

Royal Holloway University of London

Economic Impact Study

A report to Royal Holloway University of London
January 2022





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1.

Executive Summary

With its foundations dating back to the 1800s Royal Holloway, University of London is a historic institution that has produced notable alumni who have gone on to make vital contributions to society. The College is recognised for its international outlook and ranked 25th out of all universities in the UK and in the top 350 in the world. In 2019/20, the College was host to 11,532 students, 1,749 members of staff and had an income of £188.9 million. The College's three-year strategy focuses on aligning its core principles to the needs and requirements of modern times.

During 2019/20, Royal Holloway generated an economic contribution of:

- £190.8 million Gross Value Added (GVA) and 2,760 jobs in Runnymede;
- £221.3 million GVA and 3,030 jobs in Surrey; and
- £657.1 million GVA and 7,150 jobs across the UK.

Numerous sources of impact were attributable to the economic contribution made by Royal Holloway. These sources of impact can be categorised into the following three themes:

- **Operational impacts:** which reflect the scale of the organisation, the number of people it employs, its supply chain spending and the size of its student community. Operational impacts support £332.3 million GVA and 6,500 jobs and represents 51% of the GVA impact and 91% of the employment impact created by Royal Holloway in the UK;
- **Purposeful impacts:** which happen as a result of the learning and knowledge exchange activity taking place and is delivered with the intention of changing individual life opportunities and developing sectors of the future. This work supports £299.0 million GVA and 190 jobs and accounts for 45% of the GVA impact and 3% of the employment impact created by Royal Holloway in the UK; and
- **Cross-over impacts:** which cross the boundary of being both operational and purposeful and include impacts such as tourism, capital investment and student volunteering. These sources of impact support £25.8 million GVA and 460 jobs and represent 4% of the GVA impact and 6% of the employment created by Royal Holloway in the UK.

The academic year of 2019/20 represented an atypical year as a result of the Covid-19 pandemic. With restrictions implemented in March 2020, the remainder of the academic year was adversely affected, particularly in terms of income, tourism and student spending. Analysis indicates that the pandemic reduced Royal Holloway's impact during the year by around £58.1 million GVA and 1,490 jobs in the UK.

Since 2012/13, when the economic footprint of the University was last estimated, Royal Holloway's impact has increased by £175.3 million GVA and decreased by 150 jobs. The fall in the number of jobs associated with its activities is, however, the result of the Covid-19 pandemic reducing the levels of student impact, which tends



to support lots of jobs. Had there not been the pandemic, it is likely that the University would have supported 1,350 more jobs than it did in 2012/13.

Alongside the University of Surrey, Royal Holloway plays an important role in the economy of Surrey. The two institutions make a significant contribution in attracting visitors to Surrey and in driving the region's productivity through their graduates and the support they provide to businesses.

The College has ambitious plans for growth, with a particular focus on increasing its impact through its four challenge-led research catalysts, through modernising its teaching and appealing to London's growing young population, and developing partnerships with international organisations. These are expected to lead to higher economic impacts across all areas of the College's activities.



2.

Introduction

BiGGAR Economics was commissioned to assess the economic contribution generated by Royal Holloway University of London.

This report is structured as follows:

- this section introduces the study;
- section 3 sets out the approach taken to the study, including the theoretical framework and methodology used;
- section 4 describes the existing socio-economic context of the study areas;
- section 5 outlines the operational impacts arising from Royal Holloway;
- section 6 analyses the purposeful impacts generated by Royal Holloway;
- section 7 identifies those impacts which cross the boundaries of both operational and purposeful;
- section 8 provides a summary of the quantifiable impacts identified within this report;
- section 9 describes the wider benefits Royal Holloway makes to society; and
- section 10 discusses the College's strategy and its potential to increase its impacts.

2.1 Royal Holloway, University of London

Royal Holloway, University of London (Royal Holloway), has origins dating back to the mid 1800's. Bedford College, founded in 1849 by social reformer Elizabeth Jesser Reid, and Royal Holloway College, founded in 1886 by entrepreneur and philanthropist Thomas Holloway, symbolised two revolutionary colleges for women at the time by granting them access to higher education. In 1900, the two colleges became part of the University of London and in 1975, merged to become Royal Holloway, University of London. Since its founding the College has gone on to produce over 95,000 alumni, many of whom have gone on to produce ground-breaking research and are significant contributors to society. In 2019/20 the College was host to 11,532 students and 1,749 staff (1,598 FTE).

Royal Holloway's Motto: '*Esse Quam Videri*' – 'To be rather than to seem'.

The campus is located in Egham, Surrey and features the captivating Founder's Building, opened in 1886 by Queen Victoria, which is situated at the heart of the campus and provides on-site dining and accommodation for up to 500 students. As well as retaining its core ideals of equality and commitment to diversity and culture,



the College is continuously adapting to the needs and demands of modern society. Core subject areas include: computer, life, physical and social sciences; engineering and technology; business and economics; psychology; law; health; and arts and humanities.

The Times and Sunday Times Good University Guide (2021) classifies Royal Holloway as one of the top 25 universities in the UK¹. Globally, The Times Higher Education World University Rankings classes it as one of the top 350 universities in the world². Within this world raking, Royal Holloway ranks particularly highly for international outlook (91.9). The National Student Survey (NSS) identifies that the College consistently ranks highly in terms of student satisfaction levels and in the most recent survey in 2020, satisfaction rates totalled 87%³. In the 2014 Research Excellence Framework, Royal Holloway was ranked within the top 25% of UK universities for ‘world-leading’ or ‘internationally excellent’ rated research⁴.

In 2014, BiGGAR Economics was commissioned to assess the economic impact of Royal Holloway during the 2012/13 academic season. This study found that during 2012/13, the College generated an economic impact of £482 million GVA and supported 7,290 jobs across the UK. Since this study the College has undertaken significant investments such as the opening of the Emily Wilding Davidson and Beatrice Shilling Buildings in 2017 and 2018. In 2021 BiGGAR Economics was commissioned to undertake an updated assessment of the College’s economic impact.

2.2 Study Objectives

This report has been produced in line with the following key objectives:

- to provide an updated economic impact assessment of Royal Holloway University of London reflecting the College’s current position in the economy; and
- highlight the College’s strategic objectives as a driver of economic growth and output in the short and long-term.

2.3 Strategic Ambition

In late 2020, Royal Holloway published its three-year strategy spanning the period 2020-23. The strategy is based on consultations which began in 2019 and considers the implications of the Covid-19 pandemic, on the College itself and its wider operating environment.

¹ Times and Sunday Times (2021), Good University Guide 2021

² Times Higher Education (2021), World University Rankings 2021

³ National Student Survey (2020)

⁴ Research Excellence Framework (2014), REF 2014



Royal Holloway’s Strategic Ambition: “Aligning to the opportunities and requirements of our modern times to address local and global needs.”

Royal Holloway Strategic Plan 2020 – 2023

The strategic plan identifies three strategic priority pillars which highlight the College’s focus on ‘dual excellence in research and teaching’. The pillars emphasise the priority themes of **Education**, **Research** and **Financial Sustainability**⁵. This is discussed further in section 10.

2.3.1 Respond to the Higher Education Needs and Ambitions of an Expanding London Population

London is anticipated to have a significantly higher proportion of the population aged 20 than the UK as a whole by 2031. Given the College’s proximity to the capital city and the tendency for these students to be commuters, adapting teaching and facilities to the demands of these students is a key aspect of the strategy.

Reflecting the modern educational needs of the College’s diverse student body, the strategy identifies the need to engage with local schools and universities in the London area to provide a wider range of degree opportunities and access to higher education.

2.3.2 Build Strong and Sustainable International Partnerships that Expand the Horizons of all our Students

The College attracts a significant number of international students each year with these students typically accounting for around 20% of the College’s total income. The Covid-19 pandemic has resulted in unprecedented challenges in this area with uncertainty on student numbers, and therefore income, over the coming years. The College now faces heightened competition in attracting international students and in preventing a detriment to its financial position.

The strategy seeks to maintain an internationally diverse student population and highlights a focus on providing more postgraduate opportunities and pathway programmes to encourage a steady flow of international students over the coming years. This has been further encouraged through the introduction of an international foundation year designed specifically for international students to prepare them for the first year of their degree.

⁵ Royal Holloway, University of London (2020), 3-Year Strategic Plan, 2020 - 2023



2.3.3 Develop Strengths in Challenge-led Research and Contribute to Addressing Key Issues of our Modern Time

The third strategic priority seeks to equal the College's challenge-led research to its strength in investigator-led research and identified four priority research areas:

- digital futures in the creative and cultural sectors;
- sustainable places, thriving societies;
- advanced quantum science and technologies; and
- transformative digital technologies for a sustainable digital society.



3. Framework, Approach and Methodology

This section discusses the pivotal role universities play in driving 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 generators of research and development, they play a central role in supporting industry clusters and make a significant contribution to economic growth.

A number of 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. In the late 1950s, Robert Solow published papers showing it was not the savings rate or increases in factors of production (labour and capital) that determined the long-run growth rate, but increases in productivity. In the early 1960s Kenneth Arrow published papers on research and development and on “learning by doing”, which showed that almost all economic growth could be accounted for by innovation. This meant innovation from new ideas emerging from research, as well as improving productivity through “learning by doing” during the production process.

Building on this, Joseph Stiglitz, has argued that productivity is the result of learning and, consequently, a focal point of policy should be to increase learning within the economy. The observation is made that even within countries and within industries there can be large gaps between the most productive and the others.

This diffusion of knowledge and innovation results in productivity gains and consequently economic growth, thereby highlighting the crucial role Universities play in a country’s economic development.

