Thames Valley Berkshire
LOCAL ENTERPRISE PARTNERSHIP

THAMES VALLEY BERKSHIRE:
Delivering national growth, locally
Strategic Economic Plan, 2015/16 – 2020/21

EVIDENCE BASE




Contents

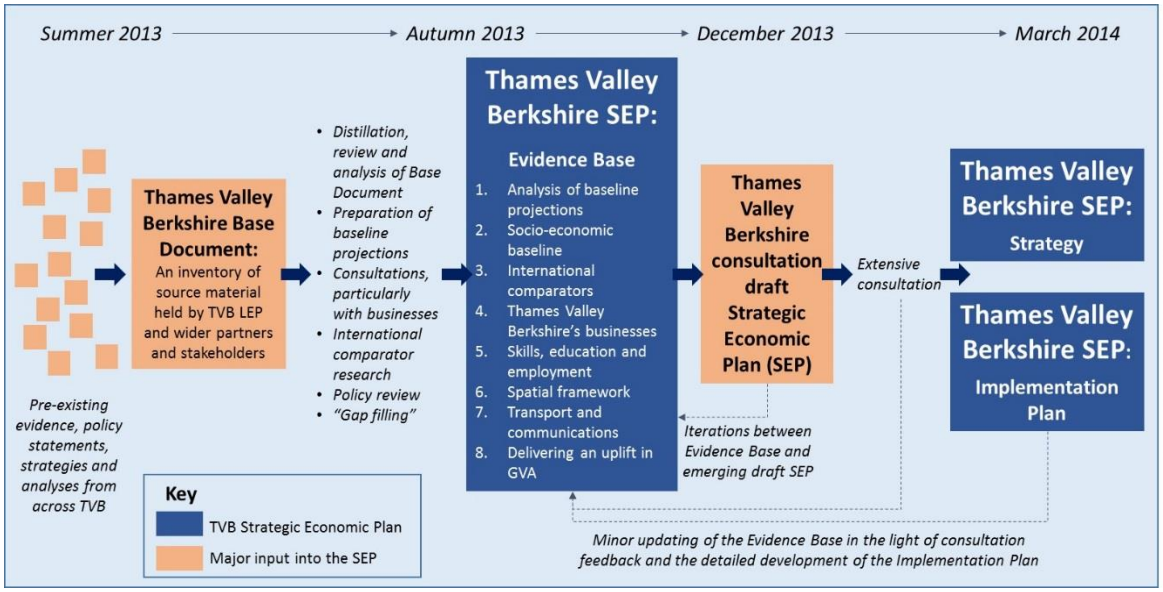
Preface to the Evidence Base

Our Evidence Base is one of three components of the Strategic Economic Plan (SEP) for Thames Valley Berkshire: Evidence Base, Strategy and Implementation Plan. It is built up from eight stand-alone Evidence Papers. These are presented within this document.

Developing and using our Evidence Base

The figure below describes the process through which our Evidence Base was developed and then used iteratively to shape our Strategic Economic Plan.

Figure 1: The use of evidence within our Strategic Economic Plan



At the start of this exercise there was already a substantive and extensive – if fragmented – stock of evidence within Thames Valley Berkshire (TVB). Thames Valley Berkshire Local Enterprise Partnership (TVB LEP) was the author of some of this, but considerably more evidence and insight existed among the members of our wider partnership, particularly our six unitary authorities. In summer 2013, we therefore completed a major evidence gathering exercise and we assembled the available evidence into a comprehensive Base Document. This was, essentially, an inventory of material/documents ranging from Local Economic Assessments, through Local Plans and locally-developed economic strategies (where they existed) to "evidence fragments" in the form of notes

from key meetings and workshops that had taken place over preceding months in the run-up to the development of the SEP.

In Autumn 2013, the contents of the Base Document were reviewed, analysed and distilled independently. They were also supplemented through various strands of additional work, most notably:

- the preparation of a baseline set of economic projections (by Cambridge Econometrics) for Thames Valley Berkshire
- a programme of consultations and workshop discussions with businesses (both corporates and SMEs) and other stakeholders
- a review of evidence deriving from key international comparators.

During the autumn, the development and testing of the Evidence Base involved substantive iterations with both the Forum and Executive of TVB LEP, and various of the LEP sub-groups. In this way, the evidence was used strongly to shape the consultation draft of the SEP; while emerging thinking with regard particularly to the strategy elements helped to define the additional evidence gathering priorities.

This process worked well. As one illustration, we would cite our response to a steer from our Corporates Forum. Reflecting on data-based observations that TVB was facing challenges in retaining young people given the attractiveness of London, our Corporates Forum concluded that we needed additional insight from younger workers in TVB's tech sector. This led to a series of focus groups within one of our major tech-based corporates through which around 20 graduate recruits, interns and apprentices shared their experiences and insights on TVB as a place to live and work (what brought them here, what they liked/disliked and what might cause them to leave). These insights in turn informed our developing SEP and the read-across to our Vision and priorities is clear.

More generally, this iterative process helped to ensure that the SEP itself was evidentially sound; and that the Evidence Base was relevant and integrated. Crucially, it also ensured that the intervention priorities that we eventually agreed had a clear and well-evidenced underlying rationale.

At the end of this process we concluded that the Evidence Base should be presented in the form of eight stand-alone Evidence Papers. The contents of these are outlined below.

Our draft Strategic Economic Plan was subject to extensive consultation during January and February 2014 and the Evidence Base was made available as part of this. The consultation feedback focused on the strategy, but it led to some requirements for additional and/or updated evidence as we moved

towards our final SEP. It also generated some comment on elements of the Evidence Base itself. Therefore in spring 2014, parts of the Evidence Base were updated. In essence though, **our Evidence Base constitutes a stock-take of the economy of Thames Valley Berkshire as of autumn 2013**. In due course, we will update it.

Structure of this document: our Evidence Base

This document presents the eight, stand-alone, Evidence Papers that comprise our Evidence Base. Of these, seven were prepared by SQW and one – on transport and communications – was substantially developed by Hewdon Consulting.

The eight Evidence Papers are:

Evidence Paper 1: Analysis of Baseline Projections

- This Paper reflects on a set of baseline projections prepared by Cambridge Econometrics in September 2013 on the basis of its Local Economy Forecasting Model. The projections provide one, modelled, perspective on what the economy of TVB may look like through to 2025.

Evidence Paper 2: Socio-Economic Baseline

- This Paper presents a range of data sourced through ONS and used to populate key socio-economic indicators for TVB, its component unitary authority areas and for the wider south east (defined on old Government Office boundaries). Evidence Paper 2 provides a "snap shot" of TVB in key socio-economic terms.

Evidence Paper 3: International Comparators

- TVB is an intrinsically interconnected location and in developing the SEP, the Forum of TVB LEP was concerned that its benchmarks ought to be defined in international – as well as national – terms. This Paper takes a number of different perspectives on international comparators. It considers TVB alongside a number of other "edge of hub airport" economies in Europe. It also considers the knowledge economy of TVB in both a national and international context. Drawing both strands together it identifies important opportunities and challenges that have informed the wider SEP.

Evidence Paper 4: Thames Valley Berkshire's Businesses

- In seeking to achieve accelerated economic growth, TVB's current – and prospective future – business population is critically important. Evidence Paper 4 considers TVB's business population from three different vantage points. First, it examines the area's business demography and it

reflects on start-up and survival rates. Second – consistent with the strong international perspective – it examines data on inward investment and export performance. Third, it reports on a series of in-depth business consultations that were conducted in autumn 2013. These provide a first-hand account of "doing business" in TVB and the opportunities and frustrations linked to it.

Evidence Paper 5: Skills, Education and Employment

- The fifth Evidence Paper considers issues relating to the current – and prospective future – workforce of TVB. It reflects on the observation from many firms that recruitment is a real constraint to growth and it considers the nature and causes of skills shortages and gaps within some of TVB's major business sectors. It also reflects briefly on measures being taken nationally to address some of these challenges.

Evidence Paper 6: Spatial Framework

- Growth – whether of jobs or housing – does not occur in abstract but in real places. As such the spatial planning framework – defined at the level of six unitary authority areas – is a crucial underpinning of the SEP. Evidence Paper 6 provides a local perspective on growth, distilled from a review of extant Local Economic Assessments, Local Plans and – where relevant – locally developed economic strategies. It draws out some of the spatial contrasts that exist within TVB – from the edge-of-London/Heathrow economies in the east, through the large urban area in central TVB to the much more rural west (much of which is a protected landscape). This narrative provides the spatial context for the delivery of the SEP.

Evidence Paper 7: Transport and Communications

- The seventh Evidence Paper examines issues in relation to transport and communications within TVB. It reflects on the fact that the area's communications infrastructure is simultaneously both a national and local resource and it evidences the level of congestion that is generated as a consequence. It also explains the extent to which national infrastructure priorities are reflected within TVB and it outlines the local priorities that have been identified in response.

Evidence Paper 8: Delivering an uplift in GVA

- The final Evidence Paper is different in character from the rest. In essence it is an advice note that considers what it might mean, in practice, to deliver a substantial uplift in economic output and how this might be achieved. Using published evidence, it also considers what this might – in ball park terms – cost to achieve. Evidence Paper 8 has provided an important reference point in developing the detail of our Implementation Plan.

Evidence Paper 1
Analysis of baseline projections

1-1. Introduction

As one input into the development of a Strategic Economic Plan for Thames Valley Berkshire (TVB), a set of baseline economic projections was commissioned from Cambridge Econometrics (CE). Generated through CE's Local Economy Forecasting Model (LEFM), these projections provide one, modelled, view on the future of the economy of Thames Valley Berkshire. The projections do not constitute a calibrated "forecast"; however, informed by a series of assumptions, they do present one credible and quantified picture of what Thames Valley Berkshire may look like through to 2025.

Evidence Paper 1 is divided into three substantive sections:

- in Section 1-2, we present the findings from the baseline projections for Thames Valley Berkshire, focusing on the headline indicators and comparing these to the South East and UK (and, on some indicators, to London)
- in Section 1-3, we explore the baseline projections in more detail and we consider prospects for different sectors in Thames Valley Berkshire
- in Section 1-4, we reflect on the findings and we consider their value – and indeed their limitations – in relation to the emerging Strategic Economic Plan.

In support, there are two annexes: Annex A provides a technical description of the structure of LEFM and the principal assumptions on which it depends; and Annex B provides a detailed definition of the sectors used by Cambridge Econometrics for modelling purposes.

1-2. Baseline projections for Thames Valley Berkshire: Overview

Introduction

CE's baseline projections are driven out of historic data (to 2011) and – using the Local Economy Forecasting Model – they present one view of what the future may look like. In 2011, the number of jobs in Thames Valley Berkshire (TVB) was estimated at 539,000 and the value of GVA – at constant 2009 prices – was around £26.7bn. On both of these key headline indicators, TVB has seen sustained growth over past decades. Looking ahead, growth is projected into the future, but generally at a slower rate. The data which underpin these headlines are presented and discussed in the paragraphs which follow.

Jobs

Historic and projected future growth in jobs in Thames Valley Berkshire is shown in Figure 2 below. CE estimates that in 1981, there were just under 400,000 jobs in the area; by 2025, the number of jobs is projected to be 583,000.

Figure 2: Jobs in Thames Valley Berkshire

Source: Cambridge Econometrics, through LEFM – Sept 2013

Over this period, the rate of growth in employment has fluctuated. As the graphic illustrates – and the table below confirms – there were periods of fast growth in the late 1980s and late 1990s interspersed by years of more sluggish growth or even short term decline. The graphic shows further

the impact of the recent UK-wide recession. In TVB, employment peaked in 2008 and then contracted; it took until 2012 for the number of jobs to return to pre-recession levels[1].

The table below presents compound annual growth rates (both historic and projected future) for employment in TVB and the South East[2] (including TVB). Additionally, it provides similar data for London and for the UK over successive five year periods. The data are not easy to interpret. They point again to TVB's relatively strong past performance – certainly from 1995-2000 and 2005-2010. Projected future growth rates are broadly similar to elsewhere – perhaps slightly weaker in the period 2015-2020 and relatively stronger in the subsequent five years[3].

Table 1: Historic and projected future annual growth rates in employment

	1995-2000	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025
TVB	2.3%	-0.1%	0.7%	0.5%	0.4%	0.8%
South East	1.6%	0.9%	0.2%	0.5%	0.3%	0.6%
London	2.9%	0.4%	0.6%	1.3%	0.5%	0.6%
UK	1.3%	1.1%	0.1%	0.7%	0.5%	0.6%

Source: Cambridge Econometrics, through LEFM – Sept 2013

Gross Value Added (GVA)

GVA is the key measure of the value of economic activity. It can be measured in a range of ways but it equates, fundamentally to *either* the value of wages plus profits *or* the value of outputs less inputs (and these two measures ought to be identical). In terms of data, measuring GVA is difficult[4]. It is

[1] In fact, the period required for recovery to pre-recession levels appears to have been a good deal shorter in TVB than in many other local economies that we have considered

[2] This is defined as the old government office region which includes the old counties of Buckinghamshire, Oxfordshire, Surrey, Berkshire, Hampshire, Isle of Wight, West Sussex, East Sussex and Kent

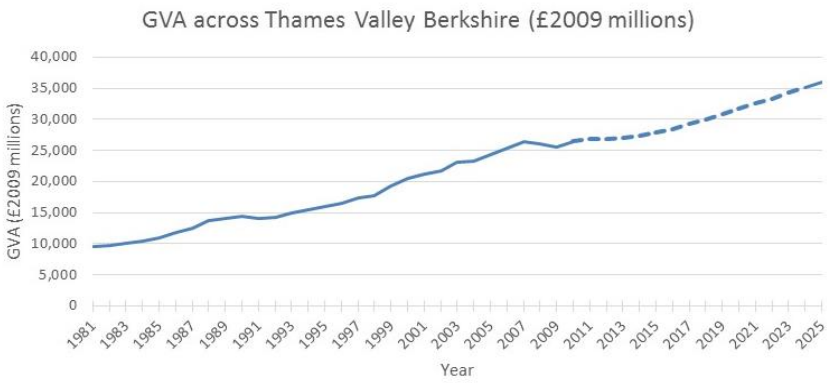
[3] In reviewing these data it is important to note that "London" refers to 32 London Boroughs. Whilst prospects across London as a whole appear modest, there are enormous variations within it: outer London has performed much less strongly than inner London

[4] The income approach to GVA estimation is used by ONS for NUTS3 areas. It is explained in detail in *Regional Accounts Methodology Guide* published by the Office of National Statistics. In overview, a wide range of data sources are used in the calculation of regional GVA and its components. These comprise both survey and administrative data (BRES, ASHE, IDBR) which conform as far as possible to those recommended in "*Regional Accounts Methods*", a guideline document published by Eurostat, and represent the most appropriate data sources available

estimated by the Office for National Statistics (ONS) but only to NUTS3 levels[5]. Time series data also have to take account of inflation to allow for assessments of real growth. CE's data are therefore presented at constant (2009) prices.

The graphic which follows shows the growth of GVA (in constant 2009 prices) in Thames Valley Berkshire from 1981 to 2011, and projected growth through to 2025. As with employment, the picture is one of steady but cyclical growth with periods of particularly strong performance, most notably in the late 1980s and the early-mid 2000s. Again, the impact of the recent recession is evident from the graph.

Figure 3: GVA across Thames Valley Berkshire



Source: Cambridge Econometrics, through LEFM – Sept 2013

The table which follows presents annual growth rates in GVA for TVB and its comparators over five year periods, both historic and projected into the future. These data suggest that past rates of GVA growth have outpaced the South East and matched those of London. Looking ahead, projections are also reasonably strong.

Table 2: Historic and projected future annual growth rates in GVA (in constant 2009 prices)

	1995-2000	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025
TVB	5.1%	3.6%	1.6%	1.1%	2.5%	2.6%
South East	4.4%	3.4%	1.0%	1.3%	2.3%	2.3%
London	5.1%	3.6%	1.8%	1.0%	2.2%	2.2%

[5] Nomenclature of Territorial Statistics (NUTS) levels are defined by the EU. In the UK, upper tier authorities or groups of lower tier authorities comprise NUTS3 areas: "Berkshire" (including all six unitary authority areas) is defined as a NUTS3 area

	1995-2000	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025
UK	3.6%	3.2%	0.7%	0.9%	2.1%	2.1%

Source: Cambridge Econometrics, through LEFM – Sept 2013

Productivity (GVA per job)

A third key headline indicator derives from the first two and it relates to output per job – a key measure of productivity. In 1981 the output generated by the average job in TVB was valued at £24k (in 2009 prices). By 2011, this figure had risen to almost £50k. By 2025, it is projected to increase to over £60k.

The table which follows compares growth rates in productivity across TVB and the South East, and also London and the UK. It points to strong past performance in TVB (particularly over the five years from 2000). Future projections that are similar to those for the South East. Both past performance and that projected in the future is stronger than the average for the UK.

Table 3: Historic and projected future annual growth rates in GVA per job (at constant 2009 prices)

	1995-2000	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025
TVB	2.7%	3.7%	0.9%	0.6%	2.1%	1.8%
South East	2.7%	2.5%	0.9%	0.7%	2.0%	1.7%
London	2.1%	3.2%	1.2%	-0.3%	1.7%	2.1%
UK	2.3%	2.1%	0.6%	0.2%	1.5%	1.5%

Source: Cambridge Econometrics, through LEFM – Sept 2013

Wealth (GVA per capita)

Finally, we can use the outputs from CE's Local Economy Forecasting Model to generate estimates of GVA per capita. This provides an indication of local wealth. Unlike measures of productivity, the denominator is a residence-based (rather than workplace-based) measure. At constant 2009 prices, CE's data suggest that per capita GVA in TVB was £13.6k in 1981 and £31.0k in 2011. By 2025, it is projected to be £36.5k.

Throughout this period – past and projected future – per capita GVA was/is notably higher in TVB than the average for the South East: by 2025, GVA per capita across the South East is projected to be £25.4k (and the corresponding UK-wide figure is £23.1k). However whereas past rates of growth have, at times, been notably higher in TVB than elsewhere, projected future rates are much more similar; indeed, taking the decade from 2010-2020, GVA per capita is projected to grow more slowly in TVB than across the South East.

Table 4: Historic and projected future annual growth rates in GVA per population (at constant 2009 prices)

	1995-2000	2000-2005	2005-2010	2010-2015	2015-2020	2020-2025
TVB	4.5%	3.3%	0.5%	0.0%	1.5%	1.9%
South East	3.8%	2.9%	0.2%	0.2%	1.4%	1.6%
London	n/a	n/a	n/a	n/a	n/a	n/a
UK	3.3%	2.7%	0.1%	-0.1%	1.3%	1.4%

Source: Cambridge Econometrics, through LEFM – Sept 2013

Conclusions

On the basis of these four headline indicators, the economy of Thames Valley Berkshire appears to be in reasonable shape, certainly when compared to elsewhere. But as with all longitudinal datasets, the conclusions that are drawn depend critically on the time frame considered.

Focusing on the period from 1995 to 2025, the data point to two overarching conclusions:

- future rates of growth in TVB are likely to be somewhat weaker than those experienced in the immediate past
- the rate of future growth in TVB is really very similar to that projected for the South East as a whole.

Alongside this short term perspective, it is also useful to take a broader sweep of history. The two graphs presented above chart the growth of TVB since the early 1980s through to the present, and they then project it forward to 2025. This longer term time frame exposes more clearly the impact of economic cycles, including the recent down-turn. However – as the table below demonstrates – the overall conclusions are broadly similar: growth rates projected for the future are slower than those seen historically; and looking ahead, there is some convergence with regional (and national) growth rates.

Table 5: Long term perspectives on GVA and employment

	1981	2011	2025	Historic annual growth rate 1981-2011	Projected annual growth rate 2011-2025
Employment ('000)					
• TVB	396	538	582	1.0%	0.6%
• South East	3,355	4,387	4,711	0.9%	0.5%
• UK	26,388	31,175	34,175	0.6%	0.7%
GVA (£2009 million)					

	1981	2011	2025	Historic annual growth rate 1981-2011	Projected annual growth rate 2011-2025
• TVB	9,547	26,783	36,064	3.5%	2.1%
• South East	72,436	188,685	246,292	3.2%	1.9%
• UK	574,244	1,279,285	1,620,622	2.7%	1.7%

Source: Cambridge Econometrics, through LEFM – Sept 2013

1-3. Baseline projections for Thames Valley Berkshire: Sectors

Introduction

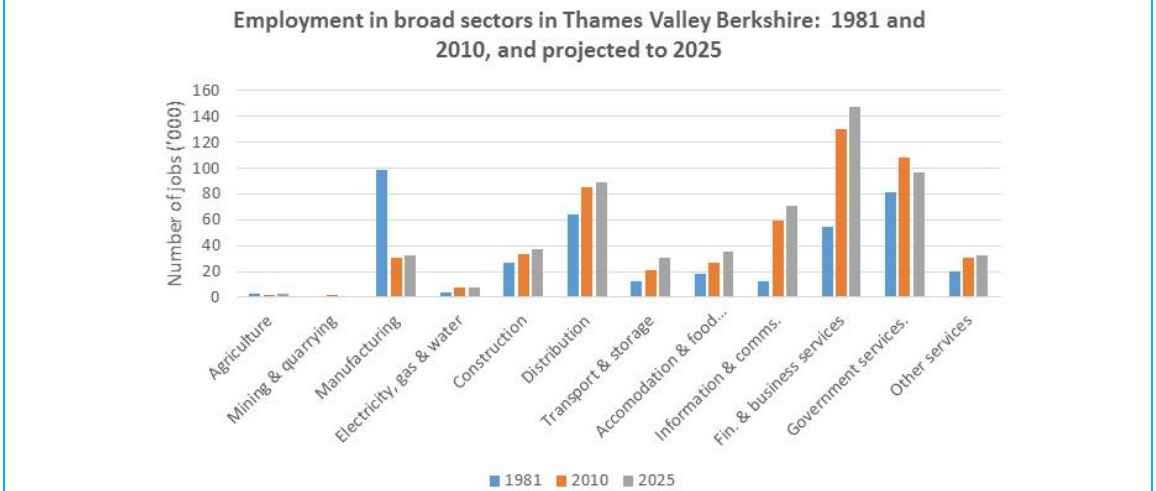
CE's baseline projections are informed by an analysis of the past relative performance of 45 different sectors (defined on the basis of the Standard Industrial Classification (SIC) 2007, as set out in Annex B) which are aggregated into 12 broader group. They therefore provide an insight into historic – and projected future – sectoral growth patterns at a fairly granular scale. In this Section, we:

- consider how the sectoral profile of TVB's economy has changed – and is projected to change – in broad terms (i.e. across 12 sectors), and relative to elsewhere
- analyse in more detail the sectoral pattern of employment in TVB (across 45 sectors) in absolute and relative terms currently
- investigate the prospects for some of sectors that may be particularly important in relation to the Strategic Economic Plan
- use location quotients and relative growth rates to provide a more dynamic picture of the changing nature of TVB's economy.

