

# WIDER ECONOMIC AND POLICY BASE

## **Foreword September 2018**

The Government's Industrial Strategy white paper was published in November 2017 following an extensive engagement and consultation exercise between Government and its partner agencies of business and industry, (& their representative bodies) the higher and further education sector and public institutions totalling almost 2,000 responses to the initial green paper exercise in 2017.

Reflecting this engagement Bucks Thames Valley Local Enterprise Partnership (BTVLEP) were delighted to be invited, with neighbouring LEP's within the Oxford – Milton Keynes – Cambridge Growth Corridor to be one of the three (x3) trailblazer LIS area in England. This document therefore sets out our evidence base of the BTVLEP economy, key assets and propositions that can drive sustainable and inclusive growth and productivity that contributes to the long-term prosperity of both the LEP and national economy. The national Industrial Strategy reflects this engagement, allied policies to ensure the UK economy as a whole becomes both more productive and a competitive edge.

This document set out the evidence base on which our long-term interventions are planned and the approach we will put in place to ensure inclusive and sustainable growth and productivity for all Buckinghamshire businesses and residents, thus ensuring that the x 5 foundations are aligned with Bucks TV LEP 5 propositions where we have competitive advantage.

This document provides the evidence for the Buckinghamshire Local Industrial Strategy (LIS), in effect this forms a local chapter of the Government's national Industrial Strategy. The LIS will also exploit Buckinghamshire's location at the centre of the Oxford – Milton Keynes – Cambridge Growth Corridor. The BTVLEP LIS will set out an ambitious programme of activity to ensure that the county's economic assets contribute more to both the national and local economies. It will be a key feature in the family of strategies covering the Oxford – Milton Keynes – Cambridge Growth Corridor.

We are clear that the Buckinghamshire LIS will focus on how to strengthen and exploit the county's most important economic assets, assets that are distinctive to Buckinghamshire and are significant nationally and internationally. It will identify action to develop those assets and secure maximum benefit from them for the national and local economies to raise productivity and support growth. The LIS and the process by which it is produced is intended to raise the profile of Buckinghamshire, Buckinghamshire businesses and its economic assets and potential. This reflects the growing economic importance of the area within the country's productivity puzzle.

# THE BUCKINGHAMSHIRE THAMES VALLEY LEP ECONOMY

## Overview

Buckinghamshire has a growing economy. Buckinghamshire lies at the heart of the Oxford – Milton Keynes – Cambridge Growth Corridor, one of the UK's key growth regions with neighbouring London and the UK's international gateway at Heathrow close by. The area has a dynamic and resilient employment base driven by a strong SME business community. Alongside much of the UK over the past 30 years the area has witnessed a decline in many traditional industries such as printing, furniture production and to a lesser degree agriculture. These have however been replaced by new enterprises including digital services, film and TV production, life-sciences and high-performance engineering. Productivity in the area remains strong but is not without threat of our changing industrial structure. By supporting the conditions for modern economic growth, we must cultivate our leading business sectors and wider economic ecosystem.

In 2016, there were 234,500 employee jobs in BTVLEP area a rise of 26,000 net jobs compared with 2010 representing a 12.5% increase. Moreover, the economic activity rate (a measure of the numbers of people in work of working age) is amongst the highest in the UK with 81.9% of residents in work in March 2018 compared with 81.3% in the south east region and 78.4% in the UK as a whole, indicative of a thriving local economy.

Welcome though these figures are, we cannot be complacent, and finer grain detail is required. Understanding where growth is happening, likely trends in automation, future employment patterns and how the rise of the gig economy over the next few years will be central to improving productivity levels and capacity for future growth. We must recognise the challenges and continue to be determining how the BTV economy can be supported to move forward to deliver sustainable and inclusive growth for our residents and businesses.

This evidence base therefore identifies the major sectors and capabilities operating locally that have growth potential viewed within the context of the governments national Industrial Strategy's 'Foundations of Productivity' and 'Grand Challenges'. The overall aim will be a Local Industrial Strategy that identifies the key priorities for investment (our propositions) and the challenges to be addressed (the drivers) in order to secure maximum benefit for Buckinghamshire.

This specific evidence base whilst focussed on the BTVLEP area should also be seen in the context of the Oxford – Milton Keynes – Cambridge Growth Corridor in terms of:

- Contributing to and marshalling the added value of the corridor

- Focussing on economic strengths which span the corridor as a whole
- Maximising the impact of economic strengths or assets which are sufficiently important to warrant attention at this level
- Addressing cross boundary issues which cannot be addressed through normal joint working between neighbouring LEPs or councils.

## THE EVIDENCE BASE

### The current labour market in BTVLEP area

Within Buckinghamshire LEP, employment is relatively evenly spread across the 67 Middle Level Super Output Areas (MSOA) sub-districts of the BTVLEP with just 2 MSOA's (Wycombe and Aylesbury) have more than 10,000 employees, correspondingly x 5 have less than 1,000. Wycombe and Aylesbury districts contain 69% of all jobs; Wycombe has a notably 'dense' labour market and employee base compared to the other three district areas.

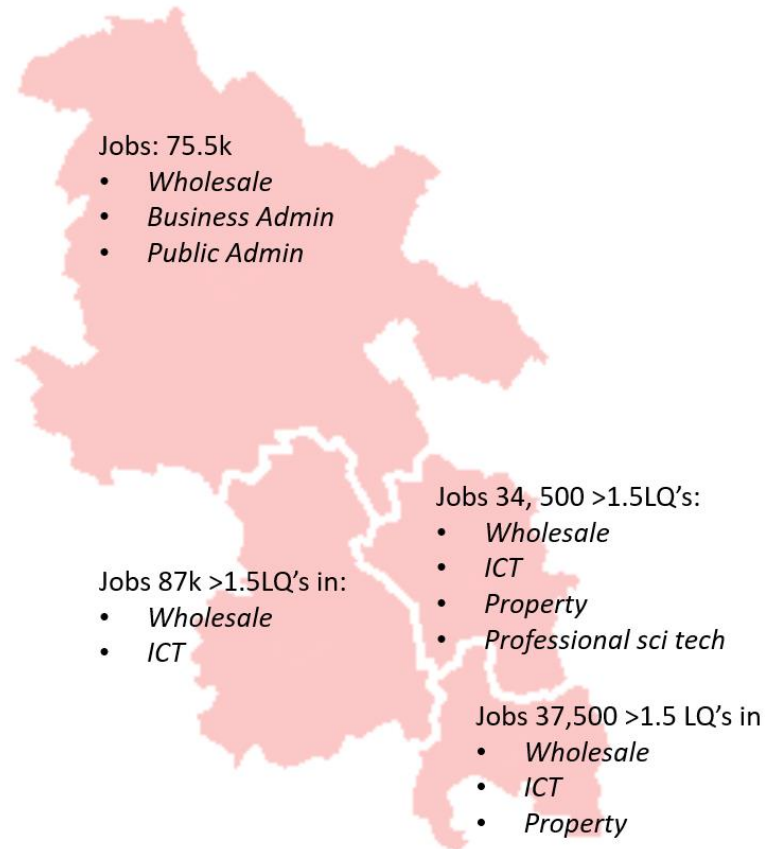
111,049 BTVLEP residents work in BTVLEP, meaning there is a net in-commute of more than 50% - i.e. over half [52.7%] of jobs are filled by residents from other areas.

Levels of residents commuting out of the county are high, with employment opportunities spread across surrounding areas including Milton Keynes, Oxfordshire and London.

Three of four areas (excluding Aylesbury) have sectors with distinct Location Quotients of more than 1.5. A 'Location Quotient' (LQ) measures the concentration of a particular industry or sector in an area compared with the UK as a whole. A LQ of more than 1.0 indicates that the area has a higher percentage of employees in that sector than UK, with any LQ above 1.5 would be classed as significant. A LQ can therefore be used to consider the relative concentration or specialisation of certain industries and begin to unpick the industrial capability of an area. This map indicates both the total numbers of jobs in the four districts and the 3 districts and sectors with LQ's above 1.5.

These sectors are:

- Wholesale
- ICT
- Property



- Professional Scientific and technical.

The ICT quotients identified in the map are influenced by London spill over, in 3 of the 4 districts (excluding Aylesbury). The extent of inward commuting and the skills pool of London suggest that many workers commute into BTVLEP for this sector in particular serviced by the road and rail network in the area.