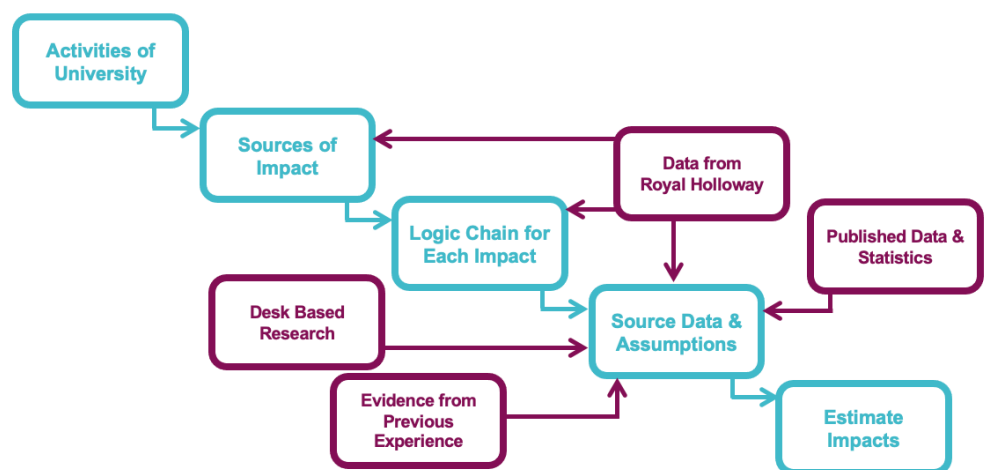
Universities drive economic growth and boost competitiveness by diffusing knowledge which raises productivity.

3.2 Study Approach

This study is centred around estimating the total economic contribution generated by Royal Holloway in 2019/20. In order to do so, it was necessary to identify the different sources of impact the College creates. The sources of impact used in the 2014 study have formed the basis of this study in order to highlight how each impact has changed over time.

After identifying the appropriate sources of impact, it was necessary to create logic chains for each impact to assess how it makes a contribution to the economy. This approach has been tried and tested by BiGGAR Economics and used to assess the economic impact generated by over 100 universities. This approach is illustrated in Figure 3-1.

Figure 3-1 Study Approach



BiGGAR Economics' previous experience assessing the economic impact of Royal Holloway in 2014 provided a strong starting point for the analysis. The assumptions and methodology used in this study provided a foundation on which to build and update the previous study. However, as this study is now dated, it was also necessary to obtain up to date information regarding each source of impact from the College.

In addition to data provided by Royal Holloway, publicly available sources of information were used to populate an economic model for the analysis. These sources have been referenced throughout this report as appropriate and include official statistical sources, the prominent one being that of the Input-Output Tables produced by the Office for National Statistics in 2020⁶.

Beyond the quantifiable impacts, the College generates wider social and environmental impacts which are not as easily quantified. It is therefore necessary to gather qualitative information through consultations with some of the College's key

⁶ ONS (2020) 2017 Input Output Tables

stakeholders. The consultation process focused on Royal Holloway’s distinctive areas of strength.

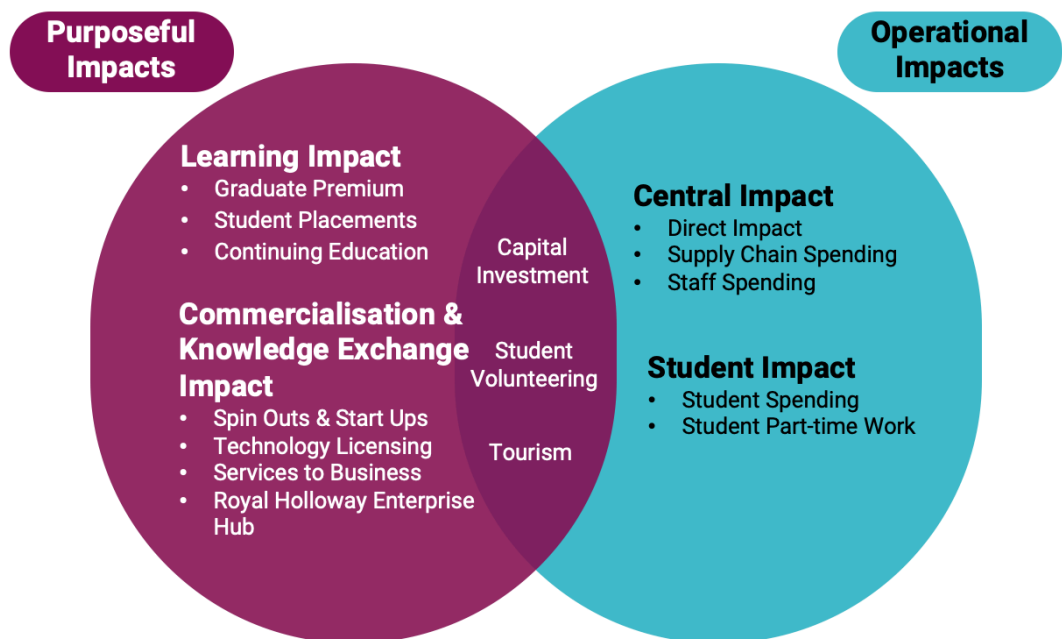
3.2.1 Purposeful and Operational Impacts

The sources of economic impact universities contribute to can be categorised into **operational** and **purposeful** impacts:

- **Operational Impacts** are those which result from the existence of any large organisation with a significant staff complement, an extensive supply chain and a large consumer base. These types of impact occur regardless of the nature of the business and mainly reflect the scale of the organisation and in the case of Royal Holloway include the **central** and **student impacts**
- **Purposeful Impacts** are associated with the nature of the activity undertaken and reflect outcomes designed specifically to drive innovation and productivity growth within the economy. In a sense they measure the wider value a university brings and can be categorised as the **learning impacts** and **commercialisation and knowledge exchange activity**.

As shown in Figure 3-2, there are several sources of impact that cross the boundary of falling into the category of either purposeful or operational impacts. These **cross-over impacts** are predominantly purposeful in nature yet depend mainly on the College’s core activities. To avoid double counting within the totals presented in this report, these impacts have been assessed separately.

Figure 3-2 Purposeful and Operational Sources of Impact



3.3 Methodology

3.3.1 Metrics

The quantifiable economic impacts generated by Royal Holloway have been assessed using two widely accepted measures of economic contribution:

- **Gross Value Added (GVA):** a measure of the monetary contribution that an organisation adds to the economy through its operations (rounded to the nearest hundred); and
- **Employment:** measured in terms of headcount jobs supported (rounded to the nearest ten).

3.3.2 Time Frame

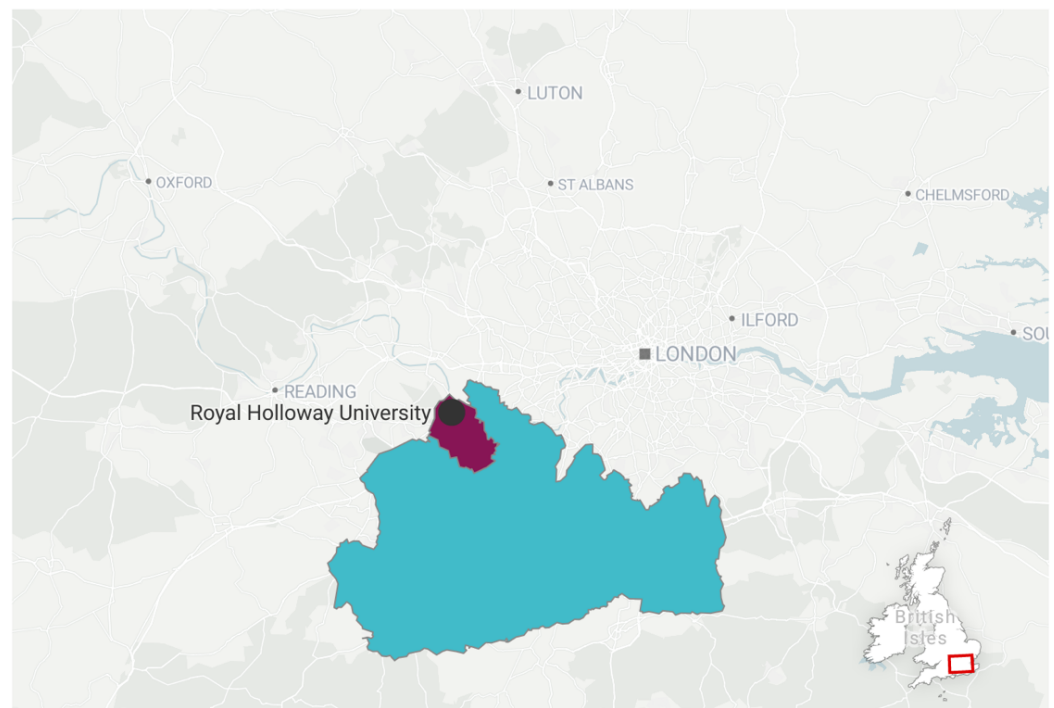
The analysis is based on data from the 2019/20 academic year. However, in section 8.2, a counterfactual scenario has been assessed using data from previous years. This has been done in order to reflect the contribution that would typically be made by the College under 'normal' circumstances.

3.3.3 Study Areas

The impacts reported have been assessed at three geographic levels:

- the Borough of Runnymede;
- the County of Surrey; and
- the UK.

Figure 3-3 Royal Holloway Study Areas



Source: BiGGAR Economics (Using Datawrapper).

4. Socio-Economic Context

This section describes the socio-economic profile of Surrey, Runnymede and the UK. This provides context for understanding the College’s role and economic impact.

4.1 Population

Runnymede has a population of just over 90,000, representing 7.5% of the population of Surrey, which has a population of 1.2 million, less than 2% of the total of the UK. The proportion of the population that is of working age is higher in Runnymede (65.6%) than Surrey (61.1%) and the UK (62.4%).

