

University of Hull

Economic Impact Study

A final report to the University of Hull
October 2023





Contents

1. Executive Summary	1
2. Introduction	5
3. Framework, Approach and Definitions	7
4. Core Impacts	11
5. Access, Participation and Student Impact	15
6. Graduate Impacts	23
7. Innovation and Business Engagement	31
8. Impactful Research	38
9. Building Regional Capacity	46
10. Impact in Context	50
11. Conclusions	59



1.

Executive Summary

The University of Hull creates an impact worth £1.2 billion GVA and supports 14,500 jobs in the UK. The University is firmly rooted in the Humber region and deeply committed to the area's economic and social development. It lives its values of social justice and environmental sustainability, contributing to research and policy development at a regional, national and international level.

There are two elements to the impact created by the University: one which can be quantified in terms of Gross Value Added (GVA) and jobs, and one which cannot be quantified but is no less important for the people, economy and environment of the region. Both aspects have been addressed in this study.

1.1 The University of Hull's Quantifiable Impact

In 2021/22, the University of Hull had an income of £197 million, a staff complement of 2,330 people and 12,490 full-time students. It also generated a total economic impact of:

- **£477 million GVA and 6,660 jobs in the City of Hull;**
- **£694 million GVA and 9,260 jobs in the Humber Region; and**
- **£1.2 billion GVA and 14,480 jobs in the UK.**

In terms of total GVA, 40% of the University's impact is retained in the City of Hull and 58% is retained in the Humber region. In employment terms, 46% of its impact is retained in the City of Hull and 64% in the Humber region.

The University's impact comes from several sources that make a significant contribution to the economy of the Humber region:

- **core operations**, which include the income the University receives, the staff it employs, the supply chain it supports and the capital investments it makes - such as the recently completed student accommodation, the Allam Medical Building and the performance venue at Middleton Hall. Collectively this supports £207 million GVA and 4,060 jobs each year;
- **tourism** – from drawing in visitors to staff and students and events hosted at the University. This supports around £2 million GVA and supports an estimated 50 jobs each year;

- the full-time **student community**, which supports an impact worth £147 million GVA and 4,610 jobs each year through student spending, working and volunteering activity;
- **graduates**, who create a lifetime earnings impact which is worth £175 million GVA and an additional exchequer impact worth £99 million; and
- **innovation and business engagement**, which is reflected in the income the University receives from licensing, the spin-outs and start-ups it has helped to create, the incubator activity it supports, its services to businesses, knowledge transfer partnerships, placements/internships and health and medical research. This supports £64 million GVA and 540 jobs each year.

It also has a significant multiplier impact: every job directly created by the University supports six jobs throughout the UK and every £1 received by the University in income supports £6 GVA in the UK.

1.2 The University's Wider Influence on the Region

The University's roots reflect the City's heritage as a trading port, and it has grown to become a major civic institution that generates wider benefits for the Humber region. This is driven by its twin principles of supporting environmental sustainability and promoting social justice.

1.2.1 Economy and Environment

The University of Hull's impact on the region's economy and environment is clear:

- it supports the region's **foundational economy** by supplying nurses, health professionals and teachers – with 46% of its graduates going on to work in health, social work and education, and many of its students supporting the delivery of services through their undergraduate placements;
- its work underpins the **area's reorientation** towards a cleaner, greener and more digital future. This is most clearly evident through its Energy and Environment Institute, including the Flood Innovation Centre, which focuses on sustainable energy and environmental resilience, and is reflected through strong partnerships such as the Operations and Maintenance Centre of Excellence for the offshore renewables industry. It is also evident in its curriculum with the introduction of new courses such as the MSc in Artificial Intelligence and Data Science which has grown rapidly in popularity;
- it supports **innovation, business engagement and resilience** through Lampada Digital Solutions, a wholly owned subsidiary which aims to establish wider external business relationships, and the Aura Innovation Centre which connects with local businesses to explore opportunities associated with the region's renewables sector; and
- it facilitates the area's **cultural capacity** and is a core partner of the Freedom Festival which delivers cultural experiences and events for people in the area.

By delivering education and research expertise for these professions and sectors, the University is helping to build the area's self-sufficiency in core services, and

sectors that are significant for the area's future. Its work has helped to lever in substantial funding for research and development in an area which typically ranks low on this aspect, and it supports a community of business start-ups through the Enterprise Centre.

The area's key economic agencies highlight the many competitive advantages the Humber has to offer which includes energy transition, manufacturing, and health and social care. These are areas where the University of Hull has internationally recognised strengths in research and an engaged approach to knowledge exchange and innovation.

The University is firmly committed to the Humber. Its strong sense of place and purpose is guiding the region's economic, environmental and social development.

1.2.2 Society and Health

The Humber region has pockets of deep and long-standing social deprivation. Most of these pockets are within the City of Hull itself which ranks in 4th position out of the 317 local authorities in England based on its proportion of most highly deprived neighbourhoods¹. While some progress has been made, it takes time to create a change that is significant and permanent, and education is a key element in supporting that change in a sustainable way. Therefore, in an area with **deep-rooted socio-economic challenges** around poverty, worklessness, youth unemployment, low earnings, and lower than average qualifications, the University is key piece of socio-economic infrastructure for helping to transform the life prospects of individuals and local communities.

A long-standing, and growing, feature of the undergraduate student intake at Hull is its proportion of students from low participation areas (POLAR 4, Quintile 1). In 2021/22, this group accounted for 29% of new students, which was more than twice the sector average of 13%. Also, proportionately more students at Hull have a reported disability and the number of students in this category has been growing steadily. Within this context, Hull performs well in supporting its **large, diverse and inclusive student population** through to successful completion and progression beyond their time at university. Employability and career support is embedded throughout the student journey at Hull and 87% of the 2020/21 graduates were in employment or further study 15 months after completing their course. By creating skilled, work-ready graduates, the University plays an important part in supporting the long-term productivity and sustainability of the region's economy.

¹ The English Indices of Deprivation 2019 – Statistical Release



Beyond its student body, Hull is actively engaged in raising aspirations and attainment for young people in the Humber region through its **outreach work**. It is the lead institution in the Humber Outreach Programme (HOP) which has worked with almost 100,000 school pupils since 2017, and in 2022 it partnered with the University of York to deliver IntoUniversity Hull East, an education and mentoring support service for young people from the age of seven.

The importance of **social justice** to the University is also evident through the work of the Wilberforce Institute which it created in 2006 and is making a significant policy contribution towards addressing modern slavery in the UK and abroad.

The **health** of the local population is poor in many respects and life expectancy for people in Hull is three to four years lower than the national average. The gap is even greater in the City's most deprived areas. In this context, the provision of nurses, midwives, paramedics, and other health professionals is crucial, and the presence of the Hull York Medical School is a vital resource for the region's healthcare workforce. Its research work is also attuned to the additional healthcare needs of the region through the Wolfson Palliative Care Research Centre, which focuses on reducing inequalities in palliative care outcomes, and its HealthiER collaboration with the East Riding of Yorkshire Council to encourage positive lifestyle changes for people with a high BMI. The University is one of just four in the UK to have received funding from the Ideas Fund to promote positive mental health outcomes for the region and following a five-year agreement with Smith and Nephew, it has become home to one of the largest Wound Care Research Clusters in the world.

1.3 Conclusion

The University of Hull's commitment to the region is clear. It **lives its values** of environmental sustainability and social justice and can evidence these through its research specialisms, curriculum, approach to business engagement and outreach work.

While the area faces significant socio-economic challenges, there is a collective will to harness the opportunities that exist within the region and reshape its future direction. The University is a major part of the social and economic infrastructure that allows this to happen.

2.

Introduction

The University of Hull is a key part of the economic and social landscape of Hull and the Humber region. This report quantifies the economic contribution it makes and describes how it helps to shape the region's economy, environment and society.

2.1 Background

The University of Hull was founded in 1927 as a “centre of light and culture” for Hull and, over time, it has retained this strong sense of place and purpose while also reaching wider to connect with a global community in addressing common challenges. Its current strategy up to 2030 focuses on the two themes of environmental sustainability and social justice, and these are underpinned by its values of being inclusive, empowering and progressive. In June 2022, the University entered a formal twinning agreement with Mariupol State University (MSU) in Ukraine to support them in continuing with their academic offering from a new base in Kiyv.

The University of Hull's vision is to create a fairer, brighter, carbon neutral future.

The University's research expertise includes the fields of social justice, environmental technologies and maritime history, and its work in healthcare, 3D visualisation and nanotechnology is widely respected. The University's healthcare graduates make an important contribution to the region's health services and hospitals, boosting the work of the NHS in the area, and its education graduates support the region's education system.

Its facilities have recently benefitted from a major investment programme which has encompassed student accommodation, the health campus including the Allam Medical Building and the performance and cinema venue at Middleton Hall.

The University of Hull is ranked in 81st position globally in the Times Higher Education's (THE) Impact rankings and is placed within the top 25 universities globally and the top 10 in the UK for three of the UN's Sustainable Development Goals (SDGs) which relate to life below water; peace, justice and strong institutions and partnerships for the goals. It ranked among the universities which saw the greatest increase in rank at a national level in the REF2021 cycle.

2.2 Study Objectives

The purpose of this report is to demonstrate the current scale of economic impact created by the University of Hull and illustrate the range of impacts it supports, including:

- the core employment and gross value added it creates;
- the effects from supplier and income multipliers;
- the impact of capital investment;
- the impact from its student community;
- the impact its graduates generate in the knowledge economy;
- its research, innovation and business engagement impacts; and
- the wider impact the University makes in the area where it is based.

2.3 Report Structure

The remainder of the report is structured as follows:

- section 3 outlines the framework, approach and definitions used in the study;
- section 4 sets out the core impacts generated by the University through its role as a large employer, its supply chain spending, capital investment and its visitor impact;
- section 5 describes the University's impact in widening access and participation and presents the impact created by its student community from living, working and volunteering in the local area;
- section 6 presents the impact created by graduates through their lifetime earnings;
- section 7 outlines the impacts generated by the University's work to support innovation and engagement with business and industry;
- section 8 describes some of the wider societal benefits associated with the University's research, most of which cannot be quantified;
- section 9 discusses how the University helps to build regional capacity through its curriculum, outreach work, graduates and research;
- section 10 describes key features of the areas socio-economic profile to put the University's impact in context; and
- section 11 presents the conclusions of the report.

3. Framework, Approach and Definitions

This section outlines the contribution of higher education to economic growth before outlining the approach and methodology used for the study.

3.1 Theoretical Framework

The role played by universities in economic development has long been recognised. As sources of research and development, they play a central role in supporting the growth of industry clusters and make a significant contribution to economic growth.

Several influential economists have published work which sets out a theoretical and empirical case for the role that high-level skills and innovation play in boosting economic competitiveness and addressing inequalities in society. The Nobel prize winning economist, Joseph Stiglitz, has argued that productivity is the result of learning, and that a focal point of policy should be to increase learning within the economy. This diffusion of knowledge and innovation results in productivity gains and consequently economic growth, highlighting the crucial role which universities can play in local, national, and international economic development.

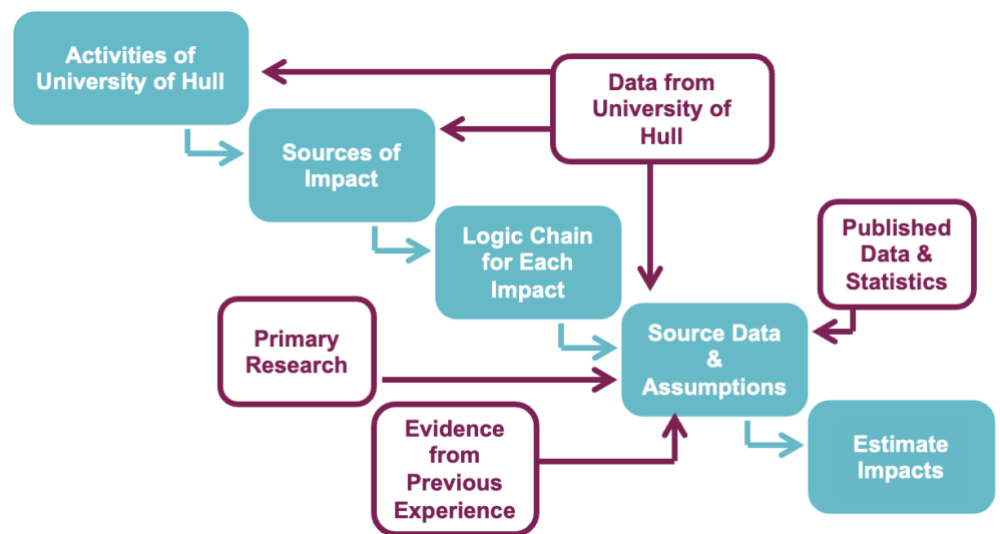
Universities drive economic growth and boost competitiveness by diffusing knowledge which raises productivity.

3.2 Study Approach

3.2.1 Overall Study Approach

The objective of this study is to estimate the scale of the economic contribution generated by the University of Hull. The steps involved in this process are illustrated in Figure 3-1.

Figure 3-1: University of Hull - Study Approach



Source: BiGGAR Economics

The starting point for analysis was to consider the various activities undertaken by the University and to identify those that were likely to generate an economic contribution. Logic chains were then developed to describe how each type of activity generates economic value. The next step was to consider how the value of each activity could be measured and what data would be required to do this. For most activities, two types of information were required:

- **source information** about the scale of the activity, which was supplied by the University of Hull; and
- **other data and published statistics** which could be used as the basis for assumptions to measure economic value. Where University data was not available, an appropriate assumption was made based on BiGGAR Economics' previous experience of comparable institutions.

