging with the University, and in turn, an array of different types of **pathways to economic impact**.

- 1.8 We agreed with the University that a large-scale mass survey approach to the impact evaluation would not provide sufficient detail as it precluded the ability to tailor specific and detailed impact questions by type of support.
- 1.9 We therefore agreed to split the assessment into five broad categories/themes and to pursue a multi-pronged approach to examining impact. The categories were suggested by the University and intended to capture the breadth of KE interventions: the focus is summarised in Table 1.1 below.

Table 1.1 Impact Themes Mapped to Connected Communities Framework

Impact theme	Focus
Regional growth (Section 4)	ERDF funded business support programmes that the University delivers
CPD and Apprenticeships (Section 5)	Benefits of the CPD courses and apprenticeships the University provides
Employability and entrepreneurialism (Section 6)	Support provided to students and businesses to increase entrepreneurialism and employment prospects, such as start-up support, placements and work experience
Research with Impact (Section 7)	Impactful research the University carries out focusing on health and climate change
Regional engagement (Section 8)	Work the University does with civic organisations focused on addressing local strategic priorities and challenges.

- 1.10 For each of the agreed themes, we have drawn together quantitative and qualitative evidence on impact. We have done this by:
 - Reviewing relevant **evaluation and strategy documents** supplied by the University
 - **Interviewing a lead contact** within the University for each of the thematic areas to understand the nature of the activities, their rationale, and to bring together existing impact evidence
 - On a selective basis, **consulting externally** with partner and beneficiary organisations, and policy makers to gather external views
 - Carrying out a **quantitative impact assessment** using existing data on income and outputs, and applying evidence from the literature.
 - Bringing out suitable **case studies** of individual projects and beneficiary companies.
- 1.11 Given that a mass beneficiary survey was not suitable, we have used an alternative approach to estimating economic impacts, making use of the HM Treasury approved *value transfer* method. This involves applying the results of existing, robust impact evaluations to the activities and outputs for a similar intervention. In order to do this, we sourced appropriate evaluations, mapped the results of these against our impact themes, and applied them to the University of Bedfordshire using either data on income generation or the number of businesses supported. In the case of our Regional Growth theme, this process was made easier by the fact that some of the University's investment had already been subjected to a summative assessment (mandatory for ERDF funded projects).
- 1.12 This is an accepted approach that has been used in many other University impact studies where a full impact evaluation led by primary research is not feasible. Given the nature of the approach, the impacts should therefore be seen as indicative orders of magnitude. Details are provided in Appendix B. Details of consultees are outlined in Appendix A.

Measures of impact

- 1.13 Economic effects are expressed as contributions to Gross Value Added (GVA). GVA is the primary measure of economic contribution for a firm, sector or region and is measured as the sum of operating surplus before interest, tax, depreciation and amortisation, and total employment costs (inclusive of pension and social security contributions). The estimates of economic footprint are also expressed in terms of jobs supported (measured as Full Time Equivalents, or FTEs).
- 1.14 In addition to the measures of impact, the report also provides a measure of return on investment (ROI), by comparing the impacts with the costs of securing them. Details are provided in Appendix B.
- 1.15 Quantitative impacts are based on activities delivered in 2018/19. The thematic sections also provide a broader perspective, taking in further years of activity where relevant (e.g. for multi-year programmes).

The report

- 1.16 The remainder of the report is structured as follows:
- Section 2 provides an overview of the national policy context, for the purposes of setting the scene
 - Section 3 provides a strategic overview of the University's knowledge exchange activities
 - Sections 4-8 set out an assessment of impact for research and KE activities in each of the impact themes.
 - Section 9 sets out the University's economic footprint (demand-side effects)
 - Section 10 provides some concluding thoughts and recommendations for the future on research and KE impact assessment.

2. The National Policy Context

- 2.1 Whilst the policy context of research is best covered by the upcoming REF exercise, this section sets the scene for our assessment of knowledge exchange (KE) impact, by providing an overview of the policy context, specifically focussing on policy drivers and challenges/opportunities relating to KE.
- 2.2 The policy context for Higher Education and economic development is placing an extraordinary emphasis on the wider value of universities for the places that host them. The national industrial strategy sees a key role for universities in supplying skilled graduates and driving innovation, and this thread continues throughout the emerging local industrial strategies. This is backed by new and enhanced funding streams. At the same time, years of public sector austerity have brought enhanced expectations on the sector to help deliver public services and local growth.
- 2.3 This has all coincided with various strands of criticism in the media on value for money and a narrative of universities as disconnected from their wider local communities. Thus, evidence on the nature and value of knowledge exchange activity in particular, which can contribute to this wider agenda and the role of universities, is becoming increasingly important for policymakers. We outline some of these key drivers below.

The Industrial Strategy

- 2.4 The national industrial strategy is aimed at driving up productivity in all parts of the UK. To do this, the strategy focuses on five foundations of productivity: ideas, people, infrastructure, business environment and place. Four grand challenges where Britain can lead the global technological revolution are also identified: AI and big data, clean growth, the future of mobility, and meeting the needs of an ageing society
- 2.5 The strategy sees a key role for universities to help address these grand challenges and five foundations of productivity- as a supplier of highly skilled graduates, drivers of innovation and enterprise, and as significant local economic entities in themselves. The strategy specifically highlights:
- The economic role of innovation clusters centred around universities, which bring together research, business expertise and entrepreneurial drive
 - The development of a new KEF (overview below) to help drive forward knowledge exchange
 - The announcement of significant funding opportunities for universities in relation to research, innovation and knowledge exchange, with a commitment to increase the government's funding in R&D by £4.7 billion over 4 years. This includes the Industrial Strategy Challenge Fund, enhancements to Higher Education Innovation Funding and new funds such as the Strength in Places Fund to support areas to build on their science and innovation strengths and develop stronger local networks.

Knowledge Exchange Framework

- 2.6 Alongside the emphasis on universities' civic role, the Knowledge Exchange Framework (KEF) has emerged as a proposed third assessment pillar for university activity alongside the TEF (teaching) and the REF (research).
- 2.7 The overall rationale for the development of the KEF is to provide more information about university achievements in serving the economy and society for the public, businesses and communities. The argument is that given the importance of this wider engagement activity,

it merits equal standing with teaching and research in terms of assessment metrics. The intention is that the KEF will be a robust and consistent way for institutions to measure and benchmark the effectiveness and impact of their engagement work, thus increasing its prominence internally and with external partners.

- 2.8 The first iteration of KEF will take place in the current academic year (2019/20) using a set of metrics that have been selected based on consultations. These are primarily based on indicators in the HEBCI survey, benchmarked against income for institutions in order to control for their size (we touch on our recommendations for what and how indicators should be monitored in Section 10).

The Civic University

- 2.9 The Civic University Commission picked up on these threads and referenced the importance of research and knowledge exchange on Civic impact. The Commission was formed to understand what a modern civic university should look like.
- 2.10 The Commission argues that the knowledge and skills that universities possess could be better used to help address local problems. Whilst it is generally understood that universities have highly innovative problem-solving capabilities, the commission concluded that these capabilities have not yet been fully applied to the most significant economic and social challenges facing many local areas, such as the pressures on providing social care or tackling in-work poverty.

3. The University's Research and Knowledge Exchange Activities

The University's Research Objectives

3.1 The University clearly identifies its priorities for its research excellence as:

- “Ensure we are prepared to make a strong submission to REF 2021 which progresses from our excellent performance in REF 2014
- Strategically invest an annually increasing proportion of quality-related research income to develop a self-sustaining and internationally cited research and knowledge exchange infrastructure
- Support targeted development of research leadership capacity to form clusters of research expertise and practice aligned to real-world problems, growing income from research and knowledge exchange and improving performance in global citations.”

3.2 The research of the University takes place within its institutes, which consist of:

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

3.3 With clear reference to impact and KE, these priorities complement the following section.

The University's KE Objectives

3.4 The University of Bedfordshire identifies four key priorities that it is trying to achieve through its KE activity:

- “Support the economic and social development of our region, engaging pro-actively in all aspects of development of the Local Enterprise Partnership and supporting full development of the region's association of universities (SEMU);
- Establish the University as a major provider of initial and higher-level skills for the region's workforce - including Higher and Degree Apprenticeships;

- Increasingly align our KE activity towards the private sector to enable regional economic growth and also whenever possible alongside societal improvements and public/ third sector efficiencies;
- Generate new areas of interdisciplinary research and KE expertise, responsive to the global challenges of socio-demographic change, economic competition and the sustainable development of organisations, communities and societies.”

Source: University of Bedfordshire HEIF Strategy, 2016

3.5 Impact sits at the heart of the overall strategy and transformation of the University - these Research and KE objectives are integral to, and are being delivered as part of the University's key strategy's and plans:

- Its **Student Experience Strategy** supports working in partnership with individuals/organisations to develop students' entrepreneurial aspirations and career choices.
- The **Institutional Strategy** outlines how the university empowers students for professional work through involving them in KE activities, and how the skill needs and demands of regional employers influence KE and curriculum development.
- The **International Strategy** includes a focus on the growth of international HE partnerships, to support student numbers but also to formalise and develop research and KE links with partner institutions around the world
- The **Teaching and Learning Strategy** emphasises the importance of extracurricular support in enterprise and entrepreneurship and continued development of the University's regional enterprise support network.

Focus and Priorities

3.6 Within the framework of these overall objectives, the focus of the University's KE activity can be summarised in two key areas that are closely aligned to the issues and challenges that are present locally and regionally.

- 1) **Productivity:** to stimulate enterprise and enhance the competitiveness of local SMEs, strengthen and exploit the innovation and knowledge assets in the region, develop a skilled and adaptable workforce, and to address barriers to the labour market for specific disadvantaged groups.
- 2) **Smart Cities:** to address societal challenges such as urbanisation, population, and particularly health and quality of life and the environment.

3.7 We outline in more detail in the remaining sections how the KE activities undertaken address these local strategic challenges.

3.8 The KE activity also aligns with SEMLEP's priority sectors, such as:

- **Transport**, with a particular focus on aviation - due to proximity to Luton Airport. Priorities include aviation management, hospitality, security and logistics
- **Health and Social Care** - lifelong health and wellbeing challenges affect the nation and region. The University utilises the expertise and skills in its institute of Health Research, Institute of Applied Social Research and Institute of Biomedical and Environmental Science and Technology.
- **The Digital Economy** - data is of paramount importance in the knowledge economy. The use, management and protection of data is important to the security

and growth of all sectors, and is one of the biggest drivers of productivity gains. The University utilises its strengths and focuses on applicable computing, undertaking KE activity in this area to both the public and private sector.

Collaboration at the heart of KE

- 3.9 Close collaboration sits at the heart of the delivery of KE at The University of Bedfordshire – whether that be internally across departments and faculties, or externally with other higher education institutions, charities, government organisations and private sector delivery partners.
- 3.10 The beneficiaries of KE activity (sometimes termed the client) vary significantly depending upon the issue that is being addressed and the aims of the KE activity. However overall, the university predominantly works with:
- **SMEs and microbusinesses** - with the aim to support them to innovate and scale up, across a range of sectors but with a focus on the priority sectors outlined above.
 - **Larger businesses** – to provide higher and degree apprenticeship solutions to help them address skill gaps, but also, through wider KE activity, to help solve sector-wide problems that large businesses and their supply chains experience, such as data driven analytics, organisation culture and business strategy.
 - **Charities, children's organisations, public sector and the third sector** – to utilise the university's research excellence and focus on social care. These organisations benefit from the business practice, good governance and data management expertise from the university, providing productivity and efficiency benefits, and routes to build sustainable income for the organisation.
- 3.11 We outline in more detail in the remaining sections the impacts generated for these different types of beneficiary.

Diverse menu of services

- 3.12 In practice, research and KE refers to a range of support services and activities that the University undertakes. We have set these out briefly below, and we then cover in much more depth in the remaining sections.

Contract research and consultancy

- 3.13 The University's increasing focus on private sector growth has resulted in a need to deliver more consultancy work. This focuses on utilising the University's expertise in areas such as business practice, governance, and technical expertise in sectors of strength (such as engineering, health, social care) to help businesses solve their problems. This service area covers contract research and more transactional relationships, whereby mainly private sector businesses contract out to the University with specific research tasks (eg to help them develop more fuel-efficient engines).
- 3.14 Another aspect of this service area is working with the public sector and other stakeholders on wider regeneration projects such as public realm and health projects. Here, the University engages with a range of political and strategic stakeholders both locally and in the wider region, such as local councils, the LEP, Public Health England and CCGs to provide them with support to help address regeneration priorities.

Business support projects

- 3.15 The University engages in a range of funded projects, predominantly as a delivery organisation, to deliver business support services to beneficiaries. These projects mainly include ERDF and Innovate UK funded projects focussing on SME, innovation and start-up support secured and run through their central Innovation and Enterprise department. This can involve coaching and mentoring by University staff, collaborative research projects, and the hiring out of facilities and space for organisations. Examples include Innovation Bridge, ICT Escalator and Time2Grow – all of these are ERDF funded projects and are examined in further detail in Section 4.