The strength of the wholesale sector across the area in the area is reflected by the availability of land and proximity to the Greater London conurbation. With regard to the logistics sector this is favoured by locations close to major freight and transport infrastructure with Wycombe and Aylesbury having higher concentrations suggesting strong relationships with logistics in Oxfordshire, MK and South Northamptonshire exploiting the A41 and A413 connections, as well as M4 westward connections and links to Slough via the M40. Further research into the sector at a corridor level is merited given the infrastructure proposals highlighted by the National Infrastructure Commission.

The Commercial property sector is particularly concentrated in South Bucks and Chiltern, positioned to capture overspill from London and an interlocutor between Londoner and Home Counties property markets.

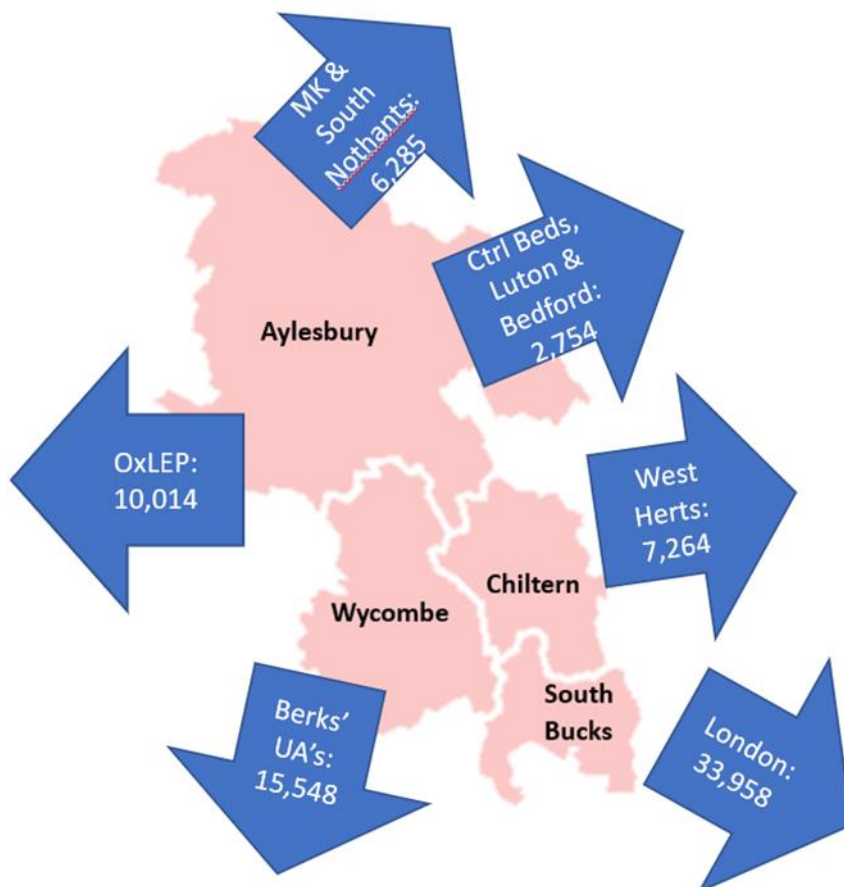
With regard to the relative costs of commercial property Knight Frank quarterly report commercial around the M25 noted that during quarter 2 2018 the relative cost of Grade A office / B1 use class was £59.00 psf was £59.00 in Hammersmith, £38.00 psf in Reading and £33.00 psf in Watford and £32.00 psf in Oxford. It is reasonable therefore to assume that in Buckinghamshire similar commercial workspace in the order of £30-35.00 about 50-60% the costs of Central London. (CHECK WITH RW IF HE HAS PROPERTY MARKET STATS)

Source: <https://content.knightfrank.com/research/63/documents/en/m25-quarterly-q2-2018-5718.pdf>

The professional sector (including legal and accountancy jobs, for example) has high numbers of businesses, but lower numbers of employees. In Aylesbury this translates into a below average employment LQ. In Chiltern and to some extent South Bucks the LQ is high (>1.5 in Chiltern), suggesting a very mature knowledge economy in Chiltern in particular. This level of very dense professional and knowledge services reflects the types of factors that attract high productivity growth businesses to cluster.

Within this sector It is likely that many of these sole traders are mature age people who have set up their business following significant employment and experience in the sector (the so called 'opportunity entrepreneur'). Understanding how this shift to the next generation will be important for the sustainability of the Bucks economy.

The location of Buckingham within the country's economic engine dictates that there will always be a high incidence of outward commuting of residents. With neighbouring concentrations of business and employers in London, Heathrow, the M4 & M3 corridor as well as Oxford and Milton Keynes almost 1 in 2 of Berkshire's workforce is employed elsewhere. Residents commuting to work outside of local travel to work areas (TTWA) often command high remuneration levels and terms of employment. The semi-rural nature of the county additionally appeals to the many highly qualified professional who fall into this cohort. With digital technology and remote working allied to high costs of commercial accommodation in these areas mean there may be opportunities to develop workspace for mobile / agile employees (co-working and touch-down models) in town centres and associated facilities that benefit both the local economy through the multiplier effect and environmental improvements through reduction in commuting and journey down-times.



The figure above notes the numbers of Buckinghamshire residents who work outside of the county, the destinations dominated by London and Berkshire who together account for approximately 50,000 of the 80,000 or so out commuters. Travel to work patterns of London and Berkshire therefore account for almost 2/3rds of out-commuting residents. The commutes may travel further to secure high salary levels with average wage rates in Inner London being the highest in the UK.

Source: <https://www.nomisweb.co.uk/reports/lmp/lep/contents.aspx>

While BTVLEP outstrips its regional comparators in terms of productivity and is the 3<sup>rd</sup> highest among the 38 LEPs and is one of only 9 LEPs where productivity is above that of England's, GVA per hour has been below the UK average since 2012. As the number of hours worked per work has risen, productivity levels have declined which suggests that new work is of lower economic value (per hour worked) than existing work. This is a challenge, which the LEP will need to address through the LIS.

(Source: ONS, 2018)

There are a number of business sectors that are mainstays of any local economy, such as public sector services, business administration and the wholesale and retail services sectors that are 'employee intensive'. These sectors' Gross Value Added (GVA) figures compare unfavourably with our target sectors identified in this LIS. For example, although wholesale and retail (comprising businesses operating in the distribution, transport, food and accommodation sector) forms the largest sector in terms of total numbers of employees (accounting for 29% of total employment in Buckinghamshire), its GVA measure at 21% is low in comparison

There are a number of reasons for these relatively low levels of GVA in the sectors noted, these include, lower entry level qualifications & skills requirements, low salary levels and lower levels of capital investment. These are all areas that require attention and feature as drivers in the emerging LIS.

The importance of the sectors locally will however continue given that the area is part of the largest consumer market in Europe (i.e. London and the south east). The propositions in this LIS that include support for 'enabling business sectors' such as ICT and electronics that drive productivity improvements across the whole economy and any opportunities for cross sector collaboration will be explored to benefit all local sectors.

### **Education and skills in Buckinghamshire**

To enable business sectors, it will be essential that people in Buckinghamshire have the skills to start businesses, which will in turn improve the economic vitality for the area. We are proposing that to enable growth and productivity will require a programme of education revolution.

The NIS identifies the continuing challenges of meeting our business needs for talent, skills and labour. It acknowledges that insufficient attention has been paid to technical education and proposes the establishment of "a technical education system that rivals the best in the world, to stand alongside our world-class higher education system". It emphasises the importance of closer involvement of employers in the education

system, including delivering the commitment three million apprenticeship starts by 2020 and address particular shortages of STEM skills.

BTVLEP has already set a vision “that the Buckinghamshire economy will be a vibrant, balanced and resilient economy, underpinned by innovative, high-value, globally-orientated firms”. Skills for growth will be important e.g. STEM, higher apprenticeships.

BTVLEP has identified four key themes and priorities in the Buckinghamshire Skills Strategy based on the current evidence base for Buckinghamshire. They are:

- Developing our future workforce - improve work preparedness of our young people and ensure they are able to make informed career choices.
- Develop a robust supply of skilled ambitious talent for our priority growth sectors and enterprise zones – creative industries, digital industries, high performance engineering, life sciences, food and drink manufacture, space industries.
- Address widening skills gaps by supporting lifelong learning.
- Actively support skills development and recruitment in the health and social care, construction, tourism, service and public sector.