The key statistical sources used were the 2020 UK Annual Business Survey and 2018 Input-Output Tables for the UK, which were published by the Office for National Statistics (ONS) in 2022. Further assumptions were informed by published reports and official statistical sources which are referenced as appropriate throughout the report. The data sources were used to populate an economic model which estimated the value of each contribution made by the University and these were aggregated to produce an estimate of the total contribution made.

Beyond the quantifiable impacts, the University of Hull contributes strongly to the city it is part of through its central mission to address social inequalities, its work relating to environmental management and its connection with local business and industry. To understand the important role it plays in these areas, a series of consultations were held with the University's staff to highlight its distinctive strengths and the wider impacts it creates.

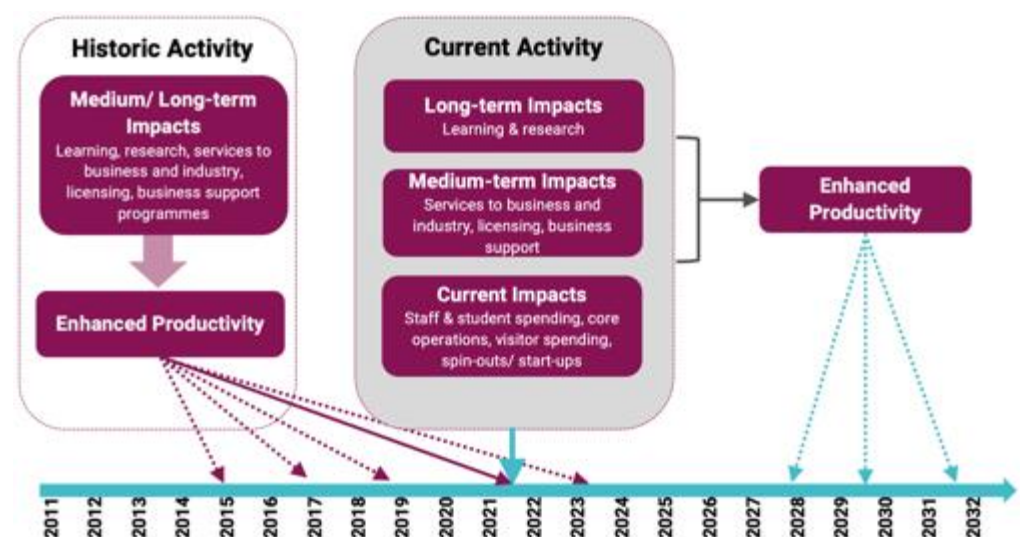
3.3 Impact Time Frame

Our economic analysis measures the impact created during one academic year, which in this case was 2021/22. This marked the tail end of an exceptional time with the impact of the COVID-19 pandemic having deeply affected all aspects of the University and wider public life since March 2020.

The study is intended to provide a measure of the University's impact at a snapshot in time. However, in designing this approach it is recognised that some of its activities generate an economic impact immediately, for example, staff and student spending, while for most activities the economic impacts will occur over a longer time frame, for example, the graduate premium. Therefore, the impact generated in 2021/22 will be the cumulative impact of historic activity plus some immediate impacts of spending in that year. Limitations in data mean that it is generally not possible to estimate the true impact of historic activity that is realised in any particular year, and to overcome this issue, the report makes the simplifying assumption that activity in 2021/22 generates impact in 2021/22.

Figure 3-2 summarises the different types of activity considered in the report and the timescale over which they generate impact. The blue arrows represent impact generated by current activity, and the purple arrows represent impact generated by historic activity. The dashed arrows represent future impacts, and the solid arrows represent impact in the current year.

Figure 3-2: Impact Time Frame



Source: BIGGAR Economics

3.4 Reporting Definitions

The quantifiable economic impacts have been assessed using two widely accepted economic measures:

- **Gross Value Added (GVA):** which measures the monetary contribution that an organisation adds to the economy through its operations; and
- **Employment:** which is measured in terms of headcount jobs supported.

These metrics provide a convenient way of capturing the entire economic contribution in a single number. However, monetary figures highlight only part of the value of an impact. This report recognises that it is not possible to quantify all impacts of a higher education institution because:

- the data that would allow the monetisation of benefits is at an early stage of research;
- not all economic and social impacts can be converted into monetary terms;
- monetary values do not capture aspects such as quality and equality; and
- monetary values are static and do not capture the dynamic activities that drive economic and social impact.

3.4.1 Study Areas

The impacts presented in the main body of this report have been assessed for the study areas of:

- Hull – defined as the area covered by Kingston upon Hull City Council;
- the Humber region – defined as the four local authorities of the East Riding of Yorkshire, Kingston upon Hull City Council, North Lincolnshire and North East Lincolnshire; and
- the UK.

4. Core Impacts

As a large employer with an extensive supply chain, the University creates a sizable economic footprint in the local economy.

The core impacts associated with the University of Hull include its:

- direct impact – the income the University receives and the staff it directly employs;
- supply chain impact – from expenditure on goods and services;
- staff spending impact – from staff spending salaries in the economy; and
- capital expenditure impact – from investment in capital infrastructure.

There are also tourism impacts arising from people visiting staff and students at the University and visitors attending University open days and events.

4.1 Direct Impact

The direct economic impact is the value an organisation adds to the economy through its operations, and it is measured in terms of Gross Value Added (GVA) and the employment it directly supports. In the context of a university, the GVA it creates can be estimated as the difference between total income and total supply chain spending.

In 2021/22, the University of Hull had a total income of £197 million and it spent £59 million on supplies of goods and services. Therefore, the direct GVA it created in the UK was £138 million. In addition, the University directly employed 2,330 staff, equivalent to 1,760 full-time equivalent employees.

4.2 Supply Chain Spending

As large and complex organisations, universities have an impact on the wider economy by increasing turnover and supporting employment throughout their supply chain.

In 2021/22, the University of Hull spent around £59 million on goods and services, excluding capital investment. Based on data provided by the University, all the University's suppliers were based in the UK. Around 15% of the University's suppliers were based in Hull and 23% in the Humber region. This has been converted into GVA and employment impacts by applying appropriate ratios and calculating multiplier effects.

4.3 Staff Spending

The staff who work for the University have an impact on the wider economy by spending their wages and salaries in the areas where they live.

Data provided by the University indicates that the 2,330 staff employed by the University receive £142 million in salaries, wages and other staff costs. 38% of staff who work for the University live in Hull, 82% live in the Humber region, and 99% live in the UK. This has been converted into GVA and employment impacts by applying appropriate GVA to jobs ratios, calculating multiplier effects and apportioning these to the relevant geographic areas.

4.4 Capital Investment

Capital investments made by the University have an impact on the construction sector and on businesses which supply capital equipment.

As capital spending fluctuates from year to year, an average has been calculated based on actual spending over the last five years and projected spending over the next five years (2017–2027). On this basis, it was estimated that the University spends around £34 million per year on average on capital projects.

Based on data provided by the University, 26% of recent capital spending has been secured by companies based in Hull and 28% by companies based in the Humber region. All of the University's capital suppliers were based in the UK. This was converted into GVA and employment impacts by applying appropriate GVA and employment ratios and multipliers and apportioning these to the relevant geographic areas.

4.5 Core Impacts Summary

Summing together the economic impact generated by core activities alone, it is estimated that the University of Hull creates an economic contribution of £334 million GVA and supports 6,780 jobs in the UK each year. Of the total GVA impact, 50% is contained in Hull and 62% is contained in the Humber region. A summary of the annual impact from core activities by source and by area is provided in Figure 4-1.

Figure 4-1: The University of Hull - Summary of Core Operational Impacts

Source of Impact	Hull	Humber Region	UK
GVA (£ million)			
Direct impact	138	138	138
Supply chain impact	6	11	63
Staff spending impact	18	52	101
Capital investment impact	5	6	32
Total	167	207	334
Jobs			
Direct impact	2,330	2,330	2,330
Supply chain impact	90	170	950
Staff spending impact	510	1,470	2,990
Capital investment impact	70	100	500
Total	3,000	4,060	6,780

Source: BiGGAR Economics Analysis

4.6 Tourism Impacts

The final element of the operational impact which has been considered is the economic activity generated by visitors to the University and to its staff and students. This includes activity from:

- prospective students visiting the campus for open days; and
- friends and relatives visiting staff and students at the campus.

It is important to consider how much of this activity is additional to each study area (i.e. how much activity would have happened anyway, in the absence of the University). Taking this into account, the University of Hull attracted an estimated 14,260 visitors in 2021/22, of which around 90% were estimated to be visiting staff and students and 10% were associated with open days.

During the early part of the 2021/22 academic year, tourism activity was partially affected by the COVID-19 pandemic and restrictions on social distancing which reduced both the number of events and their capacity, therefore it is reasonable to assume that more visitors would normally be attracted to events organised by the University in a more typical year.

Total visitor spending was estimated from data provided by the Great Britain Day Visits Survey (GBDVS) and the International Passenger Survey on average visitor spend, the average number of visits to friends and relatives and the associated spend per head in each study area.

The additionality of the tourism activity is greater at the local level than for the larger study areas because it was assumed that the visitors would have made trips to other areas of the UK if they had not visited Hull.

The impact of tourism activity was converted into GVA and employment impacts by applying appropriate sectoral ratios and multipliers. Overall, tourism activity associated with the University of Hull in 2021/22 was estimated to support £1 million GVA and 20 jobs in Hull; £2 million GVA and 50 jobs in the Humber region; and £3 million GVA and 100 jobs in the UK.

5. Access, Participation and Student Impact

The University of Hull draws in a student community which is more diverse and inclusive than most universities in the UK and it supports them through to successful outcomes. During their time at university, its students create an economic impact in the local area through their working and spending patterns.

This section quantifies the impact the student community generates during their studies through their working and spending patterns and describes Hull's approach to supporting the policy of widening participation in higher education and how the University performs in supporting non-traditional learners throughout the student lifecycle.

5.1 Impact of the Student Community

During their time at university, the student community makes an economic contribution by spending money in the local economy, by working part-time and by volunteering. The focus of analysis in this section is on full-time students as the spending patterns and labour market contributions made by part-time students is predominately driven by their work rather than their studies. Students that volunteer within the local community support the work of local charities and services in the third sector.

5.1.1 Student Profile

In 2021/22, there were 12,490 full-time students enrolled on courses at the University of Hull. Approximately 80% were undergraduates and 20% were postgraduates.

5.1.2 Student Spending

Students term-time spending habits support turnover and employment in local businesses. Their spending is additional to the area as they may not otherwise have come to Hull (or stayed in Hull if they already lived there), were it not for the University.

To estimate the impact associated with student spending, it is necessary to determine:

- **where students live:** the type of accommodation students occupy during their studies is a key influence on their expenditure. For example, students living in rented accommodation spend significantly more on housing costs, food and household goods than those who live with their parents or guardians. Data from the University suggest that around 79% of students live in rented accommodation, either at the University or in the private sector, and the remaining 21% live with parents or guardians; and
- **their spending patterns:** this can be estimated based on data from the Student Income and Expenditure Survey for 2014 to 2015 which was published by the Department for Education in 2018. It suggested that, on average, students spent £11,750 on housing and living costs in 2014/15. Adjusting for inflation, the annual spend per student in 2021 was estimated to be £13,127.

Collectively, the annual expenditure on living costs and rent for all full-time students at the University amounted to £164 million and this figure was apportioned to the different study areas based on where students lived. Total expenditure was converted into GVA and employment impacts by applying appropriate ratios and estimating the multiplier effects.

5.1.3 Student Employment

Students who work part-time while they study also contribute to the local economy. This is usually in businesses close to where the students live, and it provides an important source of additional labour for the area.

A survey undertaken by the University's Career Department indicates that 51% of full-time students work during their studies. At the University of Hull, this equates to 6,330 students. Further research from the NUS suggests that students work for an average of 14 hours per week². This is typically in a range of economic sectors, though most commonly it includes hospitality and retail businesses.

However, not all these jobs will be additional as some may displace non-students, so an adjustment was made to account for the youth unemployment rate in each of the study areas. On this basis, 68% of all student part-time jobs were assumed to be additional to the labour market.

The impact of student employment was converted into GVA and employment impacts by applying appropriate sectoral ratios and multipliers (though induced effects have been considered elsewhere and therefore are not considered). Students working for the University have also been excluded from the analysis in this section as their impacts have been accounted for in the section which considers staff employment.

² NUS, Still in the Red

5.1.4 Student Volunteering

Students at the University also create an economic impact through their activity as volunteers. While this enables them to acquire useful skills, it also allows the organisations where they volunteer to deliver their services.

This analysis was informed by an NUS Connect Survey produced in 2014, which reported that 31% of students had volunteered over the previous academic year, for an average of 44 hours per year. For the University of Hull, during 2021/22 this amounted to approximately 170,400 hours of activity from around 3,870 students. As with part-time work, it was assumed that students volunteered in the areas where they lived. To estimate the economic contribution this supported, the total number of hours volunteered was multiplied by £11.72, which represents the estimated value of unpaid volunteering in the UK based on Community Life and time use surveys³.

5.1.5 Student Impacts Summary

Through the methods described above, it is estimated that the combined economic activities associated with the student community at the University generates £105 million GVA and supports 3,280 jobs in Hull; £147 million GVA and supports 4,610 jobs in the Humber Region; and £208 million GVA and 6,590 jobs across the UK.

Figure 5-1: The University of Hull - Summary Student Impact

Source of Impact	Hull	Humber Region	UK
GVA (£ million)			
Student spending	70	100	144
Student employment	34	45	62
Volunteering	1	2	2
Total	105	147	208
Jobs			
Student spending	2,100	3,050	4,480
Student employment	1,180	1,560	2,110
Total	3,280	4,610	6,590

Source: BiGGAR Economics Analysis

5.2 Access and Participation

As well as the size of the student community at Hull and the impact this creates, the profile of the student community is also very significant. In this regard, the University lives its values of social inclusion through its commitment to widening participation for a diverse range of students. Taking part in higher education can be life changing for many of Hull's non-traditional learners. It has well developed support services to enable as many students as possible to continue, complete and progress beyond

³ ONS, 2017, Changes in the value and division of unpaid volunteering in the UK: 2000 to 2015.

their time at university. The work of the Student Futures team to support employability is discussed in section 6.2.