Apprenticeships and CPD Courses

- 3.16 This service area predominately focusses on the skills and capabilities development of clients which include large private sector employers as well as public sector organisations, with a particular focus on STEM skills. The University offers a range of short courses focused on productivity and management skills, as well as 13 apprenticeship courses designed to address the skill requirements of local organisations.
- 3.17 Below we delve into these activities in more detail, examining five distinct themes which cover a large proportion of the University's KE service offer.

4. Regional Economic Growth

Key Points

- The University has played a **critical role in the delivery of significant business support** activity across the LEP area, delivering over £6m of business support projects over the last 3 years.
- All of these **projects contribute to SEMLEP's showcase sectors, as well as the National and Local Industrial Strategy's** focus on innovation in low emission vehicles and industrial digitalisation.
- The University is an **important asset in attracting regeneration and development funding into the region**, having grown the amount of regeneration and development income by 25% over the past 5 years compared to a fall of 10% across the region. The University secured 14% of the total by all universities in SEMLEP, compared to its 8% share of academic staff in the LEP area.
- The economic impact of one year's activity from these specific ERDF-funded business growth projects is estimated at around **£18.4m net additional GVA**, supporting around 360 FTE jobs.

- 4.1 The University contributes significantly to regional economic growth through a variety of services, including skills provision, research, consultancy, and engagement with strategic stakeholders.
- 4.2 This theme focuses on regional economic growth secured as a result of the specific business support projects that the University delivers. It therefore overlaps in particular with some of the activity outlined in the Employability and Entrepreneurialism theme in Section 6, although here a much broader range of projects are covered.

Regional Growth Projects

- 4.3 The University plays a key role in the delivery of the regional growth projects they are part of, including:
- Providing expertise in a range of academic disciplines for business innovation and growth, **mentoring and coaching services** from their academic staff to businesses, as well as offering training and development for specific R&D projects and skills development (eg funding applications, project management).
 - Allowing the use of the University's **facilities & equipment** such as incubation space, machinery and equipment to businesses
 - Providing **access to skilled students and graduates** through paid secondments (this is in addition to apprenticeships and formal placements from degree courses).
- 4.4 As outlined below, the University delivers these projects in collaboration with other organisations. In particular, the University has close relationships with Local Government (eg SEMLEP, Luton Borough Council and Central Bedfordshire Council – these strategic relationships are elaborated on in the Regional Engagement Theme) as well as other higher education institutions in the area to deliver effective business support. The major projects that the University has contributed to over the past three years are outlined below with a combined value of around £6m.

Table 4.1 Major Business Support Projects the University of Bedfordshire has Supported, 2017-19

Project	Description	Project Partners
Innovation Bridge	By providing a free upfront taster of innovation support, Innovation Bridge encourages SMEs who haven't previously engaged with the knowledge base to participate in knowledge transfer in order to improve innovation rates and to develop long term knowledge exchange relationships. This £3m ERDF funded project targets SMEs in three LEP areas, connecting SMEs with the University best suited to their needs, either geographically or through technical expertise. It is integrated with the three LEP Growth Hubs and their broader business support offer, and has brought together SMEs with Universities to deliver innovation across three LEP areas (SEMLEP, Greater Cambridge and Peterborough LEP and New Anglia LEP).	Led by Central Bedfordshire Council. Other delivery partners include University of Suffolk and Anglia Ruskin University.
ICT Escalator	ICT Escalator delivers specialist support to develop SME digital capability in order for them to get maximum benefit from the internet and solve business problems of capability and security. It helps digital and non-digital SMEs by providing expert academics and ERDF grant funding to help create innovative digital applications.	The Open University, SEMLEP
Time2Grow	Time2Grow is an ERDF funded programme designed to help businesses solve some of their most challenging problems by accessing a skilled graduate workforce. The project is a part-funded Knowledge Exchange Secondment which enables SMEs to tap into an inquisitive, driven graduate talent pool that is keen to deliver a positive impact on their engagements.	Delivered in partnership with the University of Northampton
IMAGE (Innovation in Manufacturing, Aerospace and the Green Economy)	IMAGE provides a grant of up to £5,000 for SMEs to part fund R&D projects. This also includes access to training and development and consultancy from the university partners on activities such as prototyping, development and testing of products, as well as management coaching, and business and network solutions.	Delivered in partnership with Cranfield University as lead

TestBeds	An Arts Council England funded place based project to support artists and cultural organisations to develop skills. The project provides access to expertise and incubation space in order to develop entrepreneurial skills, collaborative partnership working and fundraising ability.	Royal Opera House Bridge, Luton Culture, Arts Council England
South East Midlands Start-Up Programme	SEMSUP provides local budding entrepreneurs with specialist support to help them set up their new business ventures. ERDF funded, it provides a package of at least 12 hours free business support comprising a selection of one-to-one advice sessions, webinars, workshops, specialist social enterprise information and support, as well as access to small business start-up grants or business incubation workspaces.	Led by Wenta, with the University of Northampton the other delivery partner
Growth Curve	Growth Curve is an ERDF funded business support programme for high growth businesses based in the South East Midlands. The programme provides a minimum of 12 hours tailored support which involves one to one meetings with a High Growth Business adviser, university masterclasses to develop skills, access to a peer-to-peer network of Growth Curve alumni and ongoing support from the SEMLEP Growth Hub.	SEMLEP. Cranfield University, University of Northampton
ALPHAS	This ERDF funded project seeks to create a conduit for knowledge exchange between Universities and SMEs in order to solve business problems that are preventing SME growth, creating capacity within the business for further employment and supporting the regional aim to retain graduate talent. ALPHAS is focussed on Knowledge Exchange Projects (KEPs); placing an up-to-date and business-ready graduate within the SME to boost the capacity of that company for scale-up and to provide opportunities for graduates to work in local firms rather than leaving the region. This creates a pipeline for the exchange of modern intellectual property, using the most current business improvement methods, focussed on solving a current problem that has been identified as inhibiting company growth.	

Facilities for business

4.5 The University is home to a range of state-of-the art equipment and facilities that are available to be hired by businesses. This includes:

- A multi-million-pound **Media Arts Centre** which includes a broadcast studio, performance theatre, and a range of equipment that can be hired.
- **Computer Science and Technology labs**, which house a number of bio-metric security and forensic labs. The University is currently investing in two new cutting-edge engineering technology labs.
- **VenueBeds**, which acts as a “one-stop service for conferences and event facilities” for businesses. It provides full-service conference package including event and conference management, high quality meeting spaces and flexible accommodation.

Benefits

Developing Priority Sectors

4.6 These projects are all strongly aligned with the ‘showcase sectors’ identified in the SEMLEP strategic economic plan. These are

- High Performance Technology
- Manufacturing and Advanced Technology
- Logistics
- The Cultural and Creative Industries.

Figure 4.1 SEMLEP Priority Sectors

TRANSFORMATIONAL FOR GROWTH



High-Performance Technology



Advanced Manufacturing



Logistics & Supply Chain



Cultural & Creative

KEY SECTORS WITH GROWTH AND/OR HIGH REPLACEMENT NEED



Health & Social Care



Retail/Wholesale



Education



Business & Financial Services



Accommodation/Food



Construction

Source: SEMLEP Strategic Economic Plan

- 4.7 These sectors are also consistent with the National and Local Industrial Strategy's priorities, which highlights the importance of low emission vehicles, industrial digitalisation and the creative industries to future growth. The support programmes the University is involved in all have a strong focus on supporting businesses and developing technologies in these sectors.

Ozzlebox

Luton-based entrepreneur Oz Azubine is a beatboxer with the aim to "push the boundaries of creativity in education and across communities" using live audience engagement. Oz required help on plotting a route to market, so that he could reach customers and grow his business. Innovation Bridge was on hand to point him towards an expert in marketing and the creative industry at the University of Bedfordshire, who worked closely with him to develop a marketing plan to penetrate the sector.

"Having this help has given me breathing space to really focus on investing in the right customer and doing the right kind of marketing to reach them".

Oz is still working with the University to help engage with social enterprises and sports clubs, contributing to growth in the local cultural and creative sector.

Supporting Innovation

- 4.8 The South East Midlands is one of the most innovative economies in the UK, with nationally recognised strengths in areas such as engineering design, technical testing, motorsport, aerospace, advanced engineering, digital technologies, software development, autonomous vehicles, robotics, additive manufacturing and electronics. These strengths can help SEMLEP contribute towards driving productivity growth and the Grand Challenges identified in the National Industrial Strategy – particularly in the Future of Mobility, Clean Growth and Digital and AI.
- 4.9 This business support activity that the University delivers leads to a range of important benefits for businesses and the wider economy through encouraging and supporting businesses to innovate. These intermediate impacts all support the development of an innovative economy, including the development of new products, services and technology, new skills learnt, and new relationships established.

The **Innovation Bridge** project has played a key role in supporting innovation in the region. Following a successful pilot scheme in Bedfordshire, this project was rolled out in 2016 across a wider area covering SEMLEP, Greater Cambridge and Greater Peterborough LEP, and New Anglia LEP.

The project supports SME growth by providing support and development for innovation projects. This includes one to one academic consultancy support, mentoring and grant funding.

The final evaluation for the project paints a positive picture on the impact of innovation on commercialisation of ideas.

- When supported businesses were asked how close to market products and services were before and after receiving support, the weighted average increased from 3 to 7 (where 1= having an initial product idea and 10 = just launched the product).
- Business reported that the main commercial impact of support had been on the development of new product or services (57% of supported businesses), followed by increased spend on R&D (37%) and job creation (27%).
- The project has led to 19 new-to-market products/processes and 25 new-to-the-firm products and processes. If this was applied to the total number of beneficiaries (600) of the University's support projects, this would result in **around 52 new products/processes to market and 70 new to the firm.**
- Whilst the project supported businesses in a wide range of sectors, the main sectors were those where arguably there is **potential for more productive jobs and innovation potential**, including manufacturing (25%), ICT (17%), and professional, scientific and technical (16%).

Attracting Income and Funding

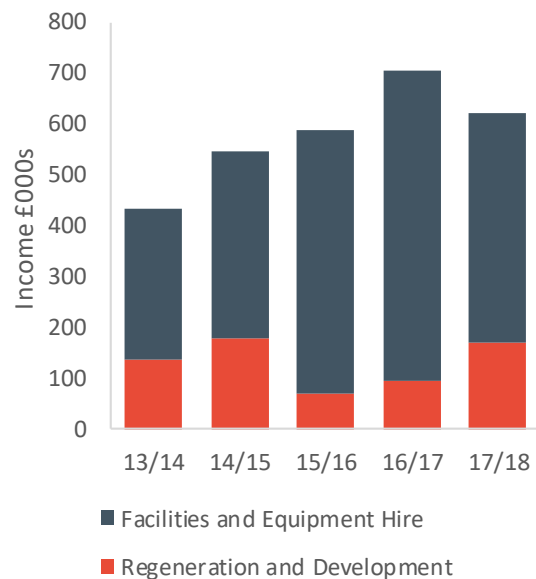
- 4.10 Data from HE-BCIS³ provides information on the amount of income brought in from regional growth activities. Two relevant sources for this section are regeneration and development income (which includes ERDF funding) and income from facilities and equipment hire⁴.
- 4.11 This shows that the University has significantly increased its income from these sources over the past five years, with total income amounting to £623k in 2017/18, an increase of £190k (+44%) over the past five years.
- 4.12 The University has been extremely effective in utilising its facilities and equipment as a source of income and for local businesses to benefit from. This accounts for the majority of income from these two sources.
- 4.13 Further, the University has increasingly become **an important asset to attract regeneration and development funding into the region:**

- As the amount of income has gone down overall in the region (by over 10%), the University has bucked this trend and has experienced an increase in regeneration and development funding by around 25% in this same period.
- The amount of regeneration and development funding securing by the University represents 14% of the total secured by all universities in SEMLEP, despite it representing just 8% of the total academic staff in the LEP area.

Economic Impact

- 4.14 This refers to the final economic impacts secured by these interventions, such as increased turnover, employment and Gross Value Added (GVA). We have calculated the GVA impact of these projects based on evaluation evidence which has been applied to the total number of beneficiaries of these projects⁵.
- 4.15 Based on this, we estimate that, on average, one year's activity of these projects supported around **£18.4m net additional**

Figure 4.2 University of Bedfordshire Income Earned, 13/14 to 17/18



Source: HEBICIS, 2013-18

"The University of Bedfordshire have the structure and senior buy-in to prioritise knowledge exchange. Academic staff are always available to help us deliver our business growth priorities"
SEMLEP

³ The Higher Education Business and Community Interaction Survey.

⁴ Income from consultancy is also relevant here, as this is where some of the ERDF match funding is recognised, however this has been covered under the Research with Impact theme.

⁵ This approach is sometimes referred to as value transfer. As well as being referred to in UKRI guidance, it is also a recognised approach in HM Treasury Green Book. It is appropriate to apply here given the similarities of the projects (ie business support projects focussing on growth and innovation to SMEs)

GVA across the UK. This is estimated to support around **360 FTE jobs nationally**. Taken over the full life of the projects this rises to around £46m net additional GVA and just over 900 jobs.

- 4.16 Based on the annual average grant funding received for these projects (estimated at £2.1m), this equates to a benefit:cost ratio (BCR) of around 8.9:1, ie **every £1 invested in these regional growth projects leads to £8.90 in economic benefits**. This represents very strong value for money and return on investment. To benchmark this performance and place this into context, LEPs generally perceive a BCR of 2 to be a “good” BCR, whereas Innovate UK tend to view a BCR of 7 as good.

