

BiGGAR Economics

Economic Impact of the Solent Area Universities

A report to



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1 EXECUTIVE SUMMARY

With a population of more than 1.3 million people and over 50,000 businesses, the Solent area comprises 17% of the South East's land area. The region is home to three universities: the University of Portsmouth, the University of Southampton and Southampton Solent University.

Together the three Solent Area Universities directly employ around 9,850 full time equivalent (fte) staff, have a combined full-time student population of around 56,100 and a combined turnover of more than £0.9 billion. Perhaps even more importantly, the Universities are a key source of innovation and provide a vital anchor for knowledge intensive activity and employment in the region. This means that the Universities are not only major economic players in their own right but also play a fundamental role in driving long-term economic growth across the region and attracting significant companies and investments (e.g. Lloyd's Register).

In March 2017 BiGGAR Economics was commissioned to assess the quantifiable economic contribution that the Solent Area Universities make to the Solent LEP area and to the UK as a whole¹.

1.1 Quantifiable Findings: Total Impact

The key findings of the analysis are summarised in Figure 1-1. In 2015/16 the Solent Area Universities:

- generated £4.2 billion GVA² and supported around 52,300 jobs across the UK
- including £2.1 billion GVA and around 33,000 jobs in the Solent LEP area.

This implies that:

- for each £1 that the Universities generated as a direct result of their operations (£0.7 billion GVA), they supported £6 in total benefits throughout the UK economy of which £3 was retained within the Solent LEP area; and
- for each person directly employed, the Universities supported more than five jobs in total throughout the UK, including around three in the Solent LEP area.

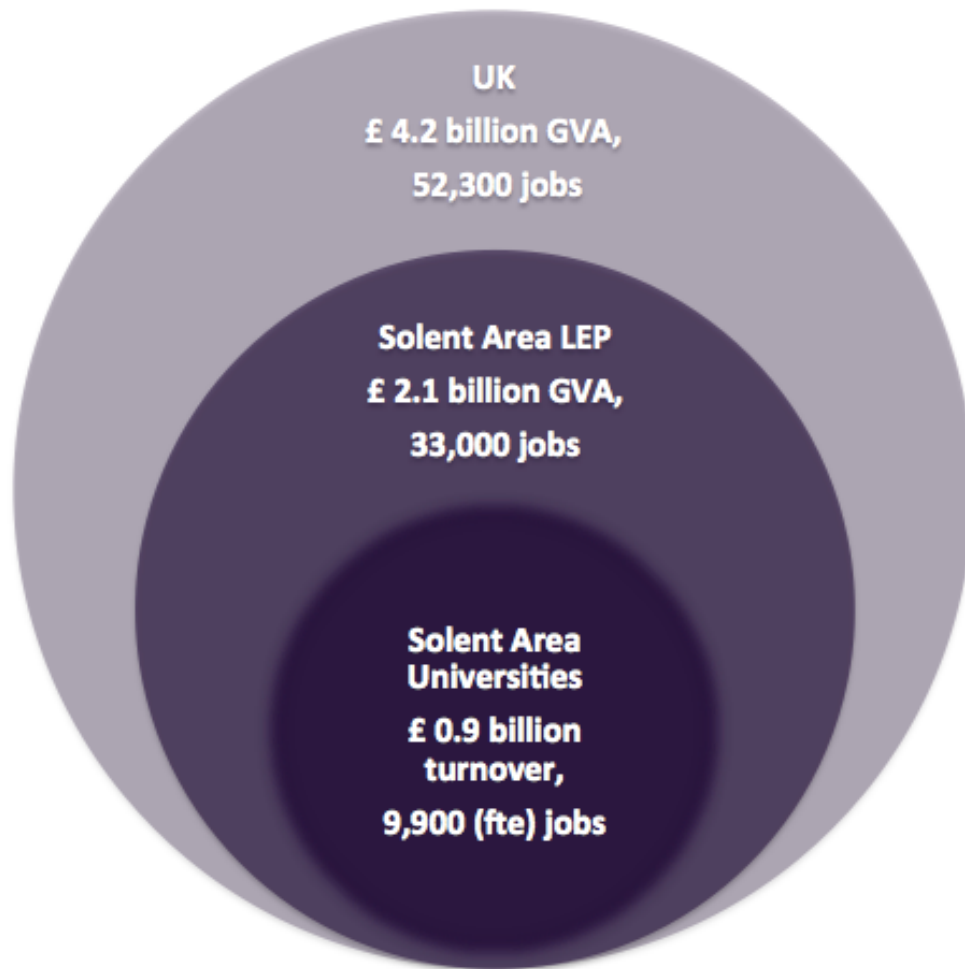
This is a very significant contribution. In 2015 the total GVA of the Solent LEP area was £27.8 billion and there were around 609,000 jobs in the region³. This implies that the three Universities together accounted for around 8% of regional GVA and supported 5% of jobs.

¹ All employment figures are full-time equivalents (ftes) unless stated otherwise.

² Gross Value Added (GVA) is a measure of the value that an organisation, company or industry adds to the economy through its operations. In the case of Universities this is estimated by subtracting the non-staff operational expenditure (mainly represented by expenditure on goods and services) from the total income of the Universities.

³ Oxford Economics (January 2017), Solent Local Enterprise Partnership, baseline forecasts and the implications of Brexit

Figure 1-1 – Total Impact of the Solent Area Universities



Source: BiGGAR Economics

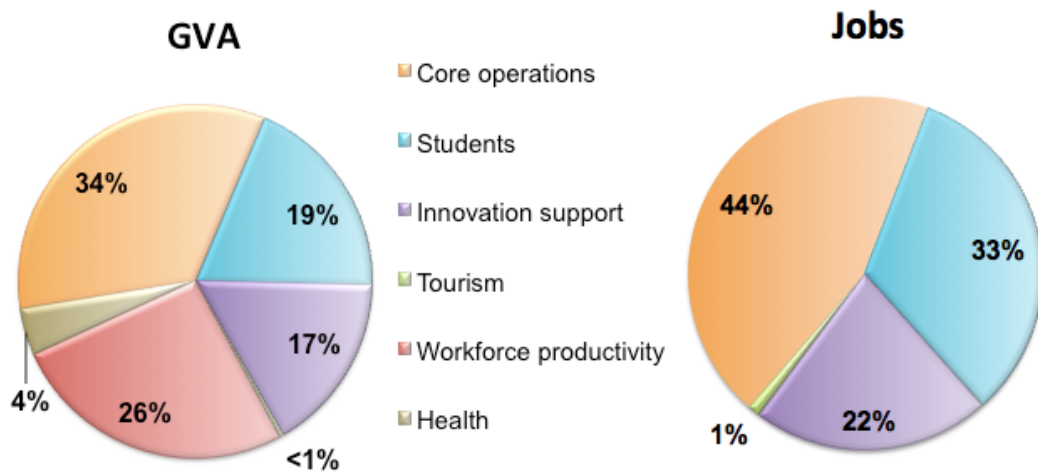
On this scale it would suggest that, the Solent Area Universities are more economically significant to the regional economy than the wider higher education sector is to the UK economy as a whole. The UniversitiesUK report on “The Impact of Universities on the UK Economy”⁴ used data for 162 universities and colleges from 2011/12 finding that the higher education sector generated over £73 billion per year in output and supported 757,000 full-time equivalent jobs throughout the economy. This was equivalent to around 2.8% of UK GDP and 2.7% of all UK employment in 2011. Although the methodology used in the UniversitiesUK study differs from that used in the present analysis, it provides a useful benchmark to compare results against.

⁴ UniversitiesUK (2014), *The Impact of Universities on the UK Economy*, UniversitiesUK.

1.2 Quantifiable Findings: Impact by Source

A breakdown of this contribution by source of impact is provided in Figure 1-2.

Figure 1-2 – Impact the Solent Area Universities in the UK, 2015/16 (by Source of Impact)



Total UK Impact: £4.2 billion GVA and 52,300 jobs

Source: BiGGAR Economics

1.3 Summary Quantifiable Findings

A break-down of the quantifiable economic contribution that the Solent Area Universities make to the economy of the Solent LEP area and the UK economy as a whole is provided in Table 1-1 below.

Table 1-1 – Impact by Source and Study Area - GVA

	Solent LEP Area	UK
Core Operations	931.2	1,416.3
Students	589.5	793.8
Innovation Support	295.8	683.0
Tourism Impact	14.2	14.2
Workforce Productivity	307.8	1,090.5
Health	3.6	180.4
TOTAL GVA	2,142.2	4,178.2

Source: BiGGAR Economics

Table 1-2 – Impact by Source and Study Area - Jobs

	Solent LEP Area	UK
Core Operations	14,391	23,227
Students	13,707	17,062
Innovation Support	4,209	11,429
Tourism Impact	657	596
TOTAL Jobs	32,965	52,314

Source: BiGGAR Economics

1.3.1 Core Operations

The core operational impact of the Universities includes the economic activity and employment supported directly by the Universities themselves as well as the activity and jobs supported by their expenditure – and the expenditure of their staff - elsewhere in the economy.

In 2015/16 the Solent Area Universities provided around 9,850 fte jobs in the Solent LEP area, spent around £50 million purchasing goods and services from businesses in the region and invested approximately £126 million in new buildings and research infrastructure.

Taken together it was estimated that these core operations generated £1.4 billion GVA across the UK of which around £0.9 billion was retained within the Solent LEP area. It was also estimated that this activity supported around 23,200 UK jobs, including around 14,400 in the Solent LEP area.

1.3.2 Student Impacts

Students at the Solent Area Universities are another important driver of economic activity in the region. By spending money on items such as food and drink, accommodation and entertainment students stimulate demand and support employment in regional businesses. Students also provide an important source of flexible, part-time labour, which is vital for sectors such as tourism, catering and retail. They also make a significant contribution to the third sector in the region by volunteering for charities and community groups.

In 2015/16, the 56,100 full-time students at the Solent Area Universities generated £0.8 billion GVA for the UK economy and supported around 17,100 jobs. This included around £0.6 billion GVA and around 13,700 jobs in the Solent LEP area.

1.3.3 Workforce Productivity

One of the most significant ways in which the Solent Area Universities drive economic activity in the region is by enhancing the productivity of the workforce by providing a steady stream of graduates equipped with industry relevant knowledge and skills. This productivity effect can be measured using data on the additional lifetime earnings of graduates compared to non-graduates. This contribution differs from the others in that it accrues over a working lifetime. It is calculated based on the annual cohort of graduates in a given year although there is a cumulative effect year-on-year with each round of graduates.

The students who graduated from the Solent Area Universities in 2015/16 and who now live and work in the UK can be expected to earn around £1.1 billion more over the course of their lifetimes than they might have if they did not have a

degree. This contribution is an indication of the additional value that these graduates will generate for the businesses and organisations that employ them and therefore represents a direct contribution to the long-term productivity of the UK economy. It is likely that around £308 million of this productivity effect will be retained within the Solent LEP area.

1.3.4 Innovation Support

The Solent Area Universities are an important source of innovation in the region. Intellectual property developed within the Universities has enabled the formation of several highly successful spin-out companies and clusters of specialist companies in sectors such as marine/maritime and photonics and supported the growth of businesses all over the world through commercial licensing agreements.

The Solent Area Universities play an important role in enabling the formation and growth of new businesses by providing early-stage support to staff and student start-ups and incubation facilities to support the growth of young businesses. There are around 180 companies located at incubators, such as the Innovation Space, and science parks, such as the Portsmouth Technopole and University of Southampton Science Park, run by Solent Area Universities. These companies have a combined employment of almost 1,500 and cover a range of sectors, including engineering, IT and scientific research.

Academics at the Universities support the growth of businesses within the region and elsewhere in the UK by providing specialist consultancy and contract research services and enabling businesses to access specialist facilities and training. These services enable businesses to address challenges and realise opportunities that they may not be equipped to tackle internally, helping to support continued innovation and growth. Students also support the growth of businesses through work-based placements, which have a three-fold impact: they improve the employability of the students when they graduate, they impact on the Universities' links with employers and they feed back into research and development activity.

It was estimated that in 2015/16 these innovation support activities enabled UK businesses to generate an additional £683 million GVA for the UK economy, and £296 million GVA in the Solent LEP area. It was also estimated that this activity supported around 11,400 jobs across the UK, and around 4,200 in the Solent LEP area.

1.3.5 Health

In 2015/16 the Solent Area Universities attracted more than £33 million in medical research funding. The research supported by this funding will help to stimulate further investment in R&D by the pharmaceutical industry, which will support further jobs and economic activity elsewhere in the economy. Over time this investment should also drive improvements in patient care, leading ultimately to better quality of life for people around the world. The long-term value of these social and economic benefits to the UK economy are expected to be around £180 million GVA, including benefits to the Solent LEP area.

1.3.6 Tourism

Each year the Solent Area Universities help to attract thousands of visitors who would otherwise have little reason to visit the region. These visitors include friends and family of students and staff, delegates to conferences and events hosted by the Universities, prospective students and their friends and family,

people attending open days and people visiting attractions operated by the Universities. All visitor expenditure helps to support jobs and activity within the tourism sector.

In 2015/16 the expenditure of tourists who visited the Solent LEP area because of the Universities generated round £14 million GVA for the regional economy and supported around 700 jobs.