5.2.1 Widening Participation

Widening participation is about broadening the opportunities for entering and succeeding in higher education, regardless of background or disadvantage. The aim is to ensure that those who can enter higher education have the opportunity to do so and are supported to enter, succeed and progress beyond their studies.

At Hull, this aim is evident in its approach to outreach work across the region, which supports higher attainment for young people. It is also evident in the performance of its students from less traditional backgrounds throughout their studies and in their progress beyond as graduates. In this respect, Hull is actively supporting under-represented groups to realise their full potential and improve their life prospects.

5.2.2 Outreach Activity

The University acts to raise aspirations for a wide range of disadvantaged groups across the region.

The University of Hull's core outreach programme works with 14 secondary schools in Humber and West Yorkshire for pupils in years 7 to 11. In the last four years, it has delivered around 700 outreach activities and supported over 12,000 school pupils through this work.

Hull is also the lead institution in HOP, the **Humber Outreach Programme**, a UniConnect programme funded by government to deliver impartial advice and guidance about higher and further education in schools and colleges across the Humber. Since 2017, HOP has worked with 43 schools and Sixth Form Colleges and 10 FE Colleges to deliver over 3,300 activities which have supported 96,600 students. Around 92% of students who took part in HOP's higher education activities who then applied to higher education were successful in their application.

In Autumn 2022, the University partnered with the University of York to create **IntoUniversity Hull East**. This is one of 39 centres throughout the UK which offers a safe space for young people aged seven and up from the least privileged areas to learn, explore and succeed. The challenge faced by these young people was made even harder by the pandemic which resulted in lost learning for many. **IntoUniversity** provides after-school study sessions, mentoring and other programmes which can help to break cycles of disadvantage by encouraging young people to realise their academic and work ambitions. Further centres in Bridlington and Grimsby are planned to open by 2025.

The University is also a key partner in the **Hull and East Yorkshire Children's University**, a charity that creates opportunities for children from disadvantaged areas within the region to discover their interests and talents.

Through these key strands of outreach work, the University of Hull actively supports children of all ages and backgrounds to raise their aspirations and maximise their potential for learning and working.

5.3 Impact of Hull's Approach

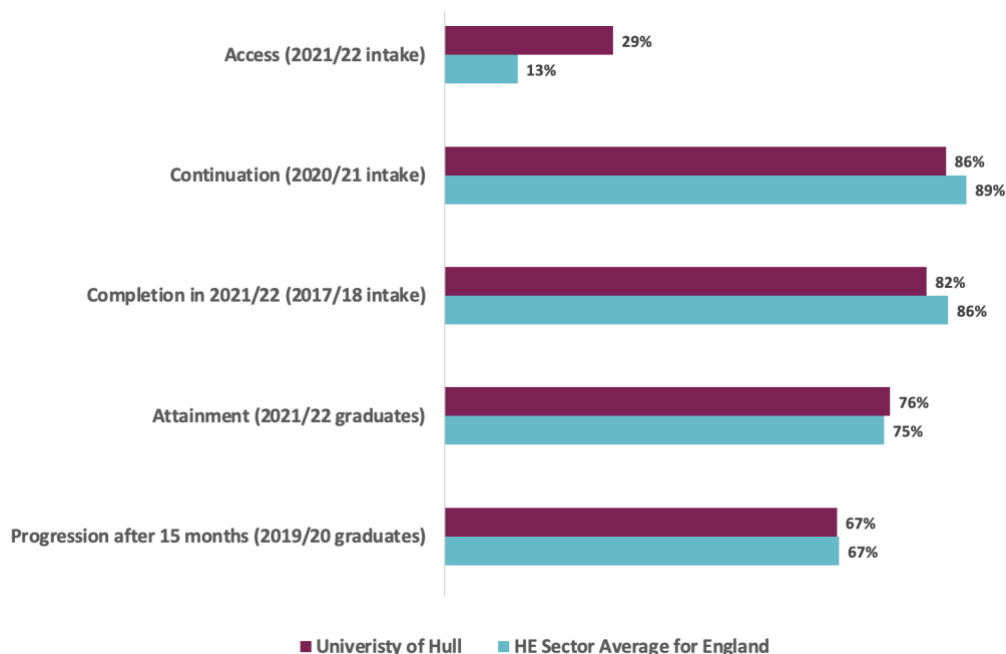
There are a wealth of measures to describe access and participation performance, but one of the most meaningful is to consider the cohort of undergraduate students who are from low participation areas. A key measure of this is the POLAR 4 indicator which classifies areas across the UK according to the proportion of young people (aged 18 or 19) living within them who participate in higher education. The Quintile 1 cohort refers to areas with the lowest 20% of participation rates for the young population, and Quintile 5 contains the highest participating 20%.

As POLAR 4 is a widely understood statistic, it has been presented in the figure below as a key piece of evidence which illustrates how the University of Hull is changing the life chances for young people from low participation areas. Out of almost 160 higher education institutions in England, the University of Hull was ranked among in the top 5 with the highest proportion of students from POLAR 4 low participation areas in 2020/21 ⁴.

Other indicators of the University's performance in supporting groups of people from less traditional backgrounds through higher education are also described. All data has been taken from the Access and Participation Dashboard published by the Office for Students.

⁴ A new area-based indicator, TUNDRA, was introduced in 2019, which focuses on the participation rate of state-funded mainstream school pupils in England. While it is also an area-based measure, it differs in several respects from POLAR 4 in that it refers only to pupils at state-funded mainstream schools in England, and it uses data-linking to track them from GSCE (KS4) at age 16 to participation in HE at age 18-19. POLAR 4 is a UK-wide measure which includes students from all school types and does not use data-linking.

Figure 5-2: Lifecycle Performance of Students from Low Participation Backgrounds at the University of Hull, (POLAR 4, Quintile 1)



Source: Office for Students, Access and Participation Data Dashboard

5.3.1 Access

In 2021/22, the proportion of new undergraduate entrants at the University who were from low participation areas (POLAR 4, Quintile 1) was 28.8%, which is more than twice the sector average of 12.5%. This is a long-standing and growing feature of the student intake at Hull and is, in part, a reflection of the area it serves. The proportion of students in this group increased from 22.0% in 2016/17 to 28.8% in 2021/22, which is a sharper rise than for the sector, where the equivalent cohort of new undergraduates at all HE providers in England increased from 11.7% to 12.5% over the same time.

Further aspects of the University's student intake illustrate how it supports the wider participation agenda, for example:

- 30.6% of new undergraduate entrants at Hull in 2021/22 were from the most deprived areas in England (IMD2019, Quintile 1 areas), compared to 22.8% across the sector. This proportion has grown steadily at Hull from 24.6% in 2016/17, compared to 19.7% across the sector at the same time;
- proportionately more new entrants at Hull have a reported disability (21.9%) compared to the sector average for England (17.4%). This proportion has grown steadily both across the sector, and at the University since at least 2016/17;
- the proportion of students with additional characteristics that would negatively affect their outcomes (ABCS, Quintile 1) is twice as large at Hull compared to the sector average. In 2021/22, 16.6% of the University's undergraduate student intake were in this category compared to a sector average of 7.1%;

- 20.7% of new undergraduate entrants at Hull in 2021/22 had been eligible for free school meals while at school, compared to a sector average of 18.4%; and
- almost 3 in every 10 new undergraduate entrants at Hull were mature students, a similar proportion to the sector average for England.

In 2021/22, 55% of the University's UK-domiciled undergraduates came from families whose parents did not have a higher education qualification (a proxy for first-in-family students) compared to a sector average of 43%⁵. This can fundamentally change the career prospects for the students concerned. Data from 2017/18 onwards suggest that the proportion of students in this category at Hull is consistently higher than the sector average, and that the gap is growing. For example, in 2017/18, 46% of UK-domiciled undergraduate students at Hull were in this category compared to a sector average of 44%.

The University has a well-developed range of services to support its student community through to successful completion and progression beyond their studies.

5.3.2 Continuation

Continuation data refer to students continuing their studies in higher education after 12 months, i.e. those returning after the first year of study and entering second year. Historically, the continuation rate for students at Hull from low participation areas (POLAR 4, Quintile 1) has been around or slightly below the sector average. In 2021/22, 85.5% of students in this group returned to continue their studies after first year compared to a sector average of 89.0%. This is a significant result given the greater proportion of students this represents at Hull. It also represents the cohort of students who began their studies during the pandemic restrictions in 2020/21 when courses were mainly delivered online.

For at least the last six years for which data are available, the continuation rates for students at Hull who are from areas of multiple deprivation (IMD2019, Quintile 1), or have a reported disability, or have additional characteristics that influence successful completion (ABCS students in Quintile 1) have mainly been above the sector average.

5.3.3 Completion

The completion rate refers to the percentage of first year students who are in active study, or have qualified, after four years. At Hull, the completion rates for students from low participation areas (POLAR 4, Quintile 1), and areas of multiple deprivation (IMD2019, Quintile 1) is slightly below the sector average. However, this is a strong result, given the higher share of students these groups account for at the University. The completion rate for students with a reported disability at Hull is also slightly below the sector average.

5.3.4 Attainment

Attainment refers to the proportion of students who gain a 1st or a 2.1 qualification. On this measure, students from low participation areas (POLAR, Quintile 1) at Hull

⁵ Source: HESA, PARED dataset.

perform in line with the sector average with three-quarters (76.0%) of completers gaining this level of qualification. The gap between the performance of this group at Hull and the sector average has been closing over time. A similar pattern is evident with students from areas of high deprivation (IMD2019, Quintile 1) where the performance of this group at Hull has improved over time and exceeded the sector average in 2021/22. Also, the attainment gap between students from the most deprived areas (IMD2019, Quintile 1) and the least deprived areas (IMD2019, Quintile 5) at Hull has varied from year to year.

The attainment rate for students at Hull from all ethnic groups has improved over time, most notably for students with black and mixed ethnicities.

The attainment rate for students with a reported disability at Hull has also improved over time, and at a faster rate than the sector average. On this indicator, the performance gap between Hull and the sector average has reduced from 7.7 percentage points in 2016/17 to 1.3 percentage points in 2021/22. In the most recent year for which data are available, 78.1% of students at Hull with a reported disability achieved a 1st or a 2.1 qualification compared to a sector average of 79.4%.

5.3.5 Progression

Progression refers to students entering managerial or professional employment, study, or another positive destination. On this measure, graduates from Hull from low participation areas (POLAR 4, Quintile 1), those from areas of multiple deprivation (IMD2019, Quintile 1) and those with a reported disability perform close to or above the sector average. This is also a strong result given the profile of the undergraduate student intake at the University and demonstrates how it is actively reaching and supporting a diverse student community to improve their lives and career prospects through education.

5.4 Student Experience

Linked to the strong performance on access and participation, the University also performs well on student satisfaction. The Teaching Excellence Framework⁶, which is also published by the Office for Students, reports on the student experience at individual universities in terms of the things that matter most: the teaching, their learning, and student outcomes.

On all measures, the University performs in line with the benchmark and on two in particular, it performs materially above the benchmark level. The proportion of students at Hull who report favourably on the quality of assessment and feedback they receive and on the extent to which they have been given a collective student voice is materially above the benchmark level. This is a consistent message from the student surveys carried out in 2021, 2022 and 2023.

⁶ Teaching Excellence Framework, Office for Students, TEF 2023 Dashboard

6.

Graduate Impacts

Graduates typically have better outcomes in the labour market than those without a university education. This results in higher rates of employment and higher earnings throughout their working lives. Almost 90% of Hull graduates go on to employment or further study within 15 months of graduating.

6.1 Lifetime Productivity Impacts of Graduates

By completing their studies, graduates gain skills which make them more productive than they may otherwise have been. The impact of graduates includes the additional earnings they can achieve from having a degree (the personal graduate premium), plus the fiscal contribution they make to the Exchequer, less the costs they incurred in studying, which is largely accounted for by student loans.

Furthermore, graduates are also more likely to be employed than those without a university education. In 2017⁷, the employment rate of graduates in the UK labour market was 82%, compared to 78% for individuals with A Level or equivalent qualifications. Therefore, the decision to go to university not only means that graduates are more productive when they are employed, but they are also more likely to be in employment than individuals who chose not to go to university. Although not quantified, the increase in labour market participation is also of benefit to the economy.

Beyond this, businesses that employ graduates become more profitable and can generate a greater economic impact than they would otherwise have done. The GVA and productivity gains they realise include the additional profits employers can generate by employing graduates and the additional employment costs they are willing to pay to generate these additional profits.

The total economic contribution of graduates therefore includes the personal graduate premium plus the additional corporate profits and taxes they generate. The impact estimated later in this section is therefore an underestimate as it does not include the corporate profit associated with each graduate.

However, there is no guarantee that graduates will achieve these outcomes. A crucial role of universities is to support graduates to develop their skills and access relevant

⁷ ONS (2018) Graduates in the UK Labour Market 2017. *These are the latest available data at UK level comparing graduates' outcomes and outcomes for individuals with A Level qualifications.

opportunities for their field of future work, leveraging its expertise, network and relationships with industry. This is particularly important in new and emerging sectors of the economy, such as artificial intelligence.



Data Science, AI and Modelling Centre (DAIM)

Artificial Intelligence is emerging as a distinct strength for the University of Hull, attracting hundreds of students and producing advanced research and graduates in an increasingly important sector of the economy.