Broad patterns of sectoral change across TVB

Figure 4 shows the distribution of employment – in absolute terms – across 12 broad industry sectors in TVB in 1981 and 2010, and projected forward to 2025. It paints an important backdrop to change within the local economy.

Figure 4: Employment in broad industry sectors in Thames Valley Berkshire



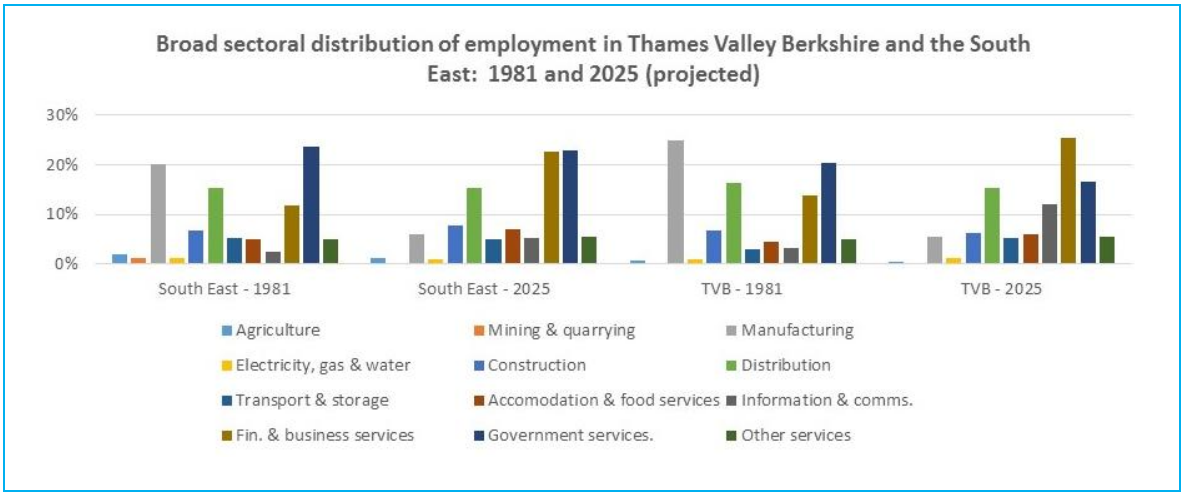
Source: Cambridge Econometrics, through LEFM – Sept 2013

In the context of overall growth, the main headlines from the 1981-2010 period were the decimation of *manufacturing* employment; the rapid growth of employment in *information and communications* and *financial and business services*; and the slower – but still notable – growth in employment in *government services* and *distribution*. Looking to the future, employment in *government services* is projected to decline in absolute terms – a reflection, we suspect, of public sector spending restraints. More positively, by 2025, a further 17,000 jobs are projected in *financial and business services*; 12,000 in *information and communications*; and over 9,000 in *transport and storage*.

In relation to GVA, the pattern of sectoral change across TVB is similar. In 1981, the *manufacturing* sector accounted for 19% of GVA; by 2025 it is projected to account for 6%. Conversely, whereas in 1981, *information and communications* was responsible for 2% of TVB's GVA, by 2025, this sector is projected to account for over a quarter (27%).

However, whilst distinctive, these broad patterns of sectoral change are not unique to TVB. The South East region as a whole has seen a very similar process of change. As the graphic below illustrates, by 2025, *manufacturing* is expected to account for about 5% of employment (compared to 20-25% in 1981) while *financial and business services* is projected to account for a quarter (compared to around 12% in 1981). The major difference between the South East and Thames Valley Berkshire is the (broad) *information and communications* sector: in 1981 it was very small in both areas, but by 2025, the baseline projections suggest that it will account for about 5% of the total across the South East but 12% in TVB.

Figure 5: Distribution of employment by broad sector, South East and Thames Valley Berkshire, 1981 and 2025 (projected)



Source: Cambridge Econometrics, through LEFM – Sept 2013

Understanding sectoral employment patterns in more detail

In any local economy, the sectoral mix is driven by a range of different processes. Much economic activity is driven largely or wholly by demand from the local population – e.g. most retail, most education, and most health-related employment; for these sectors, prospects for growth are largely a function of population size and (for public services) government policy. Other sectors however grow at least in part because businesses are selling to non-local customers/clients and for these "exogenous" activities, the scope for economic growth to outpace population growth is much greater (because new markets can be found).

CE's baseline projections are built upon an analysis of some 45 disaggregated sectors. Some of these are fundamentally related to the demands of the local population whilst others are far more outward-facing. It is the latter group which tends to be more distinctive – although the former accounts for a high proportion of employment.

Location quotients (LQs) are a measure of the relative concentration of employment locally (relative to that which we would expect to see in the "average" local economy). On the basis of data provided by CE for 2011 (i.e. the latest year of historic data), the (detailed) sector which stands out as TVB's most distinctive is *IT services*: it has a LQ of 4.1 (relative to the UK) and 2.6 (relative to the South East). It is also a major employer locally, accounting for about 12% of all jobs. Aside from IT services, TVB's other "specialist" sectors are generally really quite small in absolute terms: for example, *electricity and gas* has a high LQ relative to the UK, but accounts for less than 1% of employment in

TVB. Conversely, most of TVB's big employment sectors – aside from IT services – largely mirror national and regional patterns of specialisation; examples include *business support services*, *education*, *retail* and *construction*.

Table 6: Thames Valley Berkshire's five biggest (detailed) sectors in terms of employment ('000 jobs); and its five most distinctive (detailed) sectors in terms of employment LQ relative to the UK, 2011

Biggest sectors	Employment 2011 ('000 jobs and % of all)	Employment LQ 2011 relative to the UK	Most distinctive sectors	Employment 2011 ('000 jobs and % of all)	Employment LQ 2011 relative to the UK
IT services	62 (12%)	4.13	IT services	62 (12%)	4.13
Business support services	46 (9%)	1.12	Other professional services	22 (4%)	2.13
Education	41 (8%)	0.87	Electricity and gas	4 (1%)	1.73
Retail trade	39 (7%)	0.76	Metals and metal products	10 (2%)	1.67
Construction	31 (6%)	0.90	Wholesale trade	31 (6%)	1.54

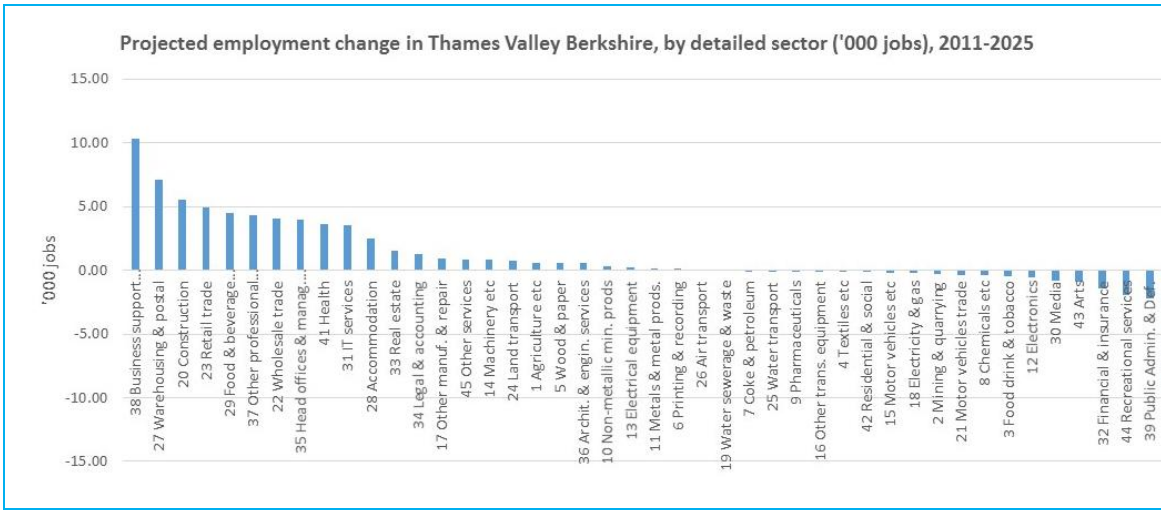
Source: Cambridge Econometrics, through LEFM – Sept 2013

Future projections for sectors in Thames Valley Berkshire (TVB)

As we observed in Section 1-2, employment growth in Thames Valley Berkshire is projected – overall – at a rate of 0.6% per annum over the period 2011-2025. Over the same period, some 44,000 net additional jobs are expected to be created.

These data can be disaggregated sectorally. The chart which follows shows projected change – in absolute terms – across 45 sectors within TVB. Three sectors – *business support services, warehousing and postal*, and *construction* – together account for 23,000 additional jobs. At the other end of the spectrum, substantial job losses are projected in *public administration and defence*, and – especially – *education*, together these two sectors are projected to shed over 11,000 jobs over the period.

Figure 6: Projected absolute change in employment by detailed sector, 2011-2025



Source: Cambridge Econometrics, through LEFM – Sept 2013

In relative terms, over the period 2011-2025, annual growth rates range from +4.5% per annum in the (very small) *wood and paper* sector, to -3.8% per annum in the (very small) *water transport* sector. Among sectors with more than 10,000 jobs in 2011, the fastest growth rates are projected in *warehousing and postal* (+3.1% pa); *head offices and management consultancies* (+1.6% pa); and *business support services* (+1.5% pa).

Sectors that are projected to see most to employment growth – and their contribution to GVA growth

However for Thames Valley Berkshire LEP, prospects in terms of employment are not the only consideration; also important is the future composition of GVA. In Section 1-2, we reported that GVA is projected to grow at 2.1% per annum (in constant 2009 prices) over the period 2011-2025 across TVB. The table below sets out the projected contribution to GVA growth of the five sectors which are expected to see the greatest employment growth in absolute terms. Together these sectors are projected to account for 73% of jobs growth but 16% of GVA growth.

Table 7: Five biggest absolute contributors to employment growth, 2011-2025; and their contribution to GVA growth

Sector	Share of employment growth	Employment growth rate (%pa)	Share of total GVA growth across TVB	GVA growth rate (% pa)
38 Business support services	23%	1.5%	5%	2.3%
27 Warehousing & postal	16%	3.1%	2%	3.0%
20 Construction	13%	1.2%	3%	1.1%
23 Retail trade	11%	0.9%	4%	1.8%

Sector	Share of employment growth	Employment growth rate (%pa)	Share of total GVA growth across TVB	GVA growth rate (% pa)
29 Food & beverage services	10%	1.5%	2%	2.4%

Source: Cambridge Econometrics, through LEFM – Sept 2013

Sectors that are projected to see most to GVA growth – and their contribution to employment growth

Overall, five sectors are projected to account for two-thirds of GVA growth, as shown in the table below; these same sectors are expected to account for just over 40% of jobs growth. Within this, the biggest single contributor (by far) to GVA growth is *IT services*: it is projected to account for 44% of total GVA growth. Its contribution to jobs growth across TVB is very much more modest at around 8%. It is also worth noting that one of the top five sectors in terms of the contribution to GVA growth – *financial and insurance* – is expected to see a decline in employment over the same period in TVB.

Table 8: Five biggest absolute contributors to GVA growth, 2011-2025; and their contribution to employment growth

Sector	Share of total GVA growth across TVB	GVA growth rate (% pa)	Share of employment growth	Employment growth rate (%pa)
31 IT services	44%	3.7%	8%	0.4%
33 Real estate	9%	5.0%	4%	1.4%
38 Business support services	5%	2.3%	23%	1.5%
32 Financial & insurance	5%	2.1%	-3%	-1.0%
23 Retail trade	4%	1.8%	11%	0.9%

Source: Cambridge Econometrics, through LEFM – Sept 2013

The overall picture is therefore complex. But taking Tables 7 and 8 together, it is clear that the sectors expected to contribute most to jobs growth in TVB are very different from those projected to contribute most to the increment in GVA. Given labour supply challenges within TVB, the inference is that the Strategic Economic Plan may need to focus on those sectors which are contributing differentially to the growth of GVA; the sector which is outstanding in this regard is *IT services*. Conversely, while all five of the sectors listed in Table 7 are projected to generate substantial numbers of jobs, their contribution to GVA growth is really quite modest.

Understanding projected growth patterns in TVB relative to the UK

From the baseline projections, it is possible to extract an insight into future prospects relative to the UK. Drawing on the different arguments explored above, Table 9 considers – in terms of employment – the relationship between growth rates and current patterns of specialisation. Some care is needed

in the interpretation of these data: growth rates are defined relatively (which means that "fast growth" could be (and sometimes is) "slower decline") and the table provides no insight into the absolute scale of individual sectors.

Table 9: Detailed analysis of employment: sectors grouped according to employment location quotients relative to UK and long term employment growth rates relative to UK

	Fast employment growth in TVB *relative* to the UK, 2011-2025	Slow employment growth in TVB *relative* to the UK, 2011-2025
High employment LQ (>1.0) in Thames Valley Berkshire relative to the UK in 2011	Quadrant 1 8 Chemicals etc** 11 Metals & metal prods. 12 Electronics** 22 Wholesale trade 27 Warehousing & postal 28 Accommodation 36 Archit. & engin. services	Quadrant 2 2 Mining & quarrying** 18 Electricity & gas** 19 Water sewerage & waste 21 Motor vehicles trade** 31 IT services 33 Real estate 34 Legal & accounting 35 Head offices & manag. cons. 37 Other professional services 38 Business support services 44 Recreational services** 45 Other services
Low employment LQ (<1.0) in Thames Valley Berkshire relative to the UK in 2011	Quadrant 3 1 Agriculture etc 4 Textiles etc** 5 Wood & paper 6 Printing & recording 10 Non-metallic min. prods 13 Electrical equipment 14 Machinery etc 17 Other manuf. & repair 23 Retail trade 24 Land transport 26 Air transport 39 Public Admin. & Def.**	Quadrant 4 3 Food drink & tobacco** 7 Coke & petroleum** 9 Pharmaceuticals** 15 Motor vehicles etc** 16 Other trans. equipment** 20 Construction 25 Water transport** 29 Food & beverage services 30 Media** 32 Financial & insurance** 40 Education** 41 Health 42 Residential & social** 43 Arts**

*Key: ** denotes sectors which are projected to see a decline in absolute levels of employment in TVB over the period 2011-2025. Note though that these may still be "growing faster" (i.e. "declining more slowly") than the sector nationally*

Source: Cambridge Econometrics, through LEFM – Sept 2013

Nevertheless, the table poses some really quite important questions for TVB on which the SEP will need to take a view:

- Quadrant 1 includes those sectors in which there is already a relatively high concentration of employment in TVB *and* relatively fast employment growth is projected: The key observation here is that within this Quadrant are some large employment sectors (such as *warehousing and postal*, and *accommodation*) which are relatively poor performers in relation to GVA. The inference may be that TVB is likely to see relatively rapid employment growth in sectors which contribute little to economic output

- Quadrant 2 includes those sectors in which there is already a relatively high concentration of employment in TVB *but* relatively slow jobs growth is projected: In our view, there must be some concern that within this quadrant are *IT services, legal and accounting,* and *head offices and management consultancy*. These are – in key respects – TVB's most distinctive specialisms and yet future growth rates (in employment) are projected to be slower than across the UK as a whole

- Quadrant 3 lists those sectors in which there is a relatively low concentration of employment in TVB *but* relatively fast growth is projected: In theory at least, Quadrant 3 could contain the "rising stars". In practice, with the exception of retail, many of the sectors included are small; and some – most notably *public admin and defence* – are seeing slower decline rather than real growth

- Quadrant 4 lists those sectors in which there is a relatively low concentration of employment in TVB *and* relatively slow growth is projected: In principle, these sectors could be withering in TVB – and from a low relative base. Included within Quadrant 4 are some high value sectors – like *pharmaceuticals* – and hence this observation should be of some concern.

Conclusions

The baseline projections for individual sectors need to be treated with a fair degree of caution: the more granular the perspective (in terms of either geography or sector), the more susceptible the baseline projections to influences that cannot be modelled (e.g. the investment decisions of one or two firms). Nevertheless, taken at face value, these projections pose some challenges to Thames Valley Berkshire LEP – and indeed to the Strategic Economic Plan. Three are especially noteworthy:

- first, projected employment growth is concentrated in sectors that are minor contributors in relation to GVA growth; this is especially important when labour supply is likely to be challenging
- second, nearly half of all projected GVA growth is tied up with one (detailed) sector only: *IT services*. At the very least, this must pose a risk for TVB and one that ought to be considered carefully
- third, for some of the most totemic sectors, relative rates of employment growth are low in TVB compared to the UK, suggesting that other areas may "catch up" over the period to 2025; again, this is something that the LEP will need to watch and the SEP will need to consider.

1-4. Reflecting critically on the baseline projections

Baseline projections are not a calibrated forecast. They depend crucially on past patterns of relative performance which are then extrapolated forward. Given that they are the product of a model – in this case Cambridge Econometrics' Local Economy Forecasting Model – how much weight should be attached to them? Ultimately they are one view of the world – and other forecasters might have different opinions. In this final Section, we attempt to calibrate the baseline projections considered in this Evidence Paper in relation to other sources of evidence.

Calibrating the baseline data

A first – albeit pedestrian – aspect of calibration relates to the robustness of the historic data used by CE. In theory at least, these are not "opinions" but "fact" and we can use independently sourced data (deriving from ONS and also from TVB LEP's Base Document) to verify them.

The table below should provide reassurance that the 2011 snapshot on which CE in part depends is reasonably robust. Within the table, the only real outlier links to GVA per job. This is a difficult metric – given varying approaches to estimating both the denominator and numerator – although here, CE's estimates are mid-range, which itself provides some confidence.

Table 10: Calibrating the baseline data for 2011

	Date of latest data	Thames Valley Berkshire LEP area	Source	CE from LEFM: Estimates for 2011	TVB LEP Base Document (including page no, year and source)
Population	2011	861,870	Sourced directly from Census 2011	864,000	865,200 (Page no. 23, 2012, source not provided) 853,607 ('Killer Facts' embedded spread sheet within the TVB LEP Base Document – 2011 – source not provided)
Workplace jobs	2011	529,000	ONS Jobs Density – sourced directly	538,690	382,693 FTE jobs (Page no. 10 – Adroit Economics, Economic and Social Impacts of Broadband in Berkshire, 2011) 511,577 ('Killer Facts' embedded spread sheet within the TVB LEP Base Document – 2010 – source not provided)
GVA (£m)	2011	£28.7bn (current prices)	ONS – sourced directly	£26.7bn (2009 prices)	£23bn (Page no. 10 – e-skills UK 2012 productivity forecasts – Adroit Economics, Economic and Social Impacts of Broadband in Berkshire, 2011) (£m) 22,286 ('Killer Facts' embedded spread sheet within the TVB LEP Base Document – 2010 – source not provided)

	Date of latest data	Thames Valley Berkshire LEP area	Source	CE from LEFM: Estimates for 2011	TVB LEP Base Document (including page no, year and source)
GVA per head (£)	2011	£32,798 (current prices)	ONS – sourced directly	£31,000 (2009 prices)	£33,200 (Page no. 27 – 2011 – LEP Network Report 2013)
GVA per job (£)	2011	£54,253	ONS[6] – sourced directly	£49,700 (2009 prices)	£43,564 ('Killer Facts' embedded spread sheet within the TVB LEP Base Document – 2010 – source not provided)

Source: SQW analysis of sources above. Notes: Berkshire NUTS3 area has been used to represent TVB LEP geography for GVA data. GVA data are presented in current basic prices

Triangulating CE's regional/national forecasts

Understanding the national picture

A second, much more fundamental, issue relates to the regional/national forecasts which drive LEFM and the confidence we should have in them. Again, this is ultimately a judgement call. However, nationally, HM Treasury compares independent forecasts for the UK economy on a monthly basis. Its most recent analysis was published in September 2013[7]. This compared forecasts generated by about 30 independent sources – about two-thirds from the City (e.g. Barclays Capital and Goldman Sachs) and the remainder from outside the City (including Cambridge Econometrics, Experian Economics and Oxford Economics).