Figure 4-1 Population Estimates, 2020



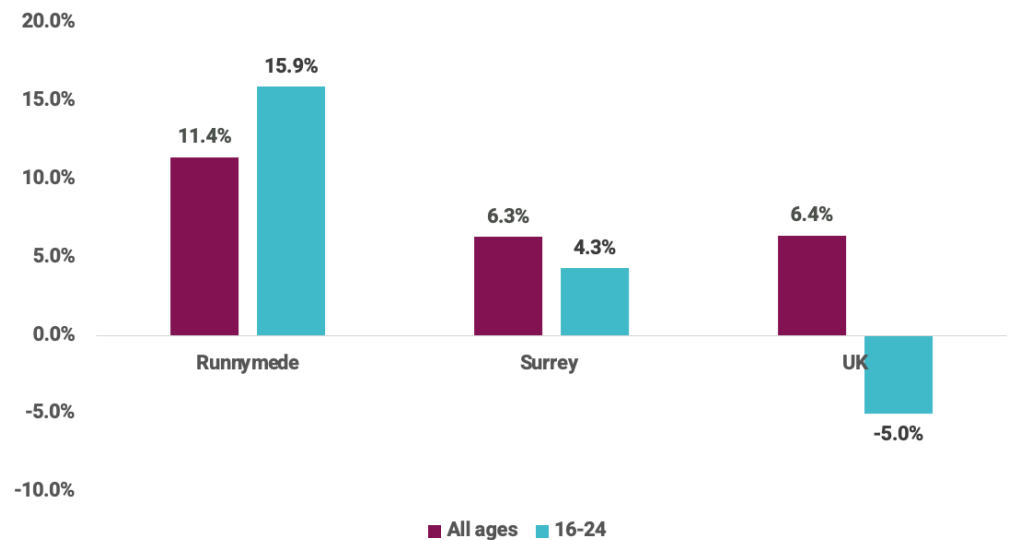
Source: ONS, (2021). Population Estimates.

In the past decade (2010-2019), the population of Surrey grew by 6.3% which was in line with the rate for the UK population as a whole (6.4%). The population of



Runnymede grew at almost double the rate of Surrey, growing by 11.4% between 2010 to 2019. The proportion of the population aged between 16 and 24 increased in both Runnymede (15.9%) and Surrey (4.3%) between 2010 and 2019, in comparison to the decline experienced across the UK as a whole (-5.0%).

Figure 4-2 Population Changes, 2010-2019



Source: ONS, (2021). Population Estimates.

4.2 Economic Activity

4.2.1 Economic Activity Rates and Earnings

The economic activity rate in both Surrey and Runnymede is higher than the average for the UK, and the unemployment rate correspondingly lower (Table 4.1). The annual full-time wage for workers is also higher in both study areas when compared with the UK as a whole.

Table 4.1 Economic Activity Rates and Earnings, 2020

	Runnymede	Surrey	UK
Economic Activity Rate	85.9%	84.2%	78.9%
Unemployment Rate	2.5%	3.9%	4.6%
Median Annual Gross Wage- full time workers	£37,451	£39,196	£31,461

Source: ONS, (2021), Annual Survey of Hours and Earnings- resident analysis.



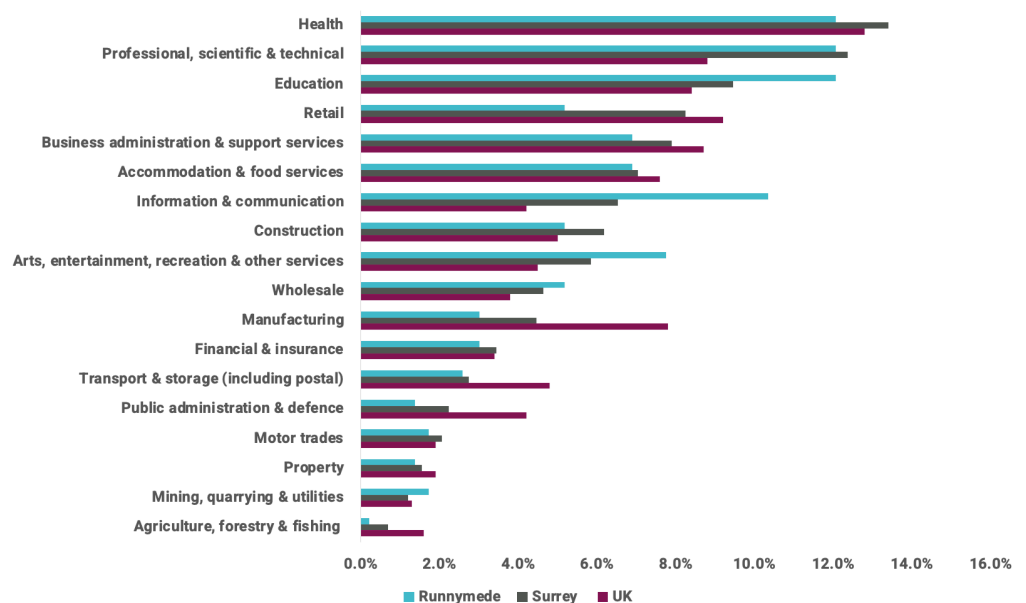
4.3 Industrial Structure

As of 2019 there were 58,000 people in employment in Runnymede, 582,000 people in employment within Surrey and 31 million people in employment within the UK.

When looking specifically at the breakdown of employment by type of industry:

- the professional, scientific and technical sector makes up a larger proportion of both Surrey (12.4%) and Runnymede's (12.1%) employment than the UK average (8.8%);
- employment within manufacturing in is lower than the UK average (7.8%), accounting for 4.5% and 3.0% of the employment within Surrey and Runnymede respectively;
- employment in the information and communication sector is higher than average (4.2%), accounting for 6.5% of employment in Surrey and 10.3% in Runnymede;
- the education sector employs a higher proportion of people in Runnymede (12.1%) when compared with Surrey (9.5%) and the UK (8.4%); and
- public administration and defence employment is significantly lower than the UK average of 4.2% with employment in this sector standing at 2.2% in Surrey, and 1.4% in Runnymede.

Figure 4-3: Employment by Sector, 2019



Source: ONS, (2019). Business Register and Employment Survey.

4.4 Skills/Qualifications

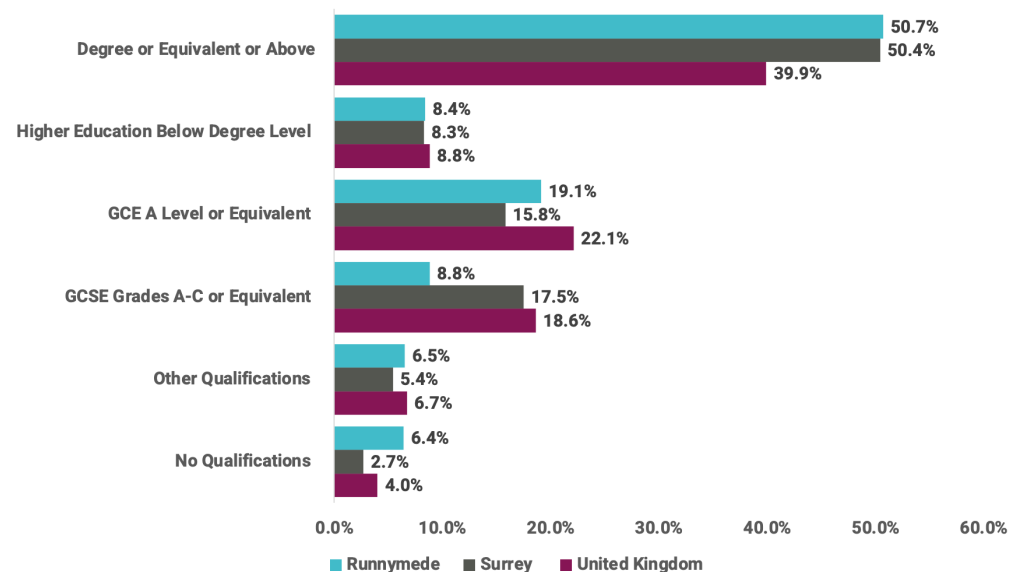
The skills profile of the study areas shows a relatively well qualified population compared to the UK average. Both Surrey and Runnymede have a significantly higher proportion of the population holding a degree qualification or above (50.7% and 50.4% respectively) when compared to the UK average (39.9%).



The study areas have a lower share of the population obtaining a GCE A Level qualification when compared to the UK, with 19.1% of Runnymede and 15.8% of Surrey holding A Levels or equivalent, compared with 22.1% on average across the UK.

The study areas share of those who hold no qualifications varies in comparison with the UK average. In Surrey 2.7% of those of working age hold no qualifications in comparison to 6.4% in Runnymede and 4.0% across the UK.

Figure 4-4: Working Age Qualification Levels, 2020



Source: ONS (2021), Annual Population Survey, 2020.

4.5 Socio-Economic Profile Conclusions

The growth of the young adult population of Runnymede and Surrey has been greater than the UK average.

The industrial structure of the areas reflects a strong concentration within professional and scientific occupations, with less employment focussed in areas such as manufacturing, and public administration and defence.

Economic activity and earnings are much higher when compared with UK averages, with unemployment also slightly lower in both Runnymede and Surrey when compared with the rest of the UK. The qualifications' profile of both areas compares well with UK average, with a significantly higher proportion of people holding degree level qualifications or above.

5.

Operational Impacts

This section summarises the economic impact created by the central activities of Royal Holloway from employing staff, buying in goods and services and the impact created by its student community.

Operational impacts arise from any employer, regardless of the purpose of its work, and mainly reflect the scale of the organisation.

As a university, Royal Holloway generates its operational impact through its:

- **central impact**; which includes staff employment and expenditure on goods and services; and
- **student impact**, generated by the student community through students' expenditure in the economy and the additional contribution they make by working in the local economy during the course of their studies.

5.1 Central Impact

The core economic impacts associated with Royal Holloway are those which occur as a result of the day-to-day activities of the College and its students and staff.

These include:

- direct impacts;
- supplier impact; and
- staff spending impact.

5.1.1 Direct Impact

The direct impact of an organisation is the value it adds to the economy through its own operations. This can be estimated as the difference between total income and total supply spending.