Children are at the heart of BCC Strategic Priorities to keep Buckinghamshire thriving and attractive, safeguard vulnerable children and create opportunities and build self-reliance. This will rely on local employment and matching industry demand with local supply. BCC has also acknowledged that the county’s Post 16 education and training offer needs to help address the local growth agenda.

There are a number of key skills issues (highlighted in BTVLEPs 2017 skills strategy) that will need to be addressed in order to help maintain Buck’s advantage and contribute to national productivity. These include:

- The brain drains of skilled people who commute to London. Buckinghamshire has a comparatively small proportion of people aged 24-30, being in the bottom 25% of all Local Authorities for this measure. These issues may pose a challenge to the unfolding growth agenda in Buckinghamshire, which will be predicated upon the availability of an appropriately skilled workforce.
- Buckinghamshire has a higher proportion of residents holding qualifications at NVQ levels 2 and 3 or higher than the country as a whole. Buckinghamshire has a very well-educated population with 35.6% of working age residents holding degree level qualifications, the fourth highest level of any county council area. Whilst this is good news, it is only an advantage if sufficient high-quality jobs are created to retain the talent within the county.



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The LIS acknowledges these key challenges will need to be addressed and overcome to satisfy the demands of the current and future economy of BTVLEP.

### Current Assessment & Future Projections of the BTVLEP Economy

We are targeting investment in five areas and in order to understand our rationale for choosing the sectors, the following section provides an analysis of the current position and future projections providing the evidence base for our propositions.

### Employment Trends

The table below provides a comparison of the total number of employees in various sectors between 2010 and 2016 indicating a net job increase figure of 26,000 (12.5%) over the 6-year period.

Industry of employment	2010	2016	Growth	Percent
14 : Business administration & support ser	14,000	22,000	8,000	57.1%
10 : Information & communication (J)	11,500	16,000	4,500	39.1%
8 : Transport & storage (inc postal) (H)	5,500	7,500	2,000	36.4%
2 : Mining, quarrying & utilities (B,D and E)	1,875	2,500	625	33.3%
6 : Wholesale (Part G)	16,000	20,000	4,000	25.0%
9 : Accommodation & food services (I)	12,000	14,000	2,000	16.7%
<b>BTV LEP TOTAL</b>	<b>208,500</b>	<b>234,500</b>	<b>26,000</b>	<b>12.5%</b>
12 : Property (L)	4,500	5,000	500	11.1%
17 : Health (Q)	24,500	26,500	2,000	8.2%
16 : Education (P)	20,000	21,500	1,500	7.5%
13 : Professional, scientific & technical (M)	21,500	23,000	1,500	7.0%
1 : Agriculture, forestry & fishing (A)	150	160	10	6.7%
3 : Manufacturing (C)	16,000	16,500	500	3.1%
7 : Retail (Part G)	20,000	20,500	500	2.5%
4 : Construction (F)	12,000	12,000	0	0.0%
5 : Motor trades (Part G)	4,750	4,750	0	0.0%
18 : Arts, entertainment, recreation & other	12,000	11,000	-1,000	-8.3%
11 : Financial & insurance (K)	5,000	4,500	-500	-10.0%
15 : Public administration & defence (O)	7,500	6,000	-1,500	-20.0%

Of particular note is that knowledge intensive business services (KIBS) companies have generated disproportionate employment growth relative to the level of business

formation. This may relate to the inward-location of some larger companies, or high levels of domestic expansions in these sectors, or both. Between the 2 sectors, business administration and support, and Information and communication sectors they have in total generated 48.1% of total employment growth in the period.

Professional Scientific and technical firms tend to be smaller and often micro businesses. They also tend to have higher levels of human capital (qualifications), be innovation active and use 'new' technologies with greater levels of prevalence.

It should also be noted that employment data lags behind business data by one year, however with an additional 1,645 businesses generating 1,500 professional scientific and technical employee positions in the period. Critically there is a critical mass of specialist 'knowledge intensive business service' (KIBS) businesses that are fundamental to drive growth in our proposition sectors. This shows that Buckinghamshire has considerable strengths in knowledge-intensive services, which is further substantiated by the proportion of high-tech employees working in service jobs.

High technology in the broadest – Eurostat compiled definition – places BTVLEP fourth on a list of LEPs for higher concentrations<sup>1</sup> employed in high-tech industries at a national level and above neighbouring corridor LEPs. Buckinghamshire's high-tech sector employs 24,545 people, which accounts for 10.2% of total employment. that the largest portion of this local specialisation is made up by computer consultancy activities (6,500 employees), followed by engineering activities and related technical consultancy (3,000 employees), computer programming activities (2125 employees), and other telecommunications activities (1,750 employees) and other information technology and computer service activities (1,625 employees). This suggests that a large part of BTVLEPs high-tech locational advantage is service-based.

Data at a NUTS2 gives an idea of where comparative strengths might lie for the Berkshire, Buckinghamshire & Oxfordshire NUTS2 area (which includes Milton Keynes as part of ceremonial Buckinghamshire).

Berkshire, Buckinghamshire and Oxfordshire was the NUTS2 area ranked top in Europe in 2017 for share of employment in High-technology sectors (high-technology manufacturing and knowledge-intensive high-technology services) but with strength very much drawn from services. Bucks-Ox-Berkshire ranks 3rd in Europe for Knowledge-intensive high-technology services (and would rank 1st in Germany) but only 32nd for high technology manufacturing (and would be 12th in Germany – 3rd in UK- behind Bedfordshire & Hertfordshire and Cheshire). Bucks-Ox-Berkshire would rank last in NUTS2 regions in Germany for proportion employed in medium high-technology manufacturing.

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<sup>1</sup> Concentration/ specialisation is measured using location quotients whereby a value greater than 1 indicates that there is a higher concentration (proportionally) of that industry compared to the national level.

Bucks-Ox-Berkshire ranks third in the UK for proportion employed in Information and Communication, would be first in Germany and third across Europe.

Like the Silverstone Technology Cluster, the corridor area has the opportunity to draw on its distinctive local labour markets. The evidence indicates that Buckinghamshire has a locational advantage in service-based high-technology industries and certain aspects of more knowledge-intensive manufacturing.

The above suggests that the area has the potential to grow within the identified proposition sectors. The lagging behind of employee numbers as compared to business formations can be viewed in two ways. It is either the new companies are single owner/employee type, or creating new product/service trading arms staffed with existing employees. In both scenarios there is an opportunity to create more employment opportunities if the demand continues to increase. However there might be a need for providing targeted business support, particularly to the owner/employee type of companies, focusing on growth strategies and managing human resources.

All identified proposition sectors/assets, particularly digital, high tech, space and med-tech can become employment generation catalysts if their interaction with subcontractors and the supply chain is channelled to reflect and accommodate companies with more internal capacity, rather than single employee entities. This can be achieved with direct support from the LEP and promoting ideas such as sector collaboration, consortia setting, franchising, etc.

### **Business Formations and Starts**

Analysing the trends in business formation and start ups assists policymakers understand the relative buoyancy of the local economy, high levels of start ups are generally a good indicator of a thriving economy. The sectors in which these businesses are formed in provides a further indicator if these start ups are in high growth and productive sectors.

In the BTVLEP area there has been a overall net business formation of 5,185 enterprises between 2010–17 (a rise of 17.9%). Of this total 3,245 enterprises ( 62.6%) are business formations in private sector KIBS<sup>2</sup> [we use the definition of ‘professional scientific and technical (+1,645); Information and Communication (+890); Business administration and support’ (+710)].

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<sup>2</sup> Typically, these sectors drive productivity gains and are higher value, resulting in net benefits to the treasury. Market capture and growth serve as initial proxies for (thus far) ‘hidden industrial capabilities’ which confer market advantage and growth impetus. These can be analysed further with more detailed insight into sub-sector clusters.

BTVLEP also had significant numbers of these KIBS businesses in 2010, and so despite the high total additional numbers from KIBS, several other sectors have grown by higher than average percentage figures despite much lower total numbers, as indicated in the table below.