5. Continuing Professional Development and Apprenticeships

Key Points

- The CPD and short courses offered by the University reflect the skill requirements of local businesses, with a focus on **investing in management skills to improve productivity**.
- The University has **delivered short courses to over 160 clients in the past year** across a wide range of industries present in the region but especially in sectors in which there are skill shortages such as manufacturing, transport, construction, IT/digital and food manufacturing.
- The University generated £3.9m in CPD revenue. This is the 56th highest in the UK, but when adjusted per academic staff member it generated the **10th highest revenue of all HEIs in the UK, and the 3rd highest in the East of England**.
- The University has the **largest offer of apprenticeships in SEMLEP** (13 courses) focussing on skill shortages in the private sector and demand for employment in the public sector (eg health and social care).
- The University delivers **120 apprenticeships per year** which brings in £1.4m in revenue per annum.
- Quantitative evidence on the impact of degree apprenticeships is thin (given their newness). However, there is evidence of **important benefits to skills development, career progression and wellbeing, higher wages, and productivity gains**.
- We estimate that the University's CPD activities generated approximately **£15 million in GVA** in 2018/19.

Strategic approach

- 5.1 The University of Bedfordshire plays an important role in workforce development and increasing skill levels, which benefits employers and employees alike. The University provides a mix of higher and degree level apprenticeships, Continuous Professional Development (CPD) courses and short courses for a broad range of sectors, reflecting the local industrial base and its skill needs.
- 5.2 The University's Strategic Plan 2017-20 identifies '*expanding higher education opportunities*' as one of its four long-term priorities. It sets out a vision to widen access to higher education and respond to new demand, by diversifying the offer available for students. Linked to this, providing CPD courses and apprenticeships enables the University to:
 - Increase participation in higher education through new learning pathways.
 - Support employers in upskilling their existing workforce and attracting new talent.
 - Support the local economy in responding to industry skill gaps and increasing productivity in the UK
 - Increase its engagement with the private sector, particularly SMEs
 - Generate a sustainable revenue stream.

CPD and Short Courses

- 5.3 Professionals engage in CPD to develop their abilities in their working roles. This enables employers to continually reskill and upskill their workforce, enhance the knowledge required to make their business more productive and retain staff. For professionals, anecdotal evidence suggests that CPD plays a key role in improving performance and self-confidence at work.
- 5.4 The University of Bedfordshire works with a range of organisations across both the public and private sectors, to deliver bespoke courses that meet industry standards as well as the needs of their workforce. To increase local employer engagement, the University offers 30% grant funding towards the cost of some CPD courses for SEMLEP employers.
- 5.5 The CPD and short courses offered by the University reflect the skill requirements of the local business base. The 2017 SEMLEP business survey found that 26% of businesses with vacancies said they had experienced problems in obtaining employees with ‘job specific skills’, while 14% identified ‘technical/practical skills’ as an issue – of which project management is one of them. Research⁶ has found that this is a key driver of productivity at both the firm and country level and concluded that policy makers should therefore focus on investing in the management skills of workers. Thus, the courses offered by the University cover three main strand areas linked to management skills:
- **Lean and Six Sigma** – designed to improve productivity, increase customer satisfaction and reduce operational costs for individuals and organisations. The courses focus on applying the internationally recognised principles of Lean Six Sigma to support organisations in continually improving their processes. It is becoming increasingly important for management positions across all sectors and is the University’s most popular training programme
 - **Leadership and Management** – the courses are accredited by the Chartered Management Institute and cover different levels of management. It aims to improve leadership by focussing on improving general management skills, customer service and coaching and mentoring. The courses encourage staff to become ‘*stronger leaders*’, offering a more innovative, creative approach to business management.
 - **Project Management** – focuses on developing a wide range of skills to improve project management and delivery among staff. Two courses are offered: Agile Project Management and PRINCE2 Project Management.
- 5.6 160 clients over the past year have received CPD and short courses delivered by the University. The client base reflects a wide range of industries present in the region but also the sectors in which there are skill shortages in the area – manufacturing, transport, construction, IT/digital and accommodation food. Recent clients include HM Forces, Network Rail, Balfour Beatty, GSK, Marshall Aerospace, GKN, Siemens and Greenstar Energy.

Apprenticeships

“The University places a strong emphasis on combining practical and professional skills with high quality education and training”.⁷

⁶ <https://esrc.ukri.org/files/news-events-and-publications/evidence-briefings/improving-management-skills-key-to-higher-productivity-pdf/>

⁷ <https://www.beds.ac.uk/howtoapply/courses/apprenticeships>

- 5.7 Degree apprenticeships were introduced by the Government in 2015 as a flagship policy designed to meet skill needs, enhance productivity, strengthen university-employer partnerships and provide new routes into work. They provide an opportunity to combine education with on-the-job training and earn while learning new skills. They help widen HE participation as they attract students who may not otherwise have studied a traditional degree. They enable people to build industry-specific knowledge and experience, increasing the likelihood of better career progression and higher pay when fully qualified. Offering apprenticeships to existing staff or training new apprentices can lead to improved competitiveness for the employer and can help address skill gaps within the organisation. They also facilitate closer links with employers and universities.
- 5.8 Since 2017, the University has provided a broad range of apprenticeships at higher (Level 4-7) and degree level (Level 6-7), as an alternative pathway to traditional academic qualifications. They are designed to match local employer needs and encourage upskilling in their current workforce. This is done by the recruitment of experienced apprenticeship coordinators, who are available to support employers to ensure that the Apprenticeship Levy is being utilised and to help recruit apprentices.
- 5.9 There are currently 13 apprenticeships available, with others in development. The University has the largest offer⁸ of apprenticeships in the SEMLEP area, compared to neighbouring HEIs: University of Northampton, Cranfield University, University of Buckingham and Buckinghamshire New University. The courses are designed to reflect demand for jobs in the public sector as well as skill shortages present in the private sector. The qualifications are outlined in the table below.

Table 5.1 Apprenticeship Courses at The University of Bedfordshire

Core Area	Types of Apprenticeships
Project Management	Associate Project Manager – Level 4
	Operations/Departmental Manager – Level 5
	Chartered Manager – Level 6
	Senior Leader – Level 7
Digital	Data Analyst – Level 4
	Digital and Technology Solutions Professional – Level 6 (with pathways for Software Engineer, Network Engineer, Cybersecurity, and Enterprise Systems)
	Cybersecurity Technical Professional – Level 6
Health and Social Care	Healthcare Assistant Practitioner – Level 5
	Registered Nurse – Level 6
	Advanced Clinical Practitioner – Level 7
	Social Worker – Level 6
Academia	Academic Professional – Level 7
Manufacturing	Food Industry Technical Professional – Level 6

Source: University of Bedfordshire, 2020.

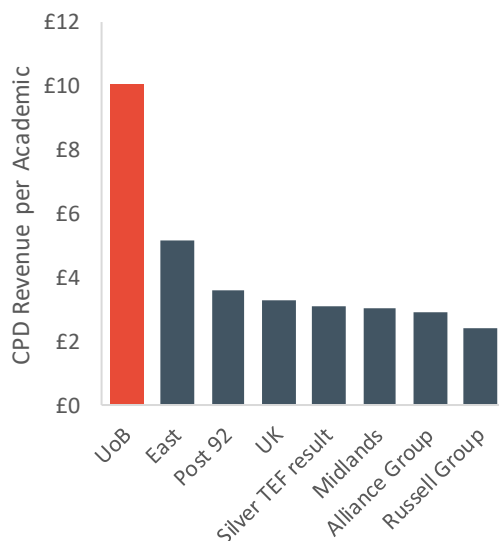
⁸ In terms of the number of apprenticeship qualifications available

- 5.10 The University has a broad client base, which represents a range of different industries. These clients include: major NHS trusts across the East and South East of England, Aeroflex, BMW Mini, BSI Group, Bosch, Nissan, Vauxhall, local authorities and Tesco. It plays an important role in meeting public sector needs and has maintained strong links with public sector employers in the area. In tandem, the University has had successful engagement with private sector partners, broadening their reach outside of the local area to clients such as the BMW engine production plant in Coleshill, West Midlands.
- 5.11 Over the last year, the University has secured nine apprenticeship contracts, largely in the Healthcare sector. Two new contracts are anticipated for early 2020.

Impacts of CPD

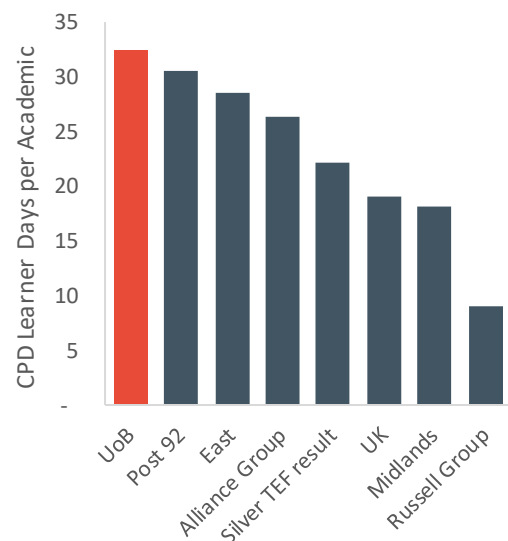
- 5.12 In 2018/19, the University of Bedfordshire delivered 12,501 learner days of CPD and continuing education (CE) courses to businesses and individuals, the fourth highest level of all HEIs in the East of England, generating £3.9m in revenue. One-fifth of this activity was delivered to organisations and individuals based in Luton, and a further quarter with those in the SEMLEP area.
- 5.13 When adjusted per academic staff member, Bedfordshire generated the **10th highest revenue and CPD days of all HEIs in the UK**, and the 3rd highest in the East of England.

Figure 5.1 CPD Revenue per Academic



Source: HEBGIS, Three-year average, 2014-2016

Figure 5.2 CPD Days per Academic



Source: HEBGIS, Three-year average, 2014-2016

- 5.14 It is estimated that the University works with **60-70 clients each year to deliver CPD courses**. This has equated to an income stream between £500,000 and £1m per annum over the period 2017-19.
- 5.15 Evidence from the literature⁹ suggests that there are wider impacts generated for individuals and employers, as a result of participating in CPD. These include:
- Increased efficiencies and productivity in the organisation, through raising training standards.

⁹ CEBRE, Economic Impact of Apprenticeships, 2014

- Improved staff morale and motivation, through the sharing of best practice and peer-to-peer support.
- Tackling skill gaps, by learning new developments in industry knowledge. This is a critical benefit as skills gaps are cited as the number one constraint on business growth in the SEMLEP area.
- Increased likelihood of career progression into leadership roles, resulting in higher earnings for individuals.

5.16 Although there is no specific evidence on the direct and wider economic value of the University of Bedfordshire's CPD to the businesses and individuals concerned, using evidence from elsewhere we can estimate this. Applying this evidence suggests that this CPD activity generated **£16million in GVA** in 2018/19.

Impacts of Apprenticeships

5.17 The University delivers **120 apprenticeships per year**, and it is estimated that at least 80% of apprentices will gain a higher-level qualification by the end of their study. This is equivalent to a dropout rate of 20%, much lower than the estimated dropout rate nationally of just over 30%.¹⁰ As each apprenticeship is valued between £6,000 to £7,000, this contributes up to £1.4m of revenue per annum. Attracting a high number of apprenticeship clients over a short period and working with large employers have been key drivers of demand. It is expected that apprenticeships **could reach 300 by the end of 2020, representing £2.1m of additional income to the University.**

“We are delighted that we have a local university who are not only able to deliver higher level apprenticeship training but actively support the Council to reduce the local skills gap.” - Debbie Poole-Hunt, Service Manager for Economic Growth and Skills, Luton Council

5.18 Given their relative newness and the fact that the first cohorts are only just approaching graduation, the evidence base on the impact of degree level apprenticeships is relatively thin. However, research on apprenticeships in general shows the wider impacts of apprenticeships for both individuals and employers. These are summarised below:

- **Skill uplift in businesses** – the What Works Evidence Review of Apprenticeships (2015) shows that apprenticeships raise skill levels and can encourage further training or study. Improving technical skills within the organisation can help boost productivity and increase staff retention for employers and increase confidence for individuals. These skills are also transferable so leads to wider benefits as employees move during their career to other businesses.
- **Career progression and wellbeing** – There is evidence that apprenticeships enable better career progression, as individuals gain new industry-specific knowledge and help address skill gaps. Career progression can result in increased confidence and wellbeing for staff. The Social Mobility Impact of Apprenticeships (2019) suggests that nearly all apprentices reported improvements in performance and feeling more satisfied in their roles.

¹⁰ Skills Commission, Spotlight on Apprenticeships and Social Mobility, 2017

- **Productivity gains** – the What Works Evidence Review of Apprenticeships (2015) shows limited evidence that employers become more productive and profitable after taking on apprentices.
- **Higher wages** – apprenticeships can result in increased wages for individuals during or following their studies. The Social Mobility Impact of Apprenticeships estimates that on average, 43% of apprentices receive a pay rise and for technology-focussed apprenticeships, this increases to 78%.