1.4 Wider Benefits

While the Solent Area Universities play a key role in driving economic growth in the Solent LEP area, the full value of this role is difficult to quantify. In part this is because measures such as GVA and jobs assess only the quantity – and not the quality – of economic activity supported by the Universities. Measures such as GVA and jobs say nothing about the important role that the Universities play in ensuring that economic development in the Solent LEP area is sustainable and delivers long-lasting benefits for society as a whole.

For example, the Universities play an important role in supporting the development of new and emerging economic sectors in the region by ensuring that students are equipped with industry relevant skills and helping business to access the latest available research. In doing so, the Universities play a key role in enabling the region to become a modern, knowledge driven economy. The Universities combined involvement in both delivering courses linked to the digital economy and their leading-edge research strengths in the field of computer science and informatics ensure that the Solent Area Universities play a vital role in supplying training and education for the digital technology sector.

Another important reason why it is difficult to quantify the full economic contribution of the Solent Area Universities is that the benefits of some areas of activity simply cannot be captured in monetary terms. For example, the Universities are an embedded part of the cities and towns where they are based and bring an added vibrancy to these localities. They make a vital contribution to the cultural life of the region by ensuring that Portsmouth and Southampton are and remain lively and vibrant cultural centres that provide a high quality of life for their residents. The available evidence on student inflows and graduate destinations also suggests that the Universities attract a net inflow of around 2,800 people into the Solent region to study each year and this in turn, contributes to the growth of the region.

There is also some evidence to suggest that universities have an impact on driving population growth in the areas where they are based. Although there are many overlapping and complex factors involved in demographic change, the dynamic nature of universities and their ability to attract people to the area will have a role to play in this.

The main conclusion is that, the Universities generate a clear economic benefit in terms of attracting and retaining talent and investment to the region and the full impact they have goes significantly beyond their monetary value.

2 APPROACH, INTRODUCTION AND BACKGROUND

This report describes and quantifies the economic benefits associated with the University of Portsmouth, the University of Southampton and Southampton Solent University (the Solent Area Universities). It examines the importance of the Solent Area Universities to the economies of the Solent region and the UK, identifying the ways in which different activities create impact. A summary of the impact made by each of the three Universities individually is contained in Appendix A.

This section describes the general approach taken to the study and provides some background information about the Solent Area Universities.

2.1 Approach

The key objective of this study is to describe and, where possible, quantify the economic value generated by the Solent Area Universities.

2.1.1 Sources of Impact

The sources of impact considered are:

- core operations, including income and employment at the Universities, the money the Universities spend on supplies and capital projects, and the expenditure of their staff;
- student related impacts, including student expenditure, part-time work and volunteering;
- lifetime productivity gains of graduates of the Solent Area Universities;
- innovation support activities, including services to industry such as contract research, continuing professional development, knowledge transfer partnerships, student placements, incubators and science parks;
- tourism impacts from friends and family visiting students and staff, open days, and people attending conferences and events hosted by the Universities; and
- health impacts associated with health research undertaken by the Universities and services hosted by the Universities,.

A fully detailed methodology statement, which outlines our approach to measuring economic impact, is contained in Appendix B of this report.

2.1.2 Measures of Impact

Unless stated otherwise, economic contribution has been reported using two measures:

- gross value added (GVA), which measures the value that an organisation, company or industry adds to the economy through its operations. The report uses the production approach to measuring this contribution, where GVA is equal to the value of production less the value of the inputs used. Typically, this is estimated by subtracting non-labour costs from total revenue; and
- employment (jobs), which are full-time equivalent jobs unless stated otherwise.

One of the reasons these measures are so widely used is because they provide a convenient way of capturing the entire economic contribution of an organisation in a single number. However, monetary figures fail to capture the full value of many types of activity so this estimate is likely to be an underestimate. For this reason the assessment also highlights wider, unquantifiable contributions that the Solent Area Universities make. Although these contributions cannot be quantified this does not in any way detract from their value.

2.1.3 Study Areas

Although additional study areas are presented in Appendix B, this report mainly considers the impact of the Universities in two study areas:

- the Solent region – the area defined by the Solent LEP area (Figure 2-1); and
- the UK as a whole.

In each case the impact that occurs in Solent LEP area is included within the UK impact, unless stated otherwise.

Figure 2-1 – Solent LEP Area



Source: Solent LEP

2.1.4 Use of Evidence and Assumptions

In general, the approach taken throughout this report was to use the best evidence available. Where possible, this means that the data was obtained directly from the Solent Area Universities. Where this was not possible, an appropriate assumption was made based on BiGGAR Economics' previous experience of comparable institutions in the UK. Where it was necessary to make such an assumption this is clearly highlighted in the text.

When assumptions were required and a range of possible values was available, the approach taken was to err on the side of caution and adopt an assumption toward the lower end of the range. This approach is in accordance with best practice and should provide some confidence that the reported impacts will, if anything, tend to under rather over estimate the total contribution of the Universities.

2.2 The Solent Area Universities

The following provides a brief overview of each of the Solent Area Universities.

2.2.1 University of Portsmouth

The University of Portsmouth can trace its history back to 1869 and the formation of the Portsmouth and Gosport School of Science and the Arts, set up to train engineers and skilled workmen for the city dock and the Royal Navy dockyard. As this city developed after the Second World War, it was renamed Portsmouth Polytechnic in the 1960s and grew to be one of the largest such institutions in the UK. University status was granted in 1992, allowing it to validate its own degrees.

Today, the University has income of £221.1 million, 2,500 fte staff and a population of almost 24,000 students, of whom almost a fifth are international. The University is also one of the top 100 universities in the world under 50 years old. In the 2016 National Student Survey, the University of Portsmouth achieved a student satisfaction rate of 89%. These results are the tenth year running that University of Portsmouth students have rated the University above the English national average.

2.2.2 University of Southampton

The University of Southampton dates back to 1862 when the Hartley Institution was established in the centre of Southampton. It received its Royal Charter to award degrees in 1952 and became the University of Southampton. The University is spread across 7 campuses, including a campus in Winchester and a campus in Malaysia. It has a total income of £555.6 million, employs almost 6,000 fte staff and attracts almost 27,000 full time students.

The University of Southampton is currently ranked 21st in the UK by The Times and Sunday Times Good University Guide 2017, which also places it in the Top 10 in 11 subject areas. The University is also placed in 102nd position in the QS World University Rankings 2018.

2.2.3 Southampton Solent University

Southampton Solent University has a long history dating back to 1856 when it was originally founded as a private School of Art. Since then it has merged with the local College of Technology and the College of Nautical Studies to form the institution it is today. In 2005, it formally gained University status. The University

has grown to host almost 9,600 full-time students, an additional 10,000 maritime students and cadets, a total income of £119.8 million and over 1,300 staff.

The University is Southampton's 'applied' University, supporting students from all backgrounds to promote social and economic prosperity. In the 2017 DLHE survey, the University joined the UK's top 50 institutions for graduate employment – which is a credit to their focus on working with industry to meet local and national skill demands, and their engagement in applied research, especially in the creative industries, sports and maritime.

3 CORE OPERATIONAL IMPACTS

This section describes the impacts generated by the daily operations of the Solent Area Universities. The core impact includes:

- the direct impact of with Solent Area Universities;
- Impacts associated with the Universities' supply chains;
- impacts generated by staff expenditure; and
- impacts associated with the capital expenditure of the Solent Area Universities.

3.1 Direct Impact

The direct GVA of an institution can be estimated by subtracting expenditure on bought in goods and services from total income. In 2015/16, the Solent Area Universities generated income of £900.6 million, and expenditure on goods and services of £213.5 million. By subtracting this expenditure from income it was estimated that the direct GVA contribution of the Solent Area Universities was £687.1 million GVA.

Additionally, the Solent Area Universities employed a total of 9,851 full-time equivalent (FTE) staff.

Table 3-1 – Direct Impact

	Solent LEP	UK
GVA (£m)	687.1	687.1
Employment	9,851	9,851

Source: BiGGAR Economics

3.2 Supplier Impact

The Solent Area Universities' expenditure on goods and services, of £213.5 million, will also generate an economic impact in the economy. This impact will depend on the industry in which it was spent, data on which was provided by the Universities. Therefore, in order to estimate the economic impact, turnover/GVA and turnover/employee ratios, as well as indirect multipliers, were applied to spending by industry to generate GVA and employment impacts.

To attribute this impact by study area it was necessary to consider the location of the Universities' suppliers. Based on data provided by the Universities it was assumed that 96.5% of supplies would be secured by UK suppliers, and 23.1% by suppliers in the Solent LEP area.

In this way it was estimated that the Solent Area Universities generated £185.8 million GVA and supported 4,219 jobs in the UK, of which £34.1 million GVA and 769 jobs were in the Solent LEP area.

Table 3-2 – Supplier Impact

	Solent LEP Area	UK
GVA (£m)	34.1	185.8
Employment	769	4,219

Source: BiGGAR Economics

3.3 Staff Expenditure

Staff employed by the Solent Area Universities also have an impact on the wider economy by spending their wages. In 2015/16, the Solent Area Universities employed 16,424 members of staff (9,851 fte), who were paid a total of £505.2 million.

Where staff spend their wages depends to a large extent on where they live, and will therefore vary for staff living in each study area. For staff living in the Solent LEP area were assumed to spend 74% of their salary in the Solent LEP area, and 93% of their salary in the UK.

It was therefore estimated that by spending their wages staff at the Solent Area Universities contributed £416.5 million GVA and 7,366 jobs in the UK, and £193.3 million GVA and 3,533 jobs in the Solent LEP area.

Table 3-3 – Staff Expenditure Impact

	Solent LEP	UK
GVA (£m)	193.3	416.5
Employment	3,533	7,366

Source: BiGGAR Economics

3.4 Capital Investment

Capital projects generate wealth and support employment within the construction sector. The scale of major capital investment projects means that expenditure often varies substantially from year. This means that expenditure in any one financial year may not reflect the true impact of this activity over time, and therefore average capital spend over 10 years was used to estimate this impact.

In the ten-year period between 2011/12 and 2020/21, it is expected that the Solent Area Universities combined will spend an average of £170.7 million per year on capital investment.

Some of this expenditure will be on land and buildings, and will therefore result in additional turnover in the construction sector, but some of this is spend is likely to be on plant, machinery and equipment, and therefore will result in additional turnover in the manufacturing sector. The Universities provided data on the level of capital expenditure spent on machinery and equipment.

By applying appropriate economic ratios and multipliers to this expenditure it was estimated that capital investment generated £126.6 million GVA and 1,791 jobs in the UK economy, of which £16.6 million GVA and 238 jobs are in the Solent LEP area.

Table 3-4 – Capital Investment Impact

	Solent LEP	UK
GVA (£m)	16.6	126.8
Employment	238	1,791

Source: BiGGAR Economics

3.5 Summary Operational Impact

Therefore, it was estimated that the total impact of the Universities' core operations is equivalent to £931.2 million and 14,391 jobs in the Solent LEP area.

Table 3-5 – Core Operational Impact

	Solent LEP	UK
GVA (£m)		
Direct Impact	687.1	687.1
Supplier Impact	34.1	185.8
Staff Spending	193.3	416.5
Capital Investment	16.6	126.8
Total GVA	931.2	1,416.3
Employment		
Direct Impact	9,851	9,851
Supplier Impact	769	4,219
Staff Spending	3,533	7,366
Capital Investment	238	1,791
Total Employment	14,391	23,227

Source: BiGGAR Economics

4 STUDENT IMPACTS

4.1 Student Population

In 2015/16 there were 56,075 full time students studying at the Solent Area Universities⁵. Approximately 78.0% (43,751) are undergraduates, with postgraduates making up the remaining 22% (12,324). Based on the data provided by the Universities, 52,632 students live in the Solent LEP area.

Across the three Universities, there are over 15,400 students from outside the UK (EU and non-EU) making up almost 28% of the student population. Generally this is a group with a relatively high disposable income that supports and enhances the local expenditure impact.

Table 4-1 – Student Population by Region

	Solent LEP	UK
Undergraduate	41,989	43,751
Postgraduate	10,643	12,324
Total	52,632	56,075

Source: *The Solent Area Universities*

4.2 Student Expenditure

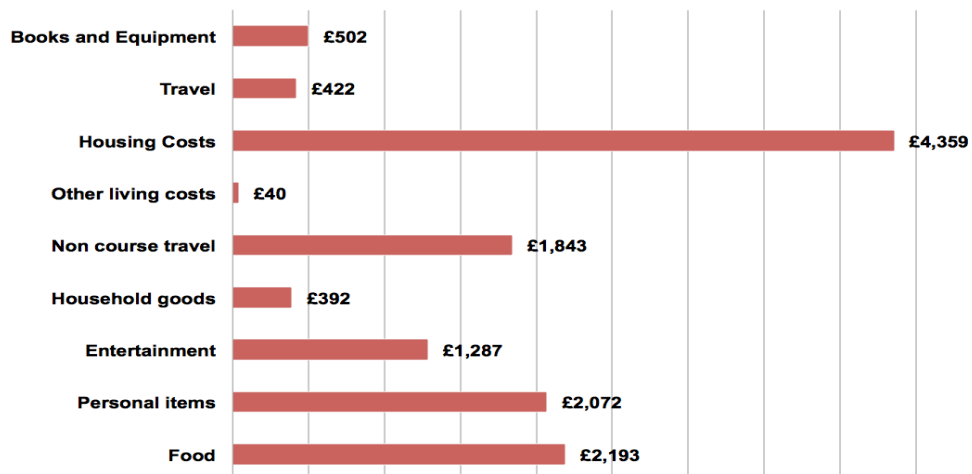
Students at the Solent Area Universities have an impact on the economy through their spending in the same way that staff generate impact by spending their wages. The money that students spend generates economic activity in the businesses that they purchase goods and services from.