Across the different sources, national GDP growth forecasts for 2013 ranged from 2.1% to 0.8% and the median was 1.3%; the estimate from OBR was also quoted at 0.6%. There was therefore a significant range across the independent forecasters. Within this, CE's estimate – of 0.8% – was at the cautious end of the spectrum but CE was not alone in alighting on this figure: Capital Economics (from amongst the City Forecasters) and OECD (from the non-City Forecasters) also forecast national GDP growth of 0.8%.

[6] ONS GVA figures divided by ONS jobs density total jobs

[7] See *Forecast for the UK* Economy: A comparison of independent forecasts: HM Treasury, September 2013 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/245688/201309forecomp.pdf

Comparing different regional/local forecasts and projections

For the most part, the national forecasters do not generate regional forecasts or local projections and hence a small sub-set of the 30 are direct alternatives to CE. In SQW's experience, the most immediate alternative sources of regional/local forecasts/projections are Experian Economics and Oxford Economics. From the Treasury publication, Experian's GDP forecast for 2013 was 2.1% (i.e. the highest of all those considered) whilst Oxford Economics was mid-range at 1.4%. Between CE, Oxford Economics and Experian, there is therefore quite a spread and these different views of the future cascade down into projections at a local level.

In our experience, few local areas commission or compare projections from multiple sources – mainly because there is a cost involved. Where we have come across multiple sourcing and/or local comparisons, our experience has mirrored that reported by Treasury nationally: CE tends to be the most cautious, Experian tends to be the most bullish, and Oxford Economics typically is somewhere in between. However there is a need for great care in comparing different local projections for their timing is crucially important: CE's (and OE's and Experian's) own projections for employment growth are themselves revised on a regular (and sometimes quite significant) basis as wider conditions change.

Alternative projections for TVB

Nevertheless in relation to Thames Valley Berkshire, it is instructive to compare two employment projections that we have come across in working towards the SEP:

- the first is that reported in this document – generated by CE and including a baseline projection for 44,000 net additional jobs in the period 2011-2025
- the second was generated by Experian and is quoted in a publication by Barton Willmore[8]. This was very much more bullish and it suggested an increment of 148,000 jobs in the period 2011-2031.

Whilst Experian's time frame is not coincident with that used by CE, the two projections are clearly really quite different: whereas CE is projecting (an average of) 3,142 net additional jobs per annum, Experian's data suggest a figure that is more than double (at 7,400 per annum). At one level, which is "right" will only be discernible with hindsight. However it is perhaps worth noting that the average annual increment in employment between 1981 and 2011 was about 4,700 jobs. So, whereas CE is

[8] *Housing Supply: Opportunities for Economic Growth* Barton Willmore Plus – Development Economics, August 2013 page 3

projecting more cautious employment growth in the future than the past, Experian appears to be suggesting future growth which is well above the past trend-based pattern.

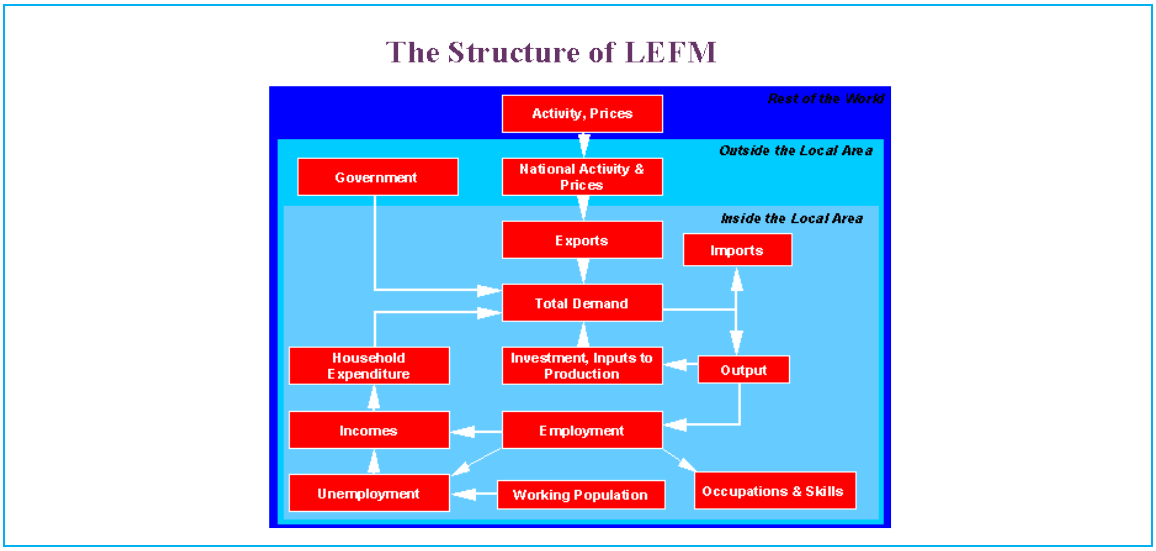
Annex A: Background to LEFM

Cambridge Econometrics (CE) was founded in 1978 to provide commercial access to research in the Department of Applied Economics at the University of Cambridge. The Local Economy Forecasting Model (LEFM) was first developed by CE in collaboration with the Institute for Employment Research at the University of Warwick. It has been commercially available and continually developed since the early 1990s.

Overall structure of LEFM

LEFM's structure draws heavily on Cambridge Econometrics' Multi-sectoral Dynamic Model (MDM) of the UK economy and its regions; it shares the same underlining software. Figure 7 below summarises the model's accounting structure. This follows the social accounting matrix approach adopted in MDM.

Figure 7: Structure of LEFM



Within this overall structure, LEFM has a number of distinctive features:

- First, LEFM is designed to project economic indicators for a local area by explaining the output of local industries through an explicit representation of expenditure flows in the area and their links with the world outside the local area. In this it differs from other methods of local

economy modelling; these typically link local output or employment (by sector) directly to national or regional output or employment[9].

- Second, LEFM is a **demand-led model** (and it reflects on the implications of demand-side changes). The impact of supply-side factors, such as an increasingly-skilled workforce in the area attracting firms in particular sectors, is (as in other models) not explored through LEFM.
- Third, LEFM is **highly disaggregated.** It considers the relationships between firms, households, government and the rest of the world in a framework defined across over 40 separate industries, all of which respond in distinctive ways to demand side changes. For example, faster population growth increases demand, but the implications will vary from one sector to another:
  - some sectors are very dependent on population growth (e.g. retailing, public administration, health, education, leisure services, construction) and hence increased population will feed straightforwardly through into higher output and employment (and into household incomes and spending)
  - the local prospects of other sectors (e.g. electronics) have very little relationship to population growth locally as demand for goods from this sector will come almost entirely from the rest of the UK or world.

LEFM's main inputs and outputs

The main **input assumptions** used in LEFM are:

- forecasts for the UK and region in which the local economy lies for selected variables, including
  - the components of domestic final expenditure, disaggregated into spending by function as published in the UK National Accounts
  - components of personal incomes

[9] Other approaches often rely on shift-share or econometrically estimated equations which allow a user to derive projections for local output or employment growth from national or regional projections but offer little scope for introducing an explanation of local performance relative to these higher levels. They are typically not suitable for analysing the indirect effects on the local economy arising from the opening of a new enterprise or the closure of an existing one

- gross output, value-added and employment by sector
- matrices to convert the components of domestic final expenditure into commodity demand for different sectors
- input-output coefficients
- population and demography.

Outputs for the local economy (to 2025) include gross output, value-added and employment by sector, and employment by occupation.

Baseline projections for local areas

Baseline projections are not calibrated forecasts. The baseline projections generated through LEFM assume that historical patterns of growth in the local area relative to the region or UK (depending on which area it has the strongest relationship with), on an industry-by-industry basis, continue into the future. Thus, if growth in an industry in the local area outperformed the same industry in the region (or UK) as a whole in the past, then it will be assumed to do so in the forecast period. Similarly, if it underperformed the South East (or UK) in the past then it will be assumed to underperform the region (or UK) in the future.

Except insofar as particular policies were in force during the period over which historical relationships have been estimated (around 15 years), and insofar as new policies are taken into account in CE's forecasts at a regional level (which drive the local area projections), baseline projections are policy neutral. By definition therefore, they will not identify the implications arising from a local policy change.

The LEFM baseline scenario assumes that employment growth is not restricted by labour market (or other supply side) constraints, except insofar as such constraints have existed in the recent past (which would be reflected in the historical relationships that are estimated). If, in the forecast period, the labour supply in the local area is not sufficient to satisfy the level of employment projected, then the shortfall is assumed to be made up by increased net in-commuting.

…and in the specific case of Thames Valley Berkshire

Within the broad context set out above, the baseline projections for Thames Valley Berkshire rely on two key input assumptions:

- first, the projections are consistent with CE's latest forecast for the regions and nations of the UK which was developed using the Multi-Sectoral Dynamic Model (MDM) of the UK economy. For Thames Valley Berkshire, the regional reference point is the South East (defined as the old Government Office region, which excludes London). The baseline projections considered in this Evidence Paper are consistent with Cambridge Econometrics' UK Regional Economic Forecasts, June 2013.
- second, population projections which have informed the baseline have been sourced from the Sub-National Population Projections (SNPP) published by ONS. The most recent (2011-based) projections go out to 2021. Projections beyond 2021 are constructed by applying the age and gender-specific assumptions from the earlier 2010-based projections.

Annex B: Definition of the sectors used within LEFM

The sectors used within LEFM are based on aggregations of sectors from the Standard Industrial Classification 2007 (SIC2007). CE uses both a high level grouping (of 12 broad sectors) and a more granular formulation (based on 45 sectors). The read-across from both to SIC2007 is summarised in the table below.

Table 11: Definition of sectors used by Cambridge Econometrics

CE's broad 12 sector classification	No	CE's detailed 45 sector classification	SIC2007
Agriculture etc	1	Agriculture , forestry & fishing	01-03
Mining & quarrying	2	Mining & quarrying	05-09
Manufacturing	3	Food, drink & tobacco	10-12
	4	Textiles etc	13-15
	5	Wood & paper	16-17
	6	Printing & recording	18
	7	Coke & petroleum	19
	8	Chemicals	20
	9	Pharmaceuticals	21
	10	Non-metallic mineral products	22-23
	11	Metals & metal products	24-25
	12	Electronics	26
	13	Electrical equipment	27
	14	Machinery	28
	15	Motor vehicles	29

CE's broad 12 sector classification	No	CE's detailed 45 sector classification	SIC2007
	16	Other transport equipment	30
	17	Other manufacturing & repair	31-33
Electricity, gas & water	18	Electricity & gas	35
	19	Water, sewerage & waste	36-39
Construction	20	Construction	41-43
Distribution	21	Motor vehicles trade	45
	22	Wholesale trade	46
	23	Retail trade	47
Transport & storage	24	Land transport	49
	25	Water transport	50
	26	Air transport	51
	27	Warehousing & postal	52-53
Accommodation & food services	28	Accommodation	55
	29	Food & beverage services	56
Information & communications	30	Media	58-60
	31	IT services	61-63
Financial & business services	32	Financial & insurance	64-66
	33	Real estate	68
	34	Legal & accounting	69
	35	Head offices & management consultancies	70
	36	Architectural & engineering services	71
	37	Other professional services	72-75
	38	Business support services	77-82
Government services	39	Public Administration & Defence	84
	40	Education	85
	41	Health	86
	42	Residential & social	87-88
Other services	43	Arts	90-91
	44	Recreational services	92-93
	45	Other services	94-96
	46	Unallocated	

Source: Cambridge Econometrics

Evidence Paper 2
Socio-Economic Baseline

2-1. Introduction

This Evidence Paper provides a high level socio-economic baseline to inform the Thames Valley Berkshire (TVB) Strategic Economic Plan (SEP).

TVB is situated to the west of London. Its territory is defined in relation to six unitary authority areas[10] (Bracknell Forest, Reading, Slough, West Berkshire, Windsor & Maidenhead and Wokingham) within the former county of Berkshire. Where appropriate, this Paper presents and discusses data for each of the six local authority areas, along with the data for TVB as a whole. In order to help benchmark economic performance, data for comparator areas are also included: the South East, England (or in certain cases, the UK), and other Local Enterprise Partnership (LEP) areas.

Use of data

The most robust set of socio-economic data is that produced through the Census 2011. However, at the time of writing, key multi-variate statistics have yet to be released. For these indicators, alternative estimates are available, based on a range of sample surveys such as the Annual Population Survey (APS). However all data based on sample surveys are (inevitably) subject to sampling and other errors and account should be taken of confidence intervals when using the data, particularly when making year-on-year comparisons and/or comparing TVB with elsewhere. In this context, and particularly where sample sizes are small, year-on-year changes are far more likely to be "noise" in the data than underlying changes in economic conditions.

It is also important to note that for many socio-economic indicators, data are available from a number of different sources. Whilst Census 2011 is the most robust, it is now approaching three years old and newer data are becoming available. In the main these are less robust – but they are more recent. In this document – and others within the SEP Evidence Base – a range of different sources are used.

[10] In statistical/data terms, these are local authority districts (LADs). This expression is used in this document and it should not be conflated or confused with lower tier districts

Structure of this Evidence Paper

The remainder of this Evidence Paper is structured as follows:

- Section 2-2 considers headline statistics for the TVB area
- Section 2-3 presents indicators and data which reflect TVB's economy and people
- Section 2-4 presents data concerned with TVB as a place and its associated environment

2-2. Headlines

Table 12 provides an overview of key indicators relating to the economy of TVB. It is based on the latest publically available secondary data. It also refers to estimates (for 2011) taken from Cambridge Econometrics' Local Economy Forecasting Model (reported in Evidence Paper 1). These data are compared to those presented in TVB LEP's "Base Document" – a comprehensive resource that was compiled by TVB LEP as an early input into the development of the SEP.

As can be observed from Table 12, TVB had a population of just over 860,000 at the time of the 2011 Census; and more recent estimates suggest that the total population now exceeds 870,000[11]. It supports over half a million workplace jobs (taking into account employee jobs and self-employment jobs). GVA/head is £32,798, and GVA/job stands at £57,189. The area is also home to around 42,000 businesses. Estimates suggest a business density of 646 per 10,000 working age resident. Taken together, these businesses generate around £30bn in GVA (at current prices).

Table 12: Key economic indicators

	Date of latest data	Thames Valley Berkshire LEP area	Source	CE from LEFM: Estimates for 2011	TVB LEP Base Document (including page no, year and source)
Population	2011	861,870	Sourced directly from Census 2011	864,000	865,200 (Page no. 23, 2012, source not provided) 853,607 ('Killer Facts' embedded spread sheet within the 'Base Document' – 2011 – source not provided)
	2012	871,000	ONS Mid-Year Population Estimates		
Workplace jobs	2011	529,000	ONS Jobs Density – sourced directly[12]	538,690	382,693 FTE jobs (Page no. 10 – Adroit Economics, Economic and Social Impacts of Broadband in Berkshire, 2011) 511,577 ('Killer Facts' embedded spread sheet within the 'Base Document' – 2010 – source not provided)

[11] ONS Mid-Year Population Estimates for 2012

[12] ONS Jobs Density is a workplace-based measure and comprises employee jobs, self-employed, government-supported trainees and HM Forces. ONS Jobs Density total jobs estimates are rounded to the nearest thousand in outputs.

	Date of latest data	Thames Valley Berkshire LEP area	Source	CE from LEFM: Estimates for 2011	TVB LEP Base Document (including page no, year and source)
Workplace employees[13]	2011	459,300	BRES – sourced directly		454,000 (Page no. 23 – 2012 – rounded figure taken from (453,599) 'Killer Facts' embedded spread sheet within the 'Base Document' – 2010 – BRES 2010)[14]
Job density (job per head of population)	2011	0.93	ONS Jobs Density – sourced directly		n/a
GVA (£m)	2012	£30.4bn (current prices)	ONS – sourced directly	£26.7bn (2009 prices)	£23bn (Page no. 10 – e-skills UK 2012 productivity forecasts – Adroit Economics, Economic and Social Impacts of Broadband in Berkshire, 2011) £22.286bn ('Killer Facts' embedded spread sheet within the 'Base Document' – 2010 – source not provided)
GVA per head (£)	2011	£32,798 (current prices)	ONS – sourced directly	£31,000 (2009 prices)	£33,200 (Page no. 27 – 2011 – LEP Network Report 2013)
GVA per job[15](£)	2011	£57,189 (current prices)	ONS[16] – sourced directly	£49,700 (2009 prices)	£43,564 ('Killer Facts' embedded spread sheet within the 'Base Document' – 2010 – source not provided)
Business stock	2012	41,695	IDBR / Business Demography		41,900 (Page no. 23 – 2012 – source not provided) 41,250 ('Killer Facts' embedded spread sheet within the 'Base Document' – 2011 – IDBR 2011)
Business density (per 10,000 people aged 16-74)	2011	649[17]	Census and LEP Benchmark Report		n/a

[13] Workplace employees equals sum of full time and part time employees in the public and private sector. This indicator does not include most self-employment jobs

[14] Open access BRES employee data from Nomis for the reference year (2010) provides a figure of 464,191. This is different to the figure of 453,599 that is provided in the 'Killer Facts' document.

[15] Geography defined as NUTS 3 UKJ11 Berkshire

[16] ONS Regional Economic Analysis, Sub regional Productivity 2011

[17] Business Density (per 10k 16-74) equals the sum: (total business stock from LEP Network Benchmark Report 2013 {40,805} divided by total resident population 16-74 from the 2011 Census {628,956}) multiplied by 10,000.

Source: Various sources as per table. Notes: Berkshire NUTS3 area has been used to represent TVB LEP geography for GVA data. GVA data are presented in current basic prices

2-3. Indicators relating to people and economy

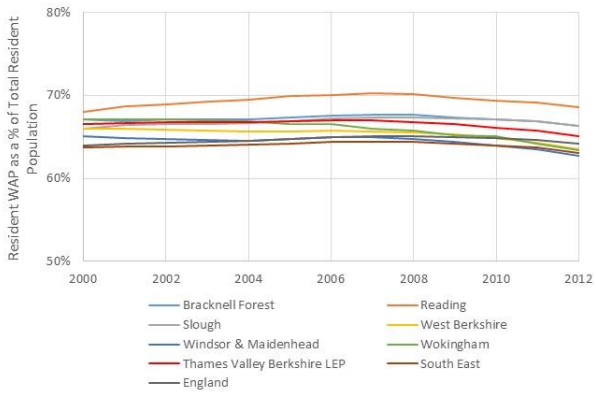
TVB's Population

The Census indicates that in 2011, **the total resident population of TVB was 861,870. The area's population increased by 7.7% over the period 2001 to 2011, which was broadly in line with South East and UK averages**[18]. The total resident population for Thames Valley Berkshire is made up of the resident populations of each LAD in the area. From the 2011 Census, population estimates for each unitary authority area were as follows: Bracknell Forest (113,205); Reading (155,698); Slough (140,205); West Berkshire (153,822); Windsor & Maidenhead (144, 560) and Wokingham (154,380).

In 2011, TVB had a **population between the ages of 16 and 74 inclusive of 628,956**[19].

The data below are taken from the Annual Population Survey (APS). These suggest that Reading has the highest proportion of residents that are of working age (WAP) – at 69% in 2012 – in comparison to other LADs in TVB.

Figure 8: Working age population (as a proportion of total population), 2000 to 2012



[18] Resident populations are derived from Census 2011 data and are therefore relatively robust. However, in order to understand historic population trends for Thames Valley Berkshire ONS mid-year population estimates are used

[19] 2011 Census, economic activity data

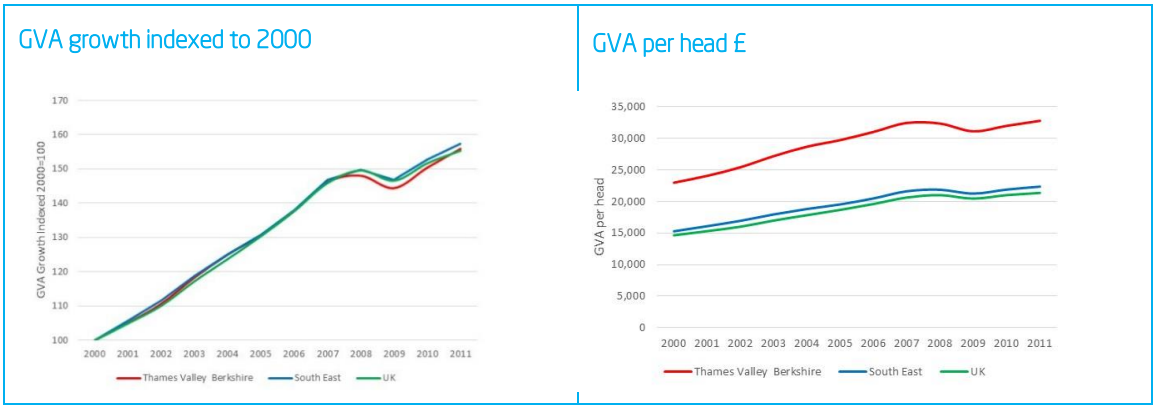
Source: ONS mid-year population estimates, 2000 to 2012

TVB's Economy

GVA (current prices data from ONS)

According to ONS, in 2012, the TVB economy generated **£30.4bn in Gross Value Added** (GVA)[20],[21]. Analysis of an earlier dataset suggested that GVA grew at a rate which was similar to the south east and UK from 2000 to 2011. Throughout, as illustrated in the right-hand graph below, **GVA per head in TVB – at £32,798 in 2011 – was well above the south east and UK averages** (of £22,369 and £21,368 per head, in 2011, respectively).