5.19 Some of these impacts are evident in the two case studies shown below.

Apprenticeship Case Study¹¹: Luton Council

In 2018, the University of Bedfordshire provided higher-level apprenticeships for Luton Council to support their staff's professional development in their roles. 12 employees were undertaking the Data Analyst higher apprenticeship and three were undertaking the Associate Project Manager programme.



“Through the apprenticeship I am hoping to gain a better understanding of data analysis and learning new techniques to apply in the work environment. So far, I have been impressed by the University’s excellent facilities and the positive attitude of the tutors” ~ Israr Siddique, Data Analyst Apprentice

The University’s commitment to apprenticeship training has encouraged the upskilling of Council staff and will contribute to a more productive local workforce.

¹¹ Taken from: <https://www.beds.ac.uk/news/2018/june/bedfordshire-provides-apprenticeship-training-for-luton-council/>

Apprenticeship Case Study¹²: Tesco

In 2017, the University secured a contract with Tesco to deliver Associate Project Manager apprenticeships for 50 of their employees. Based at the University's Business School, the higher-level apprenticeships were studied part-time and the cohort completed their apprenticeships in 2019. A few testimonies from colleagues at Tesco are highlighted below:



“Tesco chose Project Management and the University for its first office-based apprenticeship because change is so fundamental to our strategy and developing this skill set is essential to us delivering these changes for customers.” ~ Tom Lye, UK Business Planning Director for Tesco

“Over the last five years our apprenticeships have given 8,250 colleagues of all ages opportunities to get on, continue their education and build skills for their future. This new course is part of an extension to our apprenticeship programme which will give even more colleagues more choice to develop and reach their potential.” ~ Natasha Adams, Tesco People Director

Project management courses are highly demanded by employers, and the University has built a strong reputation in teaching project management. It is expected that the apprenticeship will enable new skills and knowledge to be developed within Tesco and other employers. After completing the apprenticeship training in 2019, Tesco saw around 12 of its employees gaining career promotions in the company, with progression quicker than would have otherwise been the case.

¹² Taken from: <https://www.beds.ac.uk/news/2017/may/university-celebrates-apprenticeship-contract-with-tesco/>;
<https://www.beds.ac.uk/news/2017/october/a-warm-welcome-to-tesco-apprentices/>

6. Entrepreneurialism

Key Points

- The University provides a range of support services to both businesses and students to help **improve their entrepreneurial skills and job prospects**, with the aim to drive up productivity in the UK.
- For students, the **focus is on providing work experience and placements** with employers primarily in the local area across a range of sectors but with a focus on STEM employers and manufacturers, sports organisations, IT and business management.
- For businesses, the **University delivers specific entrepreneurialism training programmes** (such as start-up support) as well as being home to an Innovation and Enterprise service to help with funding applications, mentoring and training.
- Based on the number of graduates in employment, it is estimated that the **productivity improvements from one year's cohort of graduates is around £90m** over their working life.
- The University recorded **144 graduate start-ups in the last year, the fifth highest of all universities nationally** when adjusted on a per academic basis. These start-ups supported an estimated **£4m in net additional GVA, employing 590 people**.

- 6.1 We have seen in the other themes that the University deliver a range of support programmes to businesses. Here we focus specifically on the University's activity in promoting the employability and entrepreneurialism of its graduates and local businesses.

Strategic context

- 6.2 The UK Industrial Strategy aims to drive up productivity in all parts of the UK, focussing on five foundations of productivity – ideas, people, infrastructure, business environment and place. Universities have a significant role to play in fostering and harnessing entrepreneurial talent and innovation in the UK and across the globe, and can therefore contribute to these foundations. This is referenced in the Industrial Strategy:
- the collaboration between academia, business and civil society is seen as crucial as *“bringing their expertise and entrepreneurial spirit, to drive us all towards success.”*¹³
 - the strategy encourages greater academia involvement in entrepreneurialism, making the claim that *“universities and colleges have more scope to be both the originators and propagators of new businesses.”*¹⁴
- 6.3 The University of Bedfordshire recognises this responsibility. It states in its Strategic Plan that:

¹³ UK Industrial Strategy, HM Government, 2017, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/664563/industrial-strategy-white-paper-web-ready-version.pdf

¹⁴ ibid

- the University will use “*academic expertise to support organisations to improve their economic value*”¹⁵ through expansion of innovation development partnerships, graduate placements, enterprising projects and delivery of training for business.”
- knowledge exchange will be a *fundamental element of its work around business and entrepreneurialism*.

University Support for Entrepreneurialism

6.4 The University provides entrepreneurialism support both for its students and for businesses:

- 1) For students, it is about improving their employment prospects and ensuring they graduate into high quality and rewarding occupations and jobs. This can include forming their own start-up business.
- 2) For businesses, it is about supporting key staff to develop entrepreneurial skills to enable their business to grow, as well as providing support for start-ups/ spinout businesses.

6.5 This takes the form of specific support programmes as well as ad-hoc support. This is delivered through:

- The **Innovation & Enterprise Service** – Providing a range of business support for external business and graduates, including co-writing funding applications. The service also provides support to University staff seeking to submit funding bids in areas of research and enterprise, consultancy, CPD, training to industry, and intellectual property development projects (licences and spin-outs).
- The delivery of **entrepreneurialism training programmes to businesses**. This includes the provision of specific start-up support through SEMSUP (a start-up programme delivered with SEMLEP – this is covered under the Regional Growth theme as it is ERDF funded).
- Providing **volunteering and graduate placement opportunities** to students. This includes the Placements for All initiative, which offers a fee free year in industry for undergraduate students and the Student Internship Scheme which provides up to 100 hours of work experience.
- The provision of **start-up support for graduates**, through specific courses on entrepreneurialism (eg *Being an Entrepreneur*), access to the Knowledge Hub for start-up advice and mentoring, as well as access to the Innovation & Enterprise Service outlined above.
- The University also offers a range of support for businesses and students by offering **apprenticeships and short courses**. This work is outlined in detail in the Apprenticeship and CPD case study section of this report.

¹⁵ Strategic Plan 2017-2020, University of Bedfordshire, 2017, <https://www.beds.ac.uk/media/87037/strategicplan-2017.pdf>

Economic Impact

Students

- 6.6 The University estimate that they have funded and placed just **over 100 graduates in paid jobs within SMEs in the region** (with a funded salary value of £0.5m) as part of the Placements for All Initiative and their other placement support programmes over the past three years. The University has strong links with employers nationally, and so these placements have been based across the UK, however there has been a strong focus on working with employers based in the region and those in around where the campuses are located (Milton Keynes, Luton and Bedford). The University offers placements for the vast majority of the courses they deliver offer (with the exception of nurses, social work and education courses), with a high number of placements focussing on STEM employers, as well as in manufacturing, sports studies, IT and businesses/management.
- “Undertaking a Professional Practice Year Placement has allowed me to gain the experience and skills necessary to succeed in a real work environment. This alongside my degree has allowed me to secure the best graduate job for me” – Damien, Business Studies*
- 6.7 Using data from DLHE (2016/17) on the number of graduates in employment, it is possible to estimate productivity improvements as a result of the graduates they support that are deployed into the labour force. This is based on applying a degree premium (comparing the value of the stock of human capital for those with a degree to those with A levels). Based on this, we estimate that the annual net present value benefits of the productivity improvements as a result of these graduates is around **£2m per year across the UK**. Taken over an **assumed 40 year working life, this rises to £90m in productivity benefits**.

Businesses

- 6.8 An example of the impact of the University’s support in this area is the Testbeds project, which focused on enhancing the entrepreneurial skills of the local creative and cultural sector.

TestBeds

TestBeds was the first project of its kind in the UK, **a university-led and place-based artists’ professional development programme** that was specifically designed to support and develop the needs of Luton’s artists. The project actively took on the mission of Arts Council England’s Luton Investment Programme (LIP) to develop Luton as a “thriving, exciting town with a cultural offer that has something for everyone”.

The LIP identified the need for artistic professional development as a key strand in establishing a coherent and sustainable infrastructure for the Luton arts and culture sector and as a necessary component in achieving the LIP mission. TestBeds provided a comprehensive and innovative model for artists’ professional development. Informed by current thinking and practices in the commercial start-up and entrepreneurship contexts, TestBeds delivered an **enterprise focused artists’ development programme**.

The TestBeds project ran between 2016 and 2019, and was made up of four strands seeking to enhance entrepreneurial skills, increase collaborative partnership working and raise fundraising abilities amongst local artists at various stages in their career:

- **Artist Accelerator** - A 12 month incubator programme, with a £5,000 stipend for living and travelling expenses, for early-career, Luton based creative practitioners of any discipline. This 3-phase programme is designed to support artists to develop their work into socially-engaged and thriving creative enterprises.
- **Catalyst Co-Lab** – A research and development programme for mid-career artists of any discipline, to spend 12 months as a visiting artist at the University of Bedfordshire. This programme has a focus on collaboration and partnership working.
- **Arts Elevator** - This Arts Council England project seeks to help Luton based artists make long lasting change in the creative industries in the town. TestBeds is supporting this project by offering; help with funding applications, help with business planning and financial forecasting, give advice on long-term planning.
- **Arts enterprise zone** – Gives Luton based artists, at all stages of their career, the opportunity to access a hub for knowledge-exchange and creative enterprise development.

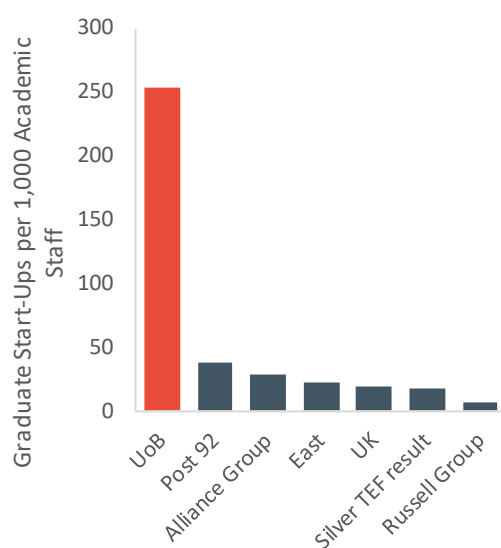
The evaluation of the project illustrated the success of the project, in terms of both the vast number of businesses and entrepreneurs it has engaged, as well as the funding it has secured:

- It has secured **£777,500 in funding for local artists** across 13 different sectors. Whilst the outcomes of successful businesses has not been directly observed, the evaluation highlights that this is likely to have resulted in an increase in income for these businesses.
- Helped **form 101 partnerships**, including 52 local authorities, and 14 HEIs and 20 local schools
- **Engaged 7,000 people in over 100 workshops**, including 3,000 young people.
- **Grown over 35 new artist and academic partnerships**
- **Worked with 23+ grassroots organisations** to develop place-based project strands

- 6.9 In 2018/9 the University recorded 144 graduate start-ups, **the seventh highest of all 162 HEIs in the UK**. When adjusted for the size of the University on a per academic basis, the University of Bedfordshire's rank rises to 5th nationally. It also generated 5 social enterprises, the fourth highest number of all UK universities that year.
- 6.10 Those active graduate start-ups were turning over £12.5 million and employing 590 people in 2018/19. We estimate that this generated an associated **£4 million in net additional GVA**.
- 6.11 As shown in the charts below, on both start-ups and social enterprises the University performs very strongly compared to other comparator university groups when benchmarked against the number of academic staff.¹⁶

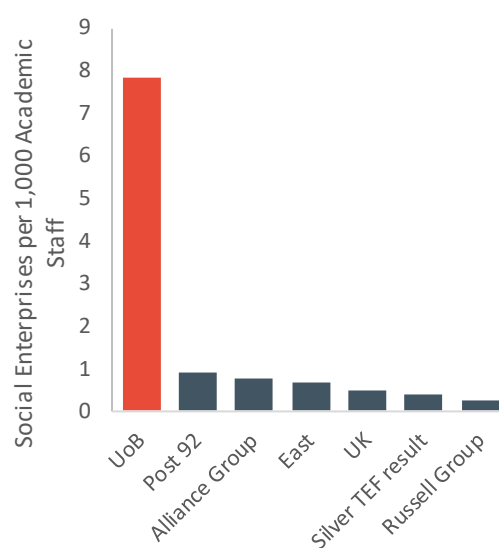
¹⁶ Note: Based on three-year average, 2015-2018.

Figure 1.1 Start-Ups per academic staff member (2015 to 2018)



Source: HEBCIS, 3 year average, 2015-18

Figure 1.2 Social Enterprises per academic staff member (2015 to 2018)



Source: HEBCIS, 3 year average, 2015-18

MyNewTerm

MyNewTerm is a business in the education recruitment sector providing a tool for prospective applicants to find, and for prospective educational providers to share, job vacancies. The matching of potential candidates and appropriate vacancies uses advanced technology and data science utilising open data from the Department for Education.

The University's support has been pivotal to the success of the business. Prior to working with the University, MyNewTerm tried but failed to implement the technology required. Only with support from the University was MyNewTerm able to put its ideas into practice and harness them into a viable business model.

The University has provided expertise in data science, technology and analysis well as supporting funding bids that were necessary for the business to start-up and grow (including a £5k grant from Innovate UK to develop the open data analysis).