The basis for estimating this impact was a study on average student expenditure which was commissioned by the Department of Business, Innovation and Skills.⁶ As the survey was undertaken in 2011/12 the results were adjusted for inflation. Based on this data, it was estimated that students living in residential accommodation in the Solent LEP area spent an average of £13,111 per year on living costs and accommodation (Figure 4-1).

⁵ Part-time students are not included in this element of the contribution as attendance at University is not their main activity and much of their expenditure is unrelated to their studies. However, their contribution to the economy is included in other impacts, including the graduate premium calculations in Section 6.

⁶ Department for Business Innovation & Skills, Student Income and Expenditure Survey 2011/12, June 2013

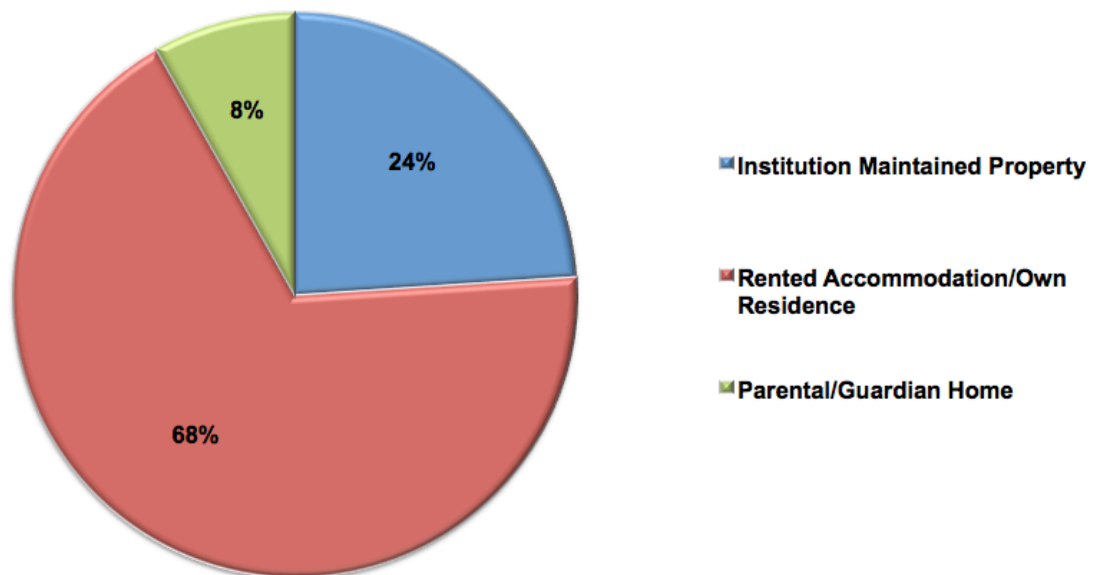
Figure 4-1 – Student Expenditure by Category



Source: *Business Innovation & Skills, Student Income and Expenditure Survey 2011/12*

The type of accommodation a student lives in influences how much they spend. For example, students living in their parental or guardian home are unlikely to spend money on housing and are likely to spend significantly less on food and household goods. Furthermore, the accommodation expenditure of students in institution maintained properties has been included in the direct income of the Universities, and so was excluded here. A breakdown by student residences by type of accommodation is provided in Figure 4-2. Almost 7 out of every 10 students at the Solent Area Universities live in rented accommodation.

Figure 4-2 – Student Residences by Type of Accommodation



Source: *The Solent Area Universities*

There may be a perception that the lack of housing and the high rental costs are a consequence of the Universities' presence in the Solent area. Some of the Universities' staff and students will add to the demand for accommodation in the cities and towns in the region. However, the presence of the Universities will not be the main determinant of private sector rental levels.

The Solent area’s appeal as a place to live is not driven only by the Universities but also by its proximity to London which will put upward pressure on house prices and rents as commuters move out of the capital in search of cheaper housing and quality of life. The shortage in the supply of housing will also be a significant driver of costs and is reflective of a much wider issue in the UK housing market.

After making adjustments to account for the profile of student residences, it was estimated that the full-time students at the Solent Area Universities spent £717.3 million in 2015/16. By applying economic ratios and multipliers appropriate to the sectors in which the expenditure took place it was estimated that the expenditure supported a total of £392.1 million GVA and 6,566 jobs in the Solent LEP area, and £553.9 million GVA and 8,752 jobs in the UK.

Table 4-2 – Student Spending Impact

	Solent LEP	UK
GVA (£m)	392.1	553.9
Employment	6,566	8,752

Source: BiGGAR Economics

4.3 Part-Time Work

Students at the Solent Area Universities also have an impact on the economy if they undertake part-time employment for local businesses. Mainly these jobs are in the hospitality, catering and retail sectors and are different in nature to student placements, which are more skilled positions that are directly related to the students’ area of study.

National Student Survey data indicates that 33% of Solent Area Universities’ students are likely to be in employment.⁷ A nationwide Student Survey undertaken in 2010 found that, on average, students work 14.2 hours a week.⁸ Students who work at the Universities were then omitted as their impact was considered in Chapter 3. Therefore it was estimated that, after excluding those who work at the Universities, 17,700 students at the Solent Area Universities work part-time to supplement their income.

However, not all of this employment is necessarily additional to the local economy because other residents in the Solent LEP area may have undertaken some of these jobs. In order to take these factors into account it was necessary to make assumptions about the proportion of student labour that is additional to the local labour market – to assess only the additional contributions to the local economy.

To ensure only student labour additional to the local labour market was counted the total amount of student labour provided by students was therefore adjusted using evidence about the local youth unemployment rate from the Annual Population Survey published by the ONS.

Appropriate economic ratios and multipliers were then applied, based on the industries in which students usually work. In this way it was estimated that students at the Solent Area Universities undertaking part-time employment during

⁷ Labour Force Survey (2016), Table A06: Educational status, economic activity & inactivity of young people: People aged 16 to 24 by educational status, economic activity and inactivity (not seasonally adjusted)

⁸ National Union of Students (2010), Still in the Red

the academic year contributed £197.0 million GVA and 7,141 jobs in the Solent LEP area, and £239.4 million GVA and 8,309 jobs.

Table 4-3 – Student Part-Time Work Impact

	Solent LEP	UK
GVA (£m)	197.0	239.4
Employment	7,141	8,309

Source: BiGGAR Economics

4.4 Volunteering

In addition to undertaking paid employment, students at the Solent Area Universities also make a socio-economic contribution by undertaking voluntary work.

A study published by the Chartered Institute of Personnel Development (CIPD) for example found that people who took part in employer supported volunteering had greater levels of community awareness, increased communication levels and increased confidence.⁹ A study undertaken by the University of Portsmouth¹⁰ drew similar conclusions, reporting that students who undertook volunteering were more likely than non-volunteering students to be in work or further study 6 months afterwards. They were also more likely to be in professional employment.

Data provided by the Universities suggests that their students volunteered a total of over 43,800 hours in 2015/16, although this is likely to be an underestimate as not all students will report their volunteering to their University. The value of this volunteering was then quantified based on data from the ONS, from which it was possible to estimate the average value of volunteering per hour. It was assumed that students volunteered in the area where they lived.

In this way it was assumed that volunteering by students at the Solent Area Universities contributed £0.5 million GVA in the Solent LEP area and the UK.

Table 4-4 – Student Volunteering Impact

	Solent LEP	UK
GVA (£m)	0.5	0.5

Source: BiGGAR Economics

4.5 Student Impacts Summary

Through their spending, part-time work and volunteering students at the Solent Area Universities were estimated to support £589.5 million GVA and 13,707 jobs in the Solent LEP area and £793.8 million GVA and 17,062 jobs in the UK.

⁹ CIPD (2015), On the brink of a game-changer

¹⁰ University of Portsmouth (2015/16), *Volunteering and Third Sector Report* (internal report)

Table 4-5 – Student Impact

	Solent LEP	UK
GVA (£m)		
Student Spending	392.1	553.9
Student Part-Time Employment	197.0	239.4
Student Volunteering	0.5	0.5
Total GVA	589.5	793.8
Employment		
Student Spending	6,566	8,752
Student Part-Time Employment	7,141	8,309
Total Employment	13,707	17,062

Source: BiGGAR Economics

5 INNOVATION SUPPORT

The Solent Area Universities also support economic activity through their industry-focused research and collaborative work with businesses. This activity includes:

- commercialisation of technology through licensing of intellectual property to external organisations, and spin-outs using technology created at the Universities;
- services to industry which are provided through consultancy, contract research, facilities and equipment hire;
- workforce knowledge transfer, including services such as continuing professional development (CPD), student placements, and Knowledge Transfer Partnerships; and
- science parks and business incubation services provided to support the growth of young and high quality businesses.

5.1 Commercialisation

Through their core research activities, the Solent Area Universities are a source of technological innovation through the commercialisation activities that they undertake. This includes licensing of the Universities' intellectual property, as well as commercialisation of research through the creation of new spin-out companies.

5.1.1 Licensing

A university is able to commercialise its research through licensing agreements with pre-existing companies. Licensing agreements give companies the legal right to use intellectual property (IP) developed at the university to generate commercial gains. In return, companies usually pay royalties to the university.

The relationship between the royalty paid for a technology and the turnover it generates will depend on the specific details of the licensing agreement. This can vary between agreements. A well-known rule of thumb for determining the value of a licensing agreement is the 25% rule, according to which a licensor should receive about 25% of the profits accruing to the IP.

In 2002, Goldscheider (who originally developed the rule) conducted empirical analysis on more than 1,500 companies and found that the average royalties payment accounted for 5% of the total turnover generated by that technology although it varies slightly by sector. For the purposes of analysis, it has been assumed that the value of royalties paid in licensing agreements accounts for 5% of total turnover.

In 2015/16 the Solent Area Universities received over £650,000 in licensing income, of which about 10% was secured by companies in the Solent LEP area and 58% by companies in the UK. By applying the appropriate royalty rate, and also the appropriate economic ratios and multipliers it was estimated that licensing of technology stemming from the Solent Area Universities generated £7.1 million GVA and 188 jobs in the UK of which £1.0 million GVA and 27 jobs were retained in the Solent LEP area.

Table 5-1 – Licensing Impact

	Solent LEP	UK
GVA (£m)	1.0	7.1
Employment	27	188

Source: BiGGAR Economics

5.1.2 Spin-Outs

The research carried out by the Universities can also generate impact by being spun-out into a company, which will generate turnover and employment. According to data submitted by the Solent Area Universities there were a total of 25 spin-out companies in 2015/16, directly supporting over 800 jobs and almost £95 million in turnover. Almost 90% of the direct employment supported was in the Solent LEP area.

When industry appropriate economic multipliers were applied it was estimated that spin-outs from the Solent Area Universities generated £46.4 million GVA and 1,008 jobs in the Solent LEP area, and £66.8 million GVA and 1,493 jobs in the UK.

Table 5-2 – Spin-Out Impact

	Solent LEP	UK
GVA (£m)	46.4	66.8
Employment	1,008	1,493

Source: BiGGAR Economics

5.2 Services to Industry

The Solent Area Universities also provide a variety of services to businesses in the Solent LEP area and elsewhere in the UK.

5.2.1 Commercial Business Services

The Solent Area Universities generate economic activity through their work with businesses in areas such as consultancy, contract research, facilities hire and continuing professional development (CPD). The income associated with this activity, equal to £78.2 million, and the location of clients is presented in Table 5-3.

Table 5-3 – Income from Services to Industry

	(£m)	.. of which % from each region	
		Solent LEP	UK
Consultancy Income	30.6	4%	91%
Contract Research Income	11.2	3%	98%
Facilities Hire Income	14.8	55%	96%
CPD Income	21.6	14%	68%
Total	78.2	16%	87%

Source: The Solent Area Universities. *Excludes University CPD

It is reasonable to assume that businesses and other organisations that invest in this type of activity only do so because they expect the projects to generate

positive returns. Although details about the level of returns for clients of the Solent Area Universities is not available, the evaluations of relevant schemes suggests that a conservative estimate of these returns could be in the region of 360%.¹¹ The knowledge transfer activity of the Solent Area Universities was therefore estimated by applying this multiplier to the income from commercial business services in 2015/16. The employment impact was estimated by dividing the direct GVA impact by GVA/employee in relevant sectors. The indirect effects were then captured by applying appropriate economic multipliers.

In this way it was estimated that business services provided by the Solent Area Universities in 2015/16 might be expected to generate £60.4 million GVA and 778 jobs in the Solent LEP area, and £409.0 million GVA and 6,896 jobs in the UK.

Table 5-4 – Commercial Business Services Impact

	Solent LEP	UK
GVA (£m)	60.4	409.0
Employment	778	6,896

Source: BiGGAR Economics

5.3 Workforce Knowledge Transfer

Workforce knowledge transfer is also achieved by the Universities through student placements and knowledge transfer partnerships.

5.3.1 Student Placements

One of the ways that the Solent Area Universities transfer knowledge to workers, but also ensure that students graduate with work-based skills is through student placements.

In 2015/16 almost 8,200 students at the Universities undertook placements. Although many were mandatory as part of the course, these also included short-term non-mandatory placements, sandwich placements and general work experience. Of these, around 98% are in the UK, and 93% are in the Solent LEP area.