The University's MSc Artificial Intelligence and Data Science course has been co-designed by an industry panel to enable students to access brand new opportunities in the workforce in these areas and has grown rapidly in popularity. Student numbers have increased from 31 to 630 students in 2022-23 with intakes now at two points in the academic cycle. Most of this growth has been amongst international students. There is a good flow of students from the course into industry and the course offers placements into industry and public services including the NHS where students will carry out projects.

Given this success, in the second half of 2022 the University made a strategic decision to invest in DAIM. A new £4.5m facility houses the largest computational teaching space on campus. Spread over two levels, it has hundreds of seats for students to learn, practice, and apply their coding technique to challenging problems that face the world related to data science, artificial intelligence and modelling. It can accommodate 230 students and houses key infrastructure.

Success has also driven a growth in the Institute's number of PhD students. Looking ahead, there is an intention to develop a CPD and specialist advice service to businesses and public services and is already in dialogue with industry, including local SMEs. This reflects the founding intentions for DAIM for it to have a close relationship with business and public services.

6.2 Employability Support at Hull

The Student Futures team at Hull aims to embed careers education, information advice and guidance throughout the student journey, helping students to build their self-awareness, work skills and competencies and to articulate these in ways that employers expect. The team also works with academic departments to embed employability within the curriculum, and with employers of all sizes and sectors and facilitate a range of events and projects which allow employers to engage with students and graduates at the University.

In 2021/22, the team supported around 1,600 students through one-to-one guidance appointments, as well as hosting 113 workshops which were attended by almost 900 students and 23 employer-led workshops which were attended by over 200 students. These were designed to help students understand the employment options that go with different degrees, and how to present themselves as strong potential candidates for employment.

Student Futures organises a range of subject and sector specific careers fairs which are focused on graduate recruitment, internships and placements. In addition, several departments host their own Careers Fairs which are attended by both employers and students alike, as shown in the table below. The Local Opportunities Fair is organised by the University to reach key regional employers including SMEs and public sector partners in the region who don't have the same recruitment resources as larger organisations but are an important part of the local economy.

Figure 6-1: Careers Fairs by Department, 2021/22

	No. of Employers	No. of Students
Careers Fair (Online)	32	431
Law Fair (Online)	12	202
Criminal Justice Careers (Online)	12	372
Social Work Fair (Online)	13	62
Local Opportunities Fair (On campus)	46	518
Nursing Fair (Online)	15	472
STEM Fair (Online)	18	103

Source: University of Hull

To reach as many students as possible in the weeks before they graduate, the University has introduced **GradFest**, a two-week intensive event which involves employers, workshops, talks from former students and offers the chance to fast track the Employability Award (see below).

In addition, it has developed a range of employability-enhancing services to support students into employment, including the:

- **Hull Employability Award** –to help students demonstrate their skills and experience to graduate employers. In 2021/22, 126 students completed the Award.
- **Hull e-mentoring Programme** - which develops students' confidence and awareness of career options and helps them to transition from student to professional employee or entrepreneur. In 2021/22, 200 students benefitted from e-mentoring support.
- **Hull Internships** – 10-week, paid internship placements within the University in a variety of roles including research assistant posts. The pandemic triggered an increase in the scheme in recognition of the changed labour market its graduates were facing. As a result, 116 internships were hosted in 2021/22, up from around 15-20 placements in the pre-pandemic years. A significant proportion of students have gained employment at the University through this route, around half of whom are from widening participation backgrounds.
- **Humber Internships Programme** – an ESIF-funded scheme that offers skills-matched graduates to SMEs in the region for paid, short-term or permanent posts. The University supports the programme by recruiting students to the scheme.
- **Other Internships** – a separate scheme brokered through the University with employers (outside HIP) in the public, charitable and voluntary sectors and with SMEs. A further 56 students took part in internships through this route in 2021/22.

6.3 Graduate Outcomes for the University of Hull

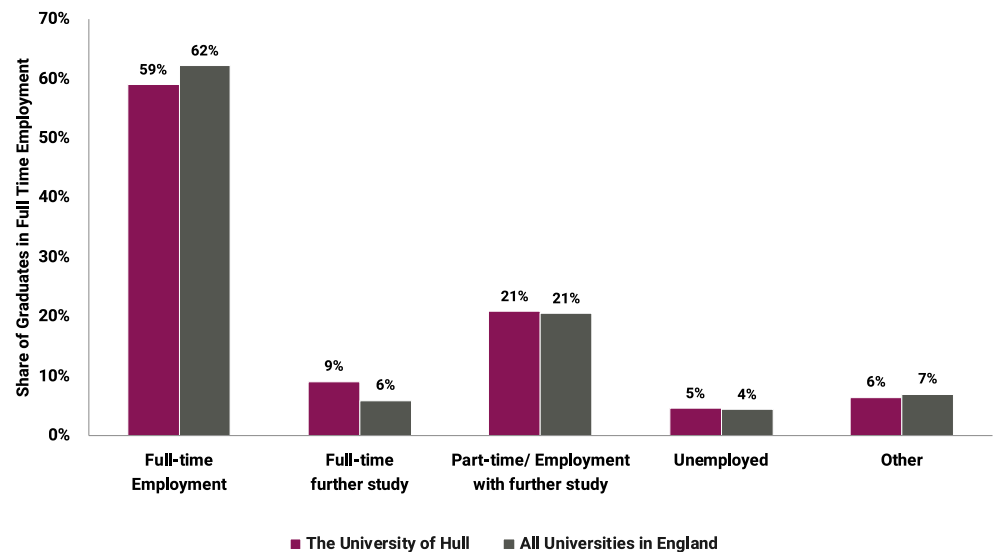
The work the University does to equip graduates with the skills they need to thrive in the workplace and connect them to opportunities to apply them is reflected in graduate outcomes. Information about these outcomes is produced annually by the Higher Education Statistics Agency (HESA). The dataset is gathered from a population survey of university graduates across the UK approximately 15 months after graduation to determine what they went on to do after their studies.

6.3.1 Employment Profile

The Graduate Outcomes Survey shows that in 2020/21, 89% of graduates from the University of Hull were in employment or further study at the time of the survey. Additionally, 59% of these graduates were in full-time employment (Figure 6-2).

The top industries of employment for University of Hull graduates in 2020/21, accounting for over half of graduates, were human health and social work activities (24%), education (19%) and manufacturing (9%).

Figure 6-2: Destination of University of Hull Graduates



Source: HESA (2023) HE Graduate Outcomes Data, 2020/21 cohort

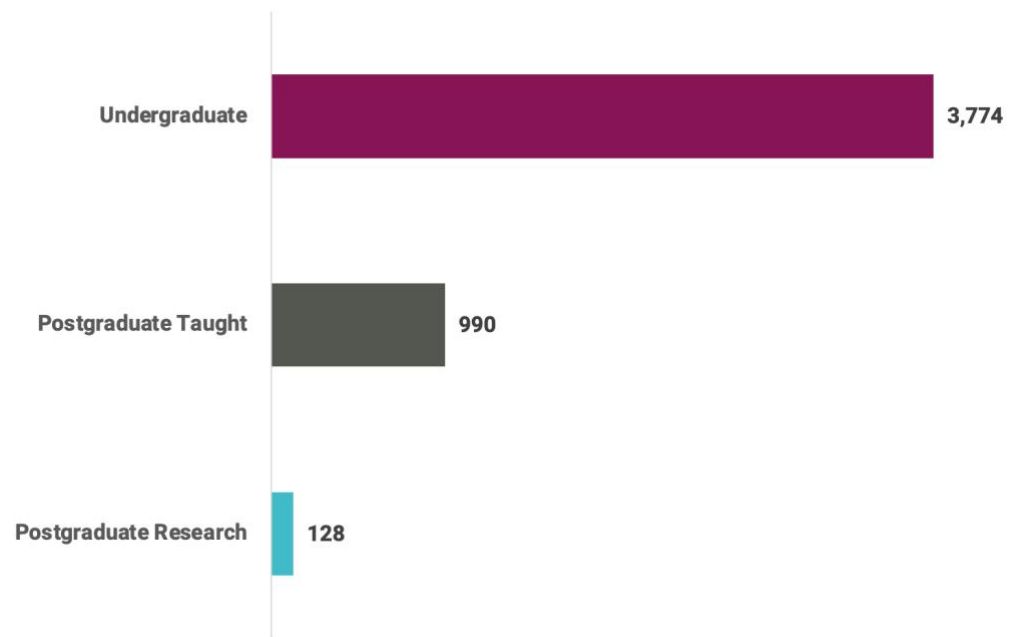
6.3.2 Graduate Wellbeing

Of the University's graduates who were in full-time employment, 87% agreed that their current activity is meaningful. This is higher than the average across England (85%). The share of graduates reporting they are using what they learned during their studies (87%) is also higher than the average for all universities in England (84%).

6.4 Impact of University of Hull Graduates

The starting point in estimating the graduate premium associated with the University of Hull was to consider the number of awards delivered. In 2020/21 the University awarded 3,770 undergraduate degrees, 990 postgraduate taught degrees and 130 postgraduate research degrees (Figure 6-3).

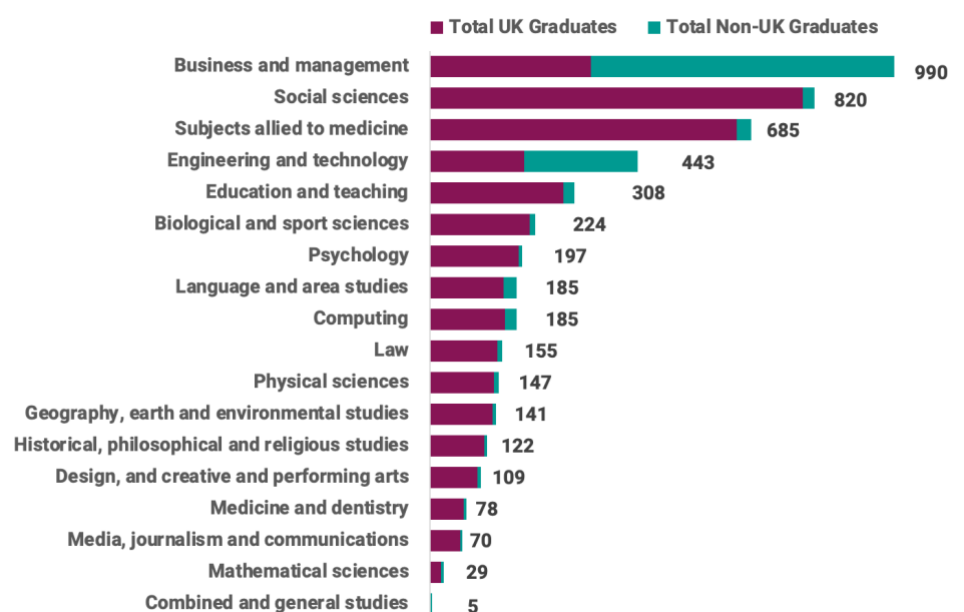
Figure 6-3: Number of Graduates by Degree Level, 2020/21



Source: Data provided by the University of Hull

To estimate both the personal and fiscal graduate premium from undergraduate degrees, it was necessary to consider the awards by their subject areas. Around two-thirds (66%) of the University's graduates, were across five subject areas, as depicted in Figure 6-4.

Figure 6-4: Graduates by Subject, 2020/21

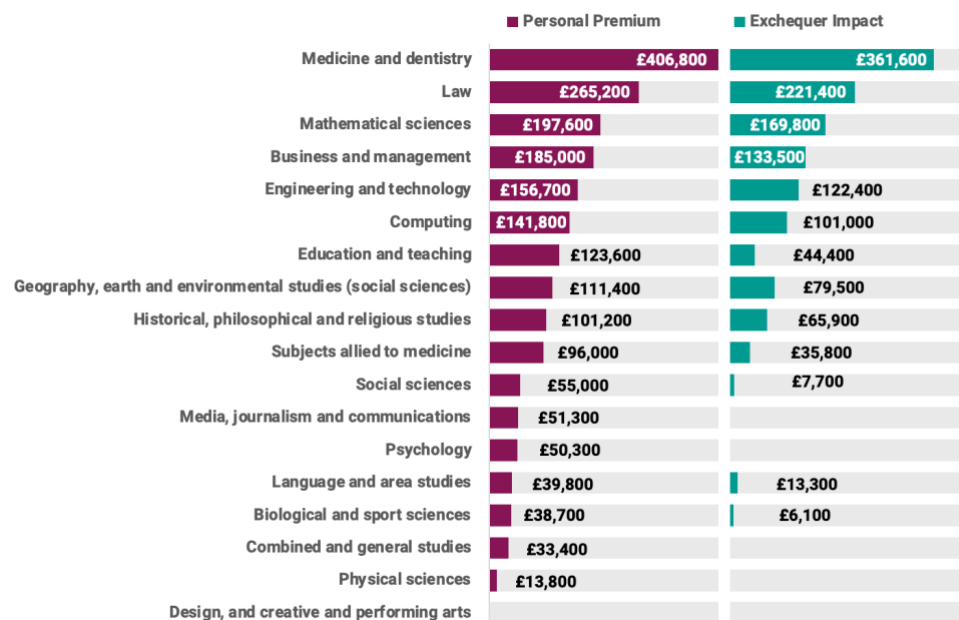


Source: Data provided by the University of Hull

The estimate of personal graduate premium relies on data from a 2021 study by the Institute for Fiscal Studies (IFS)⁸ on the impact of undergraduate degrees on lifetime earnings. The study accounted for the background of students, including their sex, ethnicity, and participation of local areas (POLAR) status, and also considered the earnings premium associated with different types of universities, for example Russell Group, old universities, other (more selective) and other (less selective) universities.

The average premium per graduate for both personal returns and exchequer returns, as a result of obtaining an undergraduate degree, are shown in Figure 6-5 for the relevant degree subjects.

Figure 6-5: Graduate Premium and Exchequer Impact by Subject (Undergraduates)



Source: BiGGAR Economics Analysis of IFS Data.