The business subsequently recruited two master's students from the University of Bedfordshire, with one of these students now working at the organisation full time as the business has continued to grow. Further, the business has maintained a working relationship with the University, providing opportunities for students as a place for work experience and placements, as well as getting involved in additional support projects that the University delivers (eg Innovation Bridge).

The impact of the University's support has meant that MyNewTerm has been able to establish itself as a successful business. To date the business has **worked with 300 schools, saved them up to £100k per year, and has 10,000 candidates on their system. This has helped them achieve £150,000 in turnover in just their first 6 months of trading.**

Drax Technology KTP

Drax are one of the UK's leading independent providers of integrated fire protection, alarm management and other life safety related solutions. Key clients include Honda, the NHS, and a range of Universities across the country.

Drax initially got in touch with the University of Bedfordshire to recruit skilled graduates to help develop their software development capabilities. Whilst they approached other Universities, it was **Bedfordshire's strengths in computing, software**

and technology that attracted Drax to work with them. Following further discussion with the University, as well the company's strategic aims of achieving significant growth in the next 3-5 years in an extremely competitive market, Drax recognised that in order to remain competitive and grow, it needed to innovate. More specifically, it needed to better understand and profile its customers, and harness and exploit the Internet of Things, Machine Learning, and AI to create and market new products and services.

Hence, the Innovate UK funded Knowledge Transfer Partnership (KTP) was established with the University in order to enable Drax to undertake the innovation it required to achieve its objectives. The company partnered with some of the academics at the School of Computer Science Technology at the University to gain access to leading knowledge in IoT, ML, AI and digital capabilities, something which the company did not possess in-house. **As well as providing this expertise, the University also helped to elicit good project practices** including helping to clearly define the scope of the project, assistance with documentation and reporting, as well as leading on the recruitment process for staff.

***"The KTP has transformed what we do with software development and technology in general. The impact to our business cannot be overstated"* – Alex Cother, Director, Drax Technology**

The KTP has been an enormous success for Drax, and has had a significant impact on the business. It has **delivered one new product to market so far**, a centralised dashboard visualisation called Safeview that can monitor and analyse all activities occurring with any specific asset (e.g. fire, false alarms, etc.) on a client's premises anywhere in the world in real time and alert them, if required. Safeview has been received very well with several orders being placed in the first few weeks of launch. The KTP has also created the pathway to developing a whole suite of software based compliance tools, and has **facilitated the transformation of the business** by shifting from a PC based platform to a web based platform.

As well as these immediate product and market benefits, **the KTP has also resulted in longer term benefits to Drax**. The KTP, has helped to educate and upskill the existing staff and department in terms of the project delivery and management, which will be vital going for the business going forward as they continue to innovate. Further, Drax has been able to **justify the recruitment of two software developers and a business development manager** as it looks to continue its transformation and growth in the region.



7. Research with Impact

Key Points

- Two key areas of research for the University are **health research and climate change**. These two areas help **solve the Grand Challenges in the Industrial Strategy** - an Ageing Society and Clean Growth.
- The health research the University carries out **focuses on tackling local health challenges in Bedfordshire** such as high still-birth rates, teenage pregnancy, child obesity and mental health issues.
- Given the broad range of topics, the impacts from this research is difficult to quantify. Key impacts could include **influencing policy, improved health outcomes, NHS cost savings, new technology brought to market and increased R&D investment**.
- The University's research on climate change primarily focuses on **the development of energy technology**, given its academic expertise in this area, plus the strengths of local businesses in transport and engineering.
- The main impact of this research will be to **develop new technology, reduce emissions, and influence environmental legislation**.
- The University generated **£4.8m in income from consultancy and contract research, an increase of over 50% over the past 5 years** compared to a sharp decline across the region. We estimate that this supported around **£15m in GVA benefits**.
- For the University's own research activity, based on wider evidence of research impact, it is estimated that the University's research could support **£15m in productivity benefits**.

Strategic approach

- 7.1 The University of Bedfordshire has a clear research ambition to support targeted leadership forming clusters of research expertise, that are aligned to solving real-world problems. Through its research, the University aims to help solve both global and local challenges, and to influence policy and strategy in these areas.
- 7.2 Two key areas in which the University is doing this is in health and climate change. These are areas which are becoming extremely topical in the media and public consciousness, given the increasing impact of climate change as well as pressures being placed on the NHS from demographic changes. We focus in this section on these two key areas of research and the impacts they are delivering.

Health Research

Addressing local and national health issues

- 7.3 The University has several key objectives underpinning its health research. Much of Bedfordshire's health research is oriented around local issues or health challenges that are most acute in Bedfordshire's locality. The University has important relationship with Public Health England, Clinical Commissioning Groups and local third sector organisations to identify these challenges. Examples include the high rate of still-births amongst particular socio-economic groups in Luton, teenage pregnancy, child obesity and mental health

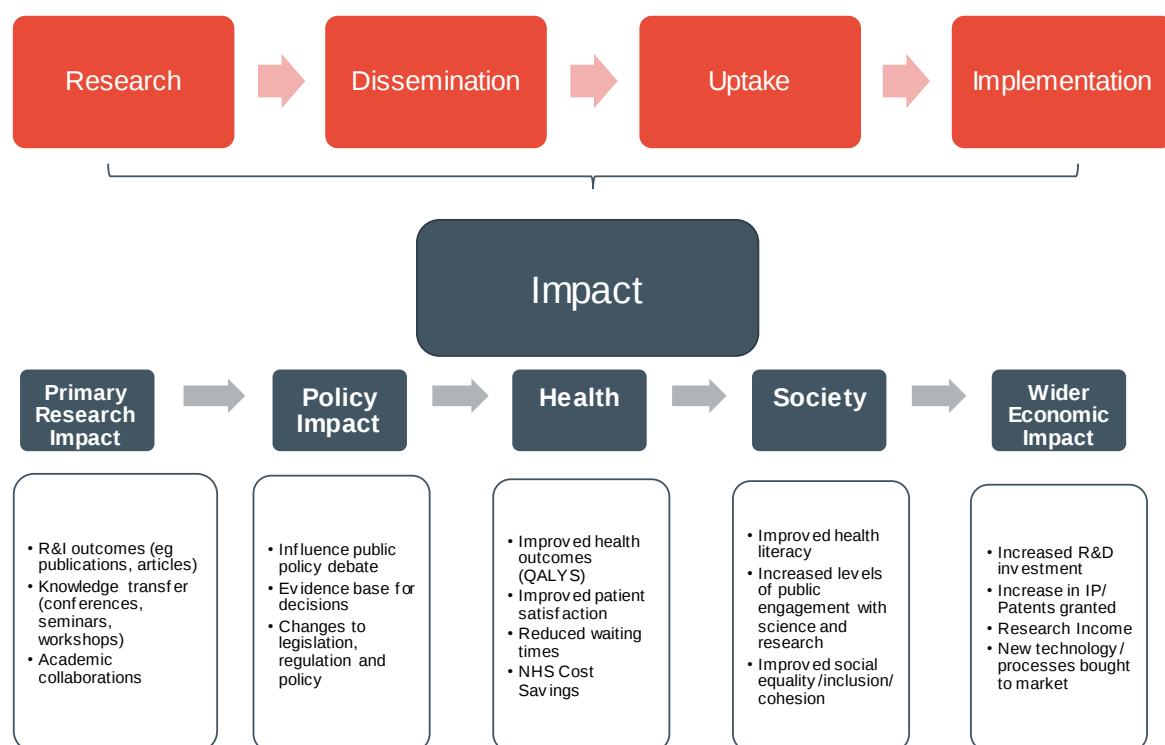
issues. Overall, the University aims to address key challenges covering all stages of life and human development, from pre-conception to palliative and end of life care.

- 7.4 The research also aims to help tackle the Grand Challenge set out in the UK's Industrial Strategy to meet the needs of an **ageing society**. Research here focuses on the new demands for technologies, products and services, including new care technologies and models as a result of an ageing population. The research also aims to meet the priorities for 'Place' as set out in the Local Industrial Strategy, regarding improving access to health care.

Health Research Impact

- 7.5 Health research leads to a range of different impacts, both through the process of undertaking the research and once findings are implemented. The figure below outlines the key stages of a health research project and the different types of impact that it can lead to.

Figure 1.3 Health Research Pathway to Impact



Source: Hatch Regeneris, and Assessing the impact of healthcare research: A systematic review of methodological frameworks - PLOS

- 7.6 In many cases these impacts are difficult to quantify given the broad range of research that is carried out, and the time taken for the benefits of the application of the research to materialise. Here we have focussed on two major innovative pieces of research to illustrate the benefits this type of research can lead to, and then we provide indicative estimates of economic impact across all of the University's research.

Caresses (Culture-aware robots and environment sensor systems for elderly support)

Caresses is a multidisciplinary project seeking to design robots to assist the elderly. The robots will be designed to adapt themselves to the culture of the individual they are caring for. The robots incorporate an awareness of an older person's customs, cultural practices and preferences in their care methods – be this through reminding users to take their medication, encouraging healthy lifestyle choices and ensuring the person is keeping in touch with family and friends.

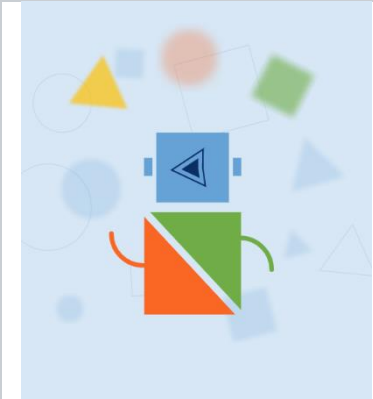
Caresses is an internationally collaborative project supported by the European Union's Horizon 2020 research and innovation programme as well as the Ministry of Internal Affairs and Communication of Japan.

The University of Bedfordshire is a key research partner in this international project, providing expertise in the fields of cultural competence and evaluation. The University of Bedfordshire will lead a team to test and evaluate the impact of the support robots' impact upon care home clients' health and wellbeing.

The project is anticipated to lead to a range of impacts:

- Primary research – the project involves multiple international partners. This provides an opportunity to **raise the profile of the University**, as well as to learn from and **develop deeper relationships with international organisations**.
- Policy – as AI technology develops and becomes more mainstream, this project can provide **vital lessons and evidence on cultural competence for future AI projects**.
- Health & society – the project will result in **wellbeing benefits for the elderly** through increased independence and reduced loneliness, ultimately leading to improved health outcomes and quality of life. This improvement in home care delivery will also reduce pressure on hospitals and care homes, **resulting in NHS cost savings**.
- Wider economic impact – the project will **directly deliver a new product to the market**. This could lead to further R&D investment as it is rolled out on a wider scale. Further, AI research is expected to grow in the future, and so the University is well positioned to earn further research income in this area.

Dr Chris Papadopoulos, Lecturer in Public Health at the University of Bedfordshire summarised the anticipated outcomes of the research ***“The impact upon wellbeing we hope to observe includes boosting independence, reducing loneliness and ultimately improving quality of life. This should also relieve some of the pressure hospitals and care homes face.”***



Increasing Organ Donation Amongst BAME Communities

Black and Asian and minority ethnic (BAME) communities make up 11% of the UK population but 30% of the kidney transplant waiting list. Despite this high demand, only 3.5% of registrants on the organ donor register are from BAME communities.

The Organ Donation and Transplant Research Centre (ODTC) at the University of Bedfordshire undertakes a range of research, including a specific focus on increasing organ donation in BAME communities. The centre has received over £1.2m in research grants over the past few years carry out its research. This has been led by Professor Randhawa, Co-Chair of the European Working Group on Public issues in Organ Donation and Transplantation.

The main impact of the research has been on policy. Research findings have been used to influence the Organ Donation Taskforce by helping to develop the Organ for Transplants strategy which, if all the recommendations were implemented, then the donor rates would increase by 50%. Globally, the research has helped NHS Blood & Transplant host their first ever Faith & Organ Donation Summit, which saw leaders from multiple religions come together and contribute to an action plan to increase organ donations.

Ultimately, the research could lead to **significant health and society impacts** should the organ donation rates increase for the BAME communities.

Climate Change Research

- 7.7 Climate change is arguably one of the greatest challenges facing this generation. Thus, understanding climate change and researching the development of tools and strategies to mitigate against its impacts is already seen as one of the most fundamentally necessary areas of knowledge development, and its significance will likely grow further in the coming years.

Examples of research and their impact

- 7.8 The Institute for Research in Applicable Computing (IRAC)¹⁷ leads on this research at the University. The institute collaborates with various academic institutions, such as the universities of Oxford, Imperial College, Warwick and others as well as industrial partners, including Google, AMD, Huawei and local SMEs. IRAC has led and been engaged with 26 research projects over the past five years, generating a total of nearly £5m in research income.
- 7.9 IRAC focuses on the application of computer technology to solve climate change issues, particularly around energy technology. The centre also focuses on more localised issues such as home insulation and research into fuel cells in order to alleviate the impact of climate change.
- 7.10 A list of key research undertaken over the past few years is outlined below in Table 7.1. This research reflects the industrial strengths of the local area (transport and engineering companies) and directly helps address the Future of Mobility and Clean Growth Grand Challenges outlined in both the National and Local Industrial Strategy. The impacts of much of this research is to guide the development of alternative non-fossil fuel energy sources and ensure that these new energies are maximally efficient. The end result of this will be a reduction in the dependency on fossil fuels and a reduction in the production of emissions – key outcomes required to deal with the climate change challenge.