The nature and duration of student placements undertaken at the Solent Area Universities varies from course to course and between the Universities. The Universities provided data on both the nature and number of student placements, and this was assessed to calculate the total time spent on placements.

As students are likely to be less productive than the average worker, it was assumed that the contribution to their host organisation would be one third of the contribution of an average worker. Therefore, the economic impact was estimated by calculating how the hours worked translated into an equivalent fte jobs estimate, then applying the 33% productivity assumption to generate an employment impact. The total economic impact was then estimated by applying average GVA/employment ratios and multipliers.

In this way it was estimated that students on placement at the Solent Area Universities contributed £47.8 million GVA and 755 jobs in the Solent LEP area, and £65.7 million GVA and 1,135 jobs in the UK.

¹¹ See Appendix B

Table 5-5 – Student Placements Impact

	Solent LEP	UK
GVA (£m)	47.8	65.7
Employment	755	1,135

Source: BiGGAR Economics

5.3.2 Knowledge Transfer Partnerships

The Solent Area Universities also contribute to innovation support through Knowledge Transfer Partnerships (KTPs), a UK wide initiative run by the UK Government that is designed to enable businesses to gain access to the knowledge and experience of UK universities and colleges.

A KTP is a three-way partnership between an academic, a business partner (including private sector companies, charities and public sector organisations) and a recent graduate (known as an Associate) who is employed to work on a specific project relevant to the business partner. The duration of the KTP is typically around 3 years. In the six years leading up to 2015/16, the Solent Area Universities completed 55 KTPs with a range of industrial partners. The Universities have a further 8 on-going KTPs. Many of the completed KTPs (44%, which is equal to 24), as well as 75% of on-going KTPs (6) were undertaken in the Solent LEP area.

The economic benefits of these projects was estimated using evidence from formal evaluation of the KTP programme¹² published by the Technology Strategy Board. This study found that the net additional GVA supported by KTPs in the South East of England amounted to £0.7 million over the six years after the KTP was completed and that, on average, each KTP supported 3 jobs. This implies that the annual impact of each completed project is equal to £0.11 million. The GVA impact of on-going KTPs was assumed to be 10% of completed ones.

The Universities also have 10 short KTPs, which were assumed to take place in similar geographies to more traditional KTPs. In 2009, BiGGAR Economics undertook an evaluation of Collaborative Innovation Partnerships,¹³ which are used as the basis for estimating the impact of short KTPs. This found that the average project of this type supported GVA of £34,000 and 0.7 jobs.

Using this evidence it was estimated that KTPs supported by the Universities generated £3.2 million GVA and supported 76 jobs in the Solent LEP area and £7.1 million GVA and 172 jobs in the UK.

Table 5-6 – Knowledge Transfer Partnerships Impact

	Solent LEP	UK
GVA (£m)	3.2	7.1
Employment	76	172

Source: BiGGAR Economics

¹² Regeneris Consulting (2010), Knowledge Transfer Partnerships Strategic Review, Technology Strategy Board

¹³ BiGGAR Economics (2009), Evaluation of North East of England’s CIPS

5.4 Incubators and Science Parks

The Solent Area Universities also supported the innovation infrastructure of the local region through the development of incubators and Science Parks. This type of infrastructure can often be vital in supporting young, innovative companies to grow. This in turn allows them to support higher levels of employment, generate increased turnover and become more productive.

Specifically, they can support companies through:

- providing accommodation, which may be relatively scarce in the local area (for example in Portsmouth), priced to be affordable to relatively new companies with limited financial resources and provide access to appropriate facilities;
- providing business support, such as HR, marketing and conferencing services, as well as business mentoring that may be valuable in securing access to funding and resources that otherwise might be beyond their reach;
- allowing access to the research, infrastructure and other resources of the supporting university; and
- a sense of community that can enable entrepreneurs to develop their skills and networks, exchange business ideas and provide emotional support.

There are around 180 companies located in incubators, such as the Innovation Space, and on science parks, such as the Portsmouth Technopole and the University of Southampton Science Park. Each of these facilities are run by the Solent Area Universities. These companies have a combined employment of almost 1,500 and cover a range of sectors, including engineering, IT and scientific research.

The gross direct economic impact of the businesses supported by the University of Southampton Science Park was estimated from data on employment and turnover which was provided by the University of Southampton Science Park management team. The gross direct impact of the businesses supported by other incubators and Science Parks was estimated by applying GVA/employee ratios for the industries which were most appropriate to each of the businesses. Indirect GVA and jobs effects were then captured by applying appropriate economic multipliers.

It is then necessary to estimate the net impact of the incubators and Science Parks to account for what the impact may have been if the Universities did not exist. That is, would the businesses have chosen to locate elsewhere in the region, or in the UK or might they have located elsewhere in Europe?

To take account of these factors it would be reasonable to assume that if the Universities did not exist, a minority (no more than a quarter) would have chosen to locate somewhere else within the Solent LEP area, and most would have chosen to locate elsewhere in Europe (therefore the attributable impact at the UK level will be lower than at the level of the Solent LEP area).

In this way it was estimated that the Science Parks and incubators supported by the Universities generated £137.million GVA and 1,565 jobs in the Solent LEP area, and £127.4 million GVA and 1,546 jobs.

Table 5-7 – Incubator and Science Parks Impact

	Solent LEP	UK
GVA (£m)	137.1	127.4
Employment	1,565	1,546

Source: BiGGAR Economics

5.5 Summary Innovation Support

Through their innovation and business support activities, the Solent Area Universities are estimated to support £295.8 million GVA and 4,210 jobs in the Solent LEP area, and £683.0 million GVA and 11,429 jobs in the UK.

Table 5-8 – Innovation Support Impact

	Solent LEP	UK
GVA (£m)		
Licensing	1.0	7.1
Spin-Outs	46.4	66.8
Services to Businesses	60.4	409.0
KTPs	3.2	7.1
Student Placements	47.8	65.7
Incubator/Science Park	137.1	127.4
Total GVA	295.8	683.0
Employment		
Licensing	27	188
Spin-Outs	1,008	1,493
Services to Businesses	778	6,896
KTPs	76	172
Student Placements	755	1,135
Incubator/Science Park	1,565	1,546
Total Employment	4,210	11,429

Source: BiGGAR Economics

6 TEACHING AND LEARNING IMPACTS

The section considers the long-term economic effects of the Solent Area Universities' teaching activity.

The subject in which a student graduates determines the earnings premium that they can expect to achieve over the course of his or her working life. The impact associated with graduates from the Universities was therefore estimated by applying the graduate premium for each subject area by the number of graduates in that subject area.

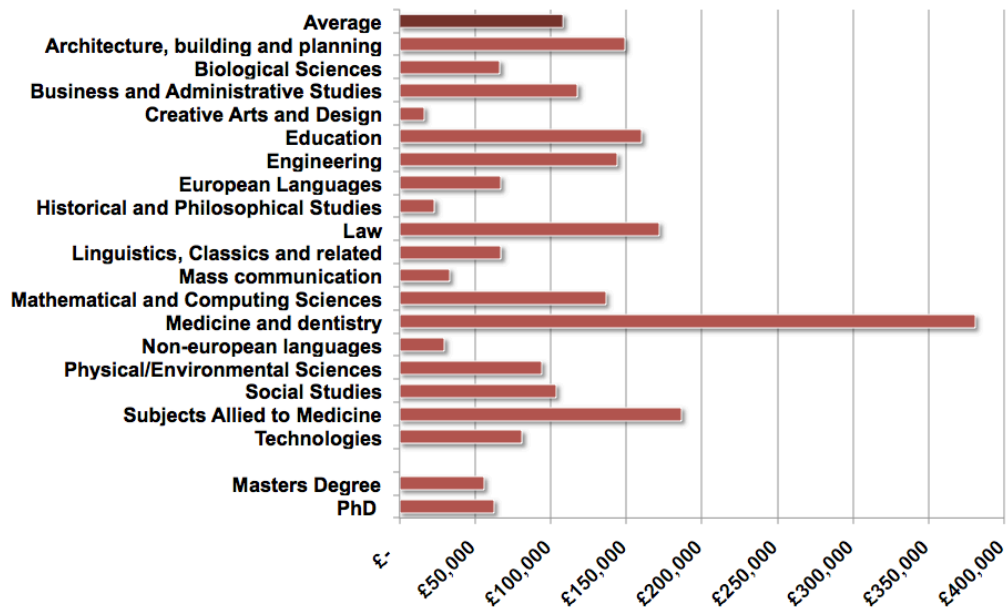
On average, undergraduates can expect to earn £108,121 more over their working life than if they had not gone to university. This figure is based on a comprehensive study by the Department for Business, Innovation and Skills which was carried out in 2011 and covers graduates in all disciplines. However, this average hides considerable variation as graduates in medicine and dentistry can expect to earn £380,604 extra, while graduates in creative design can expect to achieve a premium of £16,183 during their working life. The graduate premium by degree is shown in Figure 6-1.

The premium associated with post-graduate qualifications¹⁴ is also shown in Figure 6-1. This shows that a PhD qualification is associated with a total additional premium of £62,395 and a Masters degree is associated with an additional premium of £55,720.

Some of the students who gain PhDs at the Solent Area Universities will have a Masters degree elsewhere and therefore the proportion of their graduate premium associated with their Masters degree will not be attributable. The graduate premium of PhD and Master students was therefore estimated separately to avoid double counting. Where it was assumed that PhD students had already received a Masters, the additional premium was calculated by multiplying this number by the difference between the Masters premium (£55,720) and a PhD (£62,395).

¹⁴ The source does not provide a breakdown of post-graduate qualifications by discipline.

Figure 6-1 – Graduate Premium by Degree Type

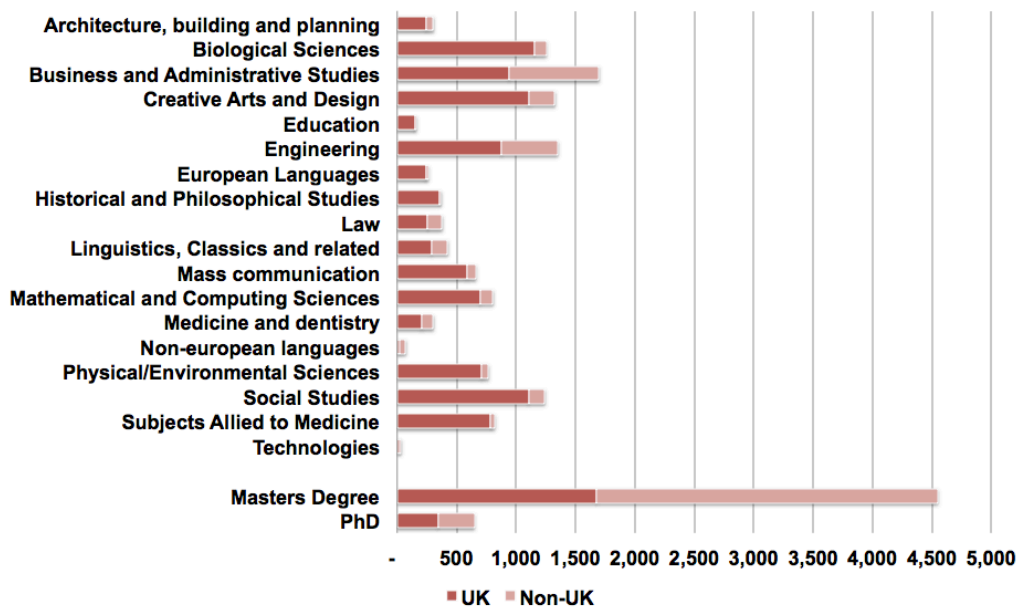


Source: Department for Business, Innovation and Skills (2011), *The Returns to Higher Education Qualifications*

In 2015/16, 12,211 people completed undergraduate degrees at the Solent Area Universities, of which 80% were from the UK. A breakdown by degree subject and nationality (i.e. UK vs Non-UK students) is provided in Figure 6-2. The top three categories for graduates were business and administrative studies, engineering and biological sciences.

In the same year, a further 5,196 people graduated with a Masters or PhD degree from the Solent Area Universities: 39% were from the UK while 61% of these graduates were from outside the UK. It was estimated, based on a study by HEFCE, that 39% of those studying for a PhD would already have a Masters degree.

Figure 6-2 – Graduates by Degree Type



Source: Solent Area Universities

The graduate premium is realised in the area in which the graduate reside after graduation. Based on information provided by the Solent Area Universities about 28% of graduates remain in the Solent LEP area after graduation, and about 98% remain in the UK.

The location and associated earnings premium of the Solent Area Universities graduates is shown in Table 6-1. In total, it was estimated that graduates from the Universities in 2015/16 who remained in the UK could expect to realise an estimated graduate premium of £1,090.5 million over their working lives, of which £307.8 million could be in the Solent LEP area.

Table 6-1 – Graduation Premium Impact

	Solent LEP	UK
Location of Graduates	28%	98%
GVA (£m)	307.8	1,090.5

Source: Solent Area Universities, BiGGAR Economics

7 VISITOR ECONOMY

The Solent Area Universities also attract visitors to the region who would not otherwise visit the area, including friends and family of students and staff, people attending conferences and events, prospective students, visitors staying in term-time accommodation and visitors to attractions run by the Universities. The expenditure of these visitors helps to support businesses and employment in the local tourism and catering sectors.