The total undergraduate productivity impacts, combining both personal and exchequer impacts, were estimated by multiplying the number of graduates by their respective premiums.

In this way, it was estimated that those receiving an undergraduate degree from the University of Hull in 2020/21 would be expected to earn a premium of £317 million more over their lifetimes than they would if they had not had university education. The benefit to the Exchequer would be £181 million over their lifetimes because of their university education.

The estimate of economic impact from postgraduate awards was based on evidence from the ONS. This found that the lifetime earnings premium associated with holding postgraduate qualifications is 10% larger than for those with an undergraduate degree. To estimate the extra premium for a postgraduate degree, the undergraduate

⁸ IFS (2021), The Impact of undergraduate degrees on lifetime earnings.

premium was applied to the distribution of postgraduates by subject and weighted by 10%. This figure was multiplied by the number of postgraduate awards in each category. A similar approach was taken for fiscal impacts.

Finally, an adjustment was made to allow for the fact that some students chose to leave the UK after graduating. This is especially the case for non-UK students with available evidence suggesting that approximately 17% of non-UK graduates remain in the UK after graduation⁹.

Having applied these assumptions, it was also necessary to determine where graduates work and live after graduation. This data was provided by the University and showed that:

- 32% of graduates live/work in Hull;
- 54% of graduates live/work in the Humber region; and
- 100% of graduates live/work elsewhere in the UK.

These figures were largely determined by undergraduates as fewer postgraduate students remained in the UK after graduation.

In this way, it was estimated that the total graduate productivity impact was £163 million from graduates living in Hull; £274 million from graduates living in the Humber region; and £513 million from graduates living elsewhere in the UK.

Figure 6-6: Graduate Impact Summary

	Hull	Humber Region	UK
Graduate Productivity	104	175	327
Exchequer Impact	59	100	186
Total	163	274	513

Source: BiGGAR Economics Analysis. Note, totals may not sum due to rounding

⁹ Department of Business, Industry and Skills (2011), Tracking International Graduate Outcomes

7. Innovation and Business Engagement

The University is a vital actor in supporting business creation and growth in a region that has a low ranking in the UK for research and development expenditure.

Productivity is the main driver of long-term improvements in economic growth rates. One of the key factors driving such improvements are levels of innovation within the economy. The University of Hull plays an important role in driving innovation within the region by connecting local businesses to the wider innovation ecosystem. It does this by sharing the knowledge and expertise of its academic body through a variety of collaborative relationships and partnerships with industry and by commercialising intellectual property through licencing and start-up activity. This chapter quantifies the economic impacts arising from these activities.

7.1 Driving Innovation

The most recent Knowledge Exchange Framework (KEF) results show that the University of Hull is ranked in the:

- 1st quintile for research partnerships;
- 1st quintile for work with the public and third sector;
- 2nd quintile for work in IP and commercialisation; and
- 2nd quintile for contribution to local growth and regeneration.

Located in a region with a low R&D intensity the most recent Higher Education Business and Community Interaction (HEBCI 2021-22) data shows a significant volume of knowledge exchange impacts:

- contract research with 159 organisations and a value of £2.8 million;
- 40 organisations have used facilities and equipment;
- 285 organisations have contracted for consultancy services with a total value of £4 million; and
- continuing professional development (CPD) delivered to over 9,000 individuals with a value of over £2 million.

The University has leveraged significant funding into the region to create an ecosystem where local business, including SMEs, can innovate. For instance:

- over £40 million of regional development funding has enhanced research and innovation-driven growth across themes such as low carbon and clean growth,

flood resilience and bio-economy. Key infrastructure created includes the AURA Innovation Centre and the Flood Innovation Centre;

- the University delivers the Help to Grow Programme for local SMEs, giving them skills, techniques and tools to grow; and
- the Enterprise Centre supports and grows a community of ambitious start-ups (the University supported the creation of 16 student start-ups in 2020-21). The centre offers expert support, incubator and commercial space for growing companies.

7.2 Commercialisation

The University of Hull stimulates innovation within Hull and the Humber region that helps to generate national impacts and activity. This occurs through the University's licensing activity and supporting the development of student and staff spin-out and start-up companies.

7.2.1 Licensing

One of the ways in which research is translated into economic activity is through licensing agreements with industry. These give companies the legal right to use technology or intellectual property developed at the University of Hull to generate additional sales, reduce costs or otherwise improve productivity.

The relationship between royalties paid for a technology and the associated turnover depends on the details of licensing agreements which can vary considerably depending on how much the intellectual property is worth to the prospective licensee. These discussions are often guided by the '25% rule' which is based on an empirical study by the late Robert Goldscheider, first undertaken in the 1950s and updated in 2002¹⁰. The study found that royalty rates were typically around 25% of the licensee's profits, which represent around 5% of total turnover generated by the licensed technology. These assumptions were then applied to the total income from licensing activity of £0.4 million. The impact was distributed by study area based on the location of licence holders; around 91% of licence holders were in the UK, of which 6% were in Hull.

7.2.2 Spin-outs & Start-ups

Spin-outs and start-ups are another way in which the University supports innovation and has an economic impact. The analysis relied on data on the number of start-ups and spin-outs supported by the University and their employment.

In 2021/22, there was one spin-out with 18 employees and 87 start-ups with 158 employees. The next stage in estimating the impact of these businesses was to multiply their employment by the Annual Business Survey's GVA per job ratios for the relevant economic sectors. As for other economic impacts, Type 1 and Type 2 UK multipliers were applied to the direct GVA and employment impacts to estimate indirect and induced GVA and employment impacts.

¹⁰ Goldscheider et al. (2002), Use of the 25 Per Cent Rule in Valuing IP.

7.3 Collaboration With Industry

The University of Hull supports the capacity for local businesses to access academic facilities and expertise and connect with other local organisations. For example, the University's wholly owned subsidiary, **Lampada** Digital Solutions, aims to establish wider external business relationships. It has worked with Cleveland Fire Brigade to commission software which facilitated access and sharing of key information between teams. The result was an innovative Command and Control (C&C) system which mobilises and controls all appliances and assets from fire control. A graphical map representation provides a real-time picture of the situation on the ground enabling effective and efficient management of incidents.

7.3.1 Knowledge Transfer Partnerships (KTPs)

In estimating the impact generated by KTPs, KTPs completed within the last six years were considered as well as ongoing partnerships. This includes eight completed partnerships and 10 ongoing partnerships.

To estimate the impact from these, the analysis relied on a study by Regeneris Consulting¹¹, which considered the returns from KTPs. The study found that on average each partnership supported three jobs and that on average a completed KTP in the Yorkshire & Humberside region generated £836,000 GVA. On this basis, it was possible to estimate the economic impact associated with each KTP at the University of Hull.

7.3.2 Student Placements

Students at the University of Hull also make an economic contribution by supporting the activities of those businesses and organisations where they are placed. It was assumed that students would make an economic contribution after the first 12 weeks spent in the placement, as shorter placements were considered mainly observational in nature.

There were 1,020 students undertaking placements in 2021/22. Just under half (47%) of these students were part of the Hull York Medical School, encompassing medical students and physician associates completing placements at NHS Trusts. A third of students on placement (34%) were part of the Faculty of Health Sciences, including nursing and social work students.

To estimate the economic impact associated with placements, it was first necessary to allocate each placement to the economic sector it supported. Then the number of weeks spent on a placement was divided by the number of FTEs weeks in a year to estimate the total number of FTE jobs supported by students. A discount factor of 33% was applied to account for the lower productivity that could be expected from a student in a placement, as compared to a fully trained member of staff.

¹¹ Regeneris Consulting (2010), Knowledge Transfer Partnerships Strategic Review.

7.3.3 The Enterprise Centre

The economic impact from companies hosted at the University's Enterprise Centre relied on data on the employment supported by those companies. In 2021/22, there were two companies based there, which employed 30 people.

Each company was allocated to an industrial sector based on its Standard Industrial Classification code and its economic impact estimated by applying sector appropriate economic ratios and multipliers.

Although there will be other innovation centres in the region, the primary incentive for companies to locate at The Enterprise Centre is the enterprise support and potential for close collaboration with the University.

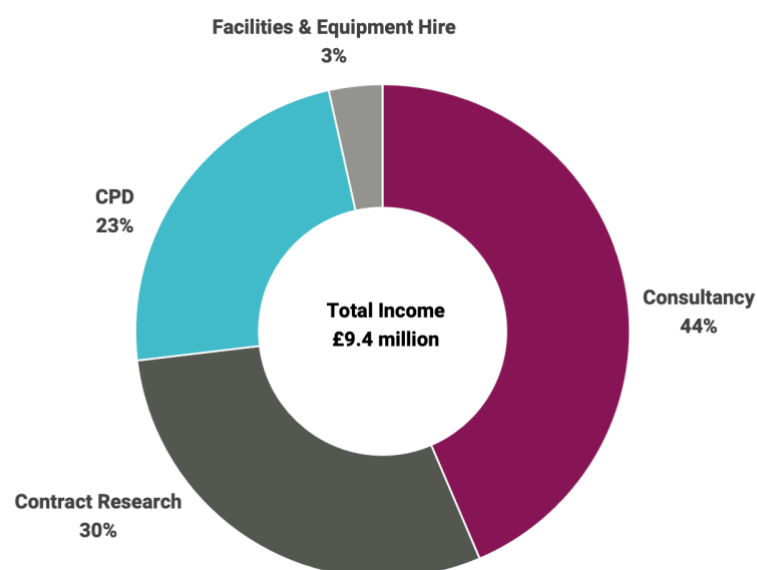
In terms of quantitative impact, at a regional and national level, there are more opportunities for businesses to locate elsewhere in the absence of the University, and so the impact cannot be wholly attributed to the University. To reflect this, it was assumed that at the regional level 60% of impact could be attributed to the University and 33% at the national level.

7.3.4 Services for Businesses

The University generates economic value by providing services to business. Through collaboration with the University, businesses benefit from the latest research findings and best practice coming from academia and this can lead to increased productivity and higher profits. A more productive workforce is likely to benefit from higher wages which will support the economy when spent.

The services to businesses provided by the University, and the income received by the University from each is summarised in the Figure 7-1.

Figure 7-1: Income from Services to Businesses, 2021/22



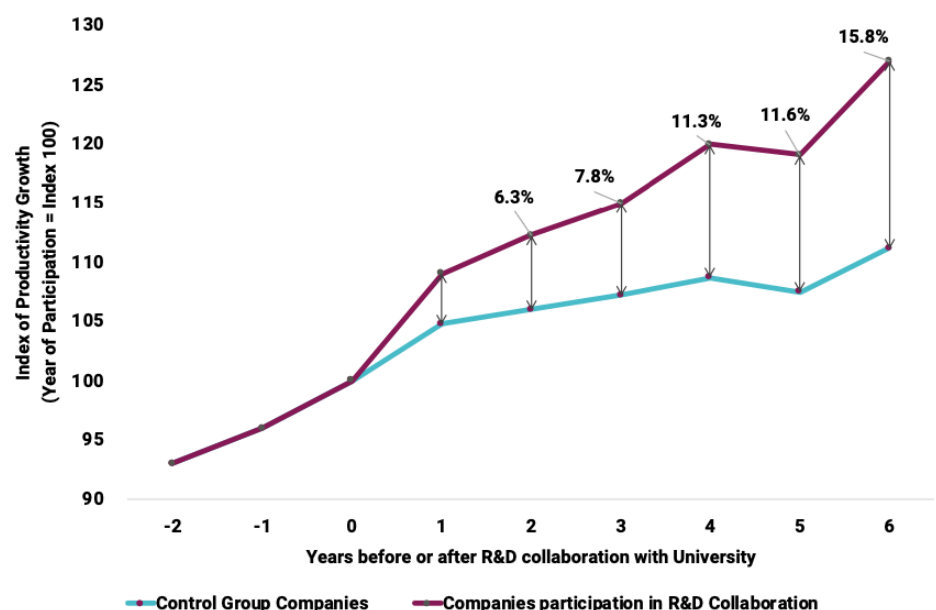
Source: Higher Education Business & Community Interaction Survey 2021/22

Research and development projects paid for by industry can have an impact on the economy in several ways. They can increase the productivity of staff employed by the company, enable the company to offer a new product or service that supports growth, or allow them to improve an existing product or service.

Impacts from an interaction with the University are not realised instantly or even within the first year afterwards. In 2012, Danish consultancy DAMVAD conducted a study on the economic impact of companies collaborating with the University of Copenhagen. The availability of company level economic data for Danish companies enabled them to consider the productivity benefits associated with university collaboration.

The results on productivity are given in Figure 7-2, which shows that impacts are realised gradually and that by year 6, companies that collaborated with universities on research and development projects were 15.8% more productive than equivalent companies who had not. This study for the University similarly assumes that GVA impacts associated with services to business are realised over a 6-year time period.

Figure 7-2: Timing of Impacts from University interaction on company productivity



Source: Damvad (2012)

The value to an individual business of collaboration with the University will vary considerably between projects, based on the type of work done, the stage in the development process that the project relates to and the capacity of the company to absorb the knowledge and developments that result from the collaboration. However, in order to quantify this impact, it is necessary to estimate what this value would be to a company based on typical returns from these collaborations.

BiGGAR Economics undertook an evaluation of Interface, the agency responsible for brokering relationships between businesses (and other organisations) and

universities in Scotland¹². The connections that Interface has made have covered a range of different types of engagement from small consultancy projects and access to university equipment and facilities through to company sponsored PhDs. The BiGGAR Economics evaluation found that the costs to Interface's clients of participating was £12.9 million and the direct benefit to these organisations was £46.4 million GVA. Therefore, the direct return to investment was 360%. In other words, every £1 invested by businesses generated £3.60 GVA in direct economic benefits.