Royal Holloway generated an annual income of £188.9 million in 2019/20 and spent £56.1 million on goods and services during the same period. This therefore resulted in a direct economic impact of £132.8 million GVA. During the same year, the College directly employed 1,749 members of staff, of which 1,598 were full-time equivalent (FTE) jobs.

5.1.2 Supply Chain Impact

Royal Holloway has an economic impact through its spending on goods and services. This expenditure benefits those businesses where purchases take place, supporting their turnover and employment.



Total expenditure on bought in goods and services by Royal Holloway in 2019/20 was £56.1 million. Once 25% of student maintenance awards and facilities, which was accounted for in the student impact, was excluded, total supply chain expenditure was estimated at £51.7 million. The largest areas of supply chain spending for the college were student maintenance awards and facilities (£13.2 million), administrative expenses (£8.2 million) and other premises related costs (£8.4 million).

Of Royal Holloway's total spend on goods and services, an estimated 1.8% is spent is within Runnymede, 3.8% within Surrey and 91.4% within UK businesses.

5.1.3 Staff Spending Impact

By spending their salaries and wages, staff employed at Royal Holloway support further economic activity in the areas where they live. This increases turnover in the businesses where they spend money, resulting in higher economic activity and employment.

Royal Holloway staff, of which 21% are based within Runnymede, and 34% within Surrey, received £107.0 million in wages and salaries in 2019/20 (of which £0.9 million was paid to students employed by the College). After accounting for VAT⁷, the economic impact this creates has been estimated based on the sectors in which households typically spend their wages.

5.1.4 Total Central Impact

Summing together the impacts described in this section, it was estimated that in 2019/20 Royal Holloway contributed £245.7 million GVA and supported 4,250 jobs in the UK, of which £144.1 million in GVA and 1,860 jobs were in Surrey, and £137.9 million GVA and 1,710 jobs were in Runnymede.

⁷European Commission (2013), A study on the economic effects of current VAT structures



Table 5.1 Central Impact of Royal Holloway

	Runnymede	Surrey	UK
GVA (£m)			
Direct	132.8	132.8	132.8
Supply Chain Spending	0.5	1.3	48.1
Staff Spending	4.5	10.1	64.8
Total	137.9	144.1	245.7
Employment			
Direct	1,600	1,600	1,600
Supply Chain Spending	10	30	1,190
Staff Spending	100	230	1,460
Total	1,710	1,860	4,250

Source: BIGGAR Economics Analysis. *Totals may not add up due to rounding.

5.2 Student Impact

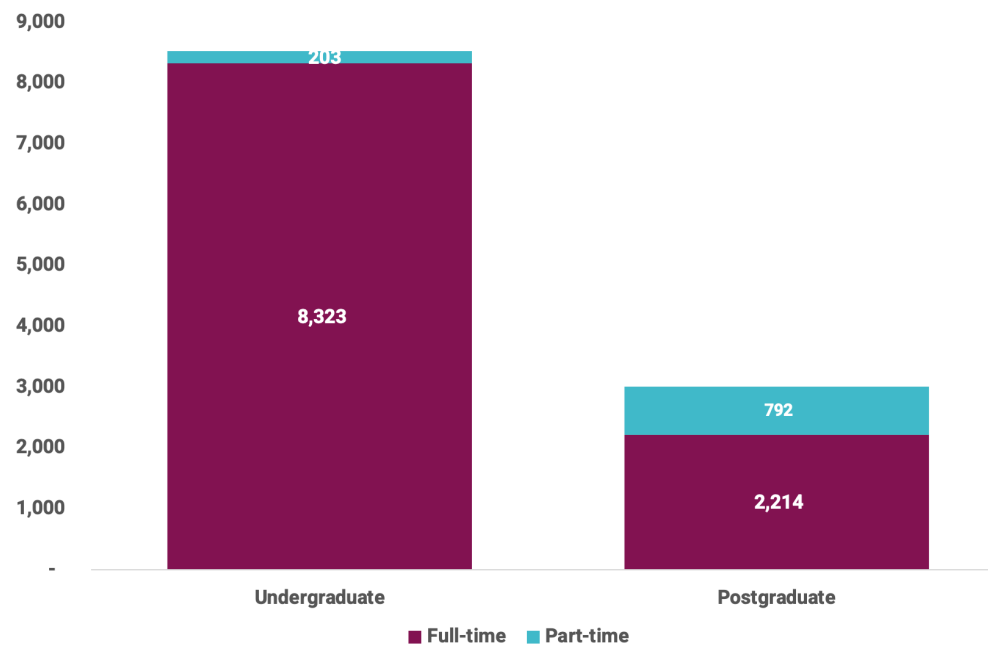
This section discusses the economic impact of the day-to-day spending and working habits of students attending courses at Royal Holloway. The focus is on full-time students, as the spending patterns and labour market contribution of part-time students is mostly driven by their work rather than their study.

5.2.1 Student Community

In 2019/20, there were 10,537 full-time students and 995 part-time students enrolled at Royal Holloway on all higher education courses, with 8,323 students enrolled as undergraduates, and 2,214 students enrolled as postgraduates.

The majority of undergraduate students enrolled at Royal Holloway were full-time, 97.6%, with 2.4% of undergraduates at the university part-time. Similarly, 73.7% of postgraduate students were at the university full-time, with 26.4% of postgraduate students studying part-time.

Figure 5-1 Royal Holloway Student Numbers by Type, 2019/20



5.2.2 Student Spending

Students make an economic contribution through their term-time spending habits, supporting turnover and employment in the businesses where they make their purchases. Based on survey evidence on student expenditure⁸, it was estimated that on average students in and around London spend £14,095 per year. This is equivalent to around £374 per week spent on campus once VAT is excluded.

Adjustments were made according to student’s tenure, as students have different spending patterns depending on the type of accommodation where they live. Based on the university’s calendar, it was further estimated that prior to the UK-wide lockdown of March 2020 students had spent 22 weeks on campus.

It was estimated that 64% and 67% of Royal Holloway’s 10,537 students live in Runnymede and Surrey respectively. This resulted in an economic impact of £18.9 million GVA and 370 jobs in Runnymede, £21.6 million GVA and 420 jobs in Surrey and £51.9 million and 970 jobs across the UK.

5.2.3 Student Part-Time Work

Students also make an economic contribution by working part-time during their studies, often in the hospitality and retail sectors. It was assumed that 57% of full-time students work for an average of 14 hours per week⁹. Students were assumed to work where they live. Not all of these jobs will be additional as some may displace non-students, therefore an adjustment was made to account for the youth unemployment rate in each of the study areas.

The impact of student employment was converted into GVA and employment impacts by applying appropriate sectoral ratios and multipliers. Student part-time

⁸ Department for Education (2018), Student Income and Expenditure Survey 2014 to 2015

⁹ National Union of Students, (2010). Still in the Red: Student Finance in 2010



work contributed £34.8 million GVA to the UK economy and supported 1,260 jobs, with £19.3 million GVA and 710 jobs in Surrey, and £17.4 million GVA and 640 jobs in Runnymede.

5.2.4 Student Impact Summary

It was estimated that student spending and working contributed £86.6 million GVA and 2,230 jobs across the UK, of which £40.8 million GVA and 1,130 jobs were in Surrey, and £36.3 million GVA and 1,010 jobs were in Runnymede.

Table 5.2: Royal Holloway Student Impact

	Runnymede	Surrey	UK
GVA (£m)			
Student Spending	18.9	21.6	51.9
Student Part-Time Work	17.4	19.3	34.8
Total	36.3	40.8	86.6
Employment			
Student Spending	370	420	970
Student Part-Time Work	640	710	1,260
Total	1,010	1,130	2,230

Source: BiGGAR Economic Calculations. *Totals may not add up due to rounding.



6. Purposeful Impacts

This section describes the purposeful impacts generated through the learning, commercialisation and knowledge exchange activities at Royal Holloway.

The purposeful impacts generated by Royal Holloway are those that are designed specifically to drive innovation and productivity growth within the economy, reflecting the wider value the College makes.

The following impacts can be thought of as purposeful:

- **learning impacts**, which are delivered by graduates who contribute to the productivity of the economy as a result of their skills and experience they gain during their time at university; from student placements and from the continuing professional education which universities deliver;
- **the commercialisation and knowledge exchange activity** which is supported through licensing the Colleges intellectual property, conducting commercial research and development and supporting innovation and business creation, including through the Royal Holloway Enterprise Hub.

These impacts are intrinsically linked to the College's strategic plan and ambition to align to the needs of modern times. Ambitions set out by the strategic plan seek to develop Royal Holloway's strengths in academia and encourage greater collaboration with the wider economy through its students, graduates and staff in order to deliver its core purpose.

6.1 Learning Impact

The learning impact generated by Royal Holloway has three elements, each of which are explained and measured in this section:

- graduate premium;
- student placements; and
- continuing professional development (CPD).