7.1 Open Days, and Conferences and Events

Each year the Universities host several conferences and events that attract visitors to the area, as well as open days for prospective students. Additionally some visitors, who would otherwise be unable to visit the region, stay in University accommodation and others visit attractions run by the Universities

Table 7-1 – Visitors to the Solent Area Universities Events

Event Type	No. of Delegates/Visitors
Open Days	86,988
Day Conferences	51,174
Visitor Attractions	120,083
Residential Conferences	10,814
Residential Courses	5,224
Other Group Events	7,287
University Accommodation Letting	30,450
Total	312,020

Sources: *The Solent Area Universities*

The value of expenditure associated with these visitors was estimated using data on expenditure of different types of visitors. The assumptions used are summarised in Table 7-2.

Table 7-2 – Visitor Expenditure Assumptions

Origin of Visitor and Nature of Visit	Average Expenditure/trip
Day Visitor, spend per visitor	£42
Domestic Overnight Visitor, spend per visitor	£154
Overseas Business, spend per trip	£409
Overseas Visitor, spend per trip	£354

Sources: *TNS, The GB Tourist Statistics 2014; TNS, The GB Day Visitor Statistics 2014; VisitBritain, International Passenger Survey, 2014*

The total level of spending supported by open days, conferences and events, and university accommodation was estimated by multiplying the total number of visitors/delegates by the average spend for the relevant category in Table 7-2.

However, if the Solent Area Universities had not hosted certain conferences and events, they would most likely have been hosted by another location elsewhere in the UK. In this way, the Solent Area Universities will be displacing some conference-related tourism expenditure from other areas. So while the associated

expenditure that results from attendance at these conferences and events is additional to the Solent Region, it is not always additional at the UK level. For this reason, the additionality of the conference activity is assumed to be 75% in the Solent LEP area, and 50% in the UK. As a result, the impact generated by conference-related tourism expenditure is higher at the regional level than the national level.

Table 7-3 – Additionality of Open Days, and Conferences and Events

	Solent LEP	UK
Additionality	75%	50%

Source: BiGGAR Economics Assumption

The impact arising from visits to attractions operated by the Solent Area Universities was estimated by the same method using the assumptions outlined above.

7.2 Visits from Friends and Relatives

In addition to attracting visitors to the region directly, the Universities' staff and students will also attract friends and relatives to visit to the area. In 2015/16 there were a total of 72,481 UK-based staff and students at the Solent Area Universities, of which 16,406 were staff, and 56,075 were students. Visits to staff and students generates economic activity in local businesses and supply chains, which may otherwise have been spent elsewhere.

The impact of these trips was estimated by first establishing how many people visit staff and students at the Solent Area Universities each year, and how much they spend. The number of domestic and overseas visitors and their expenditure was estimated using data from the Great British Tourism Survey 2014, VisitBritain and the ONS.

Table 7-4 – Personal Visits to Students and Staff Assumptions

	Value
Staff (headcount)	16,406
Students	56,075
Average spend per VFR trip	
Domestic	£96
Overseas	£361
VFR trips per capita	
Domestic	0.85
Overseas	0.2

Sources: TNS, *The GB Tourist Statistics 2014*; VisitBritain, *International Passenger Survey 2014*; ONS, *Mid-Year Population Estimates 2015*

Using this approach it was estimated that, after adjusting for VAT, the total spend of these visitors would be £8.5 million in the UK, with over 90% retained in the Solent LEP area. The direct and indirect impact of this expenditure was estimated by applying economic ratios and multipliers for the tourism sector.

In this way it was estimated that friends and family visiting staff and students at the Solent Area Universities generated £5.5 million GVA and 255 jobs in the Solent LEP area, and £7.5 million GVA and 313 jobs in the UK.

Table 7-5 – Visiting Friends and Relatives Impact

	Solent LEP	UK
GVA (£m)	5.5	7.5
Employment	255	313

Source: BiGGAR Economics

7.3 Summary Visitor Impact

Adding together the sources of impact considered in this section suggests that the Solent Area Universities contributed £14.2 million GVA and 657 jobs in the Solent LEP area, and £14.2 million GVA and 596 jobs in the UK. A breakdown is provided in Table 7-6.

As explained earlier in this section, the tourism impacts are lower at the UK level than at the regional level due to the nature of displacement associated with certain conferences and events i.e. while some of the conferences and events are additional to the area, had they not been hosted by the Solent Area Universities, they would most likely have been hosted at another location in the UK. Therefore for this reason the associated impacts are lower at the UK level than at the regional level.

Table 7-6 – Tourism Impact

	Solent LEP	UK
GVA (£m)		
Conferences and Events, and Open Days	8.3	6.7
Visiting Friends and Relatives	5.5	7.5
Other Tourism Activities	0.4	-
Total GVA	14.2	14.2
Employment		
Conferences and Events, and Open Days	382	284
Visiting Friends and Relatives	255	313
Other Tourism Activities	20	-
Total Employment	657	596

Source: BiGGAR Economics

8 HEALTH RESEARCH AND PRACTICE

The Solent Area Universities also make a contribution to the local and wider economy through health-related research, as well as through the provision of health services.

8.1 Impact of Medical Research

In 2015/16, the Solent Area Universities received £33.4 million in health research income, all of which at the University of Southampton. This generates impact through health gains to individuals, as well as stimulating private investment. These impacts are discussed in a report by the Wellcome Trust.¹⁵

8.1.1 Health Gains

The value of health gains to individuals (net of the health care costs of delivery) was assessed in the Wellcome Trust report 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 Wellcome Trust report considered two areas of medical research: cardiovascular disease, and mental health.

The value of the health benefit was presented as a return on the initial expenditure on research (IRR). The best estimate for the IRR of cardiovascular research was 9.2% (within a range of 7.7% and 13.9%) and the best estimate for mental health research was 7.0% (within a range of 3.7% and 10.8%). In order to apply these rates to the Solent Area Universities, an average of the two best estimates was taken. Therefore, it was assumed that every £1 invested in medical research would result in health gains valued at £0.08 each year in the UK, in perpetuity.

Therefore the £33.4 million of medical funding received by the Solent Area Universities each year would result in a health gains valued at £38.0 million, if the net present value was considered over a 20-year period.

8.1.2 Economic Impact

The Wellcome Trust also considered the effect that medical research expenditure would have on GDP. The study considered the impact that this public research would have in stimulating investment in the private R&D sector, and the social returns to the private investment that is stimulated. The report 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. The report also found that the social rate of return to private sector R&D funding was approximately 50%.

As with the estimates for health gains, the study found a range of estimates for IRR for GDP impacts: the lowest estimate was 20%, and the highest estimate was 67%, with the best estimate given as 30%. Unlike the health gains, there were no estimates given for mental health research, so it was assumed that the 30% return would apply to all types of medical research. It was therefore assumed

¹⁵ Wellcome Trust, Medical Research Council, Academy of Medical Sciences (2008). Medical Research: What's it worth? Estimating the Economic Benefits from Medical Research in the UK

that each £1 invested in medical research at the Solent Area Universities generates an increase of £0.30 GDP for the UK economy each year in perpetuity.

Therefore, the £33.4 million of medical funding that is received each year would result in an economic return of £142.5 million GVA, if the net present value of this impact was considered over a 20-year period.

8.1.3 Total Returns to Medical Research

The total return of the medical research undertaken at the Solent Area Universities is the sum of the economic returns and the health gains. Therefore, the £33.4 million in medical research funding would result in a total impact with a net present value of £180.4 million throughout the UK.

The impact in the Solent LEP area was assumed to be proportional to its share of the UK population. Therefore the impact in the Solent LEP area was estimated to be £3.6 million.

Table 8-1 – Health Research Impact

	Solent LEP	UK
GVA (£m)	3.6	180.4

Source: BiGGAR Economics

9 SUMMARY QUANTIFIABLE IMPACTS

Adding together the impacts considered in this report it can be estimated in 2015/16 that the Solent Area Universities generated:

- £2.1 billion GVA and supported around 33,000 jobs in the Solent LEP area; and
- £4.2 billion GVA and supported around 52,300 jobs in the UK.

A breakdown of these impacts by source for the Solent LEP area and the UK is provided in Table 9-1 and Table 9-2. A breakdown for each sub-area within the Solent LEP is provided in Appendix B.

Table 9-1 – Solent Area Universities - Total Quantifiable Impact, GVA (£m)

	Solent LEP	UK
Sub-total: Core Impact	931.2	1,416.3
- Direct Impact	687.1	687.1
- Supplier Impact	34.1	185.8
- Staff Spending	193.3	416.5
- Capital Investment	16.6	126.8
Sub-total: Student Impact	589.5	793.8
- Student Spending	392.1	553.9
- Student Part-Time Employment	197.0	239.4
- Student Volunteering	0.5	0.5
Sub-total: Innovation Support Impact	295.8	683.0
- Licensing	1.0	7.1
- Spin-Outs	46.4	66.8
- Services to Business	60.4	409.0
- KTPs	3.2	7.1
- Student Placements	47.8	65.7
- Incubators/Science Parks	137.1	127.4
Sub-total: Tourism Impact	14.2	14.2
- Visiting Friends and Relatives	5.5	7.5
- Conferences and Events	8.3	6.7
- Other Tourism Activities	0.4	-
Sub-Total	1,830.7	2,907.3
Long-term Impacts	311.4	1,270.9
- Graduate Premium	307.8	1,090.5
- Medical Research	3.6	180.4
Total GVA	2,142.2	4,178.2

Source: BiGGAR Economics

Table 9-2 – Solent Area Universities - Total Quantifiable Impact, Employment

	Solent LEP	UK
Sub-total: Core Impact	14,391	23,227
- Direct Impact	9,851	9,851
- Supplier Impact	769	4,219
- Staff Spending	3,533	7,366
- Capital Investment	238	1,791
Sub-total: Student Impact	13,707	17,062
- Student Spending	6,566	8,752
- Student Part-Time Employment	7,141	8,309
Sub-total: Innovation Support Impact	4,210	11,429
- Licensing	27	188
- Spin-Outs	1,008	1,493
- Services to Business	778	6,896
- KTPs	76	172
- Student Placements	755	1,135
- Incubators/Science Parks	1,565	1,546
Sub-total: Tourism Impact	657	596
- Visiting Friends and Relatives	255	313
- Conferences and Events	382	284
- Other Tourism Activities	20	-
Total Employment	32,965	52,314

Source: BiGGAR Economics

10 CONCLUSIONS

10.1 Impact in Context

This study has assessed the economic contribution made by the three Solent Area Universities. Together they directly employ around 9,850 fte staff, have a combined full-time student population of around 56,100 and a combined turnover of more than £0.9 billion.

The key findings of the analysis were that in 2015/16 the Solent Area Universities generated £4.2 billion GVA¹⁶ and supported around 52,300 jobs across the UK including £2.1 billion GVA and around 33,000 jobs in the Solent LEP area. This implies that:

- for each £1 that the Universities generated as a direct result of their operations, they supported £6 in total throughout the UK economy of which £3 was retained within the Solent LEP area; and
- for each person directly employed, the Universities supported more than five jobs in total in the UK, including around three in the Solent LEP area.

This is a very significant contribution. In 2015 the total GVA of the Solent LEP area was £27.8 billion and there were around 609,000 jobs in the region¹⁷. **This implies that the three Universities together accounted for around 8% of regional GVA and 5% of jobs.**

The available evidence on student inflows and graduate destinations suggests that the Universities attract a net inflow of around 2,800 people into the Solent region to study each year. Data on student term-time residences suggest that around 15,500 new students relocate into the Solent region to study each year, while around at the same time around 12,800 people from outside the Solent region graduate from the Universities. The net inflow of people will, in turn, contribute to the on-going growth and vibrancy of the area.

10.2 Impact Time Frame

Some of the activity undertaken by the Solent Area Universities generates economic activity immediately, e.g. purchases made by the Universities generate activity amongst their suppliers almost straight away. However, much of the activity undertaken by the Solent Area Universities does not generate immediate economic effects. For example, the additional income that their graduates will earn as a result of the enhanced skills they gain while studying will be generated over their entire working lives and not just in the year after graduation. The impact generated in 2015/16 will therefore be the cumulative impact of historic activity.