¹⁷ <https://www.beds.ac.uk/irac/about>

Table 7.1 University of Bedfordshire Climate Change Research 2016 - 2021					
Time	Investigators/ Researchers	Funding	Title	Sponsor	Partners
Jun 2016 – May 2017	Z Peng (PI), G Ren	£100k	Performance Optimisation of PV roofing SIP (Structural Insulated Panel) with Thermal System (EP/P510373/1)	EPSRC, Innovate UK	Telemetry Associates Limited
Jan 2016 – Dec 2019	Z Peng (PI), R Herfatmanesh, Y Du	£81k	Investigation into Dual EGR Application for Low NO _x Emissions in GDI Engines	AVL Powertrain UK	AVL Powertrain UK
Feb 2018 – Mar 2021	Z Peng (PI), Tahmina Ajmal	€560k (UoB), €3.3m (total)	Non-Carbon River Boat Powered by Combustion Engines (Interreg NWE 553 RIVER)	European Union - INTERREG G VB NWE	Groupe HEI-ISA-ISEN (France, leading partner), other seven partners from EU countries
Apr 2018 – Mar 2019	Z Peng (PI), Vladimir Dyo	£100k	Fuel Cell Hybrid Commercial Vehicle (Innovate UK 113618)	EPSRC, Innovate UK	AVL Powertrain (UK) Ltd

Source: University of Bedfordshire

7.11 Two of these research projects are outlined in the case studies below.

RIVER¹⁸

This research examines ways to reduce emissions from inland waterway vessels. Due to more stringent emission requirements there is a pressing need to eliminate pollutants from aging vessels in particular. The RIVER project seeks to apply Oxy-Fuel combustion technology to diesel engines, resulting in the elimination of NO_x and capture and store CO₂ emissions while also reducing fuel consumption by 15%.

The €3.2m project, with €1.92m of EU funding, is made up of 9 partners, including the University of Bedfordshire. Alongside these partners, the University will use research into engine control to inform the project and then test, embed and demonstrate RIVER research on existing vessels operating in the UK.

The expected impact of this research project will be a much-needed reduction in emissions from inland waterway vessels. As the project's findings are rolled out, via a pan-European campaign, national authorities and engine manufacturers will ensure hundreds of vessels are retrofitted with the RIVER technology. The impact of retrofitting 300 medium sized vessels will be a reduction in emissions of **21,000 t/year of CO₂**, as well as the generation of hundreds of direct and indirect jobs¹⁹.

¹⁸ <https://www.beds.ac.uk/irac/research/>

¹⁹ <https://www.nweurope.eu/projects/project-search/river-non-carbon-river-boat-powered-by-combustion-engines/>

FCHCV (Fuel Cell Hybrid Commercial Vehicle)²⁰

The objectives of this £250k Innovate UK funded research project spanning 2018-2019 were to assess the emission benefits and driving range of fuel cell hybrid vehicle technology.

Research examined two different hybrid vehicle architectures (range extender electric vehicle, REEV and hybrid electric vehicle, HEV) with consideration made to commercial vehicles including light duty commercial vehicles, HGVs and buses. The two fuel cell types were investigated to understand which fuel cell type provided the best performance for each system and vehicle type.

The impact of the project contributed to the **acceleration of the electrification of various commercial vehicle types**, allowing commercial vehicles to meet government emission policies while meeting driving range needs of customers.

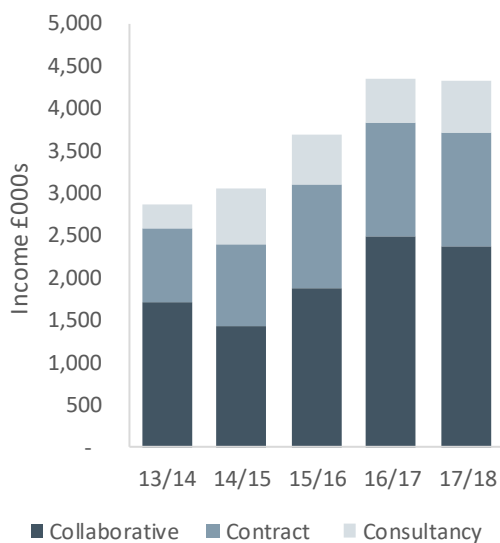
Ultimately, this research sought to assist local and national government emissions **reduction targets without compromising the social and economic benefits** created by various commercial vehicles.

Assessment of Research Impact

- 7.12 The University generated £4.8 million in income for consultancy and contract research with businesses and other organisations. This was the 7th and 5th highest amount of all of the East of England HEIs, respectively. We estimate that this support generated a further **£15 million in GVA**.
- 7.13 As shown below, research income (excluding Research Council grants amounting to £3m) for the University has increased significantly over the past five years (by over 50%). Whilst all sources of research income have grown, there has been a particular increase in income from consultancy research. This performance is even more impressive when compared to the average trend across the region, where the income has declined significantly (around -£88m over the full period, or nearly -£18m per annum).

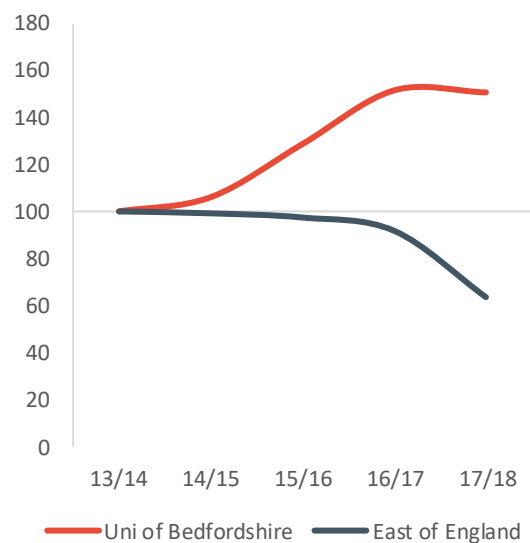
²⁰ <https://www.beds.ac.uk/irac/research/>

Figure 7.1 Uni of Bedfordshire Research Income



Source: HEBICIS, 2013-18

Figure 7.2 Index of Research Income



Source: HEBICIS, 2013-18

- 7.14 We have seen that the University's research generates a range of socio-economic benefits. Whilst we have not directly quantified the economic impact of this research, it is possible to generate an indicative estimate of its impact using robust evidence from elsewhere. Applying this evidence to The University of Bedfordshire suggests that the University's research activity in 2018/19 generated **£15 million** in productivity benefits for the UK economy.

8. Regional Engagement

Key Points

- The University engages with key civic organisations in order to play an **active role in addressing socio-economic issues** in the local area and wider region. It has strategic relationships with Central Bedfordshire Council, SEMLEP, the Chamber of Commerce, Public Health England, and other HEI providers.
- The University is **a critical partner for these organisations** given their role as a provider of a pipeline of skills and talent, their knowledge of and relationship with the local business base, expertise in key priority sectors, and the facilities they have access to.
- The University has provided resource and expertise to **help develop a range of local strategies**, including the Central Bedfordshire Vision, the Council's Economic Strategy, Local Industrial Strategy, and is on the board for the Inclusive Growth Commission in Luton.
- **The Impact of this partnership working will be on; the economy**, through the development of strategy, provision of skills, and delivery of business support; **society**, through developing the local arts and culture sector and addressing health and wellbeing challenges; **and place**, through supporting inward investment and inclusive growth.

- 8.1 We have seen through the coverage of the other themes that collaboration is at the heart of the delivery of the University's KE. Here we are focusing specifically on the work the University does with organisations that are **long-term and strategic** relationships.

Objectives of Regional Engagement

University objectives

- 8.2 From a University perspective, regular regional engagement **can encourage civic leadership, establish a wider role for the University and strengthen its presence as an 'anchor institution' in the local area**. In tandem with the impacts of teaching and research, universities can contribute to the success of their 'places' through this approach. The Civic University Commission report (2019) evidences the importance of the civic role and the need to form deep partnerships:

- Civic universities are most effective when working collaboratively in local ecosystems.
- By taking a proactive anchor role, higher education can help facilitate personal and societal outcomes.
- Aligning resources with local authorities, LEPs, NHS bodies and other organisations can help to identify existing challenges which the University can help address.

"The University of Bedfordshire's mission is to create a vibrant multi-cultural learning community, enabling people to transform their lives. In fulfilling our mission one of the values we are guided by is that of partnership, which is valued alongside collaboration as essential in meeting contemporary challenges, in providing access to learning, and in delivering an excellent student experience."

- 8.3 Through engagement with external partners, the University aims to play an active role in **addressing socioeconomic issues which face the local area and the wider region**. The SEMLEP Local Industrial Strategy identifies two key challenges which may impact the region's growth and supports the need for greater collaboration and partnership engagement.
- 1) Firstly, there is a need to attract significant inward investment into the LEP area and the Oxford-Milton Keynes-Cambridge 'Arc' to help support new job creation and economic growth.
 - 2) The second challenge is to improve innovation and productivity across all sectors so that the benefits are evenly distributed.
- 8.4 Regional and civic working plays a **prominent role in the University's strategy**. One of the main priorities outlined in the University's Strategic Plan 2017-20 is to '*broaden understanding and horizons across the communities we engage*'. To achieve this priority, this requires:
- Developing creative solutions to challenges given by external partners.
 - Evidencing the impact of the University's work with partners.
 - Supporting civic engagement to increase social and economic value among the local community.
 - Working in partnership with schools to improve attainment.
 - Building on the success of projects such as 'Testbeds' and 'Get Into Sport' to contribute to developing a sports, culture and arts presence in the region.

For the University's Partners

- 8.5 The University has strategic relationships with a range of local stakeholders including Luton Borough Council, Central Bedfordshire Council, SEMLEP, Chamber of Commerce, Public Health England, other HEI providers, as well as a range of local cultural and social organisations.
- 8.6 These organisations view the University as a critical partner given their role as a provider of a pipeline of skills and talent, their knowledge of and relationship with the local business base, expertise in key priority sectors, and the facilities they own (or have access to). Key areas in which these partners have worked with the University are as follows:
- The University has had major involvement in the development of Luton Borough Council's '2040 vision' of eliminating poverty in the region, through the University's major involvement with the Inclusive Growth Commission. Inclusive growth is a key priority of local stakeholders. The University collaborated with the LEP, local CCGs, and Centre for Cities to investigate how to develop an inclusive economy in Luton. Key University staff were on the board of commissioners and they are using the University's research, expertise and resource to continue to help develop an Inclusive Growth Strategy.²¹
 - The University has had considerable involvement in the development of Central Bedfordshire Council's '2050 vision' for Central Bedfordshire, sharing their understanding of the socioeconomic opportunities and challenges facing the county by contributing to workshops, consultation, as well as providing resource support to the council.

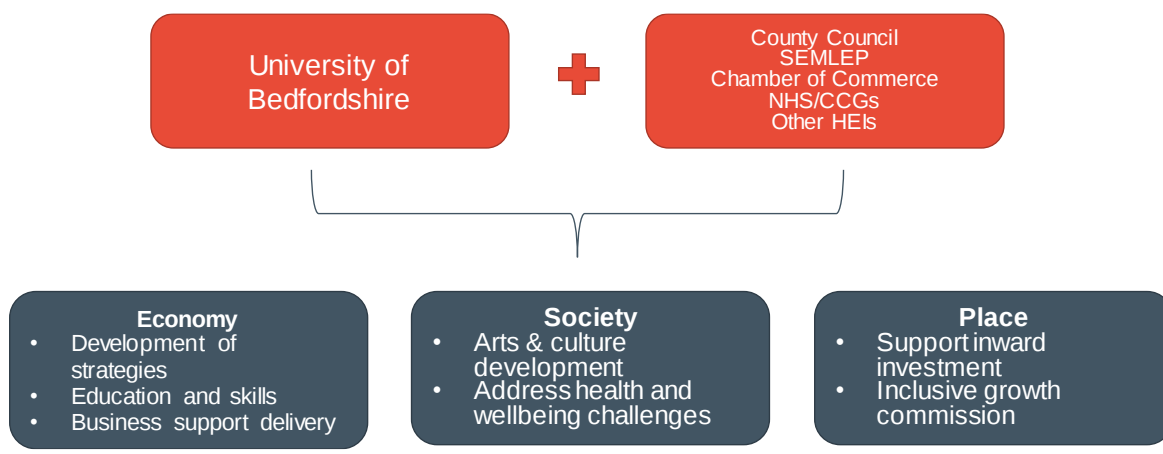
²¹ https://www.growinglutonttogether.com/assets/documents/Report_GLT_Exec.pdf

- The University has supported the development of the Council's Economic Strategy, as one of the council's key stakeholders for business support engagement. It is likely that the engagement will continue over the forthcoming months. They have also provided evidence to help develop the Local Industrial Strategy.
- As outlined in the Regional Growth Section, the University plays a key role in the delivery of business support projects with the LEP and other HEI and private sector providers – due to the facilities they offer and the expertise of their staff
- The University is part of the ARC University group, a group of 10 universities located along the Oxford-Cambridge Arc. The aim of this group is to help fully exploit the region's contribution to the UK economy, through the creation of an integrated skills and innovation ecosystem. The group is newly formed, and is currently developing plans to specify how the members will collaborate more closely to achieve these aims. See <http://arcuniversities.co.uk/> for more details.