6.1.1 Graduate Premium

By completing studies at university, graduates acquire skills which make them more productive than they would otherwise have been. There are two elements to the premium this creates: one that accrues to each graduate personally and one that accrues to the companies they work for whose profitability is improved by using the graduates' skills. It is not possible to accurately calculate the benefit to individual company profitability and national productivity from employing graduates therefore



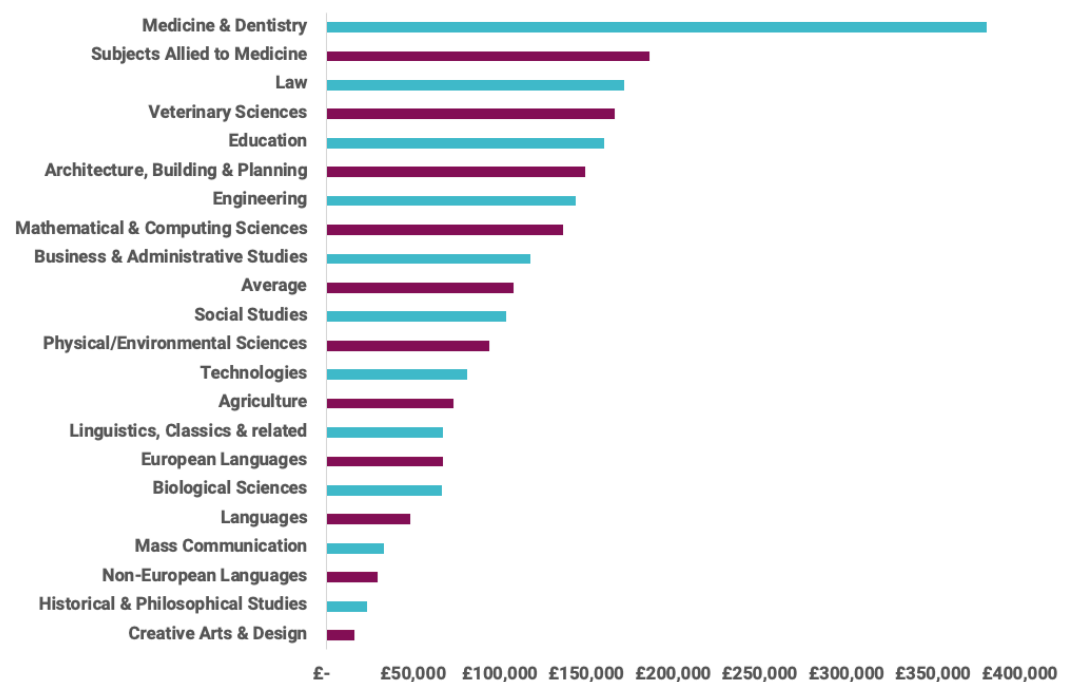
the method used in this study reflects only the personal benefit to graduates from studying at university. As a result, the impact provided in this report is an underestimate of the total economic impact associated with increased graduate productivity.

During the 2019/20 academic season, Royal Holloway awarded 3,875 qualifications to its graduates, of which 2,505 were awarded to UK graduates and 1,370 to non-UK graduates. Of all qualifications awarded, 60% were granted to undergraduates and 40% to postgraduates.

To estimate the graduate premium, it was necessary to multiply the number of graduates for each subject (by level) by the graduate premium for that subject (by level), and then apply assumptions about where graduates would work after graduation.

Information about the graduate premium for different subjects in higher education is provided in a research paper produced by the Department for Business Innovation and Skills¹⁰, as shown in Figure 6-1. Degree courses offered by Royal Holloway were matched to the most appropriate subject classification for the analysis.

Figure 6-1 Returns by Degree Subject Studied



Source: BIS (2011), The Returns of Higher Education Qualifications.

In this way, it was estimated that the lifetime earnings premium associated with graduates from Royal Holloway was £13.9 million GVA in Runnymede, £31.2 million GVA in Surrey and £236.5 million GVA for the UK as a whole. This impact is a

¹⁰ Department for Business Innovation and Skills (2011), The Returns to Higher Education Qualifications



productivity gain measured in terms of GVA and consequently does not have an associated employment impact.

6.1.2 Student Placements

Students at Royal Holloway contribute to the local economy by carrying out work placements, utilising the knowledge and skills they have acquired from the College to support the organisations in which they are placed. Forming strategic relationships with business is identified within the College's strategic plan as a necessity to improving the outcomes and employability of its graduates.

The School of Business and Management actively encourages placement and internship opportunities to enrich students' studies and careers. Placements in the Year in Business (YIB) programme usually last between nine and twelve months and allow students to apply the knowledge and skills they have gained in their first two years of university into a real workplace situation. Benefits to students who complete placements include greater graduate employability prospects and degree classification¹¹.

In 2019/20, 39 students at Royal Holloway undertook the YIB placement, of which five were placed in businesses in Runnymede, 11 in Surrey and 34 in the rest of the UK. It was assumed that each placement lasted 10 months and stopped as lockdown restrictions were introduced in March 2020. Placements were assumed to occur in the sector of head offices and management and consultancy activities and it was assumed that students on placement were around one-third as productive as the average employee in the sector.

Applying sector specific economic ratios, and GVA and employment multipliers, it was estimated that student placements at Royal Holloway generated a total economic impact of £0.9 million GVA and supported 10 jobs across the UK.

6.1.3 Continuing Professional Development (CPD)

In 2019/20, Royal Holloway generated an income of £1.7 million through delivering CPD courses. These courses are designed to help working people develop new skills or update the existing skills they have throughout their professional life, thereby enabling them to deliver higher value to the organisations they work for. CPD delivered by Royal Holloway in 2019/20 included social work, education development, modern languages, management, organisation development and clinical psychology.

CPD courses delivered by Royal Holloway in 2019/20 generated £12.8 million GVA for the UK economy and supported 31 jobs. Within Surrey, CPD supported £1.1 million GVA and one job.

¹¹ Royal Holloway, University of London, (2021). Year in Business.



6.1.4 Learning Impact Summary

The learning impact generated through the graduate premium, student placements and CPD indicates that the College supported a total of £250.2 million GVA and 40 jobs across the UK in 2019/20.

Table 6.1 Learning Impacts Generated by Royal Holloway

	Runnymede	Surrey	UK
GVA (£m)			
Graduate Premium	13.9	31.2	236.5
Student Placements	0.1	0.2	0.9
CPD	0.4	1.1	12.8
Total	14.3	32.5	250.2
Employment (Jobs)			
Student Placements	<10	<10	10
CPD	<10	<10	30
Total	<10	<10	40

Source: BiGGAR Economics Analysis *Totals may not add up due to rounding.

6.2 Commercialisation and Knowledge Exchange Impacts

Royal Holloway generates economic impacts through its commercialisation and knowledge exchange activities. This occurs through:

- spin-outs and start-ups;
- licensing agreements;
- services to businesses; and
- the Royal Holloway Enterprise Hub.

6.2.1 Spin-Outs and Start-Ups

Spin-out companies are set up to commercialise an institution’s intellectual property and are typically established by its staff or students. In 2019/20, two businesses were established as a result of Royal Holloway. Together these companies generated a total turnover of £0.5 million and employed an estimated four people.

Applying average economic multipliers based on the sectors of start-ups identified in the previous economic impact study, it was estimated that businesses started by Royal Holloway in 2019/20 generated £0.3 million GVA for the economy of Surrey during 2019/20 and supported six jobs. Nationally, this resulted in a total impact of £0.4 million GVA and nine jobs.



6.2.2 Licensing Agreements

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 Royal Holloway in order 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 Goldschneider, first undertaken in the 1950s and updated in 2002¹². 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.

In 2019/20, Royal Holloway received a net income of £0.6 million from licensing of its intellectual property. Applying the 5% turnover rate to sector appropriate ratios and multiplier effects for each license resulted in an economic impact of £0.3 million GVA and six jobs in the UK.

6.2.3 Services to Business

Royal Holloway transfers knowledge through its research activity and interactions with businesses. This includes:

- consultancy work for businesses or public organisations to address identified issues;
- contract and collaborative research; and
- access to facilities and equipment at Royal Holloway.

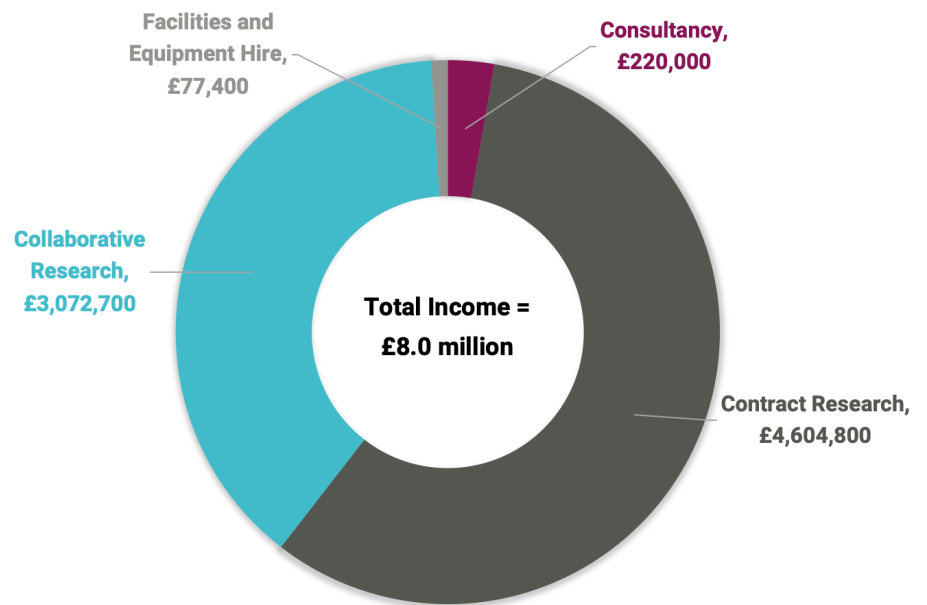
Businesses that undertake these types of investment expect to generate positive returns, either by increasing staff productivity, by developing new products, services and processes or improving existing products, services or processes. Royal Holloway is home to world-class research laboratories in the fields of science, geography and physics and has provided consultancy advice on a host of areas including information security and oil exploration.

During 2019/20, Royal Holloway generated an income of £8.0 million from providing these services. A breakdown of income by source is shown in Figure 6-2.

Sector specific economic ratios and multipliers were applied to each area of service, as well as assumptions regarding the location where each takes place. In this way, it was estimated that all services to businesses undertaken by Royal Holloway in 2019/20 resulted in a total economic impact of £48.0 million GVA and 134 jobs across the UK.

¹² R. Goldschneider et al (2002), Use of the 25 Per Cent Rule in Valuing IP

Figure 6-2 Services to Businesses, Breakdown of Income by Type



Source: BIGGAR Economics Analysis

6.2.4 Royal Holloway Enterprise Hub

The Royal Holloway Enterprise Hub was established in September 2017 and is a catalyst environment for innovation, enterprise and business information.