Figure 9: GVA and GVA per head (current prices), 2000 to 2011



Source: SQW analysis of ONS data, 2000 to 2011. GVA data are not available at the LAD level

There is a similar story for productivity (measured by GVA per filled job), where **productivity performance in the TVB area exceeds the South East and England averages**. On this measure, in 2011, productivity in Thames Valley Berkshire was £57,189 per filled job (equivalent to 132% of the UK average).

Table 13: Productivity (GVA per filled job) in 2011

Area	Productivity (GVA per filled job)
Thames Valley Berkshire	£57,189

[20] GVA data sourced through ONS are presented in current basic prices.

[21] Note that the 2012 dataset was released by ONS as the SEP Evidence Base was being finalised. The GVA estimate for 2011 was revised upwards (compared to that included in the 2011 release). The graphs in this paper are based on the earlier data

Area	Productivity (GVA per filled job)
South East	£45,457
UK	£43,236
TVB as % of UK	132%

Source: Analysis of ONS data, 2011. Notes: All GVA data is presented in current basic prices.

Patterns of economic activity, employment, unemployment and NEET

In 2011, the economic activity rate for TVB was 75%. This was above the South East and England averages (of 72% and 70% respectively)[22]. More recent (but survey-based) data from APS[23] point to an economic activity rate of almost 81% in TVB (compared to 80% in the South East and 77% across GB).

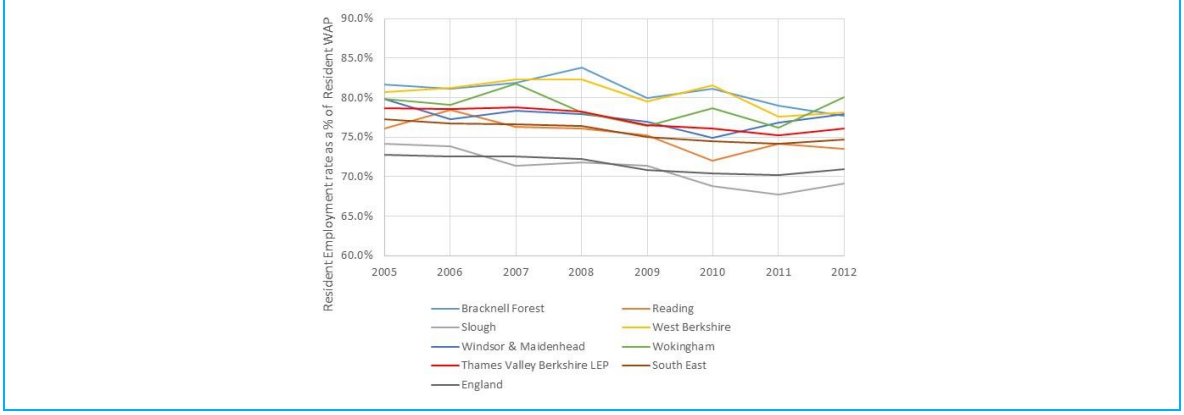
There is a broadly similar story for the **employment rate** (measured as a percentage of the resident working age population in employment[24]). In general, the employment rate across TVB exceeds the South East and England averages. Whilst not as robust as the Census, APS data covering the period July 2012 – June 2013 suggest that the employment rate in TVB stands at 77%. This compares to 74.7% across the South East. However, there are local variations. As the chart which follows shows, the employment rate in Slough is notably lower than the other local authority districts and the South East region as a whole.

Figure 10: Employment rate (among those aged 16-64), 2005 to 2012

[22] Defined as those in work, or actively seeking work, as a percentage of all residents aged 16-74; these data are sourced from Census 2011

[23] Note that APS denominator is people aged 16-64 (so the denominator is different from – and smaller than – Census-based estimates)

[24] It is again important to note that the working age population is defined differently in the Census and APS

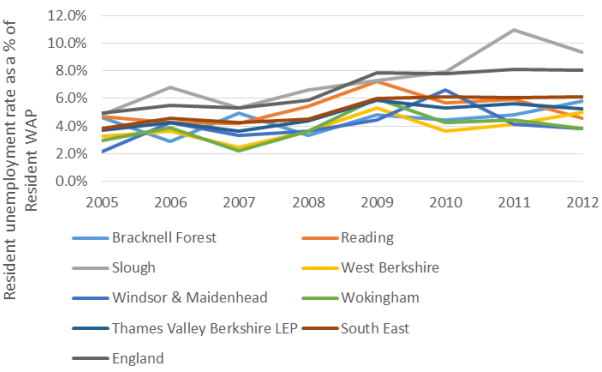


Source: Analysis of APS data, 2005 to 2012

Similarly, APS data covering the period July 2012 – July 2013 suggest that the **unemployment rate** in TVB was 4.5% (compared to 6.4% across the South East[25]). Again, there are local variations as illustrated in the chart below. There is a correlation between the employment rate and the unemployment rate. The unemployment rate in Slough is notably higher than the other TVB LADs and the South East as a whole.

[25] Aggregated APS data for employment and unemployment rates do not add up to 100% due to sampling error

Figure 11: Unemployment rate (among those aged 16-64), 2005 to 2012



Source: Analysis of APS data, 2005-2012

The proportion of 16 -18 year olds that are **NEET (i.e. not in employment, education or training)** in TVB was similar to that for the South East in 2012 (5.2% compared to 5.4%). Again however, there was notable variation across the area. In Reading, some 8.4% of 16-18 year olds (equivalent to around 360 people) were NEET in 2012, notably higher than the average for the South East and England. This compares with Wokingham where 3.6% of 16-18 year olds (equivalent to around 180 people) were NEET in 2012.

Table 14: 16-to 18-year-olds not in education, employment or training (NEET), 2012

	16-18 year olds known to the local authority	16-18 year olds NEET estimated number	16-18 year olds NEET as a % of 16-18 year olds	% whose activity is not known
Bracknell Forest	3,552	210	6.0%	1.9%
Reading	4,272	360	8.4%	2.6%
Slough	4,724	230	4.9%	6.6%
West Berkshire	4,858	210	4.4%	2.1%
Windsor and Maidenhead	3,606	170	4.8%	7.1%
Wokingham	5,028	180	3.6%	3.8%
Thames Valley Berkshire	26,040	1,360	5.2%	4.0%
South East	269,315	14,540	5.4%	13.3%
England	1,740,115	100,040	5.7%	10.7%

Source: Analysis of DfE data, 2012

Jobs

On one estimate, **TVB had a total of 459,300 employee jobs[26] in 2011[27]. This compared to 3,751,400 for the South East as a whole**.

The Annual Population Survey Workplace Analysis provides employment information about the population working in a particular area. An analysis of this data suggests that TVB differs from both England and the South East Region in **employment sector distribution**. In the period 2010/11-2012/13, TVB had a slightly larger proportion of employment in *Banking, Finance and Insurance* than England and the South East, with a three year average of 78,100 people employed in this sector[28]. It also had a higher proportion of employment in *Transport & Communications* than both England (4 percentage points higher) and the South East (3 percentage points higher). TVB had a lower proportion of employment in *Public Administration, Education & Health* (13% compared to 17% in England and the South East)[29].

During the period 2007 to 2011, there was a relative decline in employment in the manufacturing sector in TVB. Over time, there has there been a gradual sectoral shift towards Services, Public Administration, Education & Health, Distribution, Hotels & Restaurants and Transport & Communications.

From other sources, it is apparent that **TVB has the second lowest level of resident population in public sector employment as a percentage of all those employed, of all LEP areas across the country.** With 14.7% of employed people working in the public sector, the incidence of public sector employment is slightly higher than in Buckinghamshire Thames Valley (14.4%), but far below the average for England of 20.5%[30].

According to the 2013 LEP Network report, in 2011, 18% of employees in TVB were employed in export intensive sectors. This compares to 20.5% of employees in London (the highest proportion of all the LEPs), and 17.7% employees in England. TVB follows the general trend across England of a slight increase in the proportion of employees in export intensive sectors from 2010 to 2011.

---

[26] Note that this excludes self-employment jobs which need to be included in full estimates of either jobs or employment

[27] BRES employee data, 2011

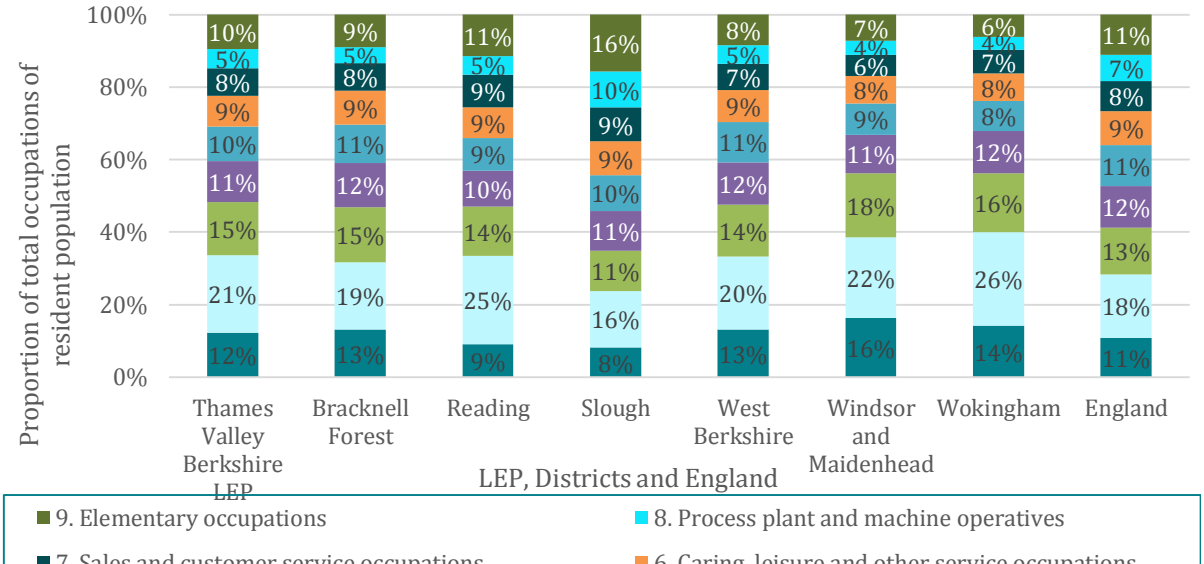
[28] SQW Analysis of APS workplace data, 2010–2013 average employment distribution (as a %) by industry sector (UK SIC 2007)

[29] SQW Analysis of APS workplace data, 2010–2013 average employment distribution (as a %) by industry sector (UK SIC 2007)

[30] LEP Network Benchmarking Report, 2013

TVB has a higher proportion of residents employed in Standard Occupational Classes (SOCs) 1, 2 and 3 than England as a whole. The unitary authority areas of Windsor & Maidenhead and Wokingham have particularly high proportions residents in SOC 1, 2 and 3 occupations, with over half of all employed people living in the two districts being engaged in Managerial, Professional or Technical occupations.

Figure 12: Occupation distribution of resident population aged between 16 and 74 in employment 2011 (%)



Source: Census 2011 (SOC 2010)

Skills

TVB has a **relatively skilled population of working age**: in 2011, 34% of residents aged 16 or above held a Level 4 or above qualification (Census 2011). This compared to 30% in the South East and 27% in England.

While not as robust as the Census, APS provides data on working qualifications for working age residents aged 16 to 64. On the basis of APS data for 2012, this figure rises to 41% for TVB. This compares with just under 37% across the South East region as a whole.

At the other end of the skills spectrum, Census data suggest that in 2011, TVB had a lower proportion of residents (aged 16+) with no qualifications (17%) than both the South East (19%) and England (22%). However, there is notable variation within TVB. Slough had a lower proportion of residents (aged 16+) qualified at Level 4 or above (26%) than both the South East and England, and had a marginally higher proportion of residents with no qualifications (20%) than the South East. Wokingham was the strongest performer: 40% of its residents (aged 16+) held a Level 4 or above qualification, whilst 13% held no qualifications.

Table 15: Highest Level of Qualification as a % of all residents aged 16 and over, Thames Valley Berkshire Local Authority Districts, South East and England, 2011

Qualification	Bracknell Forest	Reading	Slough	West Berk-shire	Windsor & Maiden-head	Woking-ham	TVB	South East	England
No qualifications	16%	17%	20%	17%	16%	13%	17%	19%	22%
Level 1 qualifications	15%	12%	15%	14%	12%	12%	13%	14%	13%
Level 2 qualifications	17%	12%	13%	16%	14%	15%	15%	16%	15%
Apprentice-ship	3%	3%	2%	4%	3%	3%	3%	4%	4%
Level 3 qualifications	13%	13%	10%	12%	11%	12%	12%	13%	12%
Level 4 qualifications and above	30%	35%	26%	32%	38%	40%	34%	30%	27%
Other qualifications	5%	7%	14%	4%	6%	4%	7%	5%	6%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%

Source: Census 2011

Earnings

Data from the Annual Survey of Hours and Earnings (ASHE) are available on a workplace (i.e. location of jobs) and residence (i.e. homes of workers) basis. Comparisons between these two measures can be instructive. In 2012, data suggest that these two measures (for full time employees) were similar to each other in each of Reading, West Berkshire and Wokingham. In 2012, Slough and Bracknell Forest both had higher workplace-based weekly pay than resident-based weekly pay (suggesting that relatively well-paid local jobs are taken by in-commuters). Conversely, Windsor & Maidenhead had considerably higher weekly pay on a resident- than workplace-based metric.

Table 16: 2012 Median weekly pay (rounded to the nearest £10) of the Full Time employee workforce

	Workplace analysis		Resident analysis	
	median weekly pay of total full-time employee workforce (£)	conf %	median weekly pay of total full-time employee workforce (£)	conf %
Bracknell Forest	630	9.1	570	4.4
Reading	590	4.8	590	4.6
Slough	590	5.2	520	3.9
West Berkshire	580	4.8	570	5.8
Windsor and Maidenhead	620	6.1	730	5.0
Wokingham	640	7.7	660	7.1
South East	540	0.7	560	0.7
England	510	0.3	510	0.3

Source: ASHE 2012

Business base

As Table 17 shows, **the size distribution of TVB businesses is similar to that of the South East and England**. In all three cases, micro enterprises make up the vast majority of the total. However TVB has a (slightly) higher incidence of large businesses; it is probable that these have a disproportionate impact on the local economy.

Table 17: Number of Businesses by Size (no of employees), 2011

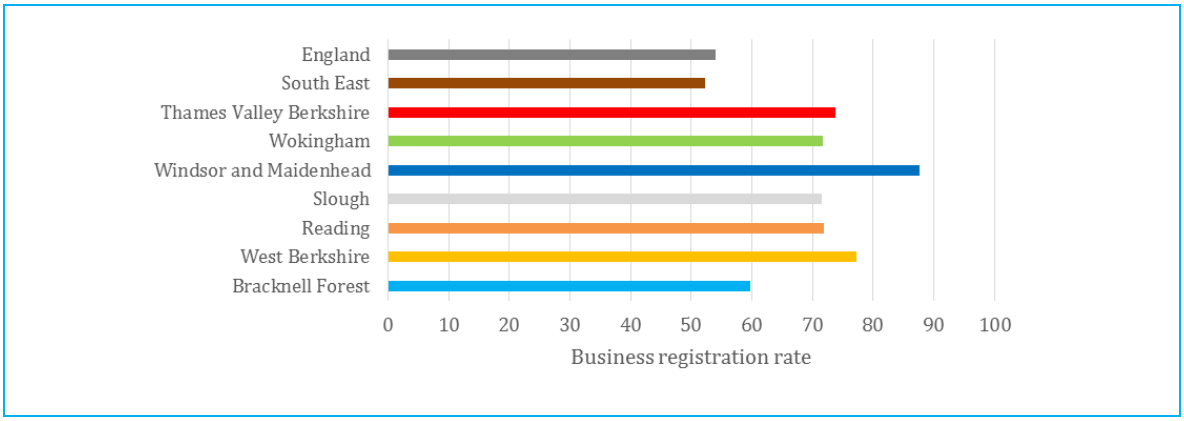
UK Business Counts - Enterprises 2011	Bracknell Forest	Reading	Slough	West Berkshire	Windsor and Maidenhead	Wokingham	TVB	South East	England
Micro (0 to 9)	90%	87%	85%	88%	91%	91%	89%	90%	89%
Small (10 to 49)	7%	11%	10%	9%	7%	7%	9%	8%	9%
Medium-sized (50 to 249)	2%	2%	3%	2%	1%	1%	2%	1%	2%
Large (250+)	1%	1%	1%	1%	0%	0%	1%	0%	0%

Source: ONS UK Business Counts – Enterprises 2011.

TVB has a business registration rate of 73.8 per 10,000 of the resident working age population, compared to a rate for England or 54 per 10,000 resident working age population. Windsor and Maidenhead has a very high business registration rate of 87.6[31].

[31] LEP Local Authority Comparator Profiles - May 2013 update

Figure 13: Registration rate of businesses per 10,000 resident adult population, 2011



Source: LEP Local Authority Comparator Profiles - May 2013 update. Business registration rate= number of businesses registered per 10,000 resident population.

In 2009, TVB had 35.3 patents held per 100,000 residents. This was the fifth highest level amongst English LEP areas, behind Greater Cambridge & Greater Peterborough, Enterprise M3, Oxfordshire and Swindon and Wiltshire[32].

As of 2011, **2.5% of the enterprises in TVB were foreign owned. This was the highest level across the country,** with the average for England being 1.2%. **These businesses were responsible for 26% of employment in the LEP area;** this was the second highest percentage of employment in foreign owned businesses (behind Coventry and Warwickshire)[33]. The 2011 figures represent a slight decrease in foreign ownership from 2010 to 2011 for TVB, but a slight increase in the proportion of residents employed by foreign owned businesses.

[32] The LEP Network, *Review of Local Enterprise Partnership area economies in 2013*, Appendix A: Benchmarking LEP Areas, p.B3

[33] The LEP Network , *Review of Local Enterprise Partnership area economies in 2013*, Appendix A: Benchmarking LEP Areas, p.C5 & C6

2-4. Indicators relating to place and environment

Of the total population of Thames Valley Berkshire, 14.5% are identified as living in rural areas. This is the 10th lowest percentage in the country, just below Sheffield City Region, and above the Coast to Capital LEP. Across England as a whole, 19.7% of the population live in areas that are classed as rural.[34]

Superfast Broadband availability is unevenly spread across the LEP area, with Reading and Slough benefitting from over 90% coverage, compared to 60% in West Berkshire and 77% in Bracknell Forest. Bracknell Forest is the only district to have a broadband uptake percentage higher than the percentage of broadband connections receiving 2 mbits/s.

Table 18: Superfast broadband availability and Take-up of Superfast broadband, 2013

	Percentage of broadband connections receiving 2 Mbits/s	Superfast broadband availability	Total broadband take-up (including superfast broadband)	Take-up of Superfast broadband
Bracknell Forest	84%	77%	87%	11%
Reading	95%	93%	77%	14%
Slough	84%	92%	77%	12%
West Berkshire	89%	60%	74%	7%
Windsor and Maidenhead	86%	83%	78%	12%
Wokingham	87%	87%	85%	14%

Source: Review of Local Enterprise Partnership area economies in 2013, Appendix A: Benchmarking LEP areas, p.F2

Thames Valley Berkshire is made up of LADs which vary in terms of estimates of per capita CO_2 emissions. On this indicator, TVB performs slightly worse than the South East average. Within this, Reading is the best performing area and West Berkshire is the worst; these observations correlate strongly with the degree of rurality, and – in all probability – distinctive patterns of energy consumption.

[34] The LEP Network, *Review of Local Enterprise Partnership area economies in 2013*, Appendix A: Benchmarking LEP Areas p.A4.

Table 19: CO_2 emissions of Thames Valley Berkshire and the South East, 2011 (*kt CO2*)

	Total emissions	Population (000's)	per capita emissions
Bracknell Forest	587.33	113.7	5.2
Reading	751.78	155.3	4.8
Slough	939.64	140.7	6.7
West Berkshire	1550.83	154.1	10.1
Windsor & Maidenhead	1084.31	145.1	7.5
Wokingham	964.91	154.9	6.2
Thames Valley Berkshire	5878.8	863.8	6.8
South East	54633.9	8653.2	6.3
England	354027.23	53107.2	6.7

Spreadsheet author Ricardo-AEA, Local CO2 emission estimates. Year 2005- 2011. Release date 11/07/2013. See
*www.gov.uk/government/uploads/system/uploads/attachment_data/file/211904/110713_Local_CO2_NS_Annex_A2_*

Evidence Paper 3
International Comparators

3-1. Introduction

Thames Valley Berkshire (TVB) is an economy which – in many respects – is defined around connectivity. It abuts a busy hub airport with world-wide connections; and it has a strong relationship with London, a city which has grown substantially over the last 20 years and undoubtedly has World City status. Both of these locational attributes have underpinned a very strong track record in relation to international inward investment[35] and they do much to explain the high incidence of large corporates within Thames Valley Berkshire.

Inevitably, this overall pattern of investment and growth also presents some challenges. It means that the principal competitors of Thames Valley Berkshire need to be understood not just in a UK context, but also on a global stage: competition for mobile investment is, increasingly, not defined in terms of the merits of Thames Valley Berkshire vis-à-vis Surrey or Buckinghamshire, but Thames Valley Berkshire vis-à-vis other European locations, or indeed, destinations further afield (which is where, increasingly, the fastest-growing markets are to be found).

In this Evidence Paper, we consider Thames Valley Berkshire in relation to two groups of comparator/competitor locations:

- those areas which abut other hub airports in Europe – notably Schipol (Amsterdam); Charles de Gaulle (Paris); and Frankfurt
- those areas which include major knowledge-based universities and high tech business clusters.