This finding is similar to conclusions drawn by other studies in comparable areas. A study for the Department of Business, Enterprise & Regulatory Reform¹³ considered the impact of Regional Development Agency spending. One aspect considered was the GVA returns to business development and competitiveness interventions between 2002 and 2007. It found that interventions in Science, R&D and innovation infrastructure had achieved cumulative GVA equivalent to 340% of the cost of the projects and that this could increase to 870% if the long-term benefits were considered.

This suggests that the 360% multiplier estimated by BiGGAR Economics could be conservative. The economic impact of the University's services to businesses was estimated using the lowest of the possible multipliers (340%).

7.4 Innovation & Business Engagement Summary

The University of Hull is a vital actor in stimulating innovation and business engagement activity in the Humber region. This is particularly important in a region that ranks low on research and development expenditure in the UK and would likely rank lower without the knowledge exchange and relationship building activities facilitated by the presence of the University in the region.

The University's innovation and business engagement activity supports £36 million GVA and 360 jobs in Hull, £55 million GVA and 540 jobs in the Humber region and £114 million GVA and 1,010 jobs in the UK.

¹² BiGGAR Economics (2013), Evaluation of Interface, the knowledge connection for industry.

¹³ PriceWaterhouseCoopers, Impact of RDA spending – National report – Volume 1 – Main Report, March 2009, DBERR.

Figure 7-3: Summary of Innovation & Business Engagement Impact

Source of Impact	Hull	Humber Region	UK
GVA (£ million)			
Licensing	<1	<1	7
Spin-Outs & Start-ups	8	13	21
KTPs	1	1	1
Student Placements	2	4	6
The Enterprise Centre	1	1	1
Services to Businesses	23	35	78
Total	36	55	114
Jobs			
Licensing	<10	10	100
Spin-Outs & Start-ups	160	240	420
KTPs	30	30	30
Student Placements	50	110	150
The Enterprise Centre	40	30	20
Services to Businesses	80	120	280
Total	360	540	1,010

Source: BiGGAR Economics Analysis

8. Impactful Research

The University's strengthening portfolio of discovery and challenge-led research has global reach and meets local needs. It delivers mutual benefit through connections with business, health, communities, the third sector and government.

The previous chapter quantified the economic impacts arising from the University's research and innovation support activity, however this activity also generates wider benefits for society that cannot be fully quantified. One of the important ways it does this is by helping to provide the knowledge and skills that will be needed to tackle major societal challenges of the future.

The University's research portfolio is focused on 5 key challenges. Consciously taking a global and local perspective, these align with the history of the region and its contemporary and future challenges and opportunities:

- accelerating a net zero future;
- living with water;
- promoting justice and fairness;
- eradicating health inequalities; and
- enhancing heritage and the creative industries.

For each, the University has pursued growth in its research strengths and with it the direct impact of leverage of funding and associated staff and facilities. The Research Strategy aims for engagement externally and building partnerships which, in turn, supports knowledge exchange. Partnerships are strengthened by student placements and graduate employment.

Income generated from research grants and contracts totalled £12.6 million in 2021/22, an 11% increase on 2020/21. The main source for the increased funding was from UKRI, UK Charities and Health and hospitals.

8.1 Research Excellence Framework (REF)

The results of the REF 2021 cycle were published in May 2022 and ranked the University of Hull in joint 55th position out of 157 institutions, (an increase of 17 places since 2014) and 42nd on impact (an increase of 23 places). The University was among those which saw the greatest increase in rank nationally and among Yorkshire's universities, it was the highest riser in rank.

Research strengths, exemplified in the University's submissions for REF 2021, align with the five key challenges noted above. Overall, 82% of the University's research

was recognised as world-leading (4*) or internationally excellent (3*) in REF 2021, with the proportion of 4* research doubling since 2014.

The University's focus on attracting, developing and empowering a diverse community of talented researchers and research students builds its research strength and offers a flow of highly skilled individuals with knowledge in sectors aligned to local needs and strengths, for example the AURA Centre for Doctoral Training delivering funded PhD research in offshore wind energy and the environment (see section 9.1).

The University of Hull lives its values through producing insightful, impactful, research that addresses pressing modern issues locally and nationally.

8.2 Net Zero, Climate Change and 'Living with Water'

8.2.1 Partnership with the Offshore Renewables Industry

The University has a close and multifaceted partnership with major offshore renewables companies. For example, the Operations and Maintenance Centre of Excellence (OMCE) is a £2 million collaboration between the University of Hull and the Offshore Renewable Energy (ORE) Catapult to drive solution-focused innovation and improvements in operations and maintenance. The project team, led by University staff, is working closely with green energy company Ørsted to help improve wave forecast modelling with direct industrial impact.

The University has also partnered with two other universities and two major offshore renewables companies, Siemens Gamesa Renewable Energy and Ørsted, on a £7.7m collaboration that will make the production of offshore wind energy more economical and sustainable through innovation in advanced technologies. This will include a project led by the University's School of Engineering that will develop methods to monitor the manufacture of wind turbine blades to improve quality and reduce waste.

8.2.2 Energy and Environment Institute

The interdisciplinary Energy and Environment Institute tackles global challenges related to climate change and population growth and their consequences for society and livelihoods. It works across four themes which address sustainable energy and environmental resilience:

- co-evolution of earth and life;
- energy estuary 2050;

- global change, risk and resilience; and
- energy resource, recovery and waste.

The Institute is interdisciplinary, bringing together scientists, engineers, geographers, social scientists and the humanities to bring a holistic consideration to the social and environmental impacts of climate change and initiatives to address it.

The Institute also includes the £3m Flood Innovation Centre which was established to drive innovation and support different approaches and solutions to flood resilience. Working in the local community, with businesses, schools and education providers, the Flood Innovation Centre is helping to establish the Humber as a centre of excellence for developments in flood innovation. Projects include a focus on enhancing drainage; community resilience; and flood warning systems. For example, Living With Water, is a partnership between the University, Yorkshire Water, Hull City Council, East Riding Council and the Environment Agency. Its aim is to build flood resilience; develop innovative water management systems; and highlight the region as a place to live, work and visit. Resilience is being enhanced through the internationally adopted City Water Resilience Approach (CWRA).

The University's work reaches beyond the region and the UK. Rameses is a project focusing on resilience and sustainability in the Mekong delta in Vietnam. It is being led by the University in partnership with a number of other UK universities and key stakeholders in the region representing both government agencies (Southern Institute of Water Resources Research - SIWRR) and academic institutes (Can Tho University). In a region with a high risk of flooding, the project is developing an improved understanding of the processes behind future sea level rise and flood risk dynamics in delta environments.

The work of the Institute has informed UK national flood policy and guided £2.6 billion of government investment between 2015 and 2020 to improve flood protection for more than 300,000 homes nationwide.

8.3 Promoting Justice and Fairness

The University has significant impact on social policy, aligned to the key challenges on which research is focused. The diverse links of academic staff to organisations related to their fields makes a significant contribution to policy formation, with expertise contributing on a constant basis. Beyond this important work of individual staff, the University makes a substantial contribution through Institutes and research teams. For example:

8.3.1 Promoting justice and fairness: The Wilberforce Legacy: Modern Day Slavery

The Wilberforce Institute contributed to the development of the Global Slavery Index and Multiple Systems Estimation (MSE) tool which led the UK government to radically reassess the number of people enslaved in the UK. It is a key contributor to the UK's Modern Slavery Act 2015, and its anti-slavery tools have also driven modern

slavery prevention campaigns in schools across the UK and West Africa. Further detail on the Wilberforce Institute is contained in the case study panel below.

8.3.2 Promoting justice and fairness: Tackling Doping in Sport

The Adolescent Sport Doping Inventory educational programmes for young high-level athletes (iPlayClean) and grassroots coaches (Anti-Doping Values in Coach Education: ADVICE) developed by the University's researchers have contributed significantly to identifying and reducing key psychosocial variables linked with doping in thirteen countries.

8.3.3 Promoting justice and fairness: Reducing Night-time Violence

The University's research has changed violence prevention practices with new knowledge about what works to prevent violence. It supported a multi-agency initiative to change emergency department and policing practices, share data and create a whole-system approach to preventing violence.



William Wilberforce Institute

The Institute is a key source of knowledge on the Transatlantic slave trade and works towards mitigating all forms of modern slavery.

The Wilberforce Institute was founded in 2006 and is housed next door to the birthplace of William Wilberforce, a key figure in the abolitionist movement. It aims to promote knowledge about historic and modern slavery and it reflects a history, of which the City is proud, in leading the campaign to abolish slavery in the British Empire in the late 18th and early 19th centuries.

It hosts the database of the Transatlantic Slave Trade from Africa to the Americas which gives important evidence on the scale of the slave trade which took place. The topic has been a source of much debate and the launch of a multi-source online database of 35,000 transatlantic slave voyages (www.slavevoyages.org) was the culmination of an international project which was led by the Institute.

Slavery has taken on different forms over time and, in the present day, an estimated 50 million people are trapped in modern slavery. The Institute therefore aims to play a central role in addressing modern slavery, coercion and human trafficking both at home and abroad. Crucially, it was one of the organisations which helped to shape the UK's current legislation, the Modern Slavery Act of 2015, and it is a member of the Modern Slavery and Human Rights Policy Evidence Centre (Modern Slavery PEC) which was established in 2020 to support the legal enforcement of modern slavery legislation. It has also set up the Justice Hub to provide a risk assessment service for large companies, particularly in the food industry, to ensure they are addressing

the issue and complying with legislation. It does this by facilitating engagement with a range of stakeholders to share research, strategies and experience of applying the Modern Slavery Act.

An additional service offered by the Institute relates to the legacies of slavery, by investigating and bringing actions to address and resolve these issues. For example, the University was responsible for exposing The Guardian newspaper's historic links to the slave trade and it continues to work with the organisation to design a programme of restorative justice. The Institute won a Queen's Anniversary Prize in 2016 for its applied research into all forms of slavery and for using lessons from the past to combat modern slavery through the Global Slavery Index which establishes important benchmarks for quantifying contemporary slavery. The Institute, and its role in supporting social justice, provides a key example of how Hull, is a firmly rooted regional university, with an international influence on social justice.

8.4 Eradicating Health Inequalities

The **Hull York Medical School** is a joint medical school of the Universities of Hull and York in partnership with the NHS Trusts and community healthcare providers. It supports a £4.9 million research programme which addresses cancer inequalities and 85% of the Medical School's research was rated through the REF2021 as world leading or internationally excellent. Its work includes a focus on wounds and on multi-morbidities.

The **Wolfson Palliative Care Research Centre** at the Hull York Medical School brings together researchers, health and social care professionals, patients, families and members of the public to find and help deliver palliative care services and treatments. The Centre's projects include reducing inequalities in palliative care outcomes, improving access and optimising delivery; addressing under-researched symptoms and problems; and informing and improving palliative care services and outcomes in low and middle-income countries.

The **Ideas fund** is a grant programme run by the British Science Association and Wellcome. The programme gives local communities the opportunity to try out initiatives that strive to enhance mental wellbeing in the area, supported by researchers at local universities. Four areas of the UK have been awarded funding for the Programme, one of which was Hull. As the only university in the region, the University of Hull has an important role to play in supporting the local community, sharing their knowledge and expertise to generate positive mental health outcomes.

The University of Hull showcases examples of best practice in supporting local healthcare agendas,

providing innovative support and research in a region facing significant health inequalities.

The **HealthiER** scheme (Healthy East Riding) is a research collaboration between the University of Hull and East Riding of Yorkshire Council. The collaboration places a team of academics from the University's Department of Sport, Health and Exercise Science into the local authority's Health and Wellbeing Service and was designed to encourage positive lifestyle changes in a region facing significant healthcare challenges. Promoting more active lifestyles for people who have a high BMI is intended to reduce their BMI and their need for a gastric band surgery in the future. This would result simultaneously in cost savings for the NHS and increased income for local gyms. The collaboration agreement, which has been extended into early 2024, follows on from previous collaborations between the two partners, which have nationally been acclaimed to showcase best practice in delivering local health agendas. The team involved in the project have won numerous awards for its innovative approach and success, showcasing the impact that universities can make to individual lives and communities.

The **Centre for Human Factors** brings together a team of expertise from across the University to offer a range of consultancy and applied research services with the aim of providing high-quality human factors and occupational psychology consultancy and applied research. Its Future Work Design project included four local authorities from the region in developing proactive and preventative approaches to successfully tackle issues such as stress and fatigue. The Centre has also worked with a range of public and private organisations across the UK.

8.4.1 Health and Medical Research Economic Impacts

While many of the economic contributions of health and medical research are qualitative in nature, there have been attempts to quantify its impact. Research by the Wellcome Trust on the value of medical research in the UK considers two types of return: health gains (net of the health care costs of delivering them) and economic gains¹⁴.

The value of health gains was assessed by the Wellcome Trust research using the quality adjusted life years (QALY) method. This is a widely used method developed by health economists to assess how many extra months or years of life of a reasonable quality a person might gain as a result of treatment.

The value of the health benefit was presented as a return on initial expenditure on the research (IRR). This varies slightly between the two areas of study, and more widely between different scenarios for each of the study areas. The best estimate for the IRR in cardiovascular disease research is 9.2%, although the research also

¹⁴ Medical Research: What's it worth? Estimating the economic benefits from medical research in the UK, For the Medical Research Council, the Wellcome Trust and the Academy of Medical Sciences, November 2008.

considered high and low expenditure scenarios that ranged from 7.7% and 13.9%. Similarly, the best estimate for the IRR for investment in mental health research was 7.0%. The high and low estimates for this area of study had a slightly broader range and varied between 3.7% and 10.8%.

The average of the two best IRR estimates was applied to the value of medical research undertaken at the University of Hull. In this way, it was assumed that every £1 invested in medical research would result in health gains with a value of £0.08 each year in the UK for perpetuity.