Industry	2010	2017	Growth	Percent
2 : Mining, quarrying & utilities (B,D and E)	90	155	65	72%
17 : Health (Q)	1,120	1,575	455	41%
12 : Property (L)	995	1,350	355	36%
<b>10 : Information &amp; communication (J)</b>	<b>2,775</b>	<b>3,665</b>	<b>890</b>	<b>32%</b>
<b>14 : Business administration &amp; support services</b>	<b>2,335</b>	<b>3,045</b>	<b>710</b>	<b>30%</b>
<b>13 : Professional, scientific &amp; technical (M)</b>	<b>5,605</b>	<b>7,250</b>	<b>1645</b>	<b>29%</b>
8 : Transport & storage (inc postal) (H)	750	940	190	25%
11 : Financial & insurance (K)	540	675	135	25%
16 : Education (P)	670	815	145	22%
<b>BTV LEP TOTAL</b>	<b>28,990</b>	<b>34,175</b>	<b>5185</b>	<b>18%</b>
1 : Agriculture, forestry & fishing (A)	1,015	1,150	135	13%
9 : Accommodation & food services (I)	1,225	1,355	130	11%
4 : Construction (F)	3,325	3,640	315	9%
15 : Public administration & defence (O)	180	195	15	8%
5 : Motor trades (Part G)	840	895	55	7%
3 : Manufacturing (C)	1,405	1,485	80	6%
7 : Retail (Part G)	2,335	2,325	-10	0%
6 : Wholesale (Part G)	1,440	1,410	-30	-2%
18 : Arts, entertainment, recreation & other services	2,360	2,250	-110	-5%

The table above indicates that business formation and entrepreneurial capacity in BTVLEP are high, stemming from high levels of human capital and locational factors. The extent to which this translates into more realised 'market capture' in terms of employment, employment growth and productivity per worker growth can be triangulated to provide insight into the areas' ability to 'leverage' its industrial strengths and capabilities<sup>3</sup>.

- Mining and Quarrying +72%
- Health +41%
- Property +36%
- Finance & Insurance +25%

<sup>3</sup> The fact that KIBS growth is driving business formation is useful: if it is also strongly driving employment formation then it is likely that we will be able to pick up the effects in terms of productivity changes. These productivity changes can manifest in the form of overall area GVA being driven by sector growth; and/or where there is strong niche sub-sector growth we can look at within-sector productivity-per-worker. Where this is growing alongside actual employment numbers we can directly infer 'specialised industrial capability'. This method of identification will not reveal all industrial capabilities, many will remain hidden. It does however identify growth drivers and create a basis for follow up investigation. We will identify the effects [where they manifest] of industrial specialisms, and then attempt to understand the nature of them.

- Transport and storage +25%
- Education +22%.

Of particular interest are the 3 sectors highlighted in bold, these businesses generate high productivity levels, associated with the growth sectors as per our propositions. It must be noted that Business Administration and Support Services, though not included as one of our Propositions, can contribute towards increased productivity, if new technologies (such as AI, for example) are applied and embraced within the supply chain of the other high growth sectors.

One additional point from the table is that the BTVLEP has not seen strong performance amongst 'place specific' local trades and services. To some extent this raises the issue of the polycentric and rural nature of the BTVLEP economy, and a potential need to strengthen local centres, and internalise the additional spend and value in the economy.

In order to sustain and further grow business formation action needs to be taken to:

- Ensure an adequate supply of small business premises and move on accommodation
- Ensure that broadband and digital services are 'fit for purpose' in terms of upload and download speeds
- Ensure that education and training providers equip new entrants to our growth sectors with the current and future skills required
- Identify and promote key commercial & employment areas that provide Grade A business accommodation to retain existing businesses and attract relocators and mobile firms, from for example, overheating areas of London
- Ensure that new housing developments and the associated growing population provide the right mix of transport, education, leisure and commercial infrastructure services to promote sustainable and balanced communities.

Business administration and support services is a sector with projected growth of 30% and we must acknowledge its importance to the local economy and employment potential. However, this sector, in its supportive role, in principle delivers growth if the economy is buoyant, which creates demand for these services. We can argue that there is enough capacity and skills level to respond positively by the sector. What we need to be vigilant about is the future new skills requirements, particularly by the high tech and

health and medical sectors, and how this might have an effect on the type and level of demand for business and administrative support.

We must ensure that the SMEs providing these services have training opportunities and the capacity to meet this demand. Attention will be needed to the training providers offer and how it reflects the changes in the economic environment. This is aligned with the identified four drivers (skills, digital, living labs and commercialisation of ideas), which play an enabling role across the economy. If the LEP is to achieve growth it must equip this particular sector with the required level of expertise and also provide opportunities to apply it accordingly. For example, the commercialisation of an idea can take years to achieve, unless there is direct support to push this through the regulations and the legal framework.

The following table identifies a set of selectively-expanded professional scientific and technical KIBS sub-sectors that have driven business formation growth.

Industry	2010	2017	Growth	Percent
72110 : Research and experimental development on biotechnology	0	15	15	n/a
74901 : Environmental consulting activities	15	45	30	200%
71112 : Urban planning and landscape architectural activities	10	25	15	150%
69202 : Bookkeeping activities	45	95	50	111%
71121 : Engineering design activities for industrial process and prod	65	135	70	108%
69101 : Barristers at law	10	20	10	100%
69203 : Tax consultancy	10	20	10	100%
72200 : Research and experimental development on social sciences	5	10	5	100%
74201 : Portrait photographic activities	10	20	10	100%
74300 : Translation and interpretation activities	5	10	5	100%
<b>74909 : Other professional, scientific and technical activities (r</b>	<b>260</b>	<b>485</b>	<b>225</b>	<b>87%</b>
70221 : Financial management	105	185	80	76%
71122 : Engineering related scientific and technical consulting activi	125	205	80	64%
<b>74100 : Specialised design activities</b>	<b>195</b>	<b>295</b>	<b>100</b>	<b>51%</b>
71111 : Architectural activities	100	145	45	45%
70210 : Public relations and communication activities	55	75	20	36%
74202 : Other specialist photography (not including portrait photogra	15	20	5	33%
<b>BTV LEP 'ALL KIBS' TOTAL</b>	<b>5,215</b>	<b>6,820</b>	<b>1605</b>	<b>31%</b>
71200 : Technical testing and analysis	35	45	10	29%
<b>70229 : Management consultancy activities (other than financi</b>	<b>2,615</b>	<b>3,305</b>	<b>690</b>	<b>26%</b>
70100 : Activities of head offices	75	90	15	20%
69201 : Accounting, and auditing activities	495	570	75	15%
69109 : Activities of patent and copyright agents; other legal activitie	70	80	10	14%
74902 : Quantity surveying activities	80	90	10	13%
72190 : Other research and experimental development on natural sc	65	70	5	8%
71129 : Other engineering activities (not including engineering desig	530	560	30	6%
69102 : Solicitors	125	130	5	4%
74203 : Film processing	10	10	0	0%
74209 : Other photographic activities (not including portrait and othe	85	75	-10	-12%

Those sub-sectors highlighted in green indicate the potential presence or emergence of more specialist industrial capabilities, with potential interrelationships between several.

(The table indicates some level of supply-chain-ecosystem) though not all firms will be 'specialists' benefitting from this.

Where we have highlighted sectors such as management consultancy - a larger and potentially more 'generic' KIBS service - sub-elements of this sector are likely to contain specialist knowledge that supports productive links between some other highlighted activities. This is likely to involve larger (i.e. cross-cutting) firms, and some smaller niche specialists. As the largest and fastest scaling sub-sector, this warrants some bespoke insight, which will support the basis for further targeted investigation. It will be necessary to establish the specialism of the Management consultancy services and encourage/facilitate targeted engagement with the proposed growth sectors.

The space sector, particularly upstream is of significant importance to the future economic performance of our LEP. Westcott as a nationally recognised facility for space propulsion testing, and the associated sites and facilities is a major asset, which can provide both the national hub for innovation and new technologies and contribute to addressing the grand challenges. Despite the fact that employee numbers are not growing proportionately to the business formations in the sector, the link to increased productivity and application of new technologies, AI and machine learning will be central to the solutions required under the Grand Challenges and therefore support to upscale and commercial ideas is key. The LEP can significantly benefit from this sector, not only in economic terms, but also in national ranking and recognition of its strategic positioning as a lead future technology conglomerate.