The Hub aims to inspire the next generation of entrepreneurs, offering workshops and activities to help the students at Royal Holloway on deciding what kind of start-ups they want to run. In the past academic year everything the Hub provides has been online, this includes everything from workshops ran with external partners, learning platforms to help develop ideas, and talks from successful entrepreneurs.

Data regarding the Hub’s activities and quantifiable impact is not available and as such has not been considered as part of the analysis; however, the activities undoubtedly create positive returns for those entrepreneurs who use the service.

In addition, the College has developed space on campus for companies that use its facilities, such as Superfab, so that they can more effectively co-locate and work with the College.

6.2.5 Commercialisation and Knowledge Exchange Summary

Combining the commercialisation and knowledge exchange impacts detailed in this section estimates that, through these activities, Royal Holloway supports a total economic impact of £48.8 million GVA and 150 jobs across the UK.



Table 6.2 Commercialisation and Knowledge Exchange Impact Generated by Royal Holloway

	Runnymede	Surrey	UK
GVA (£m)			
Spin-Outs & Start-Ups	0.1	0.3	0.4
Licensing	-	-	0.3
Services to Business	1.1	2.4	48.0
Total	1.3	2.6	48.8
Employment (Jobs)			
Spin-Outs & Start-Ups	<10	10	10
Licensing	-	-	10
Services to Business	<10	<10	130
Total	<10	10	150

Source: BIGGAR Economics Analysis *Totals may not add up due to rounding.



7.

Cross-Over Impacts

Impacts associated with capital investment, student volunteering and tourism cross the boundaries of being both purposeful and operational.

For example, some tourism impacts are associated with conferences and events which are directly related to core areas of research or knowledge exchange activity. Similarly, students who decide to volunteer often do so independently of the university, but their ability to do so may rest on skills or knowledge gained during their work or studies. The impact of capital spending also creates a purposeful impact by creating new facilities, however only occurs to support the core activity. These crossover areas are relatively small impacts and in 2019/20 represented around **4% of the total impact** generated by Royal Holloway in the UK.

7.1 Capital Investment

Capital investments by Royal Holloway have an impact on the construction and manufacturing sectors. As capital spending fluctuates from year to year an average has been taken for expenditure over the past five years and planned expenditure for the next five years. On this basis, average capital expenditure is estimated at £35.0 million per year. This includes spending on buildings, machinery and other infrastructure. Examples of recent investments include George Eliot Halls and the Emily Wilding Davidson Building, both constructed in 2017, and the Beatrice Shilling Building, built in 2018.

It was assumed that 93% of capital spending is secured by companies based in the UK, of which 3% is secured by companies in Surrey, and 2% is secured by companies in Runnymede. This was converted into GVA and employment impacts by applying appropriate GVA and employment ratios and multipliers for the construction and manufacturing sectors.

A significant element of the College's planned capital expansion is the 1,400 bed Rusham Park development. This has been developed on land adjacent to the main campus, which was previously rented by Proctor & Gamble, and has received initial planning permission. A contractor has been appointed, and the £130 million development is expected to be completed in 2024.

This will significantly expand the University's accommodation, an increase of almost half, and will therefore enable further expansion and also reduce pressure on the rented sector in Egham.



7.2 Student Volunteering

Students make an economic contribution by volunteering their time and skills to local organisations, often enabling charities to undertake activities and provide services that would otherwise not be possible.

Information received from Royal Holloway indicates that during 2019/20, 214 students volunteered across 45 different community partners. Each student volunteered for an average of 29 hours, resulting in a total of 6,206 hours of volunteering completed by students of Royal Holloway. This was equivalent to two FTE jobs.

All volunteering activities took place in the UK, with 64% of volunteers doing so in Runnymede and 67% volunteering within Surrey and have been classified as falling under the sector of 'social work activities without accommodation'.

Volunteering activities have included supporting community gardening, sustainability events, historical events such as a science festival and a history festival and volunteering with local schools.

7.3 Tourism

The operation and existence of Royal Holloway results in tourism to the local area. This comes in the form of visits from friends and relatives of staff and students at the College and through attendance at conference and events hosted by Royal Holloway, including graduation ceremonies and student open days. Both these aspects result in short-term economic impacts by drawing visitors to the area who would not normally have visited. In this sense, their expenditure is additional to the area and would not have happened without the College.

In addition, each summer the College hosts a number of language schools, that attract teenagers (mainly from Italy) that are looking to improve their English. As well as attending classes, these pupils go on day trips to nearby tourism attractions, supporting the local economy.

The College has also helped to increase the profile of the local area through its appearance in a number of media productions. These have included *Call the Midwife*, *Downton Abbey* and *the Avengers*, as well as in Bollywood and adverts for Virgin Media.

It was estimated that tourism associated with the operation of Royal Holloway generated £0.6 million GVA and supported 20 jobs in Runnymede during 2019/20. The impact across Surrey was the same as that of Runnymede and across the UK, tourism impacts supported £1.2 million GVA and 40 jobs.

As well as working to maintain their normal activities as much as possible during the Covid-19 pandemic, the College has also provided vital infrastructure for testing. This



has included a PCR testing facility since late 2020, and a LFT site since January 2021.

7.4 Summary of Cross-Over Impacts

It was estimated that these cross-over impacts supported £25.8 million GVA and 460 jobs across the UK, of which £1.2 million GVA and 30 jobs were within Surrey and £1.0 million GVA and 30 jobs were in Runnymede.

Table 7.1 Cross-Over Impacts Generated by Royal Holloway

	Runnymede	Surrey	UK
GVA (£m)			
Capital Investment	0.3	0.6	24.5
Student Volunteering	0.1	0.1	0.1
Tourism	0.6	0.6	1.2
Total	1.0	1.2	25.8
Employment (Jobs)			
Capital Investment	10	10	420
Tourism	20	20	40
Total	30	30	460

Source: BIGGAR Economics Analysis *Totals may not add up due to rounding.



8. Summary of Quantifiable Impacts

During 2019/20, Royal Holloway generated a total economic impact of £657.1 million GVA and supported 7,150 jobs across the UK.

8.1 Economic Impact in 2019/20

In 2019/20, Royal Holloway, University of London generated a total economic impact of:

- £190.8 million GVA and 2,760 jobs in Runnymede;
- £221.3 million GVA and 3,030 jobs in Surrey; and
- £657.1 million GVA and 7,150 jobs in the UK.

Table 8.1 Economic Impact of Royal Holloway, University of London

	Runnymede	Surrey	UK
GVA (£m)			
Purposeful Impacts	15.6	35.1	299.0
Operational Impacts	174.2	185.0	332.3
Cross-Over Impacts	1.0	1.2	25.8
Total GVA (£m)	190.8	221.3	657.1
Employment (Jobs)			
Purposeful Impacts	10	10	190
Operational Impacts	2,730	2,980	6,490
Cross-Over Impacts	30	30	460
Total Jobs	2,760	3,020	7,150

Source: BiGGAR Economics Analysis

8.2 Impact of Covid-19

The 2019/20 academic year did not represent a typical year for the College. Restrictions on everyday life as a result of the Covid-19 pandemic and national lockdown had an impact on the operation of universities. As a result, it is likely that some of the impacts assessed in this report would have been different had it been 'normal' circumstances and the impacts in this report are therefore lower than what could typically be expected.



In order to estimate what the economic impact of Royal Holloway could have been in 2019/20 had the pandemic not occurred, a counterfactual scenario has been assessed using adjustments for several sources of impact. Areas of impact that are likely to have been affected include:

- all core operational impacts (income, supply chain spend and staff numbers);
- student spending, student employment, volunteering and placements;
- income received from CPD and facilities and equipment hire; and
- tourism activity (open days, graduation ceremonies and visits to staff and students).

Assumptions for each of the above impacts were made as follows:

- central impacts were adjusted based on income/student, supply chain/income, staff/income and staff costs/job ratios from 2018/19 data provided by Royal Holloway;
- student impacts and visits to staff and students were adjusted to reflect the time students spent at university during 2019/20 compared to 'normal';
- an average of CPD and facilities hire income was taken from data covering the past five years; and
- impacts from visits for graduations, open days and conferences were based on 2018/19 data.

The results of this scenario are summarised in Table 8.2 and highlight that Royal Holloway's economic impact could have been up to £58.1 million higher in terms of GVA and supported an additional 1,490 jobs across the UK had the pandemic not occurred.

Table 8.2 Economic Impact Under a Counterfactual Scenario: UK Level Comparison

	UK – 2019/20 Actual	UK – 2019/20 Counterfactual Scenario
GVA (£m)		
Purposeful Impacts	299.0	303.0
Operational Impacts	332.3	383.9
Cross-Over Impacts	25.8	28.3
Total GVA (£m)	657.1	715.2
Employment (Jobs)		
Purposeful Impacts	190	200
Operational Impacts	6,490	7,890
Cross-Over Impacts	460	550
Total Jobs	7,150	8,640

Source: BIGGAR Economics Analysis *Totals may not add up due to rounding.



8.3 Comparison of Impact: 2012/13 to 2019/20

BiGGAR Economics previously undertook an economic impact study of Royal Holloway in 2014, focusing on the impact generated during the 2012/13 academic year. In order to accurately compare the two studies, impacts calculated for 2012/13 have been categorised into those used in this report. However, caution should be taken in directly comparing the two studies due to slight differences in the methodology applied as a result of more up-to-date publicly available economic data and the fact that 2019/20 represents an atypical year.

8.3.1 Key Metrics

As shown in Table 8.3, between the 2012/12 and 2019/20 years, the number of students, staff and graduates all increased. Income received by Royal Holloway was also £47.0 million higher in 2019/20 than in 2012/13, or 33% larger. Over the same period, based on the Consumer Price Index (CPI), prices have increased by around 12%.