Impact of Partnership Working

- 8.7 The figure below outlines in broad terms the impacts of the University's work with its partners, focussing on three key areas – economy, society, and place. These benefits are difficult to quantify (with the exception of the economy – the impact of business support activity is covered under the Regional Economic Growth theme). Therefore, in order to illustrate these benefits, we have outlined below a series projects that the University has been involved in.

Figure 8.1 Impact of Partnership Work



Society

Open Minds

Open Minds is a Big Lottery funded project that provides talking therapies for vulnerable people living in hostel accommodation or people at risk of homelessness in the Luton and Dunstable area. A partnership between the University and a range of housing organisations including Squared, Mary Seacole Housing Association and Signposts Luton, it is designed to help alleviate psychological distress relating to mental health issues such as anxiety, depression and post-traumatic stress disorder. The project also sought to fill a gap in local service provision, particularly in Luton where prior to Open Minds, there was no support service available.

Open Minds
Community Partnership action

In 2017, the Government set out their five-year response for improving mental health in England. The policy outlines the need to tackle mental health to address inequalities and improve societal outcomes. These two priorities are strongly aligned with the Open Minds project, which provides talking therapies for vulnerable people at risk of homelessness. The project will help progress efforts to increase access to psychological therapies for people with mental health, and encourage social inclusion.

More locally, the SEMLEP Strategic Economic Plan (2017) outlines the importance of tackling economic inequalities and promoting social inclusion. Through local partnerships, this will help to achieve a long-term vision to improve living standards, and productivity, through reducing incidences of health-related productivity losses, worklessness and sickness absence.

Findings from the Open Minds final evaluation report show that 57 clients engaged with the service over a two-year period and had at least one session with the therapist. Of the 26 clients who completed the service, the vast majority showed a significant clinical improvement after therapy. Even those who dropped out of the treatment still experienced benefits from the engagement (and research shows they are more likely to undergo treatment in the future). Interviews with service users reiterated impacts such as: better understanding and management of their feelings, increased ability to reflect on traumatic experiences, reduction of impulsive 'acting out' behaviours and improved self-esteem.

Refugee Legal Assistance

In 2013, Legal Aid was withdrawn for refugees seeking legal support in order to apply for their family members to relocate with them to the UK. The absence of this funding led to private solicitors charging for support which was unaffordable for refugees with low income.

In 2013, in anticipation of the aid being withdrawn and recognising the detrimental impact this would have upon certain communities in Bedfordshire, the University partnered with the British Red Cross to launch a pilot programme to provide free assistance for refugees to help develop their application. This covered 6 applications, and following a successful pilot, the programme has continued to be run.

It is fully funded by the University of Bedfordshire, with academic staff devoting their time and resource to provide support to these applications, with law students at the university also volunteering to get involved (primarily around undertaking initial interviews). The University is not able to represent the cases in court, but they are able to provide support to help them present their case.

Since 2013, the programme has assisted with over 100 cases, with the majority of referrals coming from the British Red Cross and the Central Family Court.

The number of successful cases is unknown, however the impact to the clients of being reunited with their families cannot be understated.

"I am so grateful for the help and support I was given by RLAP! Thanks to the incredible work and effort of the student volunteers I was able to support my husband and children's applications for Family Reunion, and all of them were successful. It is because of RLAP's dedication and work that my family are now here with me in the UK and we can all live together again.", 2015 Client

"All of my gratitude for being reunited with my family goes to the RLAP Team! Thanks to their help I am now able to have my family with me again. I would also like to appreciate the professional expertise and excellent interpersonal skills of the entire Team, and the dedication and commitment of the trainee law students of

the University. RLAP is very important for refugees in the community and I hope it will keep running for many years. – 2013 Client

The project also provided a valuable and unique experience to law students who have helped to deliver the project, enabling them to play a crucial role in real legal cases early on their careers.

“Thanks to RLAP I have become familiar with the code of conduct when in direct contact with clients. RLAP has allowed me to put into practice skills I have learnt whilst doing my degree.” - Kimarla

Bedfordshire were the first University to form a project of this nature. As a result of its popularity and success, there are now 4/5 similar projects operating across the county helping refugees reunites with their families.

Arts and Culture

East Youth Dance Development

East Youth Dance is a partnership between the University of Bedfordshire and DanceEast to improve access to youth dance and create high quality opportunities for young people to experience dance across the East of England. Supported by Arts Council England, the University and DanceEast works with delivery partners across the region to oversee the provision of dance events and projects.



The UK Culture White Paper by DCMS sets out the Government's ambitions for the arts and culture industries. It focuses on how culture can be used in placemaking to benefit both local and national economies. The East Youth Dance Development project supports this strategy by encouraging children to be inspired by and have new meaningful relationships with arts and culture.

To date, the project has supported 543 young people to participate in dance workshops, projects and performances. 45 young people have registered to undertake Arts Award Qualifications. In tandem, East Youth Dance has seen good engagement with professional artists and creative organisations in the sector including: BEEE Creative, English National Ballet, and Kadam South Asian Dance.

Local Cultural Education Partnerships (LCEPs)

The University of Bedfordshire currently sits on the Executive Group and Operational Group of the Luton CEP and on the Operational Group of the Bedford CEP, also known as Bedford Arts and Cultural Education. Launched by Arts Council England in 2015, LCEPs bring together arts and culture organisations, educational institutions and local authorities to share resources and improve the alignment of cultural education for young people.

The Cultural Education Partnerships Pilot Study report (2015) evaluated the pilot programmes across England during 2014-15. At national level, there were early impacts reported of:

- Increased engagement of children and young people in culture.
- Enhanced understanding of local culture, history and pride in the local area.
- Greater awareness of cultural opportunities in schools.

- New partner relationships and widening of networks – enabling better sharing of expertise and resources.

Place

8.8 The RSA 'Inclusive Growth Commission: Making Our Economy Work For Everyone' [report](#) recommended that 'place based industrial strategies' should be established to deliver inclusive growth in local areas. Through the Director of innovation and Enterprise, the University was a key member of the Luton Inclusive Growth Commission (known as Growing Luton Together), chaired by the former Vice Chancellor Sir Les Ebdon, which was a response to the RSA's recommendations and identified the key enablers of inclusive growth in Luton. Growing Luton Together supports the report's recommendations to:

- Create a new institution or civic enterprise to connect business and industry, schools, training providers and universities together; enabling 'whole-place' leadership.
- Create a shared, binding mission between partners to respond to the challenges of delivering inclusive growth.
- Deepen understanding of local assets and existing relationships between employers, training providers, SMEs and civic society organisations.

Luton Investment Programme

In 2016, The University of Bedfordshire, Palace Theatre Watford, Luton Culture and Luton Borough Council secured a £1.1m investment as part of the Arts Council's Luton Investment Programme. The funding aims to enhance the arts and cultural infrastructure of Luton, foster partnership working and ensure that the town has a cultural offer suited for everyone.

The University is leading the 'Testbeds' project, a training and professional development programme for artists in Luton. The programme demonstrates a successful partnership between the University, local, regional and national organisations, and statutory bodies; providing a holistic support system for the local creative sector. There have been a range of impacts realised, including:

- £777,500 worth of grants have been applied for by local artists.
- 101 new partnerships have been built (52 local authorities, 14 higher education institutions).
- Over 35 new artist/academic partnerships have been created.
- At least 85 teaching hours achieved in undergraduate and postgraduate units.

Growing Luton Together

Growing Luton Together is a collaborative inclusive growth commission between the University and strategic partners who are committed to delivering an inclusive economy in Luton, where everyone can benefit and contribute. The

ambitions to deliver inclusive growth are centred around three themes: places, communities and people. In the 'communities' theme, there is a focus on strengthening the foundation of anchor institutions and increasing joint working to drive innovation, business growth and healthier workplaces. The University is recognised by the commission as a deeply embedded institution in Luton, that will help progress this theme in the future.



9. The University's Economic Footprint

- 9.1 This section provides a quantitative assessment of the University's economic footprint. This considers the economic effects arising from the expenditure flows attributable to the University, including direct effects, indirect/supply chain effects, induced/personal expenditure effects, and the student and visitor spend effects.
- 9.2 These are measured for 2018/19 in terms of Gross Value Added and employment supported.

Direct effects

- 9.3 The University employs **1,138 staff**, which makes it one of the largest employers in Luton, alongside Luton Borough Council and Luton and Dunstable NHS.
- 9.4 Staff work in a wide range of occupations, including academics, management and administration, porters, cleaners and security staff: just over half (51%) were in academic positions, with the remainder in student support, administrative and management posts.
- 9.5 The University generated a total income of **£119.7 million** in 2018/19. This supported total **direct GVA of £87 million** for Luton.
- 9.6 This implies that the University is a high productivity entity in and of itself: with a GVA per job of over £75,000, this is around 40% higher than the prevailing average in Luton of £55,000.²²

Indirect and induced effects

- 9.7 In 2018/19, The University of Bedfordshire spent a total of £45.1 million on external suppliers based in the UK, of which £6.1 million was spent in the SEMLEP area and £3.9 million in Luton. Of the total, £21.8 million was to deliver capital investment in the University's facilities.
- 9.8 This injection of expenditure into the economy supports jobs within the University's direct suppliers as well as throughout the supply chain as these suppliers then source further goods and services in order to service the demands from University. We estimate that this expenditure supported around **100 FTE jobs and £5 million in GVA** in the SEMLEP area, which grows to **700 FTE jobs and £40 million in GVA** at the UK level.
- 9.9 Around three-quarters of the University's staff (74%) live in the SEMLEP area, with a third in Luton. Whilst staff are employed in a range of positions and at different skill levels, a high proportion are highly skilled. This is reflected in the overall average salary for direct staff, which stands at £41,100: some 27% higher than the average for Luton.
- 9.10 As direct staff – and those in the supply chain - spend their wages and salaries locally, this supports further economic activity and multiplier effects. We estimate that through these effects, the University supports a further **100 FTE jobs and £8 million in GVA** in the SEMLEP area, or **500 FTEs and £35 million in GVA** for the UK.

Student expenditure effects

- 9.11 The University of Bedfordshire has around 12,800 students, of which 9,920 are Full Time, and the remainder Part Time.²³ This makes the University the second largest HEI in the

²² Source: ONS Sub-regional Productivity estimates

²³ Source: HESA

SEMLEP area by student numbers, and roughly three times as large as Cranfield, the nearby specialist University. Of these, around a third live in Luton and two thirds in the SEMLEP area.

- 9.12 National survey evidence has found that in 2014/15 (the latest year for which data is available), after tuition fee costs, Full Time Students in England spent an average in term time of approximately £11,000 per annum and Part Time Students spent approximately £14,000 per annum. Much of this goes on accommodation, retail services, and bars and restaurants. As this expenditure flows throughout the local economy it supports further multiplier effects.
- 9.13 We estimate that these combined student and visitor expenditure effects support a total of approximately **700 gross FTE jobs and £55 million in GVA in the SEMLEP area**, growing to **2,800 gross FTE jobs and £200 million in GVA** in the UK.

Summary of economic footprint

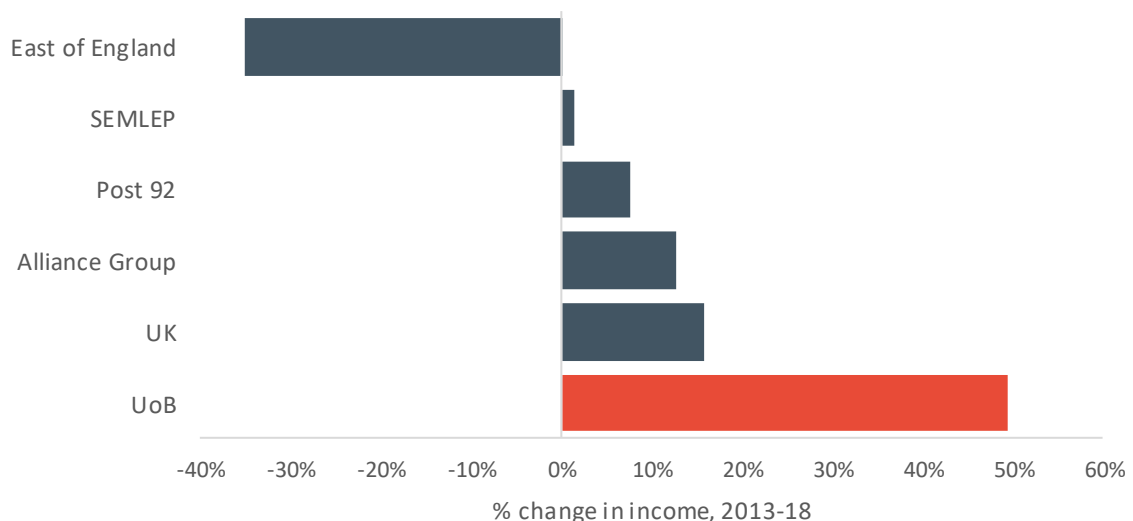
- 9.14 Bringing these elements together, through these expenditure effects alone:
- the University supports a total of **5,100 gross FTE jobs and £370 million in GVA** in the UK, of which **2,000 jobs and £150 million in GVA** are in the SEMLEP area
 - for every direct job at the University, a further 3.5 gross jobs are supported in the wider UK economy.