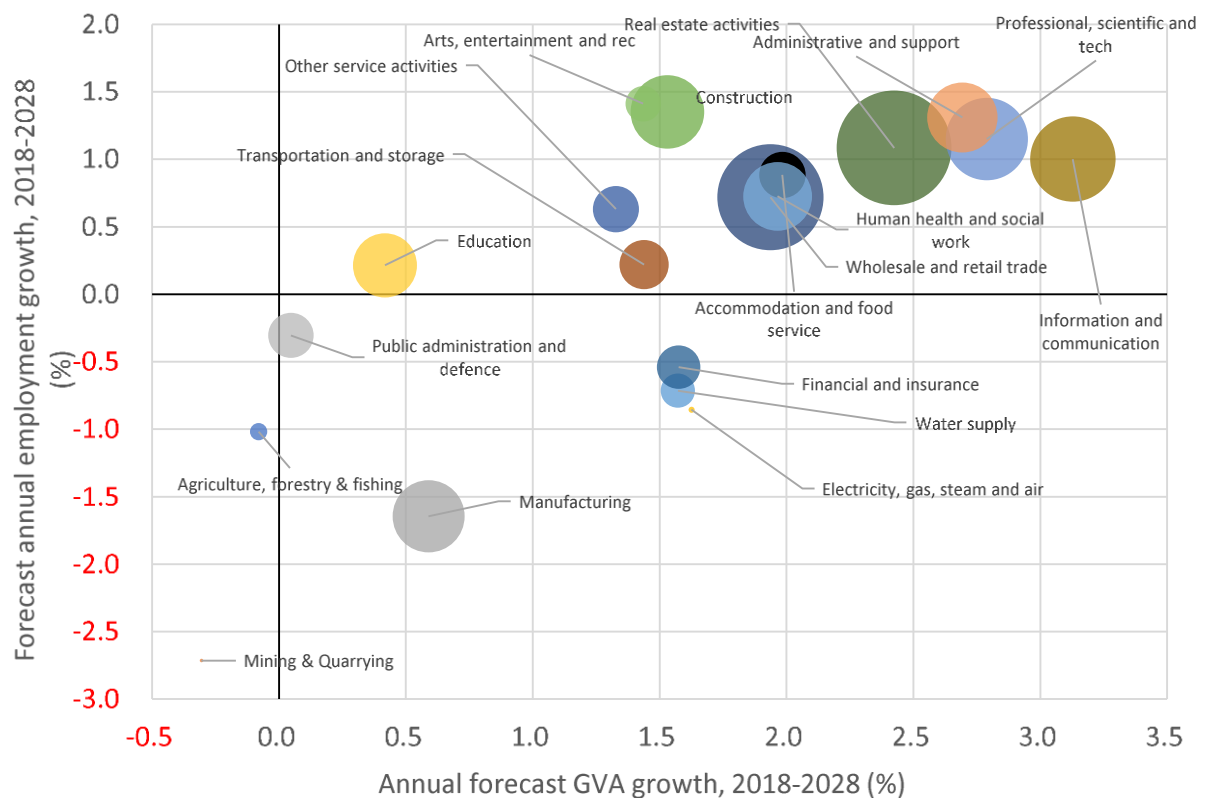
It is necessary to carry out some forecasting and profiling of the proposed growth sectors to establish the potential 'growth ceiling', which might depend on internal capabilities and capacity, and external influences, such as the outcome of BREXIT, the future relationships with BRICS countries and the volatility of the finance sector, including cryptocurrencies and blockchain solutions and applications.

### **Gross Value Added (GVA)**

Gross Value Added (GVA) measures how much money is generated through goods produced and services delivered. BTVLEP outstrips its regional comparators in terms of productivity. The LEP is the 3<sup>rd</sup> highest among the 38 LEPs. Buckinghamshire is one of only 9 LEPs where productivity is above that of England's and is only one of only 48 NUTS3 regions to better UK productivity.

Currently, Gross Value Add (GVA) per hour worked 16 per cent above the national level, however, Buckinghamshire's productivity growth in 2015 failed to match that recorded across the country as a whole for a fourth successive year and for the 8th time in the last eleven years.

## Bucks growth by sector GVA and employment



Source: Oxford Economics analysis of BRES and ONS Regional Accounts

The graph above is a forecast of the GVA sectoral growth for the next 10 years, our specialisms in Information & Communications and Professional Scientific and Technology towards the top right of the graph are the knowledge intensive employment sectors that provide BTVLEP with a competitive advantage to drive growth and productivity levels. The education revolution and investment in digital infrastructure will need to respond to these predicted changes in skills the demand for skills.



## THE KEY ROLE OF DIGITAL TECHNOLOGY & SKILLS

Digital Technology and its applications impact on all sectors BTVLEP are in an advantageous position in that employees within our ICT and professional sectors are driving this digital growth (or vice-versa) according to our sub-sector data.

In terms of current employment, we have used the ONS definition of the digital sector taking the standard three-digit Standard Industrial Classification (SIC) headings and further disaggregated to the 5-digit SIC level. In order to interpret the totals, it is useful to look at both the totals of digital employment, and the relative concentrations of digital within the areas. Wycombe and Aylesbury each contain over twice as many employees as South Bucks and Chiltern – do they contain twice as many digital employees, and where has recent growth been concentrated? This will be a subject to further investigation and discussions at local levels.

The table below shows the number of employees and percentage of BTV employees in total, in the digital sector and in terms of digital growth 2010 - 2016.

BTV district	Total employees 2016		Digital Employees 2016		Digital Growth 2010 - 2016	
	number	percent	number	percent	number	percent
Aylesbury Vale	75,500	32%	<b>3,500</b>	19%	<b>1,125</b>	16%
Chiltern	34,500	15%	<b>2,500</b>	13%	<b>625</b>	9%
South Bucks	37,500	16%	<b>2,125</b>	11%	<b>1,125</b>	16%
Wycombe	87,000	37%	<b>10,500</b>	56%	<b>4,000</b>	58%
<b>Column Total</b>	<b>234,500</b>	100%	<b>18,625</b>	100%	<b>6,875</b>	100%

- Despite having 32% of employees, Aylesbury vale contains just 19% of total digital employment and 16% of the growth since 2010. Relative to the initial size of the labour market, Aylesbury's digital growth is the weakest of the BTV areas.
- Chiltern has the lowest number of employees of the BTV areas, but within that digital employment is not especially underrepresented. Growth is notably low in Chiltern, and this may to some extent also relate to the low initial digital presence.
- South Bucks has the second lowest total of employment, and the lowest level of digital employment. Growth in the digital sector has however been higher than the 2010 digital base would suggest, and the area
- Wycombe is the largest employment centre in BTV, and contains over half the digital employees (56%). The initial base also supports strong clustering and Wycombe is home to 58% of digital sector growth since 2010.

A combination of the current and future trends in the labour market and workforce in the BTVLEP area indicated in this section provides the background and context for our propositions within the forthcoming development of the Industrial Strategy as set put in the next section.

### Digital Sub sectors

The current employment *by sub-sector* across the four BTVLEP districts is shown in the table below.

Composition of Digital Employment in BTV districts 2016					
Industry	Aylesbury Vale	Chiltern	South Bucks	Wycombe	BTV
62020 : Computer consultancy activities	1,625	1,125	800	3,000	6,350
48510 : Wholesale of computers, computer peripheral equipment and software	110	110	800	2,250	3,270
62012 : Business and domestic software development	475	350	300	850	1,975
61900 : Other telecommunications activities	250	400	120	950	1,720
62090 : Other information technology and computer service activities	375	150	170	950	1,645
48520 : Wholesale of electronic and telecommunications equipment and parts	275	50	20	850	1,195
95110 : Repair of computers and peripheral equipment	100	25	25	500	650
26309 : Manufacture of communication equipment (other than telegraph and telep	5	150	0	300	455
26400 : Manufacture of consumer electronics	5	5	0	120	130
61200 : Wireless telecommunications activities	70	0	5	50	125
63110 : Data processing, hosting and related activities	40	25	10	50	125
26600 : Manufacture of irradiation, electromedical and electrotherapeutic equipme	100	10	0	10	120
63990 : Other information service activities nec	20	15	30	35	100
26120 : Manufacture of loaded electronic boards	10	5	0	80	95
26301 : Manufacture of telegraph and telephone apparatus and equipment	30	5	0	40	75
58290 : Other software publishing	30	10	10	25	75
62011 : Ready-made interactive leisure and entertainment software development	10	15	20	25	70
62030 : Computer facilities management activities	40	5	0	25	70
26200 : Manufacture of computers and peripheral equipment	20	10	15	20	65
26110 : Manufacture of electronic components	0	0	0	40	40
26702 : Manufacture of photographic and cinematographic equipment	10	0	25	5	40
61100 : Wired telecommunications activities	0	5	5	30	40
63120 : Web portals	0	0	5	15	20
61300 : Satellite telecommunications activities	10	0	0	0	10
95120 : Repair of communication equipment	0	5	0	5	10
63910 : News agency activities	0	0	5	0	5
26701 : Manufacture of optical precision instruments	0	0	0	0	0
26800 : Manufacture of magnetic and optical media	0	0	0	0	0
58210 : Publishing of computer games	0	0	0	0	0
<b>Column Total</b>	<b>3,500</b>	<b>2,500</b>	<b>2,125</b>	<b>10,500</b>	<b>18,625</b>

**NOTE: 1)** The far-right hand column reads vertically showing the BTV area in order of the top sub-sectors of digital employment. **2)** For each sector, the district employment ‘rank’ reads horizontally<sup>4</sup>.