From the outset, it is important to recognise that international comparisons are complicated. Robust data from which comparisons can be made are rarely available and even apparently-similar data can be defined and measured in different ways: the risk of (inadvertently) comparing "apples and pears" is not trivial. Equally, national contexts vary substantially, particularly outside of Europe: underlying expectations of what "the state" may contribute to the growth of an economy like that of (say) Singapore or South Korea are vastly different from anything we might contemplate in the UK. There is therefore a need for some caution in comparing findings. Nevertheless, the questions, perspectives and challenges they raise are important for an area like Thames Valley Berkshire; and they need to be considered through the Strategic Economic Plan.

[35] The nature and pattern of inward investment to TVB and exporting from it is considered in detail in Evidence Paper 4

For this exercise, we have relied on a desk-based review of published sources. These are referenced in footnotes throughout this Evidence Paper.

3-2. Perspectives from "*edge-of-hub airport*" economies in Europe

The importance of airports to economic growth

As set out in Section 3-1, one of the defining characteristics of Thames Valley Berkshire – particularly its eastern portion – is the strong relationship (defined in direct and indirect terms) to activities at Heathrow Airport.

These were explored in some detail in a recent report[36]. This focused on the 'western wedge'[37] and confirmed that Heathrow Airport is a critical driver of the area's economy. It found that in 2011, the total economic impacts (direct, supply chain and salary related impacts) of Heathrow Airport represented around 5% of all employment and around 4.5% of the total GVA of the 'western wedge'. However, Heathrow's economic influence was considered to extend beyond these impacts. Proximity to a global transport hub was identified in the report as a prime factor in the location and expansion of many businesses in the study area. According to the authors, the data suggest strongly that proximity to Heathrow is a key driver influencing the high concentration of foreign owned firms and headquarters of businesses, which is strongest in parts of the study area that are closest to Heathrow. In 2010, foreign owned firms accounted for 44% of the total turnover within Thames Valley Berkshire and a quarter of the total employment (compared to 37% and 14% in England respectively). Further, in 2011, Thames Valley Berkshire had a location quotient of 2.1 (England=1) for jobs in headquarters operations[38].

More generally, in 2004, York Aviation completed a piece of work for Airports Council International. This examined the social and economic impact of airports in Europe. Like the more recent study, it

[36] Regeneris, September 2013, London Heathrow Economic Impact Study, http://www.westlondon.com/wp-content/uploads/2013/09/130924-Regeneris-Final-Report-24th-Sep.pdf

[37] Buckinghamshire Thames Valley LEP, Enterprise M3, Oxfordshire LEP, Thames Valley Berkshire LEP, Brent, Ealing, Hammersmith & Fulham, Harrow, Hounslow and Hillingdon

[38] Regeneris, September 2013, London Heathrow Economic Impact Study, http://www.westlondon.com/wp-content/uploads/2013/09/130924-Regeneris-Final-Report-24th-Sep.pdf

found that as transport network nodes, airports create a strategic advantage which enables the local economy to attract a broad range of economic activity, especially inward investment[39].

Against this overall backdrop, in this Section, we consider Thames Valley Berkshire and its relationship to Heathrow Airport alongside three areas which abut other hub airports in Europe – namely Schiphol (Amsterdam); Charles de Gaulle (Paris); and Frankfurt.

Airports in comparative perspective

Comparing the hub airports, Heathrow has a higher number of passengers than the other three airports but it has a similar number of flights per year. Table 20 details recent and planned investments for the four airports. It is noteworthy that Heathrow is the only one of the four airports that has no spare capacity.

Table 20: Airport characteristics and development

Airport key figures	Recent investments	Planned investments
Heathrow		
• 70 million passengers in 2012 • 471,341 flights in 2012[40] • 98% of capacity utilised[41] • Connection to High Speed Rail/Crossrail planned for 2033[42]	• Terminal 5 was completed in 2008. It offers an additional 12 aircraft piers.[43]	• Terminal 2 is currently being redeveloped, it is scheduled to open in 2014. A capacity of up to 20 million passengers per year is expected once it is fully operational.[44] • In July 2013, Heathrow Airport Ltd submitted outline proposals to the Airports Commission, presenting three options for a third runway. The Airport Commission is expected to make recommendations to government regarding a preferred option by summer 2015[45]
Frankfurt		

[39] York Aviation, 2004, The social and economic impact of reports in Europe for Airports Council International. https://www.aci-europe.org/policy/position-papers.html?view=group&group=1&id=10

[40] http://www.heathrowairport.com/about-us/company-news-and-information/company-information/facts-and-figures

[41] Heathrow Airport Ltd/AECOM/Quod, 2013, Heathrow best placed for Britain, http://www.heathrowairport.com/static/HeathrowAboutUs/Downloads/PDF/best-placed-for-britain_LHR.pdf

[42] Heathrow Airport Ltd/AECOM/Quod, 2013, Heathrow best placed for Britain, http://www.heathrowairport.com/static/HeathrowAboutUs/Downloads/PDF/best-placed-for-britain_LHR.pdf

[43] http://www.heathrowairport.com/about-us/company-news-and-information/improving-heathrow

[44] Heathrow Airport Ltd, 2013, Investing in better journeys, Heathrow's new Terminal 2, http://www.heathrowairport.com/static/HeathrowAboutUs/Downloads/PDF/T2-investing-in-better-journeys-brochure.pdf; Heathrow Airport Ltd, 2013, Terminal 2, The Queen's Terminal, Made in Britain, http://mediacentre.heathrowairport.com/imagelibrary/downloadmedia.ashx?MediaDetailsID=1881&SizeId=-1

[45] http://www.heathrowairport.com/about-us/company-news-and-information/airports-commission/local-community/faqs

Airport key figures	Recent investments	Planned investments
• 57.53 million passengers in 2012 • 482,242 flights in 2012 • 66% of capacity utilised[46] • connected to ICE network[47]	• Completion of Northwest runway in 2011 • Extension of Terminal 1 in 2012[48]	• A new passenger terminal (Terminal 3) in the south of the airport is currently under construction, completion is planned for 2016/17. It will increase FRA's current capacity by 25 million passengers.[49]
Paris-Charles de Gaulle		
• 61.6 million passengers in 2012 • 491,300 flights in 2012[50] • 71% of capacity utilised[51] • Connected to high speed rail network	• Terminal 2 extended and renovated in 2007/08[52]	• Plans to expand terminal facilities and service quality in the terminals, investment of around 2.4 billion Euros between 2011 and 2015[53].
Amsterdam – Schiphol		
• 51 million passengers in 2012 • 423,407 flights in 2012[54] • 62% of capacity utilised[55] • Connected to high speed rail network	• Expansion of Terminal 4 completed in 2007[56]	• Longer term strategy to prepare a Master Plan for Schiphol to expand capacity and make structural improvement to the quality of the terminals, piers and aircraft stands[57]. There is no evidence of major local protests.

Source: SQW multiple sources as detailed in footnotes

[46] Heathrow Airport Ltd/AECOM/Quod, 2013, Heathrow best placed for Britain, http://www.heathrowairport.com/static/HeathrowAboutUs/Downloads/PDF/best-placed-for-britain_LHR.pdf
[47] http://www.frankfurt-airport.de/content/frankfurt_airport/de/business_standort/daten_fakten.html
[48] http://www.fraport.de/de/kompetenzen/entwicklung-frankfurt-airport/erweiterungen.html, http://www.frankfurt-airport.de/content/frankfurt_airport/de/business_standort/daten_fakten.html
[49] http://www.fraport.de/de/konzern/flughafen-und-region/ausbau-fra.html
[50] http://www.aeroportsdeparis.fr/ADP/en-GB/Group/Presentation/Aeroportsdeparisataglance/TraficAerien/
[51] Heathrow Airport Ltd/AECOM/Quod, 2013, Heathrow best placed for Britain, http://www.heathrowairport.com/static/HeathrowAboutUs/Downloads/PDF/best-placed-for-britain_LHR.pdf
[52] http://www.aeroportsdeparis.fr/ADP/en-GB/Group/Presentation/Histoire/De1982ANosJours/
[53] http://www.aeroportsdeparis.fr/ADP/en-GB/Group/Presentation/Strategy/Ourstrategy/
[54] http://www.schiphol.nl/SchipholGroup/Company1/Profile.htm, http://www.schiphol.nl/SchipholGroup/Company1/Statistics/FactsFigures.htm
[55] Heathrow Airport Ltd/AECOM/Quod, 2013, Heathrow best placed for Britain, http://www.heathrowairport.com/static/HeathrowAboutUs/Downloads/PDF/best-placed-for-britain_LHR.pdf
[56] http://www.amsterdam-airport.com/
[57] Schiphol Group, 2012, Schiphol Group Annual Report 2012

The relationship between hub airports in Europe and the process of economic growth

Clearly, all four of the hub airports are substantial operations, and in general, airports have a positive impact on economic growth. In the context of the SEP, the question we wanted to consider was **whether the strength of the impact is affected by policy and/or other factors**.

In this context, all four "*edge-of-hub airport economies*" were defined in spatial terms, using groups of areas from the EU NUTS3 classification (in order to generate some comparable economic data[58]). The definitions were:

- Frankfurt – Groß-Gerau, Mainz (Kreisfreie Stadt) and Mainz-Bingen
- Paris – Val-d'Oise
- Schiphol – IJmond, Agglomeratie Haarlem, Agglomeratie's-Gravenhage, Agglomeratie Leiden en Bollenstreek
- TVB – Bracknell Forest, Reading, Slough, West Berkshire, Windsor and Maidenhead, Wokingham[59].

Table 21 provides baseline data for all four "*edge-of-hub airport economies*", using these spatial definitions. It shows that TVB is mid-range in terms of the size of its resident population and population density.

Table 21: Edge-of-hub-airport economies, area and population (2011 Amsterdam, all other 2010)

	Thames Valley Berkshire - 2011	Frankfurt	Paris-Charles de Gaulle	Amsterdam Schiphol
Area (sq km)	1263.9	1156.5	1245.9	954.5
Population (in 1000)	864.8	654.6	1174.4	1638.6
Population density (per sq km)	684.2	566.0	942.6	1716.7

Source: Eurostats: Area - NUTS 3 regions [demo_r_d3area], Annual average population (1 000) by sex - NUTS 3 regions [demo_r_d3avg], Population density - NUTS 3 regions [demo_r_d3dens]

[58] No data was available from Eurostat for Agglomeratie Leiden en Bollenstreek, data for this area sourced from Statistics Netherlands - http://www.cbs.nl/en-GB/menu/home/default.htm

[59] http://www.ons.gov.uk/ons/guide-method/geography/beginner-s-guide/eurostat/south-east--england-/index.html

The table below considers past patterns of economic growth using data sourced through Eurostat. These suggest that TVB grew more quickly in terms of population and more slowly in terms of GVA than the three other "*edge-of-hub-airport economies*"[60].

Table 22: Annual growth rates 2001 to 2010

Growth of....	Thames Valley Berkshire	Edge-of-hub Frankfurt	Edge-of-hub Paris	Edge-of-hub Amsterdam
Annual average population (2001-2010)	0.84%	0.44%	0.51%	0.51%
Employed persons (2001-2010)	-0.03%	0.34%	-0.08%	0.04%
GVA at basic prices (2001-2010)	0.46%	1.07%	3.87%	2.76%
GVA per person in employment (2001-2010)	0.49%	0.73%	3.95%	2.72%
GVA per capita (2001-2010)	-0.38%	0.62%	3.34%	1.88%

Source: SQW calculations based on Eurostat: Annual average population (1 000) by sex - NUTS 3 regions [demo_r_d3avg], Employment (in 1000 persons) by NUTS 3 regions (NACE Rev. 2) [nama_r_e3em95r2], Gross value added at basic prices by NUTS 3 regions (NACE Rev. 2) [nama_r_e3vab95r2]; Data for Agglomeratie Leiden en Bollenstreek from Statistics Netherlands - http://www.cbs.nl/en-GB/menu/home/default.htm (Population on 1 January)

The next four graphs dissect these findings in more detail.

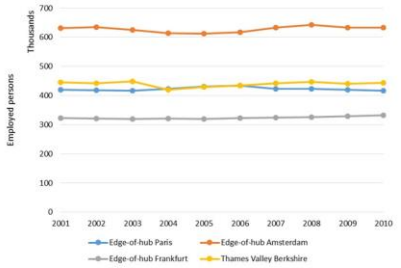
Figure 14 shows the number of employed persons in the four areas.

Figure 14: Number of Employed persons 2001 to 2010[61]

[60] It is important to note that the findings from the Eurostat data are different from those sourced nationally in relation to TVB – the definitions are also different and the GVA measures will be affected by exchange rate assumptions. The data presented here should not therefore be compared directly to those included in other parts of the SEP Evidence Base.

[61] The Eurostat employment indicator is part of the 'Annual national accounts' dataset compiled in accordance with the European System of Accounts 1995 (ESA95). The ESA95 employment definition states: "employment covers people working in resident production units [...], even if these people themselves are not resident in the economy" (i.e. a workplace based indicator). Estimates of employment in national accounts may differ from results of other statistics and surveys, in particular the labour force survey (LFS). These are differences due to integration of sources (information from many sources is combined to provide the most complete and consistent estimate and therefore the integrated national accounts estimate is different from each individual basic source; further adjustments are made to ensure consistency between variables in the national accounts dataset) and due to conceptual reasons (LFS covers resident households (i.e. resident persons in employment) and is therefore adjusted, mainly for cross-border workers, to align with the workplace based concept normally used in national accounts; LFS does not cover persons living in institutional or collective households (e.g. conscripts), unpaid apprentices and trainees and/or persons on extended parental leave which are covered by ESA95 employment; LFS results exclude persons below 15 years old from the definition of employment whereas national accounts do not exclude individuals from employment because of age).
http://epp.eurostat.ec.europa.eu/cache/ITY_SDDS/EN/nama_esms.htm;
http://epp.eurostat.ec.europa.eu/portal/page/portal/national_accounts/documents/employment/LFS-ESA.PDF;
http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-81-08-398/EN/KS-81-08-398-EN.PDF; http://eur-

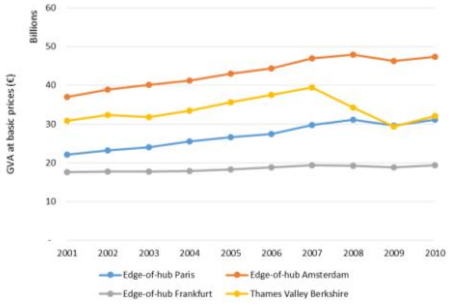
In each case, there was year-on-year variation but for two areas – TVB and Paris – the number of employed persons was lower at the end of the period than at the beginning.



Source: Eurostat: Employment (in 1000 persons) by NUTS 3 regions (NACE Rev. 2) [nama_r_e3em95r2]; Data for Agglomeratie Leiden en Bollenstreek from Statistics Netherlands - http://www.cbs.nl/en-GB/menu/home/default.htm

Figure 15 reports data on GVA. It shows that TVB differed from the three comparators in terms of the severity of the recession.

Figure 15: GVA at basic prices (€) 2001 to 2010



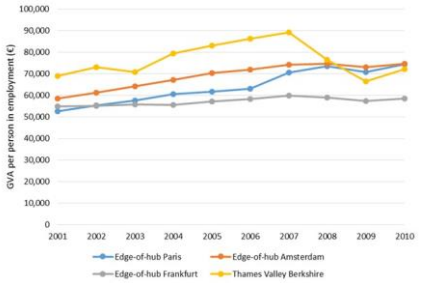
Source: Eurostat, Gross value added at basic prices by NUTS 3 regions (NACE Rev. 2) [nama_r_e3vab95r2]; Data for Agglomeratie Leiden en Bollenstreek from Statistics Netherlands - http://www.cbs.nl/en-GB/menu/home/default.htm

Figure 16 provides data relating to productivity. For TVB, the findings ought to be of some concern. Productivity was lower at the end of the period than at the start, and it apparently plummeted during

Figure 16: GVA per person in employment (€) 2001 to 2010

lex.europa.eu/LexUriServ/LexUriServ.do?uri=CONSLEG:1996R2223:20071230:EN:PDF;
http://epp.eurostat.ec.europa.eu/portal/pls/portal/!PORTAL.wwpob_page.show?_docname=3136291.PDF

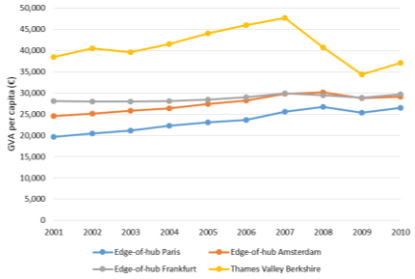
the down-turn; all three comparators appear to have been more resilient in these terms.



Source: SQW calculation based on: Eurostat: Employment (in 1000 persons) by NUTS 3 regions (NACE Rev. 2) [nama_r_e3em95r2], Gross value added at basic prices by NUTS 3 regions (NACE Rev. 2) [nama_r_e3vab95r2]; Data for Agglomeratie Leiden en Bollenstreek from Statistics Netherlands - http://www.cbs.nl/en-GB/menu/home/default.htm

The pattern with regard to GVA per capita is very similar to that for GVA per job. On these data, the picture in TVB appears quite different from elsewere. Although GVA per capita is relatively high throughout, it is also quite volatile.

Figure 17: GVA per capita (€) 2001 to 2010



Source: SQW calculation based on: Eurostat: Annual average population (1 000) by sex - NUTS 3 regions [demo_r_d3avg], Gross value added at basic prices by NUTS 3 regions (NACE Rev. 2) [nama_r_e3vab95r2]; Data for Agglomeratie Leiden en Bollenstreek from Statistics Netherlands - http://www.cbs.nl/en-GB/menu/home/default.htm (Population on 1 January)

Digging beneath these data, the boxes that follow draw on a review of websites, strategies and plans to describe the three comparator *edge-of-hub airport* economies in more detail.

Box 1: Frankfurt *edge-of-hub-airport* economy

Mainz is the largest city in the area with a population of around 200,100 in 2011, followed by Rüsselsheim.

Consistent with the structure of higher education in Germany, the area has a rich complement of (relatively small, by UK standards) higher education institutions, all but one of which is located in either Mainz or Rüsselsheim:

- *Johannes Gutenberg University Mainz* (36,000 students) – focuses on materials research, nuclear and particle physics, nuclear chemistry, immunology and oncology, intercultural studies, media studies.[62]
- *University of Applied Sciences Mainz* (4,700 students) – focuses on technology, design and business.[63]
- *University of Applied Sciences Wiesbaden Rüsselsheim*, based in Wiesbaden and Rüsselsheim. The School of Engineering is based in Rüsselsheim, with around 3,000 students.[64]
- *University of Applied Sciences Bingen* - focused on engineering and technology[65].
- *Catholic University of Applied Sciences* in Mainz - focuses on theology and social work[66].
- *EMS European Management School* in Mainz is a private university of applied sciences.[67]

Building on the expertise of the HEIs, Mainz is home to two Max Planck Institutes that are located on the campus of the Johannes-Gutenberg University and next to the University of Applied Sciences Mainz. The Max Planck Institute for Chemistry had 270 researchers[68] and the Max Planck Institute for Polymer Research had 551 researchers in 2013[69].

Major industries in Mainz include media and technology (e.g. a number of television channels, IBM). There are six key business parks providing employment land around Mainz: the largest business park, Mainz-Hechtsheim, is 110ha[70]. A second substantial business park (92ha) is currently being developed[71].

In Rüsselsheim, motor vehicle manufacturing is the largest industry (including Opel, Kia and Hyundai Motor R&D departments). There are three business parks around Rüsselsheim providing employment land (two largest around 40ha and 30ha)[72]. A number of smaller business parks are located in Mainz-Bingen and Groß-Gerau local authorities[73].

In 2013 the Goethe-Universität Frankfurt undertook a cluster study for FrankfurtRheinMain which found that Mainz has a location quotient of 1.77 for the IT and communication sector and a location quotient of 1.46 for the creative and cultural sector (Germany = 1). Groß-Gerau has a location quotient of 1.76 for the logistics and transport sector. [74]

The business parks tend to be located close to the Autobahn. The area west of Frankfurt is very well connected to Frankfurt, the airport and other cities in Germany through the Autobahns A60, A63, A643 and A66. Sections of the

[62] http://www.mainz.de/WGAPublisher/online/html/default/hthn-5vnjeu.de.html, http://www.uni-mainz.de
[63] http://www.mainz.de/WGAPublisher/online/html/default/hthn-63hbte.de.html, http://www.fh-mainz.de/
[64] http://www.ruesselsheim.de/Hochschule-RheinMain0.html, http://www.hs-rm.de/ing
[65] http://www.fh-bingen.de/
[66] http://www.kfh-mainz.de/
[67] http://www.ems-mainz.de/
[68] http://www.mpic.de/en/about-us.html
[69] http://www.mpip-mainz.mpg.de/Portrait
[70] This is larger than Green Park Reading which is around 80ha, http://www.greenpark.co.uk/about-us/park
[71] http://mainz.de/WGAPublisher/online/html/default/immobilien
[72] http://www.ruesselsheim.de/Gewerbegebiete.html
[73] http://www.mainz-bingen.de/deutsch/wirtschaft/gewerbeflaechen.php?navid=64, http://www.kreisgg.de/wirtschaft-und-energie/wirtschaftsfoerderung/gewerbeflaechen-immobilien/, http://www.gvg-mainz.de/gewerbegebiete/
[74] Goethe-Universität Frankfurt, 2013, Clusterstudie FrankfurtRhainMain. Wettbewerbsvorteile durch Vernetzung. http://www.region-frankfurt.de/media/custom/2033_306_1.PDF?1364309463

A60 near Mainz have recently been expanded from four lanes to six.[75] The region is also connected to the high speed rail network, with ICE connections from Mainz. The inland waterway container port in Mainz connects the area with ports along the Rhine.[76]

In terms of housing land, the good connectivity across the area has made it easier for residents to move out of Mainz into the surrounding local authorities (radius of about 20-30 minutes around Mainz). Young and higher income households have been moving from Mainz to the surrounding local authority areas, drawn by the better supply of housing and lower property prices. The population of the areas surrounding Mainz increased by 35,749 people between 1992 and 2002, but the rate of increase slowed in the 2000s: between 2003 and 2009 the population of the surrounding areas increased by only 2,733, the majority of these were people moving from Mainz. The population increase in the local authorities around Mainz has led to issues in terms of traffic and provision of services. Housing growth in the surrounding areas is now being limited to specific local authorities and there is more focus on brown land redevelopment in Mainz [77].