The Wellcome Trust also considered the effect of medical research expenditure on GDP. It considered the impact this would have in stimulating investment in the private R&D sector and social returns to private investment stimulated by publicly funded medical research. This found that a £1 investment by a public body in medical research and development stimulated an increase in private R&D investment of between £2.20 and £5.10.

As with the estimates for the Quality of Life IRR, the research finds that there is a range of estimates for the IRR for GDP impacts. The lowest estimate for IRR is 20% and the highest is 67%. The best estimate given is 30%. Therefore, every £1 invested in medical research is estimated to result in £0.30 in GDP each year in the UK in perpetuity.

Following the approach used by the Wellcome Trust, the Net Present Value (NPV) of medical research was estimated by applying the Treasury approved 3.5% discount rate.

Adding the social and economic impact of medical research undertaken by the University of Hull provides an estimate of the total returns to medical research. In this way, it was estimated that the £5 million income for health and medical research received by the University of Hull would have a total impact of around £28 million over the next twenty years across the UK.

Figure 8-1: Returns to Health & Medical Research

	Hull	Humber Region	UK
Social Returns	<1	<1	6
Economic Returns	7	9	22
Total	7	9	28

Source: BiGGAR Economics Analysis

8.5 Enhancing Heritage and the Creative Industries

The University of Hull is a key actor for facilitating cultural capacity in the region. It is a core funding partner of the Freedom Festival which delivers and develops cultural experiences and events for people in Hull and the surrounding area. It also has a

close association with the Hull Truck Theatre Company which enhances courses offered in Theatre Making and Drama.

In 2016, the University's Culture, Place, and Policy Institute was established to stimulate and co-ordinate research on cultural activities, cultural policy and culture-led urban and regional development in the UK and internationally. It played a vital part in evaluating and monitoring the processes, outcomes and impacts of Hull's City of Culture year.

Building on this experience, the University is now a partner in a series of evaluative studies on the social impact of Eurovision 2023, focussing on the wellbeing, cultural legacy and the economy.

8.6 Impactful Research Summary

The University of Hull lives its values by producing insightful, impactful, research that addresses key challenges faced by modern society. Whilst much of the research produced by the University has national applications, research also has great implications for the local community. The University of Hull continues to rise in the rankings for its research output and local collaborative partnerships formed by the University, notably in the healthcare industry, shine a light on best practice for other universities and organisations to follow.

9. Building Regional Capacity

As a civic university, the University of Hull plays a vital role in supporting regional economic, environmental and social development. This is evidenced through its strong links to local services, and businesses.

The University of Hull is a civic university: it has a guiding hand in the future of the region and plays a vital role in supporting regional economic, environmental and social development. This role is particularly strong in supporting the training and development of local healthcare and education professionals, local policy development, and ensuring local businesses benefit from the opportunities associated with the low carbon transition in the region.

9.1 Renewables

The University of Hull is committed to supporting and facilitating environmental sustainability for current and future generations. This is evidenced through the research undertaken at the Energy and Environment Institute (section 8.2.2) but is also apparent through the role that it, and the Aura Institute, play in the local economy, supporting local SME's to reach net zero targets.

The work of both the Energy and Environment Institute, and the Aura Institute (see panel below) seek to build community resilience in the Humber region and ensure everyone has a role in driving climate action in the local economy. This has been encouraged by facilitating place-based interventions such as using arts exhibitions in shop fronts of the city centre.

Using a super-performance Dew Point Cooling system, developed at the University's Centre for Sustainable Energy Technologies, Hull City Council has saved over £50,000 in electricity cooling costs, and has reduced its carbon footprint by 82.5 tonnes a year. The technology was first tested at the University's Aura Innovation Centre before the trial was extended to Hull City Council's data centre in the city centre.



Aura Institute

The Aura Institute is raising the University's reputation in leading research in the offshore wind sector.

Aura (*Wind of God*) has deep-rooted links to the offshore wind sector, dating back to 2015/16 when the sector was beginning to accelerate in the UK. Siemens had established plans to build a blade factory in Hull and the, then, Local Enterprise Partnership wanted to ensure that the region benefitted from this investment for years to come.

The Institute was established with the mission of being a 'catalyst for co-creation' between the University and the industry and has strong links to major players in the offshore wind sector. It has generated significant investment in research and innovation activity and been crucial to getting the University into influential positions to leverage policy reform in the industry.

The Aura Institute has three key areas:

- creating a talent pipeline;
- engagement with industry; and
- research development and innovation.

Specialising in SME and community innovation, the Aura Institute has helped over 600 SMEs and created 175 jobs in the region, whilst stimulating over £85 million in additional investment. The Institute has trained over 70 members of staff in offshore wind CPD programmes. Aura research projects have largely been funded by ERDF funding and so have had a direct impact on local businesses. In 2020, the Institute produced a 'Future of Net Zero' report which involved collaboration with local SMEs to determine the support they need to achieve net zero targets.

The Institute facilitates the local industry supply chain through the carbon clinics it is developing - larger companies in the industry will support local SME supply chains to measure their carbon footprint, with the aim that those SME's will then be able to support others like them to achieve net zero ambitions.



9.2 Health Care

The University works on several levels to address the stark inequalities in healthcare that are a feature of the Humber region (see 10.1.6). The faculty of health sciences is one of the largest at the University and as well as offering an important field of research, it also plays a vital role in training health and care staff which builds greater self-sufficiency in the local health and care labour force.

Its undergraduate courses include nursing (adult, child, mental health and learning disability), midwifery, paramedic science, operating department practice and physiotherapy. Its Masters courses in specialist fields such as adult mental health nursing, advanced clinical practice, dementia care and leadership, offer existing practitioners the opportunity to progress within their careers without leaving the area and it also offers diploma courses in CBT and clinical practice. At the request of local healthcare providers, a new Masters' degree in nutrition and dietetics has been introduced to meet an extreme shortage of dietitians in the sector. The University also offers an alternative route into health and social care for people who don't have the entry qualifications to apply for a standard degree.

In 2021/22, the University of Hull had 1,800 graduates in healthcare subjects and many are likely to work locally after graduation, with opportunities often linked to their undergraduate placements. Through its work, the University has developed a myriad of partnerships and relationships within the NHS, healthcare trusts, integrated care boards and local hospitals. Close links to the sector are also facilitated through the University's staff, with teaching academics at the University also working as practitioners in the local healthcare service.

In 2016, the University signed a five-year **framework with Smith and Nephew**, a global medical technology company. The framework was established with the aim of driving research into advanced wound care practice to prevent the economic costs associated with unhealed wounds and the impact of that on employment. The framework has since resulted in the University becoming home to one of the World's biggest Wound Care Research Clusters, generating ongoing investment into the University and a collaborative partnership between the two organisations. Students at the University of Hull benefit from the close collaboration, with Smith and Nephew offering student placements and recruiting local graduates.

The University of Hull supports the growth and sustainability of key public services in health and education in the Humber region.

9.3 Education

Education is capable of challenging inequalities and injustices in society. The University offers undergraduate courses to train teachers across the education sector from early childhood education through to primary and secondary teaching. It includes accelerated two-year courses for teaching computer science, English, geography, history, maths and physics at secondary school-level which are aimed at addressing gaps in the sector. It also offers courses which address teaching young people with special educational needs and teaching English to speakers of other languages (TESOL).

9.3.1 Collaborative Provision

Beyond training teachers for the school sector, the University is a collaborative partner with the region's further education colleges to validate their offering at Levels 4 to 7. The University has 14 Collaborative Partnerships with local further education providers and in 2021/22 it supported approximately 480 validated programmes which attracted around 4,500 student FTE enrolments. Overall, this number has grown steadily, supported by new Partnerships with Hull College (2020), Craven College (2021) and The Sheffield College (2022). Most Collaborative Provision is owned by the Faculty of Arts, Cultures and Education. The University's income from Collaborative Provision has been growing steadily and reached £2.4 million in 2021/22.

10.

Impact in Context

The University plays a key role in helping to address the significant, long-standing socio-economic challenges of the Humber region and the City of Hull in particular. Its research specialisms and its approach to supporting wider participation are directly aligned with the shared ambitions of the economic development agencies in the region.

10.1 Key Socio-Economic Indicators

The Humber Region (referred to in the text below as “the Region”) is defined here as the four local authorities of Kingston upon Hull City Council, East Riding of Yorkshire, North East Lincolnshire and North Lincolnshire.

10.1.1 Population

In 2021, the Humber Region had an estimated population of 937,000 people which represented 17.1% of the total population of Yorkshire and the Humber, and 1.4% of the population of the UK. The City of Hull itself accounted for 28.4% of the Region’s population and is home to around 266,000 people.

Over the decade to 2021, the Region’s population grew by 2.0% which was just over one-third of the rate of population growth experienced in the UK (5.9%). Within this broad trend, the rate of change was uneven across the age groups, with the proportion of working aged people (aged 16-64) contracting, and the proportion of older people (aged 65+) growing. In particular, the proportion of young people in the area, aged between 16 and 24, contracted at almost three times the national level. This has been a significant challenge for the University which draws most of its undergraduates from the local area. The proportion of older adults in the Humber Region grew at a rate which was above the national trend.

The latest population projections suggest that the Humber Region will grow by just 1% over the next decade, which is around a quarter of the rate of change projected for the population of England as a whole. Again, there are important differences in the projections for each key age group. Most significantly for the University, the proportion of young people aged between 16 and 24 is projected to grow by 11.8% in the next 10 years, which is just slightly lower than the rate of growth projected for this age group in England as a whole (13.6%). In the City of Hull, the proportion of young people in this age group is projected to grow faster than in the Region as a whole.

Figure 10-1: Population Projections, 2023 – 2033, (%)

	City of Hull	Humber Region	UK
0 - 15	-8.4	-9.4	-5.5*
16 - 64	-1.2	-22.8	1.3*
16 - 24	14.3	11.8	13.6*
65+	16.5	19.5	21.4*
All Ages	0.1	1.0	3.9*

Source: ONS (Nomis) Crown Copyright, 2018-based Projections, * Figures are for England

A future challenge for the region is the projected contraction in the working age population over the next decade (-22.8%), compared to a growth in the age cohort across England as a whole (1.3%). The projected decrease is significantly smaller for the City of Hull (-1.2%) than for the wider region.

10.1.2 Employment by Sector

The profile of employment in the area shows the sectors that are over- and under-represented compared to the national average. Most notably, the manufacturing sector is a significant source of employment for Hull and for the Humber more widely. The health sector is also a larger source of employment for the region compared to the average for Great Britain. The services sector, transport, and accommodation sectors are all smaller than average in Hull compared to the average for Great Britain. The three public sector categories of public administration, education and health account for 30.1% of employee jobs in Hull compared with an average of 27.1% for Great Britain.

Figure 10-2: Employee Jobs by Sector*, 2021 (%)

	City of Hull	Humber Region	GB
Manufacturing	17.1	11.8	7.6
Electricity, gas & water	0.9	1.0	1.1
Construction	5.7	4.6	4.9
Wholesale & retail	13.8	13.6	14.4
Transport & storage	4.1	5.6	5.1
Accommodation & food service	4.9	7.1	7.5
Public Administration	4.9	4.7	4.6
Education	9.8	9.7	8.8
Health	15.4	14.8	13.7
All other services	23.1	26.7	31.9

Source: ONS (Nomis) Business Register and Employment Survey, * Data exclude farm-based agriculture

10.1.3 Economic Activity, Earnings and Unemployment

While the Yorkshire and Humber region lags behind the national trend on many key economic indicators, the City of Hull itself lags behind its wider region in several respects. For example:

- the rate of economic activity for residents in the City (74.8%) is much lower than the benchmark for the Yorkshire and Humber region (77.4%), which, in turn, is lower than the UK average (78.5%);
- average weekly pay for people in the City (£538) is significantly lower than the wider regional (£594) and UK averages (£642);
- the unemployment rate for the City (5%) sits above the regional and regional averages (3.6% for both);
- the proportion of households in the City that are workless (22.1%) is significantly above the wider regional (14.3%) and national averages (14.0%); and
- the proportion of young people in the City who claim out of work benefits (7.2%) is higher than the regional (5.8%) and national averages (4.9%).

Although these figures represent a snapshot in time for 2021/22, historic data from 2010 onwards show that these are long-standing features of the local economy with only a slight narrowing of the performance gap on some indicators over time.

Figure 10-3: Key Labour Market Indicators

	Hull	Yorkshire & Humber	GB
Economic Activity Rate, age 16-64, 2022, %	74.8	77.4	78.5
Weekly Pay (by residence), 2022, £	538	594	642
Unemployment Rate aged 16-64, 2022, %	5.0	3.6	3.6
Workless Households, 2021, %	22.1	14.3	14.0
Out of Work Benefits, 2023, % aged 18 to 24	7.2	5.8	4.9
Out of Work Benefits, 2023, % aged 16 to 17	0.6	0.3	0.2

Source: ONS, (2020) Annual Survey of Hours and Earnings. ONS, (2020). Annual Population Survey.

10.1.4 Qualifications

Qualifications are a strong indicator of economic wellbeing and potential economic prosperity. Again, the data show that the City stands apart from the regional and national averages with a significantly lower proportion of the working age population holding a degree or equivalent qualification (24.8% compared to 43.6% nationally) and a much higher proportion of the working age with no qualifications (11.0% compared to 6.6% nationally). Again, based on historic data, this is a long-standing feature of the working age population in the City, although since around 2016 there has been some narrowing of the gap between Hull and the national trend in the proportion of the working aged population with no qualifications.