<sup>4</sup> Wycombe contains the highest total employees in the top 9 sub-sectors; Aylesbury contains the highest total for ‘wireless telecommunications activities’; ‘manufacture of irradiation, electro-medical and electrotherapeutic equipment’; and ‘computer facilities management’

Wycombe contains the highest totals of digital employment, and in 2016 contained 56.4% of the digital employees in BTV. The relative specialisations of Wycombe across digital sub-sectors reflects closely the overall specialisations of BTVLEP.

Aylesbury contained the next highest share at 18.8%, but reflecting specialisation in some notable sub-sectors not following the pattern seen across the LEP overall. Though not containing the most employees, three sectors have higher concentrations:

- Wireless telecoms
- Data processing and hosting
- Computer facilities management
- Manufacture of irradiation, electro-medical and electro-therapeutic equipment.

The first three of these are potentially interrelated, and may link to the presence of the 5G Catapult centre location (note that much is recent employment growth since 2010).

The manufacture of medical equipment appears to be an inward investment from a single significant employer.

South Bucks and Chiltern both have smaller digital sectors. Relevant comparative specialisms include:

- Computer wholesale; and, 'other information service activities' in South Bucks.
- Manufacture of communication equipment.
- Both appear to have a location-related cluster of software publishing; and, (relatedly) ready-made interactive and leisure software. Both of which are (typically) specialist-skill and higher value sectors.

The following table shows the same employment sectors in terms of growth between 2010 and 2016, ranked in order of the percentage rate of growth over the period. It is these sub sectors characterised by strong growth that will provide the knowledge and skills to enable our propositions to deliver the growth and productivity improvements vital to the success of the economy.

Change in composition of digital employment in BTV districts 2010 - 2016						
Industry	Aylesbury Vale	Chiltern	South Bucks	Wycombe	BTV Growth 2010 - 2016	BTV % Growth 2010 - 2016
26701 : Manufacture of optical precision instruments	0	0	0	0	0	#DIV/0!
26800 : Manufacture of magnetic and optical media	0	0	0	0	0	#DIV/0!
95120 : Repair of communication equipment	0	5	0	5	10	#DIV/0!
61200 : Wireless telecommunications activities	65	0	5	50	120	2400%
26600 : Manufacture of irradiation, electromedical and electrotherapeutic equipment	100	5	0	5	110	1100%
62011 : Ready-made interactive leisure and entertainment software development	5	15	20	20	60	600%
62030 : Computer facilities management activities	40	0	0	15	55	367%
46510 : Wholesale of computers, computer peripheral equipment and software	60	-10	500	1875	2425	287%
95110 : Repair of computers and peripheral equipment	40	20	5	350	415	177%
61100 : Wired telecommunications activities	-5	5	5	20	25	167%
61300 : Satellite telecommunications activities	10	0	-5	0	5	100%
46520 : Wholesale of electronic and telecommunications equipment and parts	45	10	5	425	485	68%
62012 : Business and domestic software development	245	100	230	100	675	52%
62020 : Computer consultancy activities	675	425	225	750	2075	49%
62090 : Other information technology and computer service activities	125	30	20	350	525	47%
26702 : Manufacture of photographic and cinematographic equipment	-15	0	20	5	10	33%
63990 : Other information service activities nec	10	-10	25	-5	20	25%
61900 : Other telecommunications activities	-50	125	50	0	125	8%
26301 : Manufacture of telegraph and telephone apparatus and equipment	-10	-20	0	15	-15	-17%
63120 : Web portals	-15	0	5	5	-5	-20%
26309 : Manufacture of communication equipment (other than telegraph and tele	-145	25	0	0	-120	-21%
58290 : Other software publishing	20	-25	-5	-10	-20	-21%
26120 : Manufacture of loaded electronic boards	10	0	0	-40	-30	-24%
26200 : Manufacture of computers and peripheral equipment	5	10	10	-50	-25	-28%
63110 : Data processing, hosting and related activities	20	-50	10	-70	-90	-42%
26400 : Manufacture of consumer electronics	5	5	-25	-100	-115	-47%
26110 : Manufacture of electronic components	-15	0	0	-40	-55	-58%
63910 : News agency activities	-5	-5	0	0	-10	-67%
58210 : Publishing of computer games	0	0	0	-5	-5	-100%
<b>Column Total</b>	<b>1125</b>	<b>625</b>	<b>1125</b>	<b>4000</b>	<b>6875</b>	<b>59%</b>

We have to take into account that digital includes two very distinctive components; digital infrastructure, including broadband connectivity and speed and the businesses supporting and operating in this sphere, and the creative sector, producing content and supplying a range of associated services. Pinewood Studios act as the anchor and stimulator for future growth. However, we need to acknowledge the fact that there are barriers to be tackled on both sides of the spectrum. Providing a healthy, reliable infrastructure in terms of connectivity will enable the creation of more employment in the creative sector in order to reverse the trend of losing jobs in the sector.

To increase economic growth and productivity, a key underpinning requirement is to ensure that everyone has the basic skills needed for the current and future economy; this will require a boost in STEM (science, technology, engineering and maths) skills, together with the acquisition of digital skills and minimum numeracy and literacy skills. The LIS therefore needs to ensure that all agencies involved work with schools to promote the STEM-related careers that are essential components of the local economy. By ensuring this underpinning is in place the wider FE & HE education and training providers pick up the baton with a curriculum offer that provides the equips students with the vocational skills required by our businesses. This has been identified as a

central feature of the 'Education Revolution' driver, developing a new post-13 education offer.

BCC's education and skills strategy for Buckinghamshire 2018-2022 places explicit focus on post-16 provision and skills development. Part of this will involve "involve equipping young people with the knowledge, skills and experience to thrive in a modern economy". This will mean that curriculums are developed in accordance with the local economy and the educational sector will work closely with the business community. Buckinghamshire Business First, the Skills Hub, and WANNABEbucks.org will be important to encourage work readiness skills for young people.

The relative strengths of these skills, knowledge and attributes of an individual employee (their human capital) will vary but productivity of the employee and employer will be higher with higher levels of human capital, it is these business sectors where the Bucks LIS propositions are focussed.

An important aspect of considering the development of the future strategy is to be aware of the current challenges and barriers to growth and how these can be transformed into advantages and actions to grow productivity and perform better. There seem to exist an undercurrent of feel-good factor in economic terms, the notion of doing comparatively well in the overall UK economy. However, it is no secret that continuous efforts to increase competitiveness and readjust to the changing economic conditions ensures growth and combats stagnation.

We are aware of the challenges, detailed in the sections that follow. In order to meet those challenges and increase performance we are proposing sets of actions, which will be explored further and assessed by the stakeholders to agree a common platform for our efforts in the coming years.

## OUTLINING THE POLICY DRIVERS

### **The context**

The Government's Industrial Strategy sets out how the Government will seek to coordinate policies designed to deliver higher investment and productivity. These are ideas (R&D and innovation, people (education and skills), infrastructure (road, rail, housing and fibre & digital), business environment (finance, business support, inward investment) and places (regional growth). The IS has a focus on grand challenges (missions) major social needs that can give direction to private sector investment and help strengthen supply chains, these area artificial intelligence and data, clean growth, our ageing society and future mobility.