All three authorities, Groß-Gerau, Mainz (Kreisfreie Stadt) and Mainz-Bingen, are part of the regional economic development partnership 'Wirtschaftsförderung Region Frankfurt RheinMain'. The metropolitan area is located on the border of Hesse and Rhineland-Palatinate, which have responsibility for regional planning. The metropolitan area partnership seeks to support its members to promote the area and collates a list of available employment land. Members of the development partnership include around 200 cities and authorities around Frankfurt, six chambers of commerce or crafts, and seven universities. Membership is voluntary.[78]

Mainz (Kreisfreie Stadt) and Mainz-Bingen are part of the Regional Planning Authority Rhine Hesse – Nahe (Planungsgemeinschaft Rheinhessen-Nahe), one of four planning regions in Rhineland-Palatinate. The Regional Plan for Rhine Hesse – Nahe is from 2004 and is currently being updated.[79] One of the objectives of the 2004 plan is to ensure that existing employment is secured and new employment opportunities are created by building on the existing research and technology strengths of the region, especially in the centre and west of the region. Mainz-Hechtsheim is noted in the Regional Plan as a key employment land site of the region. The plan recognises the importance of Frankfurt/Main airport in providing national and international transport connections for the region, and states that the necessary road and rail network to support the growth of air traffic will be provided by the region. However, the plan also notes the environmental impact of the airport on the region.[80]

Groß-Gerau is part of Land Hesse and therefore within the area of the Regional Plan for the Frankfurt-Rhine-Main metropolitan area (which also includes Frankfurt and the airport). The regional plan (2007) recognises the airport as the largest employer of the region. One of the objectives of the plan is to secure and develop the airport's function as

[75] http://www.mainzerring.de/Startseite/

[76] http://www.mainz.de/WGAPublisher/online/html/default/hthn-5vpkgt.de.html

[77] http://www.mainz.de/C1256D6E003D3E93/vwLookupImagesforLoad/Stadt_Umland_Studie_fortsch.2011_neu_FINAL.pdf/$FILE/Stadt_Umland_Studie_fortsch.2011_neu_FINAL.pdf

[78] http://www.region-frankfurt- rheinmain.de/index.php?article_id=14

[79] http://www.pg-rheinhessen-nahe.de/html/download.html

[80] Planungsgemeinschaft Rheinhessen-Nahe, 2004, Regionaler Raumordnungsplan der Region Rheinhessen-Nahe (ROP), http://www.pg-rheinhessen-nahe.de/html/web-links.html#Gebiet

an international hub. The conflict between the local population's concerns in terms of noise and the demand of the businesses for air transport is to be considered in developing the airport.[81]

Box 2: Charles de Gaulle/Paris *edge-of-hub-airport* economy

The Val-d'Oise region borders Paris to the east and south-east. The area closest to Paris is more densely populated and has most of the economic activity of the region, compared to the western part which is dominated by a national park. The east of the area is better connected through motorway A15, A16 and A1 as well as the high speed rail network. The Val d'Oise region is home to a number of HEIs[82], the largest of which are:

- *University of Cergy-Pontoise,* has around 15,000 students. It focuses on law, economics and management, languages, arts and humanities, science and technology[83]
- *University Institute of Technology* (IUT) has around 1,725 students, focusing on engineering, ICT, marketing, logistics and transport[84]
- *Polytechnic Institute Saint-Louis* offers courses in the fields of science and technology, and social science[85]

The University of Cergy-Pontoise is located on one of the three major business parks of the area which offers space predominantly to businesses in the technology sector. Grand Roissy Business Park, adjacent to the airport, is predominantly used by the aerospace sector. Argenteuil-Bezons Business Park on the edge of Paris offers commercial and industrial employment land. A fourth site, Bruyeres-sur-Oise in the north is under development.[86]

The Plan stratégique de développement économique 2009-2019 (Strategic Economic Development Plan) for Val d'Oise highlights these as key employment land sites. The plan recognises R&D activities as a priority for Val d'Oise, focusing on the following key sectors represented in the area: software and complex systems (System @ tic cluster[87]), health and biotechnology (Medicen cluster[88]), image, multimedia and digital design (Cap Digital[89]), aeronautics and space (Astech[90]), finance and insurance (Finance Innovation[91]), cosmetics (Cosmetic Valley[92]), road safety and sustainable mobility (Mov'eo). To help increase the competitiveness of the region the strategy advocates focusing support on four sectors: mechatronics, eco-construction, cosmetics, and telecommunications. This includes, for example, a start-up support scheme at ACCET Val d'Oise Technopole incubator, focusing on innovative technology

[81] Planungsverband Ballungsraum Frankfurt/Rhein-Main, 2007, Frankfurt/Rhein-Main 2020 – die europaeische Metropolregion, Leitbild fuer den Regionalen Flaechennutzungsplan und den Regionalplan Suedhessen.
[82] http://www.valdoise.fr/6584-enseignement-superieur-dans-le-val-d-oise.htm
[83] http://www.u-cergy.fr/fr/universite/direction-generale-des-services/seap/chiffrescles.html
[84] http://www.iut.u-cergy.fr/index.php?option=com_content&view=article&id=90&Itemid=153
[85] http://www.ipsl-edu.com/Accueil/Actualites/Les_Ecoles/art38.htm
[86] http://www.valdoise.fr/69-plan-strategique-de-developpement-economique.htm
[87] http://www.systematic-paris-region.org/en
[88] http://www.medicen.org/
[89] http://www.capdigital.com/
[90] http://www.pole-astech.org
[91] http://www.finance-innovation.org/
[92] http://www.cosmetic-valley.com/

businesses. The strategy includes three other economic development and business support initiatives: development of a Centre for Embedded Intelligence, recruitment of two technical advisors for SMEs and a loan scheme for SMEs.[93]

A new large employment land site, Triangle de Gonesse, located along the A1 between the Paris-Le Bourget Airport and Paris Roissy - Charles de Gaulle Airport is being planned. The 280ha site will provide space for research and development activities in a science and business park; together with space for education and training institutions, leisure, culture and shopping; with more than 50,000 jobs in total. Construction is scheduled to start in 2016 and full completion is envisaged for 2030.[94]

Further to the employment sites, a major urban development project is planned in Louvres and Puiseux-en-France, north-west of the airport, to help meet the demand for housing. On 82 ha, 3,340 housing units, 20,000sqm retail space and other public facilities will be provided. The development will nearly double the size of the two towns, from 12,368 inhabitants in 2008 (Louvres: 8874 inhabitants, Puiseux-en-France: 3394 inhabitants) to nearly 21,000 inhabitants in 2027.[95]

Box 3: Schiphol/Amsterdam *edge-of-hub-airport* economy

The largest cities in the area west of Amsterdam stretching along the coast are Haarlem, Leiden, Delft and The Hague, connected by the motorways A4, A44, A9 and A12. Ijmuiden to the north of the area is a North Sea harbour. The area is more densely populated compared to the other areas considered in this Evidence Paper, and it has a bigger student population:

- *Leiden University* has around 21,000 students. It focuses on archaeology, humanities, medicine, law, social and behavioural sciences, science.[96] Leiden University Medical Centre is part of the University and employs about 7,000 people. The research focus is on: vascular & regenerative medicine; immunity, infection disease and tolerance; translational neurosciences; ageing; cancer pathogenesis and therapy; innovation in health strategy quality of care; and biomedical imaging[97].
- *University of Applied Sciences Leiden* has around 7,800 students. It focuses on health, social work and applied psychology, education, management and business, and technology.[98]
- *In Holland University of Applied Sciences* has over 33,500 students. The university focuses on: communication, media and music; health, sports and social work; management, finance and law; marketing, tourism and leisure;

[93] http://www.valdoise.fr/69-plan-strategique-de-developpement-economique.htm

[94] http://www.plainedefrance.fr/en/renewal-development-remit/urban-planning-projects/planning-operations/gonesse-triangle, http://www.valdoise.fr/10799-le-triangle-de-gonesse.htm, http://triangledegonesse.fr/

[95] http://www.plainedefrance.fr/ses-domaines-dintervention/amenagement/projets-damenagement/ecoquartier-louvres-et-puiseux

[96] http://www.about.leiden.edu/about/profile.html

[97] https://www.lumc.nl/home/0002/?setlanguage=English&setcountry=en, http://www.leidenbiosciencepark.nl/science_and_education/knowledgde_insititutions

[98] http://www.hsleiden.nl/english

education; engineering, design and computing; and agriculture. The university has 10 locations, including amongst others Haarlem, The Hague and Delft.[99]

- *The Hague University of Applied Sciences* has around 23,500 students. It focusses on management, law, finance, communication, ICT and media[100].
- *Delft University of Technology* has around 16,000 students and focuses on science, technology and engineering.[101]
- *Webster University* has around 1,600 students and focuses on business and management, behavioral and social sciences, media communications, and international relations.[102]

The science and business parks of the area are located near the HEIs. Top Institute Pharma, in Leiden, is a public-private partnership institute in which academics and industry work together on multidisciplinary research aimed at improving the development of socially valuable medicines. This research precedes the stage in which companies develop individual medicines commercially, focusing on research that is difficult or impossible for individual companies to perform.[103]

The Top Institute Pharma is based adjacent to Leiden Bio Science Park. The Park is part of the life sciences cluster in the Netherlands. It extends over 110ha and provides space for over 85 dedicated medical life sciences companies and institutions with around 3,500 employees in total. A 36ha extension is planned.[104]

Technopolis Delft is a 24ha science park occupied mainly by R&D companies and institutions in medical technology and industrial biotechnology sectors. Development started in 2008, and the site is expected to provide 15,000 jobs[105].

There is a range of smaller city and suburban employment sites around The Hague. Key sectors include energy, engineering, ICT and telecoms and security[106]. In and around Leiden there are aerospace industries and large scale flower production.[107]

The edge-of-hub airport area near Amsterdam consists of a number of small municipalities, which are responsible for developing local plans.[108] There are also eight 'Plus Regions' covering the large urban areas. The south of the area is part of the Haaglanden Plus Region. The vision of the Haaglanden Regional Structure Plan (RSP) 2020 is "to grow as an internationally competitive region, with a functioning urban network and a high quality of life". One of the key projects for economic development is to strengthen the Technopolis Delft.[109]

[99] http://www.inholland.nl/inhollandcom/Inholland+Locations/
[100] http://www.thehagueuniversity.com/
[101] http://home.tudelft.nl/en/, http://www.denhaag.nl/en/residents/to/Delft-University-of-Technology.htm
[102] http://www.denhaag.nl/en/residents/to/Webster-University.htm, http://www.webster.nl/
[103] http://www.tipharma.com/about-our-institute.html
[104] http://www.leidenbiosciencepark.nl/join_us, http://www.leidenbiosciencepark.nl/about_leiden_bsp/facts_figures
[105] http://www.scienceportholland.nl/technopolis/nl/vestigingontwikkeling.php#content_upperline
[106] http://www.doingbusinessinthehague.com/doing-business/to/Office-locations.htm
[107] http://www.expatcentreleiden.nl/
[108] http://www.rijksoverheid.nl/onderwerpen/gemeenten/taken-gemeente
[109] http://haaglanden.nl/ruimtelijke-ontwikkeling-tot-2020

From the profiles of TVB's direct international competitors – and on the basis of the evidence that we have been able to assemble – it appears that all three areas have clear plans for future economic growth, and all have capacity for hub airport expansion. The Val-d'Oise region close to Paris Charles de Gaulle airport has the most aggressive growth plans, including major employment and housing developments. In contrast, the regional plans for the area close to Frankfurt Airport are more equivocal about the impact of increased air traffic, though they nevertheless plan for further airport expansion and related economic growth. This area has a particularly strong concentration of firms in the IT and communications and creative and cultural sectors, both of which are also important in Thames Valley Berkshire. The Schiphol area has specialisms in pharmaceuticals, which is also relevant to TVB.

All three comparator regions are well served by a variety of higher education institutions, science and technology parks, and also by road and rail infrastructure. They appear well placed, therefore, to continue to compete strongly for international investment. For TVB, this must mean there can be no room for complacency: it has a strong offer for international investors, but it needs to recognise that it has close – and ambitious – competitors. The fact that it appears far more susceptible to global economic cycles – as evidenced at the start of this Section – should also be taken on board.

3-3. Perspectives from knowledge-based economies – Universities

Thames Valley Berkshire has a highly skilled workforce and – on the face of it – it has a strong complement of businesses operating in technology-based sectors, many of them IT-related. However if there has been a concern about Thames Valley Berkshire, it has been that the businesses it accommodates are more focused on the "management" of knowledge-based activities than "generating and exploiting" the commercial potential of knowledge. Long term, this presents some risks. Yet in Thames Valley – and close to it – is some world class research. The University of Reading has some distinctive specialisms, while the University of Oxford (15 miles to the north of TVB) and Imperial College London (less than 10 miles to the east) – are intellectual powerhouses of global standing. In addition, the plethora of other London-based universities are all within 25 miles of Thames Valley Berkshire.

In this Section, we consider aspects of TVB through this lens, drawing out national and international comparisons where possible. We examine the activities of relevant universities in and close to Thames Valley Berkshire, and in some outstanding knowledge based regional economies elsewhere.

Activities of universities within knowledge economies

Based on the assumption that there is a positive correlation between (a) the activities of Universities with science and technology-based research specialisms and (b) the strength of the knowledge economy, the paragraphs below consider TVB's "university asset base". This is considered to include the University of Reading, plus Imperial College London and University of Oxford. The last two are chosen because of their outstanding research and commercialisation capacity, and because both are nearby. This asset base is compared with:

- Cambridge in the UK – on the basis that it, Oxford and Imperial are the top three science-based universities in the country, and Cambridge University has a reputation for having had a particularly strong impact on the growth of the high tech cluster in the surrounding area
- Stanford University and Massachusetts Institute of Technology from the USA, both of which exist at the heart of world class knowledge-based clusters

- National University of Singapore and Hong Kong University of Science and Technology – on the basis that knowledge-based clusters are growing quickly elsewhere in the world, including around other global hub airports
- a series of universities from within the "*edge-of-hub-airport economies*" discussed above: École Normale Supérieure and École Polytechnique near Charles De Gaulle, Paris; Leiden University, Delft University of Technology and University of Amsterdam near Schiphol, Amsterdam; and Johann Wolfgang Goethe-Universität Frankfurt am Main, near Frankfurt.

In making these comparisons, it is important to treat the data cautiously. International comparisons are highly complex as different universities have very different polices and mechanisms for the management and commercialisation of their intellectual property; they adopt different approaches to the disclosure of data with regards to income and expenditure; and they receive varying levels of funding for research and teaching.

UK University profiles on some key variables

Data on UK universities – including the University of Cambridge, Imperial College, the University of Oxford and the University of Reading – are drawn mainly from an analysis of the national Higher Education Business and Community Interaction Survey 2010/11. They are presented – in summary form – in the Table that follows. From this, we can make the following observations:

- Spin outs: Imperial College has the largest number of spin outs in which the University has an ownership stake (72), followed by University of Oxford (52) and University of Cambridge (41). The University of Oxford also has a very high number of graduate starts ups (183). In contrast, University of Reading has two spin outs with some University ownership, although this is strongly influenced by the fact that the University's strategy for research commercialisation has focused on licencing rather than spin out. In the context of Thames Valley Berkshire as a knowledge-based technology cluster and the interrelationships it has with Oxfordshire and London, and the aggregate performance of Oxford, Imperial and Reading, present significant opportunities.
- Licensing income from intellectual property: Across the four universities (academic year 2010/11), the University of Cambridge was well ahead of the other three institutions but, interestingly, both Imperial and University of Oxford generated more licencing income from their regions (defined in terms of the old RDA areas) than the University of Cambridge. One interpretation is that Imperial and Oxford have stronger relationships with business in their regions than Cambridge, but it is likely that the main reason is the much larger number of large

firms (which are likely to be the main licensees) in London and the South East than in the East of England. The University of Reading's income from licensing in 2010/11 was small compared with Imperial and Oxford (and Cambridge).

- Income from consultancy contracts: In 2010/11, the University of Cambridge had the highest income of the four universities, and Reading the least, although Reading received a much higher proportion of its consultancy income from sources within the region, and from SMEs (Table 23).

Table 23: Consultancy contracts, the University of Cambridge, Imperial College, the University of Oxford and the University of Reading, 2010-2011

Higher Education Institution	Total value with SMEs (£ thousands)		Total value with other (non-SME) commercial businesses (£ thousands)		Total value with non-commercial organisations (£ thousands)		Total income (£ thousands)	
	2010/11	2010/11 Sub total RDA area	2010/11	2010/11 Sub total RDA area	2010/11	2010/11 Sub total RDA area	2010/11	2010/11 Sub total RDA area
The University of Cambridge	1487	672	4168	49	4343	316	9998	1037
Imperial College of Science, Technology and Medicine	661	0	2491	0	2844	0	5996	0
The University of Oxford	379	214	1313	93	1732	73	3424	380
The University of Reading	102	93	282	6	514	24	898	123

Source: SQW analysis of HE Business and Community Interaction Survey 2010/11 data

Table 24 compares the value and income from **facilities and equipment related services** at the four universities for the academic year 2010/11. The University of Reading received substantially more income from this source than the other three universities: just over £7m. The University of Reading and University of Oxford received a relatively high proportion of their income from commercial use of facilities and services from their regions.

Table 24: Facilities and equipment related services, value and income, the University of Cambridge, Imperial College, the University of Oxford and the University of Reading, 2010-11

Higher Education Institution	Total value with SMEs (£ thousands)		Total value with other (non-SME) commercial businesses (£ thousands)		Total income (£ thousands)	
	2010/11	2010/11 Subtotal RDA area	2010/11	2010/11 Subtotal RDA area	2010/11	2010/11 Subtotal RDA area
The University of Cambridge	398	119	677	8	1805	131
Imperial College of Science, Technology and Medicine	621	0	1688	0	3716	0
The University of Oxford	1063	800	1978	151	5686	1764
The University of Reading	2762	1880	3630	186	7076	2162

Source: SQW analysis of HE Business and Community Interaction Survey 2010/11 data

In relation to **continuing professional development (CPD) and continuing education (CE)**, income to the universities of Cambridge and Oxford substantially exceeds that for Imperial and Reading, but

Reading performs relatively well, particularly in relation to income from within the region (Table 25). This may be explained by the inclusion of Henley Management College which is now part of the University of Reading (rebranded as Henley Business School) and which is internationally recognised.

Table 25: Continuing Professional Development (CPD) courses and Continuing Education (CE), revenues, the University of Cambridge, Imperial College, the University of Oxford and the University of Reading, 2010-11

Higher Education Institution	CPD for SMEs (£ thousands)		CPD for other (non-SME) commercial businesses (£ thousands)		CPD for other non-commercial organisations (£ thousands)		CE and CPD for individuals (£ thousands)		Total revenue (£ thousands)	
	2010/11	2010/11 Sub-total RDA area	2010/11	2010/11 Sub-total RDA area	2010/11	2010/11 Sub-total RDA area	2010/11	2010/11 Sub-total RDA area	2010/11	2010/11 Sub-total RDA area
The University of Cambridge	545	185	9906	0	5189	0	4653	0	20293	185
Imperial College of Science, Technology and Medicine	0	0	602	0	218	0	160	0	980	0
The University of Oxford	192	0	8708	0	2453	0	11556	0	22909	0
The University of Reading	75	55	4893	489	984	400	1993	996	7945	1940

Source: SQW analysis of HE Business and Community Interaction Survey 2010/11 data

In relation to **research grants and contracts**, University of Oxford and Imperial received the most income in 2010/11, with Reading receiving around 10% of the income to each of these two.

Table 26 considers the four universities from a different perspective. It focuses on four groups of indicators:

- the first set relate to the **National Student Survey (NSS)** which is a national survey commissioned by the Higher Education Funding Council for England (HEFCE) on behalf of the Higher Education Funding Council for Wales (HEFCW), the Department for Employment and Learning, Northern Ireland (DELNI) and Health Education England. It has been conducted by Ipsos MORI annually since 2005.[110]

[110] The National Student Survey, 2013. http://www.thestudentsurvey.com/the_nss.html

- **"average graduate salary"** refers to the average salary of students some six months after 2012 graduation[111]
- the next group of indicators compare **the number of students** at each university (by qualification, gender and length of study), **the number of academic staff** and the proportion of these staff that are engaged in teaching activities
- the final group presents data on **total income and expenditure** at each university.