Table 8.3 Comparison of Key Metrics

	2012/13	2019/20	Difference
Income	141,980,000	188,941,000	+ 46,961,000
Headcount Students	9,700	11,532	+ 2,134
Headcount Staff	1,655	1,749	+ 94
Graduates	3,554	3,875	+ 321

Source: BiGGAR Economics Analysis

8.3.2 GVA Comparisons

Table 8.4 shows that since the previous economic impact study of Royal Holloway for 2012/13, GVA across all but one source of impact (student impact) has increased. Under the counter-factual excluding the impact of Covid-19, student impacts are £18.4 million GVA larger than they were in 2012/13. Total GVA impact across the UK was £175.3 million higher in 2019/20 than the figure stood at seven years ago. This is equivalent to a 36% increase in GVA, slightly larger than the increase in the University's income over the period. Once adjusting for inflation, the economic impact in 2019/20 was £115.6 larger than in 2012/13.

The previous impact study also looked at the College's future impact and estimated that by 2020/21, Royal Holloway could be contributing £592.3 million GVA to the UK economy. This estimate has already been exceeded by 2019/20.



Table 8.4 Comparison of Total UK GVA Impact

	2012/13	2019/20	Difference
Central Impact	161.1	245.7	+ 84.6
Student Impact	112.9	86.6	- 26.3
<i>Total Operational Impact</i>	<i>274.0</i>	<i>332.3</i>	<i>+ 58.3</i>
Learning Impact	188.9	250.2	+ 61.3
Commercialisation & Knowledge Exchange Impact	6.0	48.8	+ 42.8
<i>Total Purposeful Impact</i>	<i>194.9</i>	<i>299.0</i>	<i>+ 104.1</i>
Cross-Over Impacts	12.9	25.8	+ 12.9
Total GVA (£m)	481.8	657.1	+ 175.3

Source: BIGGAR Economics Analysis

8.3.3 Employment Comparisons

As with the case of changes in GVA between the two studies, the number of jobs supported by Royal Holloway has increased in all areas apart from under the student impact, which has decreased by 1,101 jobs. This impact alone mostly explains the overall decrease of 150 jobs being supported by Royal Holloway. Once the impact of the Covid-19 pandemic is excluded, Royal Holloway would support a total 8,640 jobs, 1,350 more than in 2012/13.

Table 8.5 Comparison of Total UK Employment Impact

	2012/13	2019/20	Difference
Central Impact	3,448	4,250	+ 802
Student Impact	3,331	2,230	- 1,101
<i>Total Operational Impact</i>	<i>6,779</i>	<i>6,490</i>	<i>- 289</i>
Learning Impact	11	40	+ 29
Commercialisation & Knowledge Exchange Impact	125	150	+ 25
<i>Total Purposeful Impact</i>	<i>136</i>	<i>190</i>	<i>+ 54</i>
Cross-Over Impacts	375	460	+ 85
Total Jobs (£m)	7,290	7,140	- 150

Source: BIGGAR Economics Analysis



9. Wider Benefits

Royal Holloway generates a series of impacts in the local and wider economy, relating to its core purpose as a university and civic institution.

9.1 Universities and the Economy of Surrey

9.1.1 Cumulative Impacts: RHUL and the University of Surrey

In late 2020, BiGGAR Economics undertook an economic impact assessment of the University of Surrey¹³.

Based on that study, it was possible to estimate that the combined economic impact from Royal Holloway University of London and the University of Surrey. The two institutions have a combined turnover of £504.1 million and directly employ almost 4,700 people in Surrey. This makes them a sizable local employer. For instance, their combined employment is around 20% of Surrey County Council's, which employs 23,000 people¹⁴.

An estimate of the combined economic impact of the two institutions can be made by adding together the findings from the two studies. Adjusting for the effects of the Covid-19 pandemic, would give combined impacts of:

- £1.5 billion GVA and 18,300 jobs in Surrey; and
- £2.6 billion GVA and 28,100 jobs across the UK.

¹³ BiGGAR Economics (2020), University of Surrey Economic Impact 2018/19.

¹⁴ Local Government Association (2020), Surrey County Council: Living with COVID-19, available at: <https://www.local.gov.uk/our-support/guidance-and-resources/comms-hub-communications-support/covid-19-communications/surrey>



Table 9.1 Combined Impact: RHUL & University of Surrey

	Surrey	UK
Royal Holloway University of London		
GVA (£m)	243.8	715.2
Employment	3,790	8,640
University of Surrey		
GVA (£m)	1,243.4	1,869.6
Employment	14,490	19,430
Combined Impact		
GVA (£m)	1,487.2	2,584.8
Employment	18,280	28,070

Source: BIGGAR Economics Analysis & BiGGAR Economics (2020) University of Surrey Economic Impact 2018/19; figures updated for inflation.

9.1.2 Differences in the Provision at RHUL and the University of Surrey

The contribution of the two institutions is driven by their areas of focus. For instance, a large part of the economic impact that is generated by the University of Surrey comes from the hosting of Surrey Research Park. The businesses at the Park were themselves associated with around £577 million GVA and 6,140 of the jobs supported by the University of Surrey.

Differences in impact are also driven by the University of Surrey’s activity in knowledge transfer and support to businesses. The University of Surrey has also a larger student cohort (over 15,000 full-time students in 2018/19) and associated higher levels of income.

Combined the two institutions through their different scale and focus make a significant contribution in attracting visitors to Surrey and driving the region’s productivity through their graduates and the support they provide to businesses.

9.1.3 Potential Negative Impacts

For any significant institution and employer, its very scale can sometimes be considered to have some negative consequences in its local community. For example, in the case of the College the presence of staff and students could have an effect on housing availability and prices.

As of May 2021, the average house price in the UK was £254,624 (an increase of 10.0% from the previous year). In the same month, the average house price in the county of Surrey was £474, 232 (an increase of 5.6% over the previous year’s price)¹⁵.

¹⁵ UK Government (May, 2021), UK House Price Index. Available at: <https://landregistry.data.gov.uk/app/ukhpi>



This highlights housing in Surrey as costing almost double the national average and has a particular impact on those living in the area who are on low incomes.

Some of the additional demand for accommodation in the county will be from the College's staff and students. However, of the total number of Royal Holloway students living in Surrey in 2019/20, 49% lived in university accommodation and a further 13% lived in their parent or guardian's home. Therefore, the majority (62%) of Royal Holloway students living in Surrey were not occupiers of private let accommodation and, in this aspect, were not actively contributing to general housing demand in the area.

The College is working to expand its accommodation with the construction of the 1,400 bed Rusham Park expected to be completed in 2024, and has engaged with the local community to understand their concerns. This will further reduce pressure on the local housing market. Similarly, the University has taken steps to reduce pressure on parking and other infrastructure, for example by encouraging more walking and cycling.

As the analysis of staff and student spending in this report highlights, the College contributes to local businesses, including the bars and restaurants that make the area more vibrant and attractive.

Any contribution that the College may make to the local housing market should also be seen in the context of close proximity to London and demand from commuters.

9.2 The Role of Universities in Economic Recovery

Universities are fundamentally important to advanced economies, driving innovation and, by extension, economic growth. The Covid-19 pandemic has delivered the greatest shock to the global economy in modern times and, in parallel, it has brought a rare opportunity to build back a better economic future for ourselves and for future generations.

In this context universities have a powerful, long-term role in strengthening economic resilience in a way which is sustainable, equitable and transformative. This view is supported by influential global policy makers who have identified investment in education and R&D as priorities for long-term fiscal recovery, which will also support the desired focus on a green transition that is a shared goal in most advanced economies¹⁶.

The wealth of countries is distinct from the economic success of companies or individuals. While companies and individuals can keep rewards from extracting wealth from the economy, at a national level, the wealth of the country can only be based on wealth creation. This has been the case at least since the industrial revolution and will continue to be the case as the global economy recovers from

¹⁶ Hepburn, C., O'Callaghan, B., Stern, N., Stiglitz, J., and Zenghelis, D. (2020), 'Will Covid-19 fiscal recovery packages accelerate or retard progress on climate change?', Smith School Working Paper 20-02



Covid-19. The Nobel Prize winning economist, Joseph Stiglitz, describes the source of wealth creation:

“The true source of a country’s wealth – and therefore increases in productivity and living standards – is knowledge, learning, and advances in science and technology. It is this, far more than anything else, that explains why living standards today are so much higher than they were two hundred years ago – not only the increase in our material goods, but also the longer lifespans and better health throughout our lives¹⁷.” *Joseph Stiglitz*

The transformative role universities can play in this context include:

- securing and providing high quality employment;
- providing the human and intellectual capital necessary for both economic recovery and transformation;
- driving innovation for new and existing businesses and public sectors;
- reducing and avoiding youth unemployment, in particular avoiding life-long scarring effects for those unemployed as a result of the pandemic;
- building the resilience of public services, including the health and care sectors;
- supporting the net zero challenge and the green recovery, helping to provide the intellectual and human capital on which it will be based;
- providing leadership in national and regional economies as well as in wider civic society; and
- rebuilding the tax base to help ensure a net positive fiscal return which will help to pay for the cost of government assistance.

Universities have a crucial role to play in any advanced economy and they are particularly important in a time of uncertainty and change, which is the environment we are all living in now and will continue to be in for some years to come. In order to be sustainable and resilient, economic recovery and transformation needs to be based on knowledge and innovation. The universities sector will be the primary source of the human and intellectual capital required to make this a reality.

The strategy of Royal Holloway University of London recognises these roles.

¹⁷ Stiglitz (2019), People, Power and Profit



10.

Future Growth

The University has ambitious plans to develop its approach to research, partnerships and students.

The academic and financial ambitions of Royal Holloway's three-year strategy identify three key priorities for the College:

- developing strengths in challenge-led research and contribute to addressing key issues of our modern time;
- responding to the higher education needs and ambitions of an expanding London population; and
- building strong and sustainable international partnerships that expand the horizons of all the College's students.