The BTVLEP propositions intend to strengthen the foundations of productivity thus developing a skilled, innovative and balanced local economy and address the grand challenges as set out. We propose to stimulate the widespread adoption of new technologies across businesses and organisations. The Buckinghamshire Thames Valley LEP Local Industrial Strategy (LIS) therefore sets out the areas' key economic assets and an associated series of propositions forming a testbed of ideas and innovations that can deliver long term transformational changes in businesses, people and place.

Our propositions set out in this LIS need to be viewed in the wider context of wider UK macro-economic and domestic policies that impact on areas and regions. Both demand side policies of fiscal (e.g. taxation and government spending) and monetary policies (interest rates), effect economic growth. Government policies to increase economic growth are focused on trying to increase aggregate demand (demand side policies) or increase aggregate supply/productivity (supply side policies) such as capital investment tax incentives, improving education and infrastructure which tend to improve productivity levels. There are also wider international policy drivers that impact on UK regions and areas such as the pound relative weakness against the euro and dollar a boost for UK exporters.

Policies surrounding local government finance, the health and care sector, the welfare system and education and skills all impact on local economies and are relevant to our propositions.

For example, business rate retention incentivises local areas to support the start-up of new businesses in their areas and therefore if we support the development of our space and high-performance technology (HPT) sector new businesses and 'spin-outs' from university and business research and development and innovation will positively impact on the amount of money in the local economy.

The Government pledge to increase the numbers of new houses constructed means that the new housing, particularly in the Aylesbury Vale garden town development scenario will both generate finance locally (through, for example the New Homes Bonus) and provide the opportunity for digital infrastructure in the home that will support technology led health and care solutions such as GP to patient diagnosis and reducing the more costly face to face appointment and potentially the much more expensive acute care given out ageing society. Our propositions are therefore designed to complement these UK national policies.

Education and skills are similarly critical to improve productivity levels amongst the workforce and businesses in the UK. Our proposition surrounding links between Higher AND Further Education and businesses needs to be underpinned by improving the take up and achievement of STEM subjects in our schools.

Here are four key challenges raised by the government's Industrial Strategy White paper:

### **Productivity**

UK productivity is today some 20 per cent below the pre-financial crisis trend. Britain remains stubbornly less productive than other developed economies such as France and the US, despite its flexible labour laws and attraction as a destination for overseas investment. The government's industrial strategy identifies five foundations of productivity: innovation, people, infrastructure, places and business environment. As part of its effort to drive higher output per hour by workers, the strategy cites a plan to raise total research and development investment to 2.4 per cent of gross domestic product, and proposes more funding for maths and technical teaching as well as for digital infrastructure.

The biggest criticism of the strategy is its failure to address the productivity of small and medium-sized enterprises, where major problems lie, and in the supply chain. On SMEs the government opted to commission a further review to consider the scale of the challenge in terms of the competitiveness of the UK supply chain. The creation of a national industrial strategy council, which will have oversight of implementation of the proposals and hold this and subsequent governments accountable for progress will provide a consistent spotlight on the challenges.

### **Skills**

A persistent complaint from all sectors of industry is a lack of relevant skills, particularly as an ageing population begins to retire en masse. According to Engineering UK, a lobby group, 1.8m engineers and technicians will be required by 2025. The government acknowledges the need for an urgent focus on new types of skills, but also on a new

way of learning. The view of UK economic prospects from the OBR along with increased funding for the stem subjects — science, technology, engineering and mathematics — the government will create a new regulator, the office for students, to address employer and student needs. It also wants to create a new national retraining scheme to support reskilling. However, some suggested this fell far short of what was needed. Michael Dall, economics director at Barbour ABI, the construction market analysts, said the impact was likely to be muted in his sector given that Brexit would reduce the supply of overseas labour coming into the country. Ben Willmott, head of public policy at the CIPD, the professional body for human resources and people development, said the level of investment proposed by the government was “inadequate given the scale of the productivity challenge facing the UK. The focus [is] mainly on education policy and the supply of skilled labour for the future in niche sectors”.

### **Digitalisation and technology**

The industrial strategy identifies the growth of data and artificial intelligence as major challenges for the economy, but plans to tackle it are limited to a collection of small investments such as £45m for new post graduate degrees in the field and £30m for testing the use of AI in online education. Although the strategy outlines plans for a new government “office of AI”, it does not specify the funding that will be allocated to the new office. “The government has set the ambition and momentum on AI, but this investment alone won’t be enough for the UK to establish itself as a leader,” said Jon Andrews, head of technology and investments at PwC, the consultancy.

### **Brexit**

With confusion reigning over the terms of Britain’s exit from the EU, a coherent industrial strategy that will encourage investment is more vital than ever, said industrialists. Mike Hawes, chief executive of the SMMT, the motor industry trade body, said the measures “will help the UK automotive industry meet some of the many global challenges it faces”. Others were less sanguine. “Brexit is the elephant in the room,” said one senior automotive industry figure. “Everything else feels irrelevant.” Josh Hardie, deputy director-general of the CBI, the employers’ organisation, said the industrial strategy marked a “decent first step”. But without a sensible deal on the transition after Britain quits the EU, the strategy would be irrelevant. “For the strategy to work we need a good deal on Brexit,” added Mr Hardie. “There is no point putting your foot to the floor on an industrial strategy while Brexit applies the brakes.”

It will also be important to consider policies that will alter the way that housing, transport and digital infrastructure support local and national economies.

Buckinghamshire is well placed to support changing ideas, innovations and technology that will utilise these shifts to support local and national economic development.



The National Infrastructure Commission (NIC) proposes that with interventions the yearly output in the Oxford-MK-Cambridge growth corridor could be uplifted by £164bn.

The government's response to the NIC report will be vital when considering this LIS. It included:

- A housing deal with Oxfordshire with a target of 100,000 homes in the region by 2031 in return for infrastructure and economic growth support.
- A commitment to match funding (up to £5million) from the Cambridgeshire and Peterborough Combined Authority, Greater Cambridge Partnership and AstraZeneca for the development of a Cambridge South train station, with construction and delivery beginning in the early 2020s.
- Commitment to co-fund a study into the Oxfordshire Rail Corridor.
- Provision of funding to Network Rail to deliver the second phase of the western section of the East West Rail (from Bicester to Bedford and Milton Keynes to Prince Risborough).
- Commitment to develop an east-west expressway between Oxford and Cambridge.
- Continue to develop driverless vehicle infrastructure between Culham Science Park in Oxfordshire and Millbrook in Bedfordshire.
- Government aims to build 1 million new homes in Oxford-MK-Cambridge growth corridor by 2050 and boost the area's economy (particularly focusing on tech, AI and life sciences).

The response signposts important policies concerning housing and transport investment. Equally important will investment in digital infrastructure. This is reflected in government's statement in 2017 that Full fibre broadband could potentially allow:

- hospitals to share HD quality graphics of medical scans in seconds to improve diagnosis speeds.
- businesses to reach ever more customers online, increasing transactions by uploading even the largest files quickly and easily.
- school classrooms to see a vast increase the number of pupils who can stream educational videos at the same time".

The government has also announced the ambition to provide a minimum level of service and access in terms of download speeds i.e. a Universal Service Obligation (USO) to reduce the digital divide.

We acknowledge that digital infrastructure investments alone will not be a panacea for local and national economic development. As has been argued by the centre for cities it will be vitally important that local people have skills and confidence.

Source: <http://www.centreforcities.org/publication/how-cities-can-make-the-most-of-digital-connections/>

## OUR FIVE PROPOSITIONS IN POLICY CONTEXT

### **Creative & Digital**

This proposition builds upon the key assets of Pinewood Film Studios and the National Film and Television School and aims to attract international investment and drive exports by utilising artificial intelligence (AI) and data developments for increased collaboration for creative content makers and creative technology. This proposition will also develop improved linkages with the education institutions to produce a greater supply of a high skilled workforce needed by this global business that has been identified as a barrier to investment from major studios by the Bazalgette Review of the Creative Sector. This proposition specifically supports the ideas, people, place and business environment foundations of productivity.

### **High Performance Technology (HPT)**

This proposition aims to exploit Silverstone's international motorsport brand in order to drive international investment and explore innovation transfer and collaboration with other sectors that underpin the Grand Challenges such as Future Mobility and Artificial Intelligence. The Silverstone Technology Cluster, with the Silverstone Park Innovation Centre at its heart, is a world-leading cluster of high-tech engineering businesses centred on the cluster of Formula 1 motorsport businesses.