[111] It is important not to confuse this figure with the average salary of graduating students. It is also worth noting the absence of longitudinal data and, therefore, the caveat around how robust a survey six months after graduation actually is

Table 26: UK Universities Comparison, 2012-2013

	University of Cambridge	University of Oxford	Imperial College London	University of Reading
National Student Survey (NSS): Overall Satisfaction (total possible score =100)	93	92	86	88
NSS: relevant Q&A[112]				
• The course has helped me to present myself with confidence	40%	48%	43%	36%
• My communication skills have improved	48%	55%	48%	48%
• As a result of the course, I feel confident in tackling unfamiliar problems	51%	55%	48%	37%
• Overall, I am satisfied with the quality of the course	62%	62%	47%	40%
Average Graduate Salary	£25,267	£24,425	£29,057	£19,063
Total Students	19,945	25,595	16,000	13,505
Undergraduates	12,220	16,670	9,050	8,940
• Full Time	12,020	11,490		8,825
• Part Time	200	5,180		115
• Male	6,000	7,680		4,330
• Female	6,220	7,970		5,730
Post Graduates	7,725	8,925	6,950	4,570
• Full Time	6,355	7,270	5,445	2,625
• Part Time	1,370	1,655	1,505	1,945
• Male	3,500	4,555		1,705
• Female	4,255	3,415		2,320
Total academic staff	4,765	5,660	3,690	1,525
• Teaching	36%	30%	39%	75%
Total Income	£1.32b	£1.02b	£776m	£222m
Total Expenditure	£1.32b	£972m	£702m	£231m

Source: SQW analysis of The Times higher education world university rankings table, 2012-2013

The data in Table 26 need unpicking. In relation to TVB, the following observations are important:

- **The University of Reading is, simply, a much smaller university than the three UK comparators**, particularly when size is measured in terms of income/expenditure and academic staff numbers. However the number of students is not very different from the comparators.

[112] National Student Survey, percentage of respondents that 'definitely agree' with each statement being asked.

These two observations confirm the finding reported above that – in relative terms – the University of Reading's emphasis on research is lower than that of the comparators. This is not a criticism, but it is an important observation, and it has implications for processes of knowledge-based economic growth

- The salaries of graduates from the University of Reading after six months are notably lower than those of graduates from the comparator institutions. To the extent that new graduates remain in Thames Valley Berkshire post-graduation, this must present something of a challenge, particularly given the costs of housing. Imperial College graduates are commanding notably higher salaries; in part this will reflect subject mix and in part, it may reflect some level of *de facto* "London weighting", but it at least poses some questions in relation to Thames Valley Berkshire and its graduate labour supply.
- The University of Reading has world class specialisms – notably in applied disciplines such as agri-science, climate science and real estate, and also in its business school (Henley). Looking a little more broadly, it is evident that the area can draw on genuinely world class assets and credentials, and for the SEP, this is both an opportunity and a challenge

International comparisons

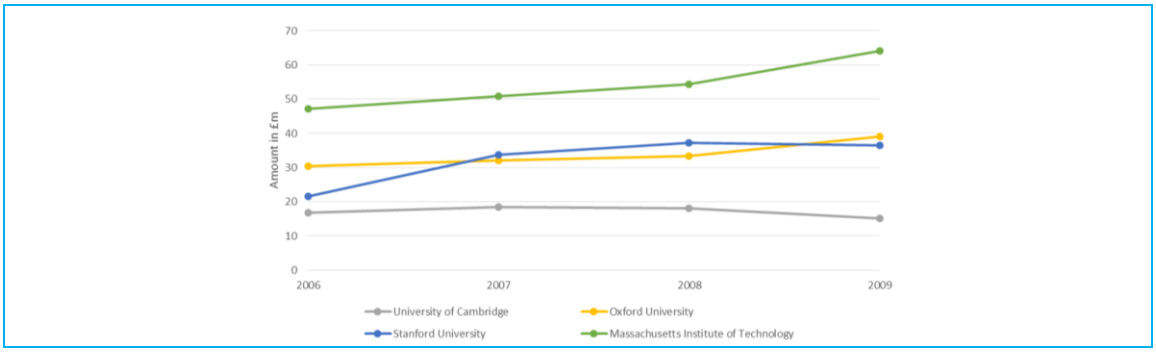
International comparisons are very challenging, and they need to be treated with care. The evidence suggests that Stanford University – located in the core of Silicon Valley – performs very strongly on metrics of commercialisation: it claims 224 spin-out licensees whose licence involved equity and an income of almost £222.3m from knowledge and technology transfer over the period 1970 to 2009. Some of these spin-out firms have achieved global reach and scale (e.g. Google, HP) with annual revenues of over £30bn[113]. The University of Oxford also performs strongly in terms of the absolute number of spin-out firms with 235, although income to the University from them is far lower, at £9.9m (similar to Cambridge at £9.1m). However, this reflects partly the timescale over which the universities have held equity, and the timing of sales. Interestingly, the number of spin outs from two of the leading universities close to major hub airports in the Far East – National University of Singapore

[113] Google, 2013. Financial Tables and Income Statement Information. http://investor.google.com/financial/tables.html

(70[114]), and Hong Kong University of Science and Technology (35[115]) – was of a similar order of magnitude to the number from Imperial (76) and MIT (68[116]).

Figure 18 illustrates levels of industry-financed R&D expenditure from 2006 to 2009. Although lower than the two US comparators, this shows the international significance of industry-financed R&D at the University of Oxford.

Figure 18: Industry-financed R&D expenditure at universities; 2006-2009, amount in £M[117]



Source: SQW analysis of University of Cambridge, research at Cambridge data, 2011. University of Oxford, research and strategy data, 2011. National Science Foundation, Division of Science Resources Statistics, survey of research and development expenditures at universities and colleges, 2009.

University Rankings

Table 27 shows the overall rank and score from The Times Higher Education world university rankings 2012-2013 which is carried out by Thomson Reuters [118] for a range of international comparators in UK, the rest of Europe and elsewhere. The published ranking only covers the top 200 universities, so only Universities in the comparator regions and within this cut off are included.

[114] Spin-out companies in the NUS Enterprise Centre portfolio. http://www.nusentrepreneurshipcentre.sg/portfolio/company_listing

[115] Hong Kong University of Science and Technology enterprises, HKUST Entrepreneurship Centre. http://www.ec.ust.hk/pages/eship/uste.html

[116] Aggregate spin-out companies from Deshpande Centre for Technological Innovation, MIT Venture Mentoring Service and MIT Technology Licensing Office. http://deshpande.mit.edu/portfolio/spinout. http://web.mit.edu/vms/companies.html. http://web.mit.edu/tlo/www/about/success_stories.html

[117] Prices converted from USD to GBP at current exchange rates: 1 USD = 0.62362

[118] The Times Higher Education, World University Rankings 2012-2013. http://www.timeshighereducation.co.uk/world-university-rankings/2012-13/world-ranking

The methodology used for calculating the overall rankings is complex.[119] The overall score is calculated from 13 calibrated performance indicators, which are grouped into five headline areas.[120]

Table 27: World University Rankings; 2013-2014

Overall Rank	Institution	Location	Overall score
194	University of Reading	United Kingdom	44.8
1	California Institute of Technology	United States	94.9
2	University of Oxford	United Kingdom	93.9
4	Stanford University	United States	93.8
5	Massachusetts Institute of Technology	United States	93.0
7	University of Cambridge	United Kingdom	92.3
10	Imperial College London	United Kingdom	87.5
26	National University of Singapore	Singapore	72.4
57	Hong Kong University of Science and Technology	Hong Kong	64.4
65	École Normale Supérieure	France	59.8
67	Leiden University	Netherlands	59.4
69	Delft University of Technology	Netherlands	59.1
70	École Polytechnique	France	59.0
83	University of Amsterdam	Netherlands	55.9

Source: SQW analysis of The Times Higher Education world university rankings table, 2012-2013

Table 27 shows that the University of Reading is ranked 194th in the Times Higher Education world rankings, and it slipped from 176th in 2012/13. The University of Oxford maintained its ranking of 2nd in the global rankings, and Imperial was 10th, two places lower than the previous year. None of the other European comparators score anywhere near as highly in the global rankings, but those in the US high tech clusters are prominent. In particular, Silicon Valley boasts two HEIs in the top four globally – Caltech and Stanford.

What is also striking about the rankings is the rise of universities in the Far East (which is why many European HEIs are slipping down the rankings). For example: National University of Singapore rose

[119] The Times Higher Education, World University Rankings 2012-2013 Methodology. http://www.timeshighereducation.co.uk/world-university-rankings/2012-13/world-ranking/methodology

[120] The Times Higher Education, World University Rankings 2012-2013 Methodology. http://www.timeshighereducation.co.uk/world-university-rankings/2012-13/world-ranking/methodology

from 29th in 2012/13 to 26th in 2013/14, and Hong Kong University of Science and Technology from 65th to 57th.

Table 28 provides a breakdown of key Times Higher performance indicator groupings which may be particularly relevant to knowledge-based economic growth[121]: research volume, income, and reputation; international outlook (people, research); and industry Income – innovation.

From Table 28, it is apparent that across these three measures, the University of Reading performed best in terms of "international outlook" – and this is wholly consistent with the character of TVB more generally. It scored notably better on this measure than the universities in the comparator European regions.

On the other two indicators, the score for the University of Reading was lower, although both Imperial College and the University of Oxford were strong performers, particularly in relation to research. Hence within – or near to – Thames Valley Berkshire, there are some key universities of outstanding strength internationally.

More generally, most of the European universities slipped on their research score, some quite significantly (e.g. Ecole Polytechnique from 67.1 to 53.2). However most are becoming increasingly international in outlook.

[121] For a detailed explanation of the methodology through which these were derived, see The Times Higher Education, World University Rankings 2012-2013 Methodology. http://www.timeshighereducation.co.uk/world-university-rankings/2012-13/world-ranking/methodology

Table 28: World University Rankings; key performance indicator, 2013-2014

Overall Rank	Institution	Research	International Outlook	Industry Income[122]
194	University of Reading	34.1	70.6	35.2
1	California institute of Technology	98.2	65.8	91.2
2	University of Oxford	98.5	90.2	90.3
4	Stanford University	96.8	68.0	62.4
5	Massachusetts Institute of Technology	89.0	82.0	92.9
7	University of Cambridge	95.3	86.7	59.1
10	Imperial College London	88.1	91.8	87.5
29	National University of Singapore	77.8	94.3	77.4
57	Hong Kong University of Science and Technology	59.7	77.0	75.8
65	École Normale Supérieure	37.1	67.1	47.2
67	Leiden University	53.2	58.5	46.1
69	Delft University of Technology	67.3	74.2	55.6
70	École Polytechnique	40.5	86.1	99.9
83	University of Amsterdam	54.1	58.3	49

Source: SQW analysis of The Times higher education world university rankings table, 2012-2013

Future growth of local universities

The University of Reading's development strategy is based on the assumption that opportunities to increase traditional government funded teaching and research are limited, and therefore the focus should be on growing a broader range of activities including strong business engagement (executive education, collaborative research, etc), and a focus on inter-disciplinary studies. The development of Thames Valley Science Park (at the University of Reading) is crucial to this strategy, as is the development of particular specialisms with potential to attract increased public and private sector funding such as Henley Business School and the Centre for Environmental Technology. The latter has serious expertise in climate science, and has links with the national Centre for Medium Range Weather Forecasting, also in TVB. Together with the Satellite Catapult Centre at Harwell, this forms an important grouping of institutions with inter-related research interests and commercialisation potential around big data processing and geographical information systems.

[122] This column shows the 2012/13 scores, as for the majority of universities the 2013/14 scores were not available

In addition, the University of Reading claims to be the only UK university that offers a credit bearing entrepreneurship course to any student, no matter what course they are doing. It also plans to start an entrepreneurship degree from 2014, and has just established a business incubator specifically for students.

These existing strengths and planned developments provide substantial opportunities for the University to contribute much more significantly to growth of the local economy than previously, and should be factored into wider plans for TVB's economic development.

Close to TVB, both Imperial and Oxford are expanding their research capacity. Therefore they will grow in significance as a potential source of collaboration with companies based in TVB, and of spin out companies seeking business space and a labour force capable of supporting the next stage of their growth. For example, over the last five years, the University of Oxford has secured more external grant income for STEM and medical research than any other UK university, rising by an average of 9% per year to over £400m in 2011/12[123]. It is currently implementing a Masterplan to redevelop the Science Area (containing teaching and research facilities of the main STEM disciplines), adding approximately one third to total floorspace in the area, and is also strengthening its links with the science and technology research facilities at Harwell. Imperial is planning a major expansion onto a new campus in Hammersmith, which will also provide additional research and teaching capacity as well as more space for collaborative research with corporates.

[123] HESA Planning Plus 2013

3-4. Perspectives from knowledge-based economies – high tech industry

Thames Valley Berkshire has a highly skilled workforce, a strong complement of businesses operating in technology-based sectors (many of them IT-related) and is within close proximity to world class research-intensive academic institutions. The local economy benefits from excellent national and international connectivity, but this is also associated with increasing congestion. TVB is a UK leader in certain 'tech' sectors – notably software publishing (SIC 582), computer programming, consultancy and related activities (SIC 620), data processing, hosting and related activities; web portals (SIC 631), manufacture of computer, electronic and optical products (SIC 26), and manufacturing of electrical equipment (SIC 27)[124]

TVB's tech-based economy in a UK context

Table 29 shows the top 25 local authority districts in the UK by location quotient for tech sectors (defined as primarily IT, computer and telecoms related sectors, excluding other high tech sectors such as biotech, advanced engineering, etc. [125]). Clearly, Thames Valley Berkshire is a key player in certain UK tech sectors, with all six unitary authorities featuring in the top 25, and five featuring in the top 10[126]. Table 29 also illustrates the strength of the South East more generally, with important nodes such as London and Oxford. In this context, Thames Valley Berkshire sits centrally within the UK's 'knowledge based assets and activities'.[127]

Table 29: Top 25 local authority tech quotient rankings

Ranking	Region	Local authority	Location quotient(1)
1	South East	Wokingham	5.31
2	South East	Rushmoor	4.7
3	South East	Hart	4.13

[124] KPMG, 2013. Tech Monitor UK, Understanding tech cluster and tracking the UK tech sectors outlook for employment and growth

[125] Tech sectors are defined by KMPG as: software publishing (SIC 582); computer programming, consultancy and related activities (SIC 620); data processing, hosting and related activities; web portals (SIC 631); manufacture of computer, electronic and optical products (SIC 26); manufacture of electrical equipment (SIC 27).

[126] Location quotients for industry jobs within UK local authorities are published by the Office for National Statistics (ONS), based on their Business Register and Employment Survey (BRES). The latest available figures were compiled in 2011. These figures relate to the workplace location, as opposed to the residential location of an employee

[127] The Golden Triangle Partnership: Leveraging global opportunities for the benefit of our members. http://www.obn.org.uk/seeb/images/documents/GOLDEN_TRIANGLE.pdf

Ranking	Region	Local authority	Location quotient(1)
4	South East	Slough	3.91
5	South East	Mole Valley	3.48
6	South East	Runnymede	3.22
7	South East	Windsor and Maidenhead	3.18
8	South East	Reading	3.11
9	South East	Woking	3.03
10	South East	West Berkshire	2.8
11	South West	Tewkesbury	2.76
12	South East	Vale of White Horse	2.7
13	South East	Bracknell Forest	2.58
14	South East	Wycombe	2.55
15	South West	Christchurch	2.45
16	South East	Elmbridge	2.45
17	South East	Spelthorne	2.41
18	East of England	Cambridge	2.4
19	London	Richmond upon Thames	2.37
20	South East	Portsmouth	2.33
21	East of England	South Cambridgeshire	2.32
22	London	Hounslow	2.28
23	South East	Havant	2.27
24	South East	Milton Keynes	2.25
25	South West	Stroud	2.17

Source: SQW analysis of KPMG and Markit estimates, based on ONS data

To further understand TVB's wider role, it is instructive to compare the wider Thames Valley with the Cambridge sub-region and Oxfordshire; and on a more rounded definition of "high tech". It should be noted that the geography of the "wider Thames Valley" – as defined here – comprises TVB *plus* Basingstoke and Deane, Hart, Rushmoor, Runnymede, Spelthorne, Surrey Heath and South Buckinghamshire.

As Table 30 shows, the "wider Thames Valley" out-performs Oxfordshire, the Cambridge sub-region and England as a whole on a majority of indicators.[128] Using the narrow Eurostat definition of high

[128] SQW, 2013. The Oxfordshire innovation engine, realising the growth potential. Annex 1 – review of the high tech sector and context.

tech, 13.1% of employees in the "wider Thames Valley" are employed in high-tech sectors, compared to 6.2% in Oxfordshire and 8.7% in the Cambridge sub-region.[129]

Table 30: Employees in High-Tech Sectors (Eurostat Definition)

Number of Employees	Oxfordshire	Cambridge	Wider Thames Valley	England
High-tech Manufacturing	4000	8100	7600	213000
High-Tech KI Services	16000	22600	953000	950600
Total: Eurostat High-Tech Sectors	20000	30700	102900	1163600
Total Employees (All Sectors)	320600	351300	783900	22929600
As % of Total Employees				
High-tech Manufacturing	1.2	2.3	1	0.9
High-Tech KI Services	5	6.4	12.2	4.1
Total: Eurostat High-Tech Sectors	6.2	8.7	13.1	5.1

Source: ONS, Business Register & Employment Survey (NOMIS). High-tech manufacturing: 2007 SIC 21, 26, 30.3. High-tech knowledge intensive services: 2007 SIC 59-63, 72. Figures for total employees exclude farm-based agriculture (2007 SIC 01000). All figures are rounded to the nearest hundred employees.

Using a broader Eurostat+ definition, the proportion of employees in the "wider Thames Valley" in high-tech sectors increases to 18% compared to 13.4% in Oxfordshire and 15.1% in the Cambridge sub-region. The "wider Thames Valley" sub-region has a lower percentage of employees than Oxfordshire in high-tech manufacturing, but a higher percentage in high-tech knowledge intensive services (12.2 % compared with 5.0% in Oxfordshire)[130]

Data on recent employment change is available on a consistent basis only for 2008-2011. This period was one of fluctuating employment levels, reflecting the entry into and slow recovery from recession. Employment in high-tech sectors has not been immune from the wider economic recession. Based on the broader Eurostat+ definition, the number of high-tech employees in the "wider Thames Valley" experienced a net decline of 2.1% between 2008 and 2011. This compares with net increases of around 4.1% in Oxfordshire and 1.5% in the Cambridge sub-region.

[129] SQW, 2013. The Oxfordshire innovation engine, realising the growth potential. Annex 1 – review of the high tech sector and context.

[130] SQW, 2013. The Oxfordshire innovation engine, realising the growth potential. Annex 1 – review of the high tech sector and context.

TVB's tech-based economy on an international stage

Comparing the scale (and character) of TVB to the local economies surrounding international Higher Education Institutions – e.g. Silicon Valley, Boston Route 128, Singapore and Hong Kong – provides some important insights.

Comparators from North America

The Silicon Valley high technology cluster is within the southern half of the San Francisco Bay area, in the County of Santa Clara, California. In 2010, the County of Santa Clara had a population of 1,781,642[131]. However finding a robust, definitive boundary for the Silicon Valley high technology cluster is problematic. Silicon Valley stretches north of Palo Alto toward the San Francisco airport, spills over the Santa Cruz Mountains to the southwest, and sprawls to the east and south of San Jose.[132] In 2006, information technology-related jobs accounted for 24.6% of payroll employment in Santa Clara County.[133] The area includes outstanding research based universities, notably California Institute of Technology and Stanford University (1st and 4th respectively in the Times Higher Education's world rankings). Stanford University has played a pivotal role in developing and nurturing the Silicon Valley high technology cluster. A key player in the early development of the cluster was Frederick Terman, the dean of engineering at Stanford, who as early as the 1930s sought to create an industry to retain graduates who would otherwise have to leave the region for electronics firms in the East.[134]

Boston Route 128 is located in the Greater Boston area of the Commonwealth of Massachusetts. In 2008, Boston-Cambridge-Quincy (as the area is commonly known) had a total population of 4,522,858[135]. The Boston Route 128 high technology cluster includes many businesses formed by Massachusetts Institute of Technology (MIT) graduates to capture the benefits of close proximity to MIT (5th in the global university rankings) and other local institutions, but also a large number of major international high tech firms. There was a particularly strong concentration of defence-related industries along Boston Route 128 in the 1970s. This was followed by the growth of mini-computer and data storage companies such as Wang, Digital and Data General in the 1980s; and software and

[131] U.S Decennial Census, 2010. http://www.census.gov/prod/www/decennial.html
[132] The New York Times, 2009. Searching for Silicon Valley. http://www.nytimes.com/2009/04/17/travel/escapes/17Amer.html?pagewanted=1&_r=0
[133] Union bank of California, 2007. Economic update: California. https://www.unionbank.com/Images/Economic_Update_Aug_2007_tcm9-2205.pdf
[134] The New York Times, 2009. Searching for Silicon Valley. http://www.nytimes.com/2009/04/17/travel/escapes/17Amer.html?pagewanted=1&_r=0
[135] Us Census Bureau, 2009-2012, http://www.census.gov/popest/data/metro/totals/2012/index.html

telecommunications companies and the bio-science companies in the late 1990s[136]. The strong science-based research at MIT, Harvard University, Boston University, Massachusetts General Hospital and other institutions provided the basis for a dynamic biotechnology cluster in the Boston area. In 2001, the United Nations' Human Development report ranked Boston behind only Silicon Valley[137]

Silicon Valley and Route 128 have similar origins in post-war military spending and university based research. They have responded differently to intensified international competition. Between 1975 and 1990, Silicon Valley firms generated some 150,000 new high tech jobs – three times the number created number along Route 128 – even though the two areas enjoyed roughly the same employment level in 1975.[138]

Examples from Asia

The growth of high technology industry in Singapore is a relatively recent phenomenon, and is the result of 50 years of carefully planned economic development orchestrated by the Singapore Government and its agencies such as Economic Development Board and Jurong Town Corporation (responsible for developing the major industrial and high tech business areas in the city state).