Achieving each of the above priorities will result in changes in the way the College operates and performs. Carrying out the activities required to fulfil these ambitions will affect the sources of economic impact generated by Royal Holloway.

10.1 Challenge-led Research

Royal Holloway has a strong track record of publishing high quality research, placing 17th in 2014 Research Excellence Framework for world-leading outputs. While maintaining this excellence in research it aims to improve its impact, an area in which it placed 53rd for world-leading research.

In order to achieve higher levels of impact, the College is changing how it conducts research and knowledge exchange to incorporate a challenge-led approach. This involves identifying and solving complex challenges, which require multidisciplinary teams and collaboration across institutions with different capabilities. The College's challenges are based on the UK Government Industrial Strategy Challenge Fund, which identifies clean growth, the ageing society, the future of mobility and artificial intelligence and data economy as its key challenges.

The College is also aiming to broaden and strengthen its knowledge transfer activity.

10.1.1 Digital Futures in the Creative and Cultural Sectors

The College has been developing a creative cluster based around StoryFutures and working with SMEs in the area. This cluster will build on the area's existing strengths in television and other forms of media, by incorporating emerging technologies, such as Virtual Reality (VR) and Augmented Reality (AR). Through this catalyst the College is working with a number of larger organisations, such as Pinewood Studios, the BBC and Lucasfilms, and aims to further deepen and strengthen these relationships.

This activity contributes towards the artificial intelligence and data economy challenge, by supporting the audience of the future and creative industries clusters.



Storyfutures Creative Cluster

Storyfutures works with SMEs to develop the creative economy through immersive technologies.

Storyfutures is a £12 million Industrial Strategy funded project led by Royal Holloway University of London which aims to support economic growth and develop a creative economy cluster by supporting SMEs to incorporate immersive forms of storytelling such as Virtual Reality (VR), Augmented Reality (AR) and gaming.

Since its founding in 2018 it has focused on creating and funding R&D projects for SMEs in the Gateway Cluster (to the west of London). This includes through the StoryLabs and R&D on Demand programmes, which puts SMEs into contact with academic researchers, facilities and expertise. It has also developed the StoryFutures Academy National Centre for Immersive Storytelling, which delivers industry-leading training in immersive technology and storytelling to the screen industry across the UK.

The project is supported by a number of partnerships with leading local organisations, including the Enterprise M3 Local Enterprise Partnership (EM3 LEP), the British Film Institute (BFI), Heathrow Airport, Pinewood Studios and the National Gallery. It has also developed a network of companies that supports the cluster, and can work independently with each other.

Examples of research project undertaken include:

- developing an immersive and interactive recycling bin called 'Cupsy' which uses AR to improve recycling of coffee cups at Heathrow Airport. This significantly increased recycling and is likely to be rolled out across a number of airports;
- working with SME To Play For to test its Charisma AI platform, which allows audiences to determine character actions;
- developing Smartify, a platform which allows museums to sell items from their gift shops, and users to bring art into their homes. This enabled a £1 million investment into the company; and
- developing the StoryFutures Audience Panel, allowing online testing of how users experience VR and AR content.

By the of 2020 StoryFutures had engaged with over 750 SME across 19 sectors (compared to 109 by the end of 2019). This has led to 82 R&D collaborations, and a range of economic benefits, including:

- supported or created 128 jobs (four times greater than expected);
- leveraging £4 million in investment to the region;
- attracting four companies to the region; and
- providing 8 SMEs with export opportunities.



10.1.2 Sustainable Places, Thriving Societies

This catalyst is at a relatively earlier stage of development, but is likely to be built on the College's wide-ranging research interests and partnerships, which broadly tackle issues of sustainability, social justice and wellbeing. Areas of research considered under this catalyst include:

- poverty and food security;
- energy security;
- biodiversity and sustainable natural resources;
- sustainable environments and climates;
- social justice;
- sustainable work and economic growth;
- health and wellbeing; and
- disaster resilience and adaptation.

As well as contributing to the clean growth challenge, this catalyst will contribute to areas such as wellbeing that go beyond economic growth.

10.1.3 Advanced Quantum Science and Technologies

The College has a history of world-leading research in quantum devices, as the College pioneered the development of quantum bits, the building blocks of quantum computers.

These operate using quantum principles, as opposed to binary, transistor-based programming, which means that they provide significantly more powerful processing capabilities that can be applied in specialised scenarios. This overcomes the limitations imposed by the miniaturisation of transistors, which has traditionally driven computing power, but is running into physical limitations.

Commercialising quantum technologies has been identified as one of the key strands of the artificial intelligence and data economy industrial strategy challenge.

One of the most significant resources at the College is the National UK Centre for Superconducting and Hybrid Computing (SuperFab).



SuperFab

SuperFab is the College's £12 million state of the art nanofabrication facility, which opened in 2019.

It incorporates advanced technologies for sensing and a class 5 clean room.

It specialises in superconducting electronic and quantum circuits, and is being used to develop the next generation of super conductors. Applications have included brain imaging tools, which can be used to understand the impact of concussions, for example in elite athletes.

The College has entered into a strategic partnership with the National Physical Laboratory, which also specialises on quantum science, and also works with the National Quantum Computing Laboratory in Oxfordshire, the University of Lancaster and the University of Glasgow. It is open to researchers and businesses.

The College is aiming to develop partnerships with industry and academics, which may be strengthened by the development of a campus in Slough, which has one of the highest concentrations of data centres in the world.

10.1.4 Transformative Digital Technologies for a Sustainable Society

The College has been a pioneer in developing some of the technologies that underpin the internet, particularly in areas related to cyber security and critical infrastructure. These technologies will become increasingly important as internet enabled devices proliferate, as will the applications of these devices. In addition, the College continues to have a role in the education of cybersecurity specialists.

This catalyst will focus on a number of areas which are important for developing new technologies and new frameworks for assessing the impact of technology, including but not limited to:

- AI-human interactions;
- digital ethics;
- equal digitalisation, digital consumption, access and exclusion;
- data usage in a data driven economy; and
- information security and digital rights.

This catalyst encompasses several aspects of the artificial intelligence and data economy challenge, including digital security design and next generation services.



10.1.5 Knowledge Transfer

In addition to its new approach to research, the College is also developing the way that it engages in knowledge transfer. This is at an early stage and subject to some changes, but areas that the College is considering include:

- **strengthening graduate outcomes:** this includes building deeper connections with the West London community (particularly Slough), deeper integration with the business community and more focus on employability, and a greater emphasis on student enterprise;
- **expanding postgraduate education:** reviewing the offering to ensure that it is aligned with business needs, extracting relevant modules as part of the CPD offering, and expanding distance learning in partnership with the University of London; and
- expanding challenge-led research.

10.2 Higher Education Needs and the London Demographic

The College sees an opportunity to modernise its offering to be more attractive to prospective students, and ensure that they have improved educational outcomes. This includes by cultivating more relationships with businesses.

This is combined with an increasing focus on students from London, in response to a demographic upturn in London's population (a 30% increase in 20 year-olds by 2030). The increase in the youth population provides a significant opportunity for the College in terms of increasing its student population.

London students have different characteristics, including that they tend to commute to the College and therefore have different needs, such as short-term accommodation, catering and study space. London-based students tend to study more professional subjects and look for employability throughout their discipline, requiring more strategic relationships with businesses and improved graduate outcomes.

In addition, the College is developing plans to expand into Slough, in West London. While at an early stage, this may involve developing a physical presence where research is undertaken and education is delivered, and strategic relationships can be developed with local employers.

10.3 International Partnerships

The strategy also seeks to increase the College's collaboration with partners to increase its international reach and the number of international students.

For example, the College has been working with a private provider to develop the International Study Centre, which provides preparatory courses for students who are not at the level needed for a Royal Holloway degree. It also has partnerships with



overseas universities, such as Kaplan University in Singapore, to jointly deliver courses, and is delivering distance learning programmes in collaboration with the University of London Worldwide.

10.4 Driving Economic Growth

The growth strategy outlined by the College's strategy will drive economic growth in a number of ways:

- **higher levels of activity:** this will lead to higher income, more supplier spending and more staff, increasing the core impacts of the College;
- **research catalysts and knowledge transfer:** the new research catalysts and new approaches to knowledge transfer are expected to lead to higher impact research and more collaboration with businesses. This stock of new ideas would be expected to support businesses to develop new products and grow their turnover and employment;
- **conferences and events:** higher impact research may lead to more academics and policymakers attracted to the area for conferences and events;
- **higher student numbers:** this would be expected to increase student impacts related to working, spending and volunteering. However, if a larger number commute in from outside the Borough of Runnymede, some of this increased impact will be outside the immediate local economy; and
- **greater focus on graduate employability and CPD:** this would be expected to improve graduate outcomes and the effectiveness of CPD courses, increasing the higher earnings associated with these activities.

10.5 Economic Impact from Students 2029-30

As an example of the potential economic impact that the College's strategy could have, the effects of changes in the number of students have been considered. To do so, the following areas where changes from student numbers will have a direct effect have been considered:

- **direct impact:** a larger number of students will result in a higher teaching income for the University, as well as higher supply chain spend;
- **student impacts:** student spending, part-time employment and volunteering; and
- **graduate premium:** a larger number of students was assumed to have an impact on the graduate premium.

The analysis was carried out with reference to the UK economy. This has the benefit of providing more reliable estimates of impact, since part of the College's strategy will result in changes in students' origin, with an expected expansion in the number of students commuting from outside Runnymede.

On this basis, it was estimated that the expansion in the number of students will be directly responsible for an additional £214 million GVA and 1,400 jobs across the UK in 2029/30.



As highlighted above, this is a conservative estimate of the impact associated with an expansion in student numbers. A larger student cohort will also have indirect effects on the number of staff required. This staff will both be employed to perform teaching duties as well as to carry out research, which will then result in a larger economic impact. Other elements of the College's strategy will contribute to increase its economic footprint, as set out in the previous section.

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