Figure 10-4: Qualifications of the Working Age Population, 2021, %

	Hull	Yorkshire & Humber	GB
NVQ 4 and above (degree or equivalent)	24.8	38.0	43.6
NVQ 3 and above	48.0	58.2	61.5
NVQ 2 and above	69.2	76.3	78.1
NVQ 1 and above	85.1	86.4	87.5
Other qualifications	3.8	5.7	5.9
No Qualifications	11.0	7.8	6.6

Source: ONS, Annual Population Survey

10.1.5 Deprivation

The Indices of Multiple Deprivation (IMD) is the official measure of relative deprivation for small areas¹⁵ in England. The latest dataset is for 2019 and updates the previous assessment in 2015. It is comprised of seven domains of deprivation which, when combined and appropriately weighted, form the IMD. The seven domains are: income (22.5%); employment (22.5%); health deprivation and disability (13.5%); education, skills and training (13.5%); crime (9.3%); barriers to housing and services (9.3%) and the living environment (9.3%). A key result from the IMD2019 is that, out of the 317 local authorities in England, the City of Hull ranks in the top five¹⁶ for having the highest proportion of deprived neighbourhoods: a situation which is largely unchanged from the previous assessment in 2015. Across the four local authorities which make up the Humber Region, the City of Hull stands apart for having the highest proportion of local areas that rank among the most deprived in the country (Q1, the top 20%). This highlights the widespread issue of poverty and deprivation across the City. Just 2.4% of the City's local areas fall within the least deprived in England.

Figure 10-5: Indices of Multiple Deprivation (IMD), 2019, %

% of LSOAs	Hull	East Riding	North East Lincs	North Lincs
Q1 (most deprived)	54.2	8.1	37.7	19.8
Q2	22.3	14.7	19.8	16.8
Q3	13.2	18.6	10.4	24.8
Q4	7.8	27.2	18.9	25.8
Q5 (least deprived)	2.4	31.4	13.2	12.9

Source: ONS, Annual Population Survey

¹⁵ Referred to as Lower-Layer Super Output Areas (LSOAs) which are designed to be areas with a similar sized population of approximately 1,500 residents, or 650 households.

¹⁶ The other four are Middlesbrough, Liverpool, Knowsley and Manchester.

10.1.6 Health and Life Expectancy

Health is often linked to socio-economic circumstances and the health of people in Hull is generally worse than average for England. A selection of health indicators for Hull is presented below.

Mortality rates for people aged under 75 from all causes, and from suicide are significantly higher in Hull compared to the average rates for England. There are also indicators of significant behavioural risks in the local population with higher than average rates of alcohol-specific conditions, smoking, physical inactivity and obesity.

Life expectancy for men in Hull is four years lower than the average for England and for women it is three years lower¹⁷, and there are also large disparities within the local authority. For example, in the most deprived areas of Hull, life expectancy for men is 12.7 years lower than in the least deprived areas and for women, it is 10.2 years lower. Around 27.4% (14,430) children in the City live in low-income families.

Figure 10-6: Life Expectancy and Health Indicators, 2020

Indicator	Hull	Yorkshire & Humber	GB
Life expectancy at birth (male, years)	76.0	78.7	79.6
Life expectancy at birth (female, years)	80.2	82.4	83.2
Under 75 mortality rate*, all causes	474.5	362.2	330.5
Suicide rate*, people aged 10+	14.1	10.7	9.6
Adult hospital admission rate* for alcohol-specific conditions	62.0	32.2	31.6
% of physically active adults	58.5	64.0	66.3
% of children in low income families	27.4	19.7	17.0
Prevalence of obesity in Year 6 (aged 10-11), %	21.7	21.0	20.2

Source: Public Health England, 2020, Kingston Upon Hull Local Authority Health Profile, * - per 100,000 people in the category

Unemployment, worklessness, socio-economic deprivation, lower life expectancy and poor health are deep-rooted features of society in Hull. At every level, the University is working to address these fundamental challenges.

¹⁷ Public Health England, 2020, Kingston Upon Hull Local Authority Health Profile

10.2 Strategic Economic Context

The current economic strategies of the area's local authorities and local economic partnerships (LEPs) reflect a collective intention to address these long-standing challenges and to harness the significant slate of opportunities and competitive advantages the area offers. The strategies of these organisations are briefly summarised below and show clear alignment with the core mission of the University in addressing social inequalities, supporting energy and environmental management and strengthening the area's key sectors.

10.2.1 Hull City Council Economic Strategy, 2021-2026

Hull City Council notes that the performance of the region has greatly improved since 2013, led by investment in manufacturing (Siemens Gamesa wind turbine blade factory in Green Port Hull is significant for the City), flood protection (in response to severe flooding in 2007) and housing. Its current economic strategy builds on this by setting out a plan for creating a cleaner, greener, fairer, more enriched and inclusive city which develops its core strengths and heritage as a regional hub, producer and trading economy. It is built around three interlinked themes relating to people, place and productivity and it identifies eight opportunities for the City to capitalise on:

- medi-health technology and social care;
- community wealth building within procurement and local supply chains;
- transferring skills and knowledge to the carbon neutral, renewables and clean growth sectors;
- rapid manufacturing using the ultrafast fibre networks;
- centres of expertise within research, development and innovation;
- use of green and active travel;
- new skills and training throughout people's working lives; and
- growth in local consumer markets.

It sets out a series of priorities and a plan for achieving these, which relies on close collaboration with other anchor institutions in the region, including the University of Hull, the health sector, other public agencies and the voluntary sector.

10.2.2 East Riding Economic Strategy 2018 -2022

Similar themes are apparent in the East Riding's Economic Strategy for 2018-2022 which identifies four priorities of business growth, lifelong learning, quality locations and a sustainable economy. It also notes that the successful achievement of the strategy requires collaboration with key partners. It highlights the following sectors where the area has a competitive advantage and offers potential for innovation:

- agri-food and biorenewables;
- ports and logistics;
- energy;
- manufacturing and engineering (including advanced manufacturing accounts for around a third of the sector); and
- creative and digital.

10.2.3 North East Lincolnshire Economic Strategy, 2021

In keeping with the plans of neighbouring areas, North East Lincolnshire Council's approach is built around four cornerstones of supporting business growth, a green economy, skills in the workforce and place-making. It notes the importance of several key sectors for the economic health of the area:

- ports and logistics;
- renewable energy;
- chemical processing;
- construction;
- food processing and manufacturing;
- health and care; and
- visitor economy (service and retail).

10.2.4 North Lincolnshire Economic Growth Plan, 2023 – 2028

The objectives set out by North Lincolnshire's Economic Growth Plan are to capitalise on the strengths of the economy by supporting businesses in creating new, well-paid, high-skilled jobs in an environment where decarbonisation is central. It sets out three priorities:

- a place where people, places and products are connected globally to deliver sustainable economic growth;
- a place where businesses and residents make positive changes to create a cleaner, greener, healthier and more sustainable future for the area; and
- a place which enables and encourages businesses, residents and communities to achieve their full potential.

10.2.5 HEY LEP Economic Growth and Workforce Wellbeing Strategy, 2021 – 2026

The local enterprise partnership for the area, HEY LEP was created in 2021 and covers the two local authorities of the City of Hull and the East Riding of Yorkshire. It aims to strengthen collaboration between communities, businesses, the local authorities in the area and the Government with the goal of economic prosperity for people who live, work and study in the region.

Its Economic Growth and Workforce Wellbeing Strategy for 2021 – 2026 sets out its aims for the region and notes that the area is at a dynamic point of both challenge and opportunity. It highlights that the long-term structural weaknesses in the local economy have been exacerbated by both the COVID-19 pandemic, which accounted for a 10% loss of GVA in 2020, and the impact of the UK leaving the EU. In addition, it suffers from poor levels of graduate retention and a reducing working age population. Despite these significant and long-standing challenges, the area is home to sectors with high growth potential which have the ability to enhance its reputation as a cluster for clean growth activity and rapidly growing research and innovation capability, particularly in renewable energy, rail manufacture and agri-tech. The LEP's four priorities for the region are to promote a:

Productive and Innovative Economy – working with partners to support key sector growth, boost trade and investment, support pre-start/micro and SME businesses. It

has identified eight key sectors for the area: ports and logistics; engineering, manufacturing and assembly; agriculture, horticulture, food manufacture and agri-tech; construction; health technologies, pharmaceuticals, health care and social care; tourism and culture; digital and low carbon technologies.

Clean growth economy – balancing economic growth while also meeting targets to be a net zero carbon industrial cluster by 2040.

Skilled and inclusive economy – driving up skills in the workforce, reducing inequality and increasing life chances for communities.

Competitive and resilient local economy – enhancing the region's infrastructure and natural assets by, for example, enhancing transport and services, maximising digital infrastructure and promoting flood resilience.

10.2.6 Humber Estuary Plan, 2021

Through the Humber Leadership Board, the four local authorities and the two LEPs in the Humber area jointly developed the Humber Estuary Plan in 2021. It represents a shared view of how the progress of the previous decade can be built on in the years to come to grow the economy in the Humber Estuary. The organisations are connected by the area's strategically important assets and sectors such as ports, energy, chemicals and process industries, and the unique natural resource of the Estuary. It outlines three specific challenges faced by the area:

- the need to transition from being the highest carbon emitting industrial cluster in the UK to net zero emissions, while also protecting employment and ensuring the sustainability of industries;
- adjusting to the UK's new trading relationship with the EU from its position as an outward facing region; and
- living with the flood risk from rising sea levels - after London, Hull is the most exposed city in the UK to flooding.

10.3 Conclusions on the Impact in Context

The area has significant and long-standing social, economic and health challenges which are widely acknowledged. On many key indicators the Humber region lags behind the national averages and, within that, the City of Hull itself lags behind the Humber region. Very significantly, the City ranks in the top five out of the UK's 317 local authorities for having the highest proportion of extremely deprived localities and life expectancy for the City's population is three to four years lower than the UK average.

Time series data show that things are improving, but these are deep-seated challenges which take many years to change and can be most successfully addressed through the uptake of education at every level. Through its approach to access and participation, and the outreach work it does with schools and colleges, the University of Hull plays a key role in raising the aspirations of young people and community groups throughout the area, which can help to change their life chances.

Alongside its challenges, the areas key economic agencies highlight the many competitive advantages the area has in sectors such as energy transition, manufacturing, and health and social care. These are areas where the University of Hull has internationally recognised strengths in research and an active approach to knowledge exchange and innovation through centres such as the Energy and Environment Institute, the Aura Institute and the Hull York Medical School.

Therefore, the University of Hull has much to offer in a region with significant challenges but also a collective ambition to harness its potential and actively reshape its future.

11.

Conclusions

The University of Hull creates an economic impact worth £1.2 billion GVA and supports 14,480 jobs throughout the UK. The University has structured its offerings to address what is fundamentally important to the Humber region and is a vital actor in the region's economic, environmental and social development.

The University of Hull lives its values of environmental sustainability and social justice. This is evidenced through its research and activities, addressing the needs of the local community and contributing to its future growth and sustainability.

The socio-economic profile of the surrounding area demonstrates stark inequalities, and the University is actively addressing the shortcomings in the local economy by providing skilled graduates in key sectors of employment, opportunities for local businesses to develop and increased access for a diverse range of students. Being the only University in the area, the University of Hull is a vital actor in shaping the development of the local economy and supporting economic development agencies in their ambitions for the region.

11.1 Quantitative Impact

In 2021/22, the University generated an economic impact worth £1.2 billion GVA and 14,480 jobs in the UK, of which:

- £477 million GVA and 6,660 jobs were retained in Hull; and
- £694 million GVA and 9,260 jobs were retained in the Humber region.

A breakdown of GVA and employment by source of impact and study area is provided in the tables below.

Figure 11-1: Summary of Impacts 2021/22, GVA (£m)

Source of Impact	Hull	Humber Region	UK
Direct impact	138	138	138
Supply chain impact	6	11	63
Staff spending impact	18	52	101
Capital investment impact	5	6	32
Core Impacts	167	207	334
Tourism Impacts	1	2	3
Student spending	70	100	144
Student employment	34	45	62
Student volunteering	1	2	2
Student Impacts	105	147	208
Graduate Impacts	163	274	513
Medical Research Impacts	7	9	28
Licensing	<1	<1	7
Spin-outs & Start-ups	8	13	21
KTPs	1	1	1
Placements	2	4	6
The Enterprise Centre	1	1	1
Services to Businesses	23	35	78
Innovation Impacts	36	55	114
Total GVA Impact (£m)	477	694	1,200

Source: BiGGAR Economics Analysis

Figure 11-2: Summary of Impacts, 2021/22, Employment (Jobs)

Source of Impact	Hull	Humber Region	UK
Direct impact	2,330	2,330	2,330
Supply chain impact	90	170	950
Staff spending impact	510	1,470	2,990
Capital investment impact	70	100	500
Core Impacts	3,000	4,060	6,780
Tourism Impacts	20	50	100
Student spending	2,100	3,050	4,480
Student employment	1,180	1,560	2,110
Student Impacts	3,280	4,610	6,590
Licensing	<10	10	100
Spin-outs & Start-ups	160	240	420
KTPs	30	30	30
Placements	50	110	150
The Enterprise Centre	40	30	20
Services to Businesses	80	120	280
Innovation Impacts	360	540	1,010
Total Employment Impact (Jobs)	6,660	9,260	14,480

Source: BIGGAR Economics Analysis

11.1.1 Impact Multipliers

Impact multipliers are a useful summary indicator to express within a single figure the returns from investment in an organisation. In 2020/21, the University of Hull had an income of £197 million, generated £138 million direct GVA and directly employed 2,330 people. Therefore;

- for each £1 of income received, the University generated £6.10 in economic impact across the UK; and
- for each person it directly employed, the University supported 6 jobs across the UK.

BiGGAR Economics, Shandwick House,
67 Shandwick Place, Edinburgh, EH2 4SD

info@biggareconomics.co.uk

biggareconomics.co.uk

© Copyright 2023. BiGGAR Economics Ltd. All rights reserved.



SCOTTISH
**Business
Pledge**