Singapore's per capita income is second to Japan in Asia[139]. Like Japan, success has been built on talent and application rather than a rich endowment of natural resources. In 1979, a conscious industrial restructuring process was initiated with the aim of upgrading the quality and skill content of manufacturing through the promotion of high value-added, technology-intensive, industries. The main objective of the restructuring strategy was to develop Singapore into a modern industrial economy based on science, technology, and knowledge so as to strengthen its economy and international competitiveness[140]. It took many years of persistence and investment to achieve these objectives, but this is now an accurate description of the economy. The Government's investment in education, research and infrastructure has been outstanding. Singapore now boasts two of the most research intensive universities in the world (National University of Singapore and Nanyang Technological University), both of which are rapidly rising up the global university rankings and have

[136] J. Wonglimpiyarat, 2005. The Boston route 128 model of high tech industry development. http://files.haiguinet.com/flashupload/UploadedFiles/1256345822_235128_route_model.pdf
[137] J. Wonglimpiyarat, 2005. The Boston route 128 model of high tech industry development. http://files.haiguinet.com/flashupload/UploadedFiles/1256345822_235128_route_model.pdf
[138] A., Saxenian, 1996. Inside-out: regional and industrial application in Silicon Valley and Route 128. http://www.jstor.org/stable/20868410?seq=1
[139] B., Yuen, 2007. Singapore high technology cluster: Origin and present situation
[140] B., Yuen, 2007. Singapore high technology cluster: Origin and present situation

strong links with industry; one of the biggest and most efficient hub airports in the world; and a large container ports. It is an extraordinary success story, and a genuine global competitor in the attraction of research and knowledge intensive business investment.

Hong Kong's emergence as a high tech economy is also remarkable, and achieved against an equally difficult background. Hong Kong has for many years been a highly successful entrepot – particularly since the opening of China's economy to trade with the rest of the World. It developed strengths linked to trade, including finance, and also a strong light industrial sector which has now largely migrated across the border into China to benefit from relatively low cost labour.

Hong Kong's efforts to stimulate innovation and technology based growth really started in the late 1980s with the establishment of the University of Science and Technology, a technology centre to stimulate the formation and growth of innovative new businesses, and a science park to attract inward investment by firms undertaking technology intensive activities (the Tech Centre and Science Park were both established following feasibility and planning studies by SQW). Now, high technology businesses are primarily clustered around two main hubs: the Hong Kong Science Park, located in Pak Shek Kok, New Territories, adjacent to Chinese University of Hong Kong and close to HKUST, and on the main road and rail routes into China; and around the Cyberport, which is located in the Southern District of Hong Kong Island. Cyberport is a state-led initiative implemented by the Hong Kong government to develop facilities to help local businesses capitalize on the rapid growth of the Internet. Cyberport was intended as an incubator where development of information technology and multimedia firms would be nurtured so that the demands of these industries could be met in the future. According to the latest available figures, the R&D and innovation expenditure of the business sector in Hong Kong amounted to US$794 million and US$1.9 billion respectively in 2011[141]. A substantial portion of these R&D and innovation activities were outsourced to external parties. In terms of contract value, Hong Kong was the eighth largest source of technology imports for the Chinese mainland, according to the latest available figures from the Ministry of Science and Technology.[142]

3-5. Conclusions

Thames Valley Berkshire is demonstrably an internationally competitive economy; otherwise it would not have attracted, and retained, the number and scale of international investment projects that it

[141] HKTDC Research, 2013. Technology Industry in Hong Kong.
[142] HKTDC Research, 2013. Technology Industry in Hong Kong

has over the last 30 years. The key question that this desk based review of international comparators has sought to address is whether TVB's international competitiveness is being maintained, or whether it is losing ground to other areas in the global competition for mobile investment.

The review of three other European regions adjoining major hub airports suggests that economic growth in TVB over the period 2000 to 2010 lagged behind some of its competitors, although population growth was slightly faster.

Economic growth was lower largely because TVB – along with much of the rest of the UK – suffered a significantly greater downturn in economic activity following the financial crisis than the three comparators. Val-d'Oise, the region close to Paris Charles de Gaulle airport, grew the fastest, and the region around Mainz, close to Frankfurt airport, grew most consistently over the period. However, TVB's economic growth trajectory appears to have been restored since 2009.

Looking to the future, Heathrow is the only one of the four hub airports considered to have no further capacity for growth (currently). All of the other adjoining regions have plans in place to achieve further economic growth, and significant assets to draw on. These assets include some strong, and large, higher education and research establishments, various science and technology parks, excellent strategic connectivity including access to high speed rail, and some high value and diverse business clusters with good growth potential.

The plans for economic and population growth in the eastern part of Val-d'Oise are particularly ambitious (much of the western part is designated as national park). It is clear that in the region around Mainz there are some conflicts between economic development and environmental impact, including concerns about noise impact from the airport. Here population growth was much slower after 2000 than before. However, there do not appear to be significant concerns about environmental constraints in Val-d'Oise or the regions around Schiphol.

The review of universities within and close to TVB, and other national and international comparators, demonstrated than TVB has genuinely world class research and education assets in close proximity which it should draw on. Mechanisms are needed to enable these universities to contribute more to the TVB economy.

In relative terms, the University of Reading is small in terms of student population, research funding and income from commercialisations. However, it does have some distinctive specialisms, a relatively high proportion of its income from contract research and consultancy comes from regional sources, and it generates substantial income from commercial use of its facilities and services.

Close to TVB, both Imperial and Oxford are expanding their research capacity. Therefore they will grow in significance as a potential source of collaboration with companies based in TVB, and of spin out companies seeking business space and a labour force capable of supporting the next stage of their growth.

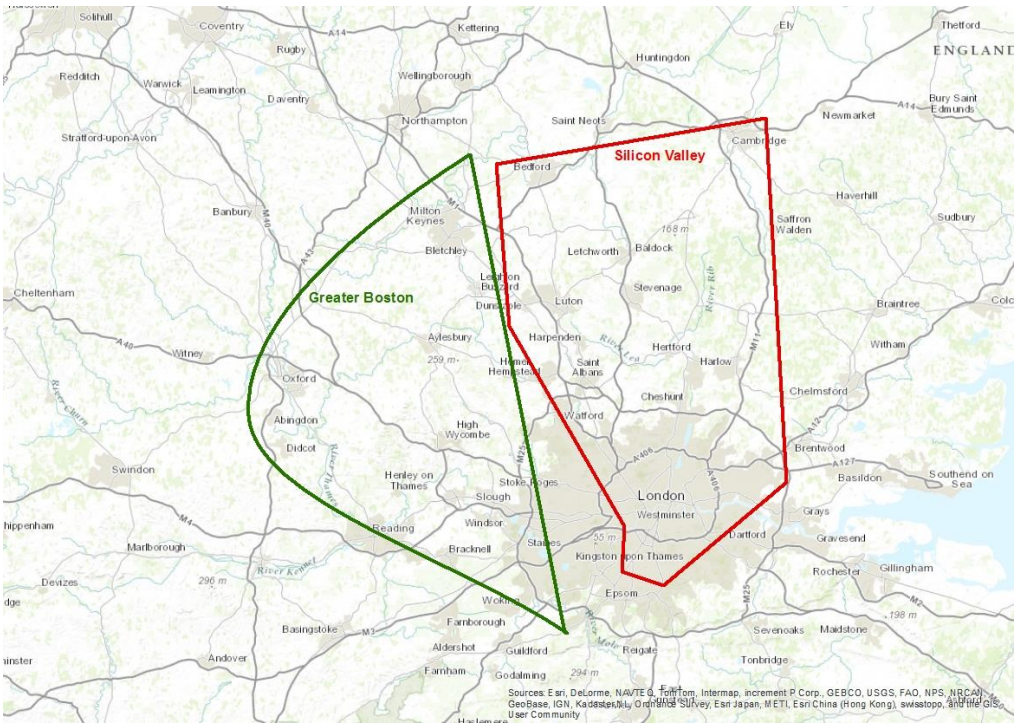
In comparing TVB with other high tech regions in the UK, it is clear that the scale of high tech employment in the area is very significant. There are more jobs in high tech sectors in the "wider Thames Valley" (defined more broadly than TVB) than in Oxfordshire or the Cambridge sub region, and many more large high tech firms. The Thames Valley is particularly strongly represented in high tech services, and within that broad category, in IT.

However, the nature of jobs in these firms in TVB tends to be more oriented to management, marketing and sales, and engineering support, than in Oxfordshire and the Cambridge sub region, which are more research intensive.

Internationally, all of the high tech clusters in the UK, including the Thames Valley, are small compared with Silicon Valley and Greater Boston. However, these two US regions are more appropriately compared in scale with the whole of the Golden Triangle, including Thames Valley, Oxford, Cambridge and London (see Figure 19). In those terms, TVB is within one of the world's biggest, and most dynamic, high tech mega clusters.

All of the high tech regions in the West, including TVB, should take note of the growing strength and attraction of high tech regions in Asia, including Singapore and Hong Kong, and increasingly Metropolitan Shanghai and Bangalore. These areas are competing successfully for high tech inward investment on a global scale based on their combination of excellent STEM skills, high and growing government investment in R&D, and a very strong work ethic. Nowhere in the West – including TVB – can ignore the power of this combination of assets.

Figure 19: Scale of Silicon Valley and route 128 clusters in Thames Valley Berkshire context


Silicon Valley
Greater Boston
Solihull
Coventry
Rugby
Kettering
Ely
Thetford
ENGLAND
Redditch
Warwick
Leamington
Daventry
Wellingborough
Huntingdon
Bury Saint Edmunds
Newmarket
Stratford-upon-Avon
Northampton
Saint Neots
Cambridge
Bedford
Haverhill
Banbury
Milton Keynes
Saffron Walden
Sudbury
Bletchley
Letchworth
Baldock
Cheltenham
Leighton Buzzard
Stevenage
Dunstable
Luton
Braintree
Aylesbury
Harpenden
Witham
Witney
Hertford
Harlow
Oxford
Saint Albans
Chelmsford
Abingdon
Cheshunt
Watford
High Wycombe
Didcot
Brentwood
Swindon
Henley on Thames
Stoke Poges
Basildon
Southend on Sea
Slough
London
Westminster
Grays
Reading
Windsor
Dartford
Gravesend
Marlborough
Bracknell
Staines
Kingston upon Thames
Rochester
Gillingham
Devizes
Epsom
Basingstoke
Farnborough
Sevenoaks
Maidstone
Aldershot
Guildford
Reigate
Andover
Tonbridge
Farnham
Godalming
Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, and the GIS User Community

Evidence Paper 4
Thames Valley Berkshire's Businesses

4-1. Introduction

The buoyancy of Thames Valley Berkshire's (TVB) economy is the result, simply, of the aggregate performance of its business population. The extent to which its businesses are collectively able to operate profitably and grow will largely determine TVB's economic performance over the lifetime of its Strategic Economic Plan.

Within TVB it is estimated that there are around 42,000 businesses. These vary tremendously – from new business starts, to established small and medium-sized enterprises (SMEs), to corporates operating globally. They span a whole range of sectors – from farming businesses, through local service providers (e.g. retail) to activities near the cutting edge of science and technology. Some of these businesses have great ambition to grow, while others – quite legitimately – do not. Each of these businesses has its own story to tell: some have been set up independently by local people; some have been spun out of other organisations (perhaps the University of Reading); some are family-owned enterprises that have passed from one generation to the next; some are listed on – and subject to the disciplines of – the London Stock Exchange; and some have grown in TVB as a result of international inward investment. There are, essentially, 42,000 different sets of circumstances and the SEP needs both to respond to these in the short term, and anticipate how they might evolve over the years ahead.

This Evidence Paper examines different aspects of TVB's business base. In so doing, it draws on a range of both quantitative and qualitative data and insight:

- Section 4-2 examines the overall profile of TVB's business community, using data sourced through ONS's Business Demography dataset. In this context, it examines rates of business start-up and survival and it considers how both have changed over time. It then examines the size distribution of businesses within TVB. Finally, it provides some insight into the sectoral profile of the business population (noting that this is quite different from the sectoral distribution of employment)
- Section 4-3 considers TVB's recent performance in terms of another key dynamic within its business community linked to internationalisation. TVB has long been a prominent destination for in-bound investment to the UK and this process has done much to shape its economic make-up. The Section also analyses export figures to assess the importance of the international market.

- Section 4-4 outlines some of the issues flagged by businesses of all sizes in the course of developing the SEP. These different perspectives are important.
- Section 4-5 draws together some conclusions.

4-2. Profile of the business community

According to data from the Business Demography dataset (based on the Inter-Departmental Business Register), in 2012 there were 41,695 active businesses in TVB. Across the six unitary authority areas, Windsor and Maidenhead had the largest number of businesses (9,215 in 2012) and the unitary authority with the smallest number of active businesses was Bracknell Forest.

Table 31: Active businesses in Thames Valley Berkshire and comparator areas, 2004 to 2012

Area	2004	2005	2006	2007	2008	2009	2010	2011	2012
Bracknell Forest	4,210	4,220	4,235	4,315	4,445	4,505	4,525	4,610	4,580
Reading	5,540	5,615	5,620	5,740	5,935	5,945	6,045	6,215	6,450
Slough	3,660	3,710	3,830	4,020	4,255	4,415	4,485	4,595	4,875
West Berkshire	7,820	7,885	7,945	8,205	8,390	8,475	8,460	8,565	8,650
Windsor and Maidenhead	8,115	8,255	8,370	8,715	8,890	8,950	9,005	9,015	9,215
Wokingham	7,155	7,220	7,215	7,355	7,470	7,590	7,680	7,805	7,925
Thames Valley Berkshire	36,500	36,905	37,215	38,350	39,385	39,880	40,200	40,805	41,695
Oxfordshire	27,225	27,655	27,975	28,565	29,075	29,515	29,465	29,245	29,445
South East	353,770	355,905	357,215	366,680	372,810	375,595	377,315	376,380	380,620
London	358,785	359,765	363,630	377,735	392,920	402,315	413,260	421,185	439,405
England	1.885 million	1.904 million	1.924 million	1.987 million	2.024 million	2.040 million	2.046 million	2.040 million	2.070 million

Source: IDBR

The data reported in Table 31 show that TVB saw a steady increase in the number of active businesses between 2004 and 2012 – from 36,500 to 41,695, an increment of over 5,000. All unitary authority areas in TVB saw an increase over the period – although at varying rates. Over this period, Slough's business population grew by around a third while the increment in Bracknell Forest was about 9%.

It is instructive also to consider how changes in the business stock in TVB compared to those elsewhere. Looking at the average annual growth rate of active businesses between 2004 and 2012, TVB had a higher growth rate than Oxfordshire, the South East and England. Only London had a higher average annual growth rate (2.6% per annum) than TVB (1.7% per annum; see Table 32 below).

Table 32: Changes in the population of active businesses in Thames Valley Berkshire and comparator areas, 2004 to 2012

Area	Percentage change in business stock, 2004 to 2012	Compound annual growth rate from 2004 to 2012
Bracknell Forest	8.8%	1.1%
Reading	16.4%	1.9%
Slough	33.2%	3.7%
West Berkshire	10.6%	1.3%
Windsor and Maidenhead	13.6%	1.6%
Wokingham	10.7%	1.3%
Thames Valley Berkshire	14.2%	1.7%
Oxfordshire	8.2%	1.0%
South East	7.6%	1.0%
London	22.5%	2.6%
England	9.8%	1.2%

Source: SQW analysis of IDBR

Business start-up and survival

One explanation for the increase in the number of active businesses between 2004 and 2012 relates to the pattern of business births. Table 33 shows the number of business births in TVB and comparator areas from 2004 to 2012.

The table shows that – year on year – the number of business births does vary. Overall though, the number of births appears to have been rising in TVB: the number of births in 2011 and 2012 was close to 10% higher than the figures recorded for 2004 and 2005. This picture is rather different from that apparent for close comparators (e.g. Oxfordshire) and for the South East region as a whole. There is, undoubtedly, a cyclical element to this – and the decline in business births in 2009 and 2010 may be recession-related. Nevertheless, the long term upward trend does appear to be robust. At the unitary authority area level, the greatest increase in the incidence of business births appears to be in Slough and Reading.

Table 33: Business births in Thames Valley Berkshire and comparator areas 2004 to 2012

	2004	2005	2006	2007	2008	2009	2010	2011	2012
Bracknell Forest	565	525	500	540	550	515	480	540	510
Reading	725	715	640	770	765	645	760	900	880

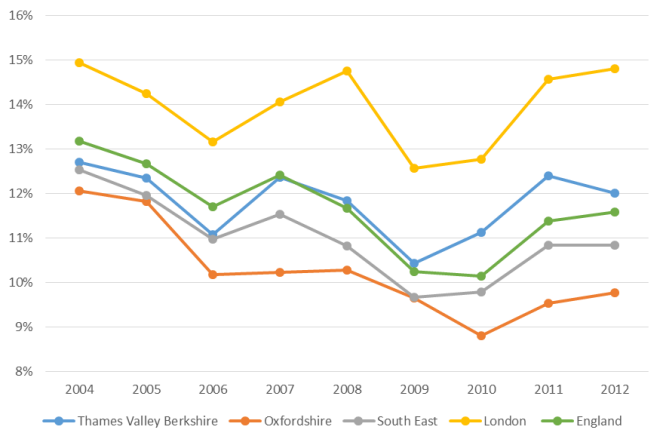
	2004	2005	2006	2007	2008	2009	2010	2011	2012
Slough	545	560	515	585	645	575	625	765	795
West Berkshire	940	915	790	980	885	850	800	950	900
Windsor and Maidenhead	935	1,000	935	1,040	1,010	860	990	1,020	1,090
Wokingham	925	845	745	830	805	715	820	885	835
Thames Valley Berkshire	4,635	4,560	4,125	4,745	4,660	4,160	4,475	5,060	5,010
Oxfordshire	3,285	3,270	2,845	2,920	2,990	2,850	2,595	2,790	2,875
South East	44,345	42,555	39,195	42,320	40,365	36,320	36,910	40,775	41,245
London	53,620	51,285	47,890	53,120	57,955	50,575	52,755	61,395	65,095
England	248,450	241,410	225,120	246,700	236,345	209,035	207,520	232,460	239,975

Source: IDBR

Looking at business births as a proportion of all active enterprises (see Figure 20), the data show that start-up rates have fluctuated. In all cases, rates of start-up were low in 2009 and 2010; they were higher in the earlier years and also in 2011 and 2012.

Within TVB, in 2012, start-up rates were highest in Slough (16.3%, 795 businesses set-up) and lowest in West Berkshire (10.4%, 900 businesses set-up).

Figure 20: Business births expressed as a % of all active enterprises, Thames Valley Berkshire and comparator areas 2004 to 2012



Source: SQW analysis of IDBR

For businesses established in 2007, business the survival rates after five years in TVB (48.2%) is higher than in London (41.7%) and England (44.4%) but lower than in Oxfordshire (51.4%).

Within TVB, business survival rates vary by 14 percentage points between the unitary authority areas (see Table 34): Wokingham has the highest five year business survival rate (54.2%) whereas Slough has the lowest (40.2%).

Table 34: Survival rate of businesses first formed in 2007, Thames Valley Berkshire and comparator areas %

	Births in 2007	1 Year Survival	1 Year %	2 Year Survival	2 Year %	3 Year Survival	3 Year %	4 Year Survival	4 Year %	5 Year Survival	5 Year %
Bracknell Forest	540	515	95.4%	445	82.4%	345	63.9%	295	54.6%	250	46.3%
Reading	770	725	94.2%	630	81.8%	485	63.0%	400	51.9%	360	46.8%
Slough	585	555	94.9%	475	81.2%	355	60.7%	275	47.0%	235	40.2%
West Berkshire	980	930	94.9%	820	83.7%	660	67.3%	570	58.2%	485	49.5%
Windsor and Maidenhead	1,040	1,025	98.6%	915	88.0%	720	69.2%	595	57.2%	505	48.6%
Wokingham	830	810	97.6%	740	89.2%	610	73.5%	510	61.4%	450	54.2%
Thames Valley Berkshire	4,745	4,560	96.1%	4,025	84.8%	3,175	66.9%	2,645	55.7%	2,285	48.2%
Oxfordshire	2,920	2,805	96.1%	2,445	83.7%	2,010	68.8%	1,720	58.9%	1,500	51.4%
South East	42,320	40,730	96.2%	35,445	83.8%	27,995	66.2%	23,315	55.1%	20,010	47.3%
London	53,120	50,410	94.9%	42,040	79.1%	31,620	59.5%	25,830	48.6%	22,170	41.7%
England	246,700	235,385	95.4%	200,460	81.3%	155,150	62.9%	127,980	51.9%	109,645	44.4%

Source: IDBR

Sectoral profile

From IDBR, it is possible to glean some insight into the **sectoral distribution of the business population**. Overall, the industry sector which accounts for the greatest proportion of businesses in TVB is "professional, scientific & technical"; this accounts for 18.7% of stock in TVB compared to 14.8% England-wide. TVB's most distinctive sector however is "information and communication"; its incidence in TVB (14.1%) is more than double the national average (6.9%).

At the level of individual unitary authority areas, the sectoral profile of the business