Limitations in data availability mean that it is generally not possible to estimate the actual impact of historic activity that is realised in any particular year. To overcome this, the report makes the simplifying assumption that activity undertaken in 2015/16 generates impact in 2015/16. This is reasonable because although the impact of some activity that occurs in 2015/16 will not transpire until

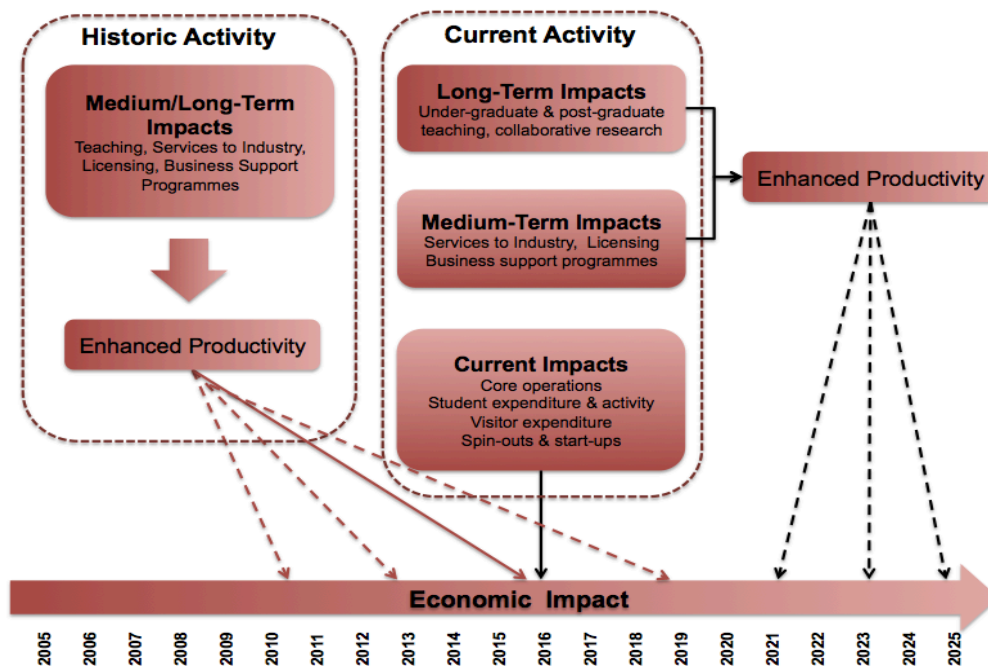
¹⁶ Gross Value Added – a widely used measure of the additional economic contribution of an organisation

¹⁷ Oxford Economics (January 2017), Solent Local Enterprise Partnership, baseline forecasts and the implications of Brexit

a later date, some of the impact that was realised in 2015/16 will have been generated by historic activity.

Figure 10-1 summarises the different types of activity considered in the report and the time-scale over which they generate impact. The black arrows represent impact generated by current activity and the red arrows represent impact generated by historic activity. In each case the dashed arrows represent future impacts and the solid arrows represent impact in the current year.

Figure 10-1 – Impact Time Frame



Source: BiGGAR Economics

The Universities produce an on-going dynamic economic contribution which will be realised over the course of several years. The data presented here represent the impact as a snapshot in time.

10.3 The Role of Universities in Productivity Growth

As producers of highly-skilled graduates and postgraduates, generators of world-class research and development and located at the centre of industry clusters, universities are recognised throughout the world as one of the critical drivers of economic growth and a defining feature of advanced economies.

The two fundamental activities of universities are the creation of both intellectual and human capital. Universities contribute to knowledge creation by undertaking basic and applied research which gives rise to the most influential technologies of today and the technologies of the future. Universities also provide high quality graduates for the labour market, which in turn increases innovation potential, as well as leading to productivity gains for the economy.

As a result, universities are major drivers of knowledge and innovation. This is fundamental to economic growth, since it is productivity growth that drives economic growth and productivity growth is in turn driven by knowledge and its diffusion (innovation).

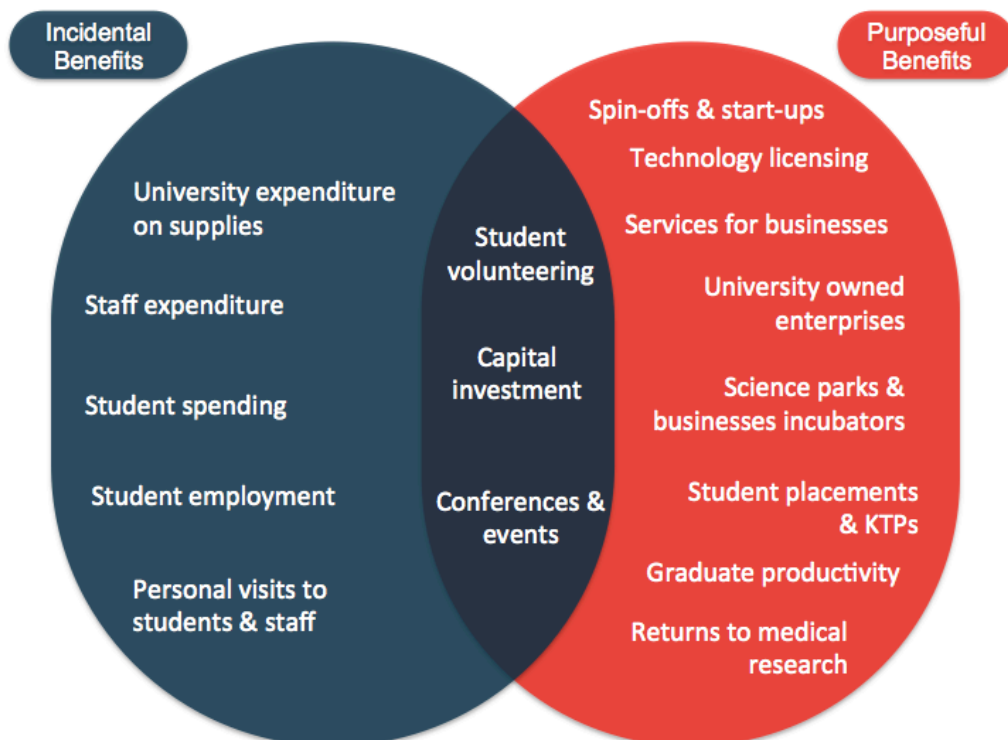
10.4 Incidental and Purposeful Benefits

The impacts created by the Solent Area Universities can be categorised into two groups:

- Incidental benefits:** these arise as a result of the existence of the Universities as large organisations and are in many ways comparable to the activities of any other large organisation with an extensive supply chain, a significant staff complement and a large consumer base. For this reason these type of benefits are described as “incidental benefits”. This includes the effects that are directly associated with the Universities' expenditure in the economy and that of their staff and students. In a sense this is secondary to the Universities' core mission of teaching, research and knowledge exchange. Some 53% of the Solent Area Universities' impact across the UK could be described as incidental benefits.
- Purposeful benefits:** The Universities also undertake a variety of activity with the explicit purpose of creating positive economic impacts in the local area and further afield. This type of activity is conceived specifically with the aim of driving innovation and productivity growth within the economy. These benefits are associated with the nature of the activity undertaken by Universities rather than their existence as organisations and might therefore be described as “purposeful benefits”. Around 47% of the Solent Area Universities' impact across the UK could be described as purposeful benefits.

Table 10-1 illustrates the division of benefits into incidental and purposeful categories. The division is not always clear-cut. Some areas such as volunteering are independent of the Universities but often draw on skills gained while studying and teaching.

Table 10-1 Incidental and Purposeful Benefits



Source: BiGGAR Economics

10.5 Complementary Strengths

Each of the Solent Area Universities has a unique set of strengths which combine to create a complementary package of higher education, teaching and research that supports the wider Solent economy.

The University of Portsmouth is a multi-disciplinary University with recognised strengths in subjects allied to the health professions, creative technologies, engineering, criminology and business and management. It performs well in national and international rankings. For example, it is ranked 37th in the UK for 2018 in the Guardian League Table and it is ranked by the Times Higher Education in the Top 100 Universities internationally that are under 50 years old.

The University of Southampton is a founding member of the prestigious Russell Group of research-intensive universities in Britain. In the most recent Research Excellence Framework the University was ranked 8th for research intensity in the UK and is regularly ranked in the top 100 universities in the world by several sources. Many subjects are ranked in the top 50 universities globally including nursing, archaeology, Earth and marine sciences, engineering computer sciences, geosciences and music.

Southampton Solent University has particular strengths in maritime courses, creative industries, marketing, sports and business subjects. It incorporates the world-renowned Warsash Maritime Academy and the Warsash Superyacht Academy that offers a range of professional training and courses in yacht design, engineering, shipping and maritime studies.

10.6 Internationally Competitive Sector

Universities are a major asset to the UK economy and by extension, the Solent Area Universities are a major asset to the Solent economy. They are global institutions with international staff, international students and international research connections. To maintain and develop this position, it is important that the Universities continue to have access to research funding such as Horizon 2020 and any similar successor programmes.

The Universities' ability to attract international students and to retain them in the UK after graduation is a significant factor in securing this important source of income, which in turn is converted into an important economic benefit for the UK economy. The extent to which these opportunities can be fully realised will depend on UK Government policy.

11 APPENDIX A - INDIVIDUAL UNIVERSITY IMPACTS

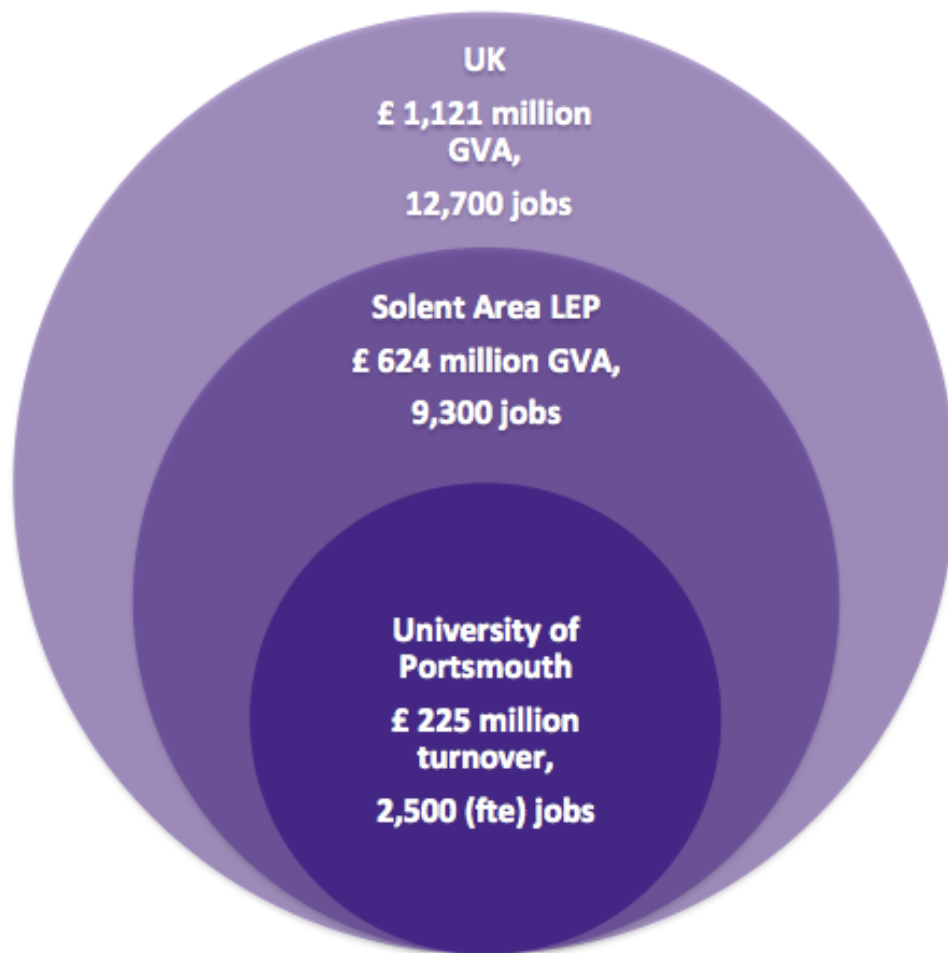
11.1 University of Portsmouth

The University of Portsmouth directly employs around 2,500 full time equivalent (fte) staff, has a combined full-time student population of around 19,600 and an annual income of over £225 million.

The key findings of the analysis were that in 2015/16 the University of Portsmouth:

- generated £1.1 billion GVA¹⁸ and supported around 12,700 jobs across the UK
- including £0.6 billion GVA and around 9,300 jobs in the Solent LEP area.

Figure 11-1 – Total Impact of the University of Portsmouth



Source: BiGGAR Economics

Table 11-1 and Table 11-2 illustrate the scale of each source of contribution.

¹⁸ Gross Value Added – a widely used measure of the additional economic contribution of an organisation

Table 11-1 – University of Portsmouth: Total Quantifiable Impact, GVA (£m)

	Solent LEP	UK
Sub-total: Core Impact	229.6	351.8
- Direct Impact	159.4	159.4
- Supplier Impact	9.8	46.9
- Staff Spending	55.2	118.4
- Capital Investment	5.3	27.0
Sub-total: Student Impact	209.5	275.3
- Student Spending	144.5	198.5
- Student Part-Time Employment	64.5	76.4
- Student Volunteering	0.4	0.4
Sub-total: Innovation Support Impact	35.1	68.3
- Licensing	-	0.3
- Spin-Outs	-	-
- Services to Business	18.4	44.8
- KTPs	1.5	2.7
- Student Placements	5.9	12.9
- Incubators/Science Parks	9.3	7.6
Sub-total: Tourism Impact	5.5	5.5
- Visiting Friends and Relatives	1.9	2.6
- Conferences and Events	3.6	3.0
- Other Tourism Activities	-	-
Sub-total	479.7	701.0
Long-term Impact	144.1	419.7
- Graduate Premium	144.1	419.7
Total Impact (GVA)	623.8	1,120.7

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

Table 11-2 – University of Portsmouth: Total Quantifiable Impact, Employment

	Solent LEP	UK
Sub-total: Core Impact	3,796	5,812
- Direct Impact	2,542	2,542
- Supplier Impact	170	797
- Staff Spending	1,008	2,095
- Capital Investment	75	378
Sub-total: Student Impact	4,733	5,766
- Student Spending	2,393	3,114
- Student Part-Time Employment	2,339	2,652
- Student Volunteering	-	-
Sub-total: Innovation Support Impact	531	877
- Licensing	-	5
- Spin-Outs	-	-
- Services to Business	146	404
- KTPs	34	64
- Student Placements	85	190
- Incubators/Science Parks	266	214
Sub-total: Tourism Support Impact	256	233
- Visiting Friends and Relatives	90	108
- Conferences and Events	166	124
- Other Tourism Activities	-	-
Total Impact (Jobs)	9,315	12,688

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

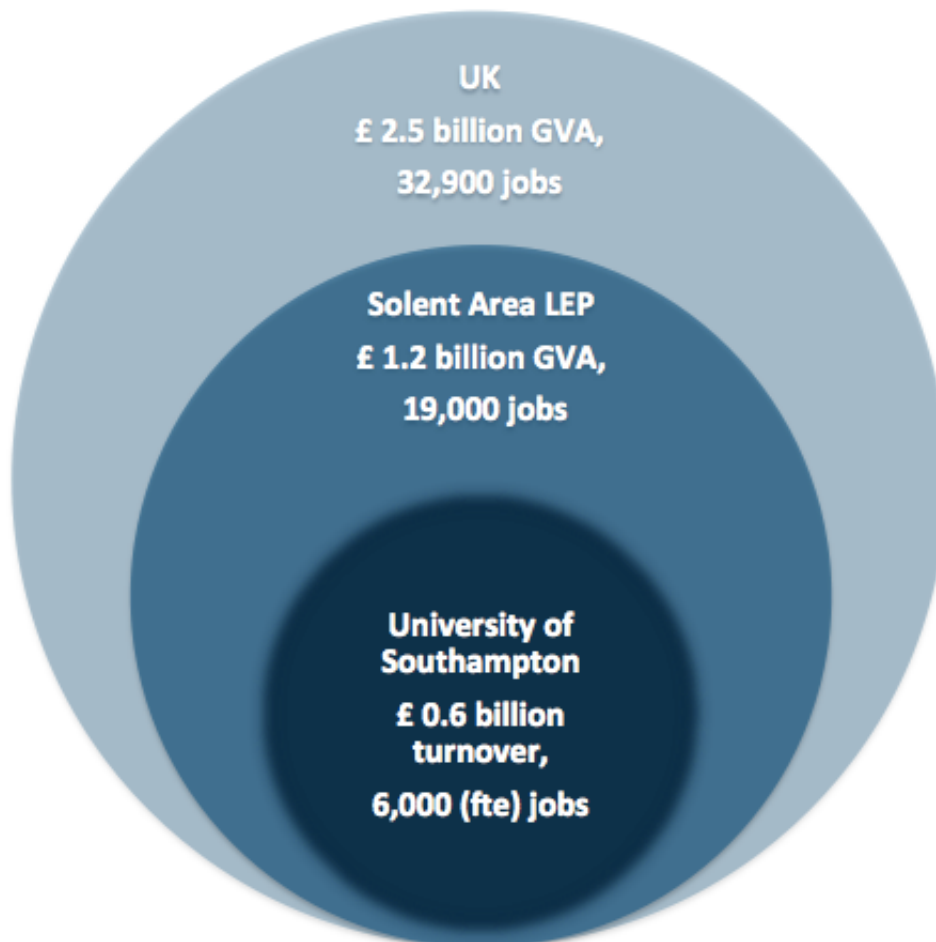
11.2 University of Southampton

The University of Southampton directly employs around 6,000 full time equivalent (fte) staff, has a combined full-time student population of around 27,000 and an annual income of almost £556 million.

The key findings of the analysis were that in 2015/16 the University of Southampton:

- generated £2.5 billion GVA¹⁹ and supported around 32,900 jobs across the UK
- including £1.2 billion GVA and around 19,000 jobs in the Solent LEP area.

Figure 11-2 – Total Impact of the University of Southampton



Source: BiGGAR Economics

Table 11-3 and Table 11-4 illustrate the scale of each source of contribution.

¹⁹ Gross Value Added – a widely used measure of the additional economic contribution of an organisation

Table 11-3 – University of Southampton: Total Quantifiable Impact, GVA (£m)

	Solent LEP	UK
Sub-total: Core Impact	592.0	890.0
- Direct Impact	450.1	450.1
- Supplier Impact	19.0	101.6
- Staff Spending	116.5	246.9
- Capital Investment	6.3	91.4
Sub-total: Student Impact	272.1	383.3
- Student Spending	177.0	263.0
- Student Part-Time Employment	95.0	120.3
- Student Volunteering	0.1	0.1
Sub-total: Innovation Support Impact	252.2	583.0
- Licensing	1.0	6.8
- Spin-Outs	46.4	66.8
- Services to Business	34.5	336.7
- KTPs	1.3	3.8
- Incubators/Science Parks	127.8	119.8
- Student Placements	41.2	49.3
Sub-total: Tourism Impact	6.4	6.4
- Visiting Friends and Relatives	2.6	3.7
- Conferences and Events	3.3	2.8
- Other Tourism Activities	0.4	-
Sub-total	1,122.6	1,862.8
Long-term Impacts	110.6	631.1
- Graduate Premium	107.0	450.7
- Medical Research	3.6	180.4
Total Impact (GVA)	1,233.3	2,494.0

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

Table 11-4 – University of Southampton: Total Quantifiable Impact, Employment

	Solent LEP	UK
Sub-total: Core Impact	8,683	14,322
- Direct Impact	5,974	5,974
- Supplier Impact	488	2,687
- Staff Spending	2,130	4,366
- Capital Investment	91	1,295
Sub-total: Student Impact	6,434	8,351
- Student Spending	2,990	4,175
- Student Part-Time Employment	3,444	4,176
- Student Volunteering	-	-
Sub-total: Innovation Support Impact	3,567	10,003
- Licensing	27	182
- Spin-Outs	1,008	1,493
- Services to Business	540	6,013
- KTPs	33	93
- Student Placements	660	890
- Incubators/Science Parks	1,299	1,332
Sub-total: Tourism Impact	296	270
- Visiting Friends and Relatives	121	154
- Conferences and Events	155	116
- Other Tourism Activities	20	-
Total Impact (Jobs)	18,979	32,946

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

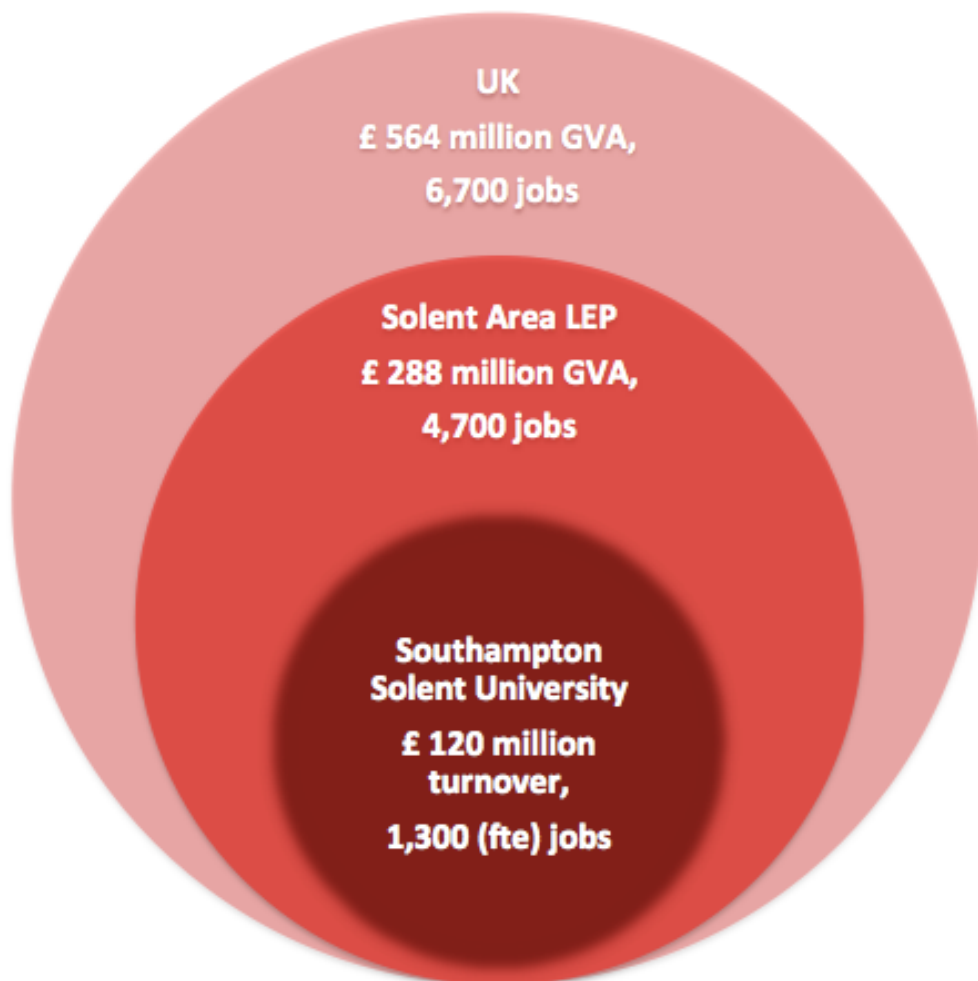
11.3 Southampton Solent University

Southampton Solent University directly employs around 1,300 full time equivalent (fte) staff, has a combined full-time student population of around 9,600 and an annual income of almost £120 million.

The key findings of the analysis were that in 2015/16 Southampton Solent University:

- generated £564 million GVA²⁰ and supported around 6,700 jobs across the UK
- including £288 million GVA and around 4,700 jobs in the Solent LEP area.

Figure 11-3 – Total Impact of Southampton Solent University



Source: BiGGAR Economics

Table 11-5 and Table 11-6 illustrate the scale of each source of contribution.

²⁰ Gross Value Added – a widely used measure of the additional economic contribution of an organisation

Table 11-5 –Southampton Solent University: Total Quantifiable Impact, GVA (£m)

	Solent LEP	UK
Sub-total: Core Impact	112.0	174.5
- Direct Impact	77.6	77.6
- Supplier Impact	5.3	37.2
- Staff Spending	24.0	51.2
- Capital Investment	5.1	8.4
Sub-total: Student Impact	108.0	135.1
- Student Spending	70.5	92.4
- Student Part-Time Employment	37.5	42.7
- Student Volunteering	<0.1	<0.1
Sub-total: Innovation Support Impact	8.6	31.7
- Licensing	-	-
- Spin-Outs	-	-
- Services for Business	7.6	27.5
- KTPs	0.4	0.6
- Student Placements	0.7	3.6
- Incubators/Science Parks	-	-
Sub-total: Tourism Impact	2.3	2.2
- Visiting Friends and Relatives	0.9	1.2
- Conferences and Events	1.3	1.0
- Other Tourism Activities	-	-
Sub-total Impact	230.8	343.5
Long-term Impacts	56.7	220.1
- Graduate Premium	56.7	220.1
Total Impact (GVA)	287.5	563.6

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

Table 11-6 –Southampton Solent University: Total Quantifiable Impact, Employment

	Solent LEP	UK
Sub-total: Core Impact	1,956	3,093
- Direct Impact	1,335	1,335
- Supplier Impact	110	735
- Staff Spending	439	906
- Capital Investment	72	118
Sub-total: Student Impact	2,541	2,945
- Student Spending	1,183	1,463
- Student Part-Time Employment	1,358	1,481
- Student Volunteering	-	-
Sub-total: Innovation Support Impact	111	549
- Licensing	-	-
- Spin-Outs	-	-
- Services to Business	93	479
- KTPs	9	15
- Student Placements	10	55
- Incubators/Science Parks	-	-
Sub-total: Tourism Impact	106	94
Visiting Friends and Relatives	44	51
Conferences and Events	62	43
Other Tourism Activities	-	-
Total Impact (Jobs)	4,715	6,680

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

12 APPENDIX B - ADDITIONAL STUDY AREAS

The study also estimated impact that the Solent Area Universities have on specific localities within the surrounding region. The data in this section presents the results for estimated GVA and employment impacts in these areas. In some cases these impacts will be associated with just one of the universities while in others they will be associated with two or all three universities.

Table 12-1 – Total Quantifiable Impact, GVA (£m)

	Portsmouth	Isle of Wight	New Forest	Test Valley
Sub-total: Core Impact	182.8	14.3	15.3	14.7
- Direct Impact	159.4	-	-	-
- Supplier Impact	2.9	3.3	1.0	1.9
- Staff Spending	19.2	9.8	12.9	12.2
- Capital Investment	1.3	1.3	1.3	0.5
Sub-total: Student Impact	185.0	1.9	4.6	2.2
- Student Spending	124.0	1.2	3.0	1.4
- Student Part-Time Employment	60.5	0.6	1.6	0.8
- Student Volunteering	0.4	-	-	-
Sub-total: Innovation Support Impact	44.4	2.4	2.3	5.4
- Licensing	-	-	-	-
- Spin-Outs	-	-	-	2.9
- Services to Business	13.1	-	-	-
- KTPs	0.3	0.1	-	0.1
- Student Placements	19.8	2.3	2.3	2.3
- Incubators/Science Parks	11.2	-	-	-
Sub-total: Tourism Impact	5.9	<0.1	0.1	0.1
- Visiting Friends and Relatives	1.7	<0.1	0.1	0.1
- Conferences and Events	4.3	-	-	-
- Other Tourism Activities	-	-	-	-
Sub-Total	418.0	18.5	22.1	22.1
Long-term Impacts	107.2	8.5	14.5	8.1
- Graduate Premium	106.6	8.1	14.0	7.7
- Medical Research	0.6	0.4	0.5	0.3
Total GVA	525.4	27.1	36.8	30.3

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

Table 12-2 – Total Quantifiable Impact, Employment

	Portsmouth	Isle of Wight	New Forest	Test Valley
Sub-total: Core Impact	2,975	270	287	281
- Direct Impact	2,542	-	-	-
- Supplier Impact	53	68	25	43
- Staff Spending	360	184	243	230
- Capital Investment	19	18	19	8
Sub-total: Student Impact	4,373	45	111	53
- Student Spending	2,127	21	51	24
- Student Part-Time Employment	2,246	24	60	29
Sub-total: Innovation Support Impact	742	40	37	188
- Licensing	-	-	-	-
- Spin-Outs	-	-	-	148
- Services to Business	104	-	-	-
- KTPs	7	3	-	3
- Student Placements	309	37	37	37
- Incubators/Science Parks	322	-	-	-
Sub-total: Tourism Impact	289	1	4	3
- Visiting Friends and Relatives	81	1	4	3
- Conferences and Events	208	-	-	-
- Other Tourism Activities	-	-	-	-
Total Employment	8,379	356	439	525

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

Table 12-3 – Total Quantifiable Impact, GVA (£m)

	Southampton	Eastleigh	Winchester	Fareham
Sub-total: Core Impact	566.0	18.0	19.9	15.3
- Direct Impact	523.3	-	4.3	-
- Supplier Impact	10.5	2.2	2.5	3.0
- Staff Spending	30.4	15.1	12.0	11.5
- Capital Investment	1.7	0.7	1.2	0.8
Sub-total: Student Impact	300.6	7.0	11.2	2.9
- Student Spending	189.6	4.6	6.9	1.8
- Student Part-Time Employment	110.9	2.4	4.3	1.1
- Student Volunteering	0.1	-	-	-
Sub-total: Innovation Support Impact	154.7	2.3	2.5	3.3
- Licensing	-	-	-	-
- Spin-Outs	37.4	-	<0.1	1.0
- Services to Business	-	-	-	-
- KTPs	1.1	-	0.1	-
- Student Placements	2.8	2.3	2.3	2.3
- Incubators/Science Parks	113.4	-	-	-
Sub-total: Tourism Impact	9.3	0.1	0.1	<0.1
- Visiting Friends and Relatives	2.7	0.1	0.1	<0.1
- Conferences and Events	5.5	-	-	-
- Other Tourism Activities	1.1	-	-	-
Sub-Total	1,030.5	27.4	33.8	21.5
Long-term Impacts	67.7	16.4	12.8	8.7
- Graduate Premium	67.0	16.0	12.4	8.3
- Medical Research	0.7	0.4	0.3	0.3
Total GVA	1,098.2	43.8	46.5	30.2

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

Table 12-4 – Total Quantifiable Impact, Employment

	Southampton	Eastleigh	Winchester	Fareham
Sub-total: Core Impact	8,094	347	355	294
- Direct Impact	7,251	-	58	-
- Supplier Impact	247	53	56	66
- Staff Spending	571	284	225	216
- Capital Investment	24	11	17	12
Sub-total: Student Impact	7,441	168	283	70
- Student Spending	3,328	77	124	31
- Student Part-Time Employment	4,114	91	159	39
Sub-total: Innovation Support Impact	1,840	37	64	54
- Licensing	-	-	-	-
- Spin-Outs	684	-	24	18
- Services to Business	-	-	-	-
- KTPs	27	-	3	-
- Student Placements	44	37	37	37
- Incubators/Science Parks	1,084	-	-	-
Sub-total: Tourism Impact	454	7	7	3
- Visiting Friends and Relatives	130	7	7	3
- Conferences and Events	271	-	-	-
- Other Tourism Activities	53	-	-	-
Total Employment	17,829	559	708	422

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

Table 12-5 – Total Quantifiable Impact, GVA (£m)

	Gosport	Havant	East Hampshire
Sub-total: Core Impact	10.6	12.5	9.9
- Direct Impact	-	-	-
- Supplier Impact	0.6	1.4	0.2
- Staff Spending	9.7	9.7	9.6
- Capital Investment	0.3	1.4	0.1
Sub-total: Student Impact	0.9	0.7	0.9
- Student Spending	0.6	0.4	0.6
- Student Part-Time Employment	0.3	0.3	0.3
- Student Volunteering	-	-	-
Sub-total: Innovation Support Impact	2.3	2.3	2.5
- Licensing	-	-	-
- Spin-Outs	-	-	-
- Services to Business	-	-	-
- KTPs	-	-	0.2
- Student Placements	2.3	2.3	2.3
- Incubators/Science Parks	-	-	-
Sub-total: Tourism Impact	<0.1	<0.1	<0.1
- Visiting Friends and Relatives	<0.1	<0.1	<0.1
- Conferences and Events	-	-	-
- Other Tourism Activities	-	-	-
Sub-Total	13.8	15.5	13.3
Long-term Impacts	2.4	1.8	4.4
- Graduate Premium	2.2	1.4	4.0
- Medical Research	0.2	0.3	0.3
Total GVA	16.2	17.3	17.7

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

Table 12-6 – Total Quantifiable Impact, Employment

	Gosport	Havant	East Hampshire
Sub-total: Core Impact	198	236	186
- Direct Impact	-	-	-
- Supplier Impact	11	32	4
- Staff Spending	182	183	181
- Capital Investment	4	21	1
Sub-total: Student Impact	21	18	21
- Student Spending	10	7	10
- Student Part-Time Employment	12	11	11
Sub-total: Innovation Support Impact	37	37	43
- Licensing	-	-	-
- Spin-Outs	-	-	-
- Services to Business	-	-	-
- KTPs	-	-	6
- Student Placements	37	37	37
- Incubators/Science Parks	-	-	-
Sub-total: Tourism Impact	1	1	1
- Visiting Friends and Relatives	1	1	1
- Conferences and Events	-	-	-
- Other Tourism Activities	-	-	-
Total Employment	256	291	251

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

13 APPENDIX C - METHODOLOGICAL APPENDIX

13.1 General Approach

To estimate the economic impact arising from each source of impact, it was first necessary to determine the scale of activity and the level of associated expenditure. Data on the scale and location of activity (e.g. the number of students and where they reside) was sourced directly from the Solent Area Universities.

The data was supplemented with assumptions to quantify the level of expenditure associated with each type of activity (e.g. data on the cost of student living). These assumptions were derived from BiGGAR Economics' previous experience of comparable institutions elsewhere in the UK and/or other relevant research findings. The various sources used are specified in the relevant sections.

When expenditure is generated in the economy this generates both direct effects and multiplier effects elsewhere in the supply chain. The total impact of the Solent Area Universities is the sum of the direct and multiplier effects associated with the each source of impact.

Direct effects were estimated by applying turnover/GVA and turnover/employee assumptions for appropriate sectors of the UK economy to the total value of expenditure. These ratios were obtained from the UK Annual Business Survey, published by the Office for National Statistics (ONS).²¹

Multiplier effects were then captured by applying appropriate GVA and employment multipliers, based on Type 2 multipliers published in the Scottish Government's Input-Output tables,²² to the direct effects. This source was used as it is the most up to date information on economic multipliers, and because it provides multipliers for different sectors. The Scottish multipliers were then adapted for each of the study areas to reflect the relative size of the economy in each area.

13.2 Operational Impacts

13.2.1 Staff Expenditure

In order to estimate the impact of staff expenditure it is first necessary to make assumptions about where staff are likely to spend their wages. These assumptions were based on input-output tables produced by the Scottish Government. The Scottish tables were used because they offer the most comprehensive source of this type of information available and provide a level of details not available for the English regions.

These tables show that 93% of Scottish household consumption takes place in the UK and 74% takes place in Scotland. There is no reason to expect that the proportion of household income that Scottish residents spend in the UK would be significantly different from the proportion that English residents spend in the UK so it was assumed that staff at the Universities would spend 93% of their income in the UK. The availability of goods and services within the Scottish economy is likely to be broadly similar to the availability of goods and services within a typical

²¹ ONS (2016), UK Annual Business Survey 2015 Provisional Results

²² Scottish Government (2016), Input-Output Tables 2013

English region so it was further assumed that staff would spend around 74% of their income in the Solent LEP area.

13.3 Innovation Support

13.3.1 Services to Businesses

The impact of the services that the Universities provide for business was estimated based on the assumption that the businesses that pay for these services would, on average, gain a 360% return on their investment. This assumption was based on the evaluation evidence summarised below.

In 2013, BiGGAR Economic undertook an evaluation of Interface, the agency responsible for brokering relationships between businesses (and other organisations) and universities in Scotland.²³ The connections that Interface made covered a range of different types of activity, from consultancy projects and access to equipment and facilities, to company sponsored PhDs. The BiGGAR Economics evaluation found that the costs to Interface's client of participating in the programme was £12.9 million and the direct benefit to the 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 in direct economic benefits.

This finding is similar to other studies done in similar areas. In 2009, PriceWaterhouseCoopers LLP undertook a study for the Department of Business, Enterprise and Regulatory Reform, which considered the impact of Regional Development Agency spending.²⁴ One of the aspects of this report considered GVA returns to business development and competitiveness interventions between 2002 and 2007. This found that investments in science, R%D and innovation infrastructure had achieved cumulative GVA equivalent to 340% minus the costs of the project, and that this could increase to 870% if long-term benefits were taken into account. This suggests that the 360% multiplier estimated by BiGGAR Economics could be conservative.

13.3.2 Continuing Professional Development

Professional training is one of the ways that the Solent Area Universities can translate research expertise into professional practice. By providing such training the Universities can enable people working in a particular field to gain access to the latest thinking in their field, which can have a direct effect on their productivity. This effect can be measured in terms of GVA.

By enabling workers to become better at their jobs this type of training can also have a long-term benefits for business performance. By enabling businesses to offer new and improved products and services it can help them to attract new customers and by helping them to improve productivity it can also enable them to deliver better value for money for clients. Ultimately improved business performance leads to business growth, which can be measured both in terms of GVA and employment.

13.3.3 Student Placements

As with any employee starting a new job, it will take some time for a student on a work placement to become familiar with his or her new environment, colleagues

²³ BiGGAR Economics (2013), Evaluation of Interface, the knowledge connection for industry

²⁴ PriceWaterhouseCoopers (2009), Impact of RDA Spending - National Report - Volume 1

and role. During this time the students role in their host organisation will be mainly observational in nature as they “learn the ropes” from more experienced members of staff. The length of time required for this process will vary from student to student and business to business but as a general rule of thumb is likely to be around three months. For this reason, it was assumed that placements of less than three months duration would not generate any quantifiable economic impact for the host business.

(This is of course not to say that short placements have no value. Even short placements are likely to generate benefits for students, who will gain valuable work experience and professional contacts. Short placements may also benefit host businesses as well by enabling them to “get to know” potential new recruits; however, these benefits are not quantified).

Once a student has been “shown the ropes” they would be able to make a substantive contribution to the host organisation but their lack of experience means that this contribution is likely to be significantly less than an experienced member of staff. (This difference is reflected in the gap that exists between entry-level graduate salaries and salaries for experienced staff in most industries).

In addition to this, student placement programmes typically require host organisations to provide some level of supervision and support to students on placements. Supervision is usually undertaken by an existing member of staff, therefore student placements usually have a knock on effect on the productivity of existing staff.

For these reasons it was assumed that the productivity of a student on placement might be around one third of the productivity of an experienced worker.

13.4 Incubators

As discussed in Section 5.4, best practice dictates that in assessing the impact of an intervention it is important to consider the counterfactual - i.e. the situation that would have existed if the intervention had not occurred.

If the Universities did not exist then it is possible that some of the businesses that have been supported by their incubator facilities would have either chosen to locate elsewhere instead or have experienced different levels of growth. It was therefore necessary to account of this counterfactual scenario in estimating this impact.

Ideally, evaluation evidence relating specifically to the incubators considered would have been used to account for the counterfactual. However, at the time of writing no such evidence was available so it was necessary to rely on evidence from elsewhere. At the time of writing, one of the most comprehensive sources of evidence available was a review commissioned by the UK Government.²⁵ The purpose of this review, which included a review of academic literature published since 2000, was to identify models of incubation that have the greatest impact on building high-growth, innovative firms.

²⁵ NESTA (2011), *Incubation for growth: a review of the impact of business incubation on new ventures with high growth potential*

One of the studies cited in this report was a major European research study undertaken in 2002,²⁶ which suggested that:

- 16.9% of business incubator tenants felt that the support that they had received was "not important";
- 60.6% felt that it was "important"; and
- 22.5% felt that it was critical.

It is reasonable to assume that if incubator facilities were not available then all of the tenants who felt that the support was critical and some of those who felt it was very important would not exist. It is impossible to know what proportion of the "important" group would not exist so for convenience it was assumed to be 50%. This implies that overall the impact of any given business incubator might be around 50% smaller if the business incubator did not exist (i.e. $16.9\% + 50\% \times 60.6\%$). It was therefore assumed that, at the UK level, if the Universities did not exist the impact of the businesses that have been supported would be 50% smaller than it is now.

At a more regional level, it is highly unlikely that companies supported in incubation facilities would exist in the region, without the presence of the Universities, especially given the shortage of office in areas such as Portsmouth. Therefore, it was assumed that the additionality of the incubators at the Solent LEP area level would be 75%.

²⁶ CSES (2002), 'Benchmarking of Business Incubators.' Sevenoaks: Centre of Strategy and Evaluation Services