10. Conclusions and Recommendations

Summary of economic impact

- 10.1 Overall, in 2017/18 (the latest year available) the University brought in around **£8.9m in income from its Research and KE activities** (ie the sum of income from each of the above themes).
- 10.2 Over the past five years, the University has brought in nearly £50m in income from its Research and KE activity. The University's focus on research and KE in particular has meant income has grown by £1.5m (+49%) since 2013. This is in stark contrast to income growth across universities in the region, where there has been a sharp fall in KE income. This is shown in the chart below, which illustrates the impressive performance of the University.

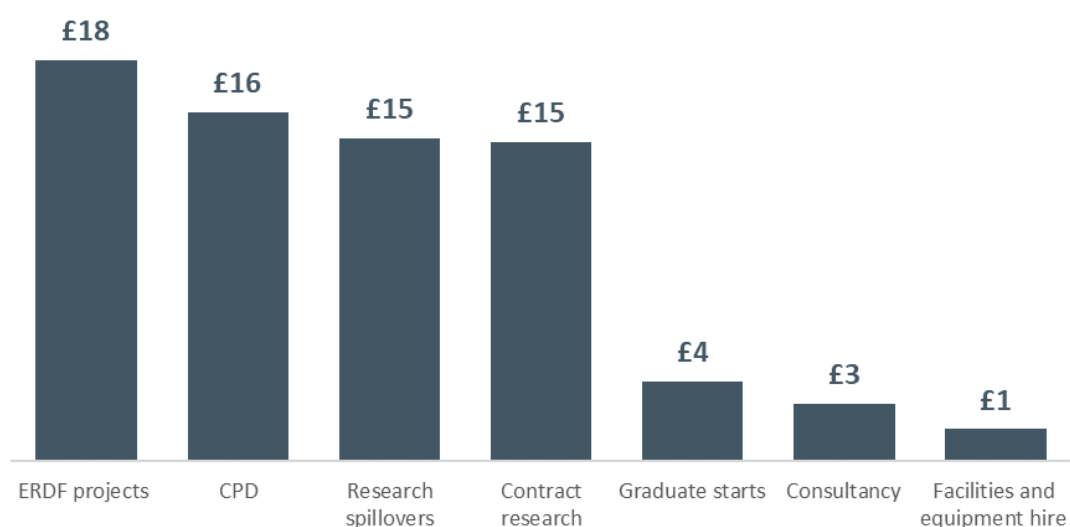
Figure 10.1 % Change in Research and Knowledge Exchange Income for Selected Comparators, 2013-18



Source: HEBCIS, 2013-18

- 10.3 The assessment has outlined the significant economic impact that the University's KE activity makes to the economy. This is summarised below (measured in Gross Value Added) for each element of research and KE that has been estimated. In total, the University contributed around **£70m in GVA from its KE activity alone in 2018/19. This is in addition to the University's core economic footprint of £370 million in GVA.**

Figure 10.2 University of Bedfordshire Research and KE Impact £ million, 2018/19



Source: Hatch Regeneris. Note: Figures are rounded

10.4 It should also be noted that these quantitative impact figures do not take into account important, strategic contributions the University's research and KE activities makes towards:

- addressing wider strategic economic and social development objectives and priorities
- engaging with other civic and anchor institutions
- wider societal benefits of its research including health and environmental benefits.

10.5 These are impacts that cannot be quantitatively assessed, although they have been outlined qualitatively under the relevant themes.

This scale of Research and KE impact implies **that for every £1 received in income from relevant sources, the University generates approximately £6.50 in net additional GVA.**

Recommendations on future monitoring and impact assessment

- 10.6 As policy further emphasises universities' local economic and civic roles, and as the Knowledge Exchange Framework is implemented over the next year, it will be very useful for the University to have readily available evidence on the impact of its Research and KE activity. This can then be used for external stakeholder communications and PR activities, funding applications, and as useful management information to inform strategic decisions.
- 10.7 The University already has a great deal of data that it collects as part of its own management information and for reporting to funders and stakeholders (e.g. through HE-BCIS). This will form the basis of the new KEF indicators. Whilst this is useful, this information only provides a headline picture and does not enable the University to
- monitor or report on the **types of organisation** it is supporting, their sectors and their locations
 - to really understand what **economic impact** this support is having on beneficiaries and the wider economy (since HE-BCIS only captures income and selected outputs).
- 10.8 Our report has provided a starting point for this impact assessment using the information available.
- 10.9 We recommend that the University considers implementing a number of key measures in order to enhance and future-proof its monitoring of Research and KE activity and impact:
- **Continue to expand upon and record more detailed data on the businesses the University works with.** As well as including contact details, the sector and location of the business would be useful to record in order to understand where impact is being felt (both geographically and sectorally).
 - **Define and segment Research and KE activity** by appropriate categories that reflect the breadth of activity that the University delivers (HE-BCI categories may or may not be the most appropriate in terms of impact). These categories can then be allocated to businesses the University engages with.
 - The information above should be monitored within the current **CRM system** within the Innovation and Enterprise Service so that at any time, the University knows exactly what interaction each beneficiary has had with them, when this engagement occurred, how many beneficiaries have been engaged under each type of interaction, and in which sectors the University has engaged with. This would then enable the University to better;
 - **Define a set of indicators for each interaction type.** Each category of activity/interaction could then have a set of measurable indicators that can be monitored going forward. The University is already required to measure some of this for the HEBCI survey, but there could be others which it should consider monitoring (such as new products created, increase in Technology Readiness Levels etc).
 - **Identify what types of impact could flow from each of these interactions.** It would be prudent to go one step further and develop an impact framework (as the indicators above focus more on outputs). This would essentially identify what types of intermediate impacts (e.g. new products developed) and impacts (such as job creation and growth in turnover) would occur for each type of activity.
 - **Develop more effective data collection mechanisms.** This would depend on the nature of indicators and impacts that the University wants to monitor. Examples here could be a feedback form that businesses are required to complete at specified

stages of receiving support, or it could be a survey of businesses that is repeated at defined intervals (eg every two years).

Appendix A - Consultees

Table A.1 Consultee List	
Consultee	Organisation
Emma Gill (Payne)	University of Bedfordshire
Jun Peng	University of Bedfordshire
Gurch Randhawa	University of Bedfordshire
Antigonos Sochos	University of Bedfordshire
Silvia Borelli	University of Bedfordshire
Erica Cooke	University of Bedfordshire
Jodie Yandall	Central Bedfordshire Council
Vicky Hlomuka	SEMLEP
Eamon Keenan	University of Bedfordshire
Wayne Cartmel	MyNewTerm
Alex Cother	Drax Technology

Appendix B - Technical Appendix

Measures of impact

- B.1 Economic effects are expressed as contributions to Gross Value Added (GVA). GVA is the primary measure of economic contribution for a firm, sector or region and is measured as the sum of operating surplus before interest, tax, depreciation and amortisation, and total employment costs (inclusive of pension and social security contributions). The estimates of economic footprint are also expressed in terms of jobs supported (measured as Full Time Equivalents, or FTEs) where possible.
- B.2 Impacts for research and knowledge exchange are estimated at the UK level because it is this spatial level that the majority of the evaluation and benchmark evidence refers to. For economic footprint impacts, these are estimated at the UK level and the SEMLEP level.

Research and Knowledge Exchange Impact

- B.3 The report is based on the *value transfer* approach. Where bespoke evaluation of interventions is not feasible, this approach involves applying the results of existing, robust impact evaluations to the activities and outputs for a similar intervention. In order to do this, we sourced appropriate evaluations, mapped the results of these against our impact themes, and applied them to the University of Bedfordshire.

Regional Economic Growth (ERDF Projects)

- B.4 This refers to the impact from the business support projects that the University is involved in and helps deliver. To estimate the impact from these projects:
- We looked at evaluation evidence for the business support projects that the University helped deliver. Based on two of these evaluations (where full summative assessments have been undertaken) this resulted in a net additional GVA per supported business of around £80,000.
 - We then sourced information on the total number of businesses that have been supported by the University's business support projects based on evaluation evidence and consultation with University staff. We also looked at the what these other projects were delivering to ensure that they were similar to the support provided by the projects from the evaluation evidence drawn on.
 - To annualise impacts, we then looked at the duration of each of these projects to estimated how many businesses are supported on average per year.
 - We then applied the net additional GVA per supported business figure to this derive net additional impacts for all businesses supported.

CPD, Consultancy and Contract Research

- We were provided with information by the University on the amount of income secured from each of these services in the last financial year.
- There is a range of national evidence on the economic impact of these services (or comparable services). This evidence provided a variety of impacts metrics, but the key one we used (given the income data we had) was the return on investment

(ROI) from one years' worth of income. The evaluation evidenced resulted in an average benchmark ROI of 3.6.

- This ROI has then been applied to the income figures for each of the support/services to derive national GVA impact.

Graduate Start-Ups

- We used HE-BCI data to derive the level of employment and turnover generated from graduate start-ups and social enterprises the University helped to create in the last year.
- We converted these to Gross Value added using a national Turnover:GVA ratio from the Office of National Statistics (ONS) and adjusted for additionality using published benchmarks from BEIS.

Research Impact (Spillovers)

- We sourced data from the University's accounts on the research income from three different sources; Research Council grants, Government, and industry & commerce.
- Evaluation evidence provides range of national ROI figures for each of these sources²⁴. These ROIs have been applied to income for each of these sources to derive total research spill over impact.

Higher Level Skills (from graduates)

- We used data from the Destination of Leavers in Higher Education (2017) to source the number of University of Bedfordshire graduates in employment in the UK.
- To estimate the impact of productivity improvements, we used data from the ONS on employed human capital per head. This essentially allows us to calculate a degree premium relative to workers with A levels. This per year premium has then been applied to one year's cohort of graduates and projected forward over an assumed 40 year working life.
- This results in a cumulative productivity benefit, which has then been discounted at the 3.5% social discount rate (based on HM Treasury guidance) to derive a cumulative Net Present Value productivity benefit.

Return on Investment

B.5 To estimate the overall research and KE ROI we have

- Aggregated up all the of the impacts from the above sources, excluding the impact from higher-level skills. The rationale for excluding this is that this impact is delivered predominately as result of the University's teaching role, which we have not included in the income sources (below).
- We have then looked at the total amount of income received for KE and research, based on the University's accounts. This refers to income received from Funding Body grants, and research grants and contracts.

²⁴ Research from London Economics, Haskel J and Wallis G (Public support for innovation, intangible investment and productivity growth in the UK market sector, 2010), and Haskel J , Hughes A & Bascavusoglu-Moreau E (The economic significance of the UK Science base, 2014).

Economic Footprint

- B.6 The economic footprint of the University refers to the economic effects arising from expenditure flows attributable to the University. This comes from direct effects, indirect/supply chain effects, induced/personal expenditure effects, and the student and visitor spend effects.

Direct

- B.7 Direct economic footprint refers to the on-site employment and associated economic value that is created by the University:
- Employment numbers have been sourced from the University for the latest financial year
 - Gross Value Added has been calculated from the University's accounts based on the sum of staff costs and EBITDA (earnings before interest, tax, depreciation and amortisation).

Indirect

- B.8 Indirect benefits refer to the economic benefits supported by the University's external operational and capital expenditure on goods and services. This expenditure supports employment and value added within the University's immediate suppliers and within all subsequent tiers of the supply chain, as the University's direct suppliers make purchases from their suppliers, and so on.
- B.9 Expenditure data has been provided by the University on the amount spent with suppliers based in the UK and SEMLEP in the last financial year. We have used our previous University impact work to allocate this spend to sectors, which has then been matched to Hatch Regeneris's input-output model for the UK Regions. The full economic impacts of this expenditure have then been estimated using our input-output model. The model is based on data from the UK National Accounts and allows us to estimate the supply chain multiplier effects from an initial injection of expenditure on a particular sector.

Induced

- B.10 Induced benefits refer to the effect of spending by employees whose jobs are supported directly by the University and indirectly within the supply chain.
- Benefits from the spend of University employees have been estimated using data on salaries provided by the University. These have then been adjusted for taxes, National Insurance, pension contributions and savings rates. Our input-output model has then been used to estimate the multiplier effects from this spending.
 - Benefits from the expenditure by employees in the supply chain have been estimated using the Type 2 (indirect and induced) multipliers within Hatch Regeneris's input-output model.

Student Expenditure Spend

- B.11 This refers to the benefits from the expenditure of the University's students. To estimate the economic impact of this, we have:

- Sourced data from the University on the number of students who study full time and part-time, where their home and term time address is (ie in SEMLEP or rest of the UK), as well as the % that live either at home, in University-owned accommodation or in private accommodation.
- Each of these different groups of students will have different expenditure patterns. Based on our previous University impact work, as well as published data on the amount that students spend on average, this has been inputted into our input-output tables to estimate the direct, indirect and induced impact of this student expenditure.



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