Currently this HPT sector is smaller than some of its neighbours, but the existing relationships, proximities and knowledge hubs offer the opportunity to develop this asset further. Significantly, the Silverstone University Technical College (UTC) centre of excellence for young people provides a key asset for young people wanting to break into the specialist fields of High-Performance Engineering thus addressing a number of the foundations of productivity.

### **Upstream Space**

Westcott Venture Park is home to the National Propulsion Test Facility. BTVLEP aims to widen the use of the facility to UK companies, UK space organisations and academia to test and develop space propulsion engines in this developing global business sector. Collaboration with the 5G Catapult centre and Innovation/ Incubation Centre at Westcott will provide the seedbed for cross-sector fertilisation such as future mobility technologies. The national centre and allied business facilities will act as a catalyst for inward investment, innovation and research collaboration with universities and other centres of research excellence across the Corridor. This proposition will specifically address 3 of the 4 the grand challenges and contribute positively to a number of our productivity foundations.

### **Revolutionising Health & Care – increasing importance of digital ageing society & corridor**

There are a set of unique assets that underpin the propositions to revolutionise the delivery of health and care services. The assets are, the national spinal centre at Stoke Mandeville, two planned MedTech innovation hubs, the home of the UK's first private medical school, Buckinghamshire in the first wave of 8 Integrated Care Systems. Together with the planned major housing growth, in the area around Stoke Mandeville, that provide a 'living lab' to test and enable the creation and growth of businesses to support the transformation of health and care in the context of the med tech capabilities. The actions proposed are underpinned by the challenges of the ageing society and the concurrent significant housing growth planned for the area.

### **Future Transport**

This proposition aims to position Buckinghamshire, together with its' corridor partners, as a premier centre for innovation, testing and trialling of technologies and infrastructure for the development and roll-out of approaches to future mobility within future transport. The proximity of Milton Keynes as a potential centre for 'Smart, Shared, Sustainable Mobility' means Buckinghamshire LEP is well positioned to develop new approaches to this grand challenge. We propose to develop links with other key assets, notably high-performance technology (Silverstone) and Space (Wescott) and develop SME and large business (BMW) collaborations with HE through innovative capabilities & explore the potential for bespoke high quality engineering workspace and facilities.

## THE 'GRAND CHALLENGES' AND HOW THE LEP PROPOSITIONS WILL ADDRESS THEM

The 'Grand Challenges' put forward by Government in the Industrial Strategy, aim to take into account the current positioning of our economy and its interaction with our society to place the UK in a strong position to be confident that the country will live to the expectations of its leaders and population to become a world leader in certain sectors. It also invites stakeholders to benchmark performance and be competitive in a fast changing and complex world economic reality. Our LEP's response to these challenges is outlined below.

### **AI and data**

Our LEP understands the importance of AI and machine learning in shaping the world's economy. We will be stimulating out related sectors to have the capacity and capabilities to be competitive and world leaders in applying AI into their business practices. We will support out business community to embed AI across the region, as this practice will create good quality jobs and drive local economic growth.

### **Ageing society**

We are committed to enabling our business community to use innovation in order to meet the needs of our ageing society. The UK population as a whole is ageing, as it is across the world. The prospect of longer lives will require people to plan their careers and retirement differently. It is inevitable that ageing populations will create new demands for technologies, products and services, including new care technologies, new housing models and innovative savings products for retirement. We have an obligation to help our older citizens lead independent, fulfilled lives, continuing to contribute to society and we are proposing actions to ensure this happens.

### **Clean growth**

We will encourage and support the manufacture and use of low carbon technologies, systems and services that cost less than high carbon alternatives. We will encourage our businesses to participate in collaborative work to tackle global warming, climate change and contribute towards environmental sustainability in the region, nationally and across the globe.

### **Future of mobility**

We will use our assets to support the UK TO become a world leader in shaping the future of mobility. This will be driven by investing in innovation in engineering, technology and sustainable, innovative business models and practices.

We will encourage businesses to invest in research and development in this sector, particularly looking for opportunities to improve customers' experience, drive efficiency and enable people to move around more freely.

### **Examples of how propositions link to the Grand Challenges**

#### **Space:**

- **AI and data** - the AI and data economy is supported and enabled
- **Ageing Society** - challenges can be addressed through digital enablement and secure connected health data.
- **Clean growth** - Clean growth objectives are supported through the creation of infrastructure that can support Low Carbon and Electric CAV rollout; and fuel cell development as an alternative energy technology that can be used in transport and the built environment are supported.
- **Future transport** - future mobility and connected autonomous vehicles (CAV's) will rely on satellite enabled 5G networks to reach a market ready stage.

#### **Super high tech:**

- **AI and data** – disruptive tech, impacting on a whole range of sectors. University of Buckingham have interest in this area and are working with the Satellite Applications Catapult on a proposition. Space and satellite capabilities need High Performance Technologies to bolster UK's space offer.
- **Ageing society** – aspects of collaborative R&D in high value manufacturing have core investments in engaging older populations and paediatric R&D (e.g. Bristol-Myers Squibb Pharmaceutical Limited).
- **Clean growth** – already over £100k invested by Innovate UK in advanced materials which includes the development of materials for solar power generators.
- **Future Transport** – areas of advanced manufacturing and advanced materials already promote automated delivery through testing of lower cost ways to establish green hydrogen infrastructure (e.g. Fuel Cell Markets Limited).

#### **Revolutionising healthcare:**

- **Ageing** – opportunity exists for growth of a connected (smart) home appliance market, built on growth of strong, electronics, electrical and digital tech sector in Bucks and development of emerging Garden Towns/New Settlements. Potential exists to connect entire value chain from Local Authorities; Garden Town; Development Community; Smart Infrastructure; 'End of pipe' technologies to stimulate demand and supply sides of the 'smart' connected digital tech market. Links to AI, Machine Learning and Home Automation. Potential exists to bypass the slow change processes in the Health & Social Care Sector by stimulating the growth

of the self-funded 'connected digital home' care sector. As big an issue in Bucks as anywhere else. BCC is keen to explore this and has an innovative heritage.

- **AI and data** – real opportunity to start thinking about how to make adult social care more technology and AI intensive e.g. Bicester is proposing a healthy town. There is an opportunity to utilise technology, minimise cost and create great lives for other people.

Such a strategy could potentially have linkages to:

- AVDC's work with AI & Machine Learning (see AVDCs pioneering work on Amazon Alexa) and their interest in using the technology they have developed to expand into the health and social care sector.
- BCC would have an interest, in their role as Social Care Provider. They are one of 8 pilots around the country for developing an integrated health and social care pilot.
- Garden Town partners are talking about innovation and smart city investment but are not particularly advanced in implementation terms (here).
- Satellite Applications Catapult are active in the digital health market, nationally and have expressed an interest in expanding this work locally.
- Businesses can apply for a share of up to £8 million to improve healthcare or reduce costs for health services, under the Industrial Strategy Challenge Fund. Innovate UK has up to £8 million to invest in new technologies through the digital health technology catalyst.

### **The cross-cutting themes and how they are acting as an economic stimulus and 'glue' to the proposals**

The development of the Industrial Strategy requires a coherent approach, based on sound evidence, benchmarking and realistic, but ambitious propositions. We are clear of the current challenges and those ahead of us, but our proposals are designed to acknowledge them and define the way forward.

We have also identified the following cross cutting themes, which will run across the propositions and our work in order to drive the LEP towards achieving growth. These are:

- Education Revolution (an improved technical education system)
- Digital Infrastructure
- Living Lab
- Commercialisation

## CONCLUSION

This report is part of a set of documents, which outlines the process of gathering data and initial analysis of the emerging evidence base. It provides statistics and research enabling the suggestions of the five propositions to be taken into consideration by the BTVLEP Board, when going forward with developing its Industrial Strategy.

The picture of the economy of the partnership area is complex. It has easily identifiable strengths as there are sectors and assets of national and global significance within the area. At the same time, some of the findings present challenges and potential drawbacks, which can hinder growth. These need to be addressed by the partnership.

It is the right time to take stock and plan for the future. With the imminent approach of BREXIT, the partnership must be prepared to focus on those areas, both in economic and location terms, which will increase productivity, bring the highest growth and enable other sectors to expand as a result.

The BTVLEP is developing a vision, which will be shared and supported by all stakeholders, including those that matter most, the residents and employers of the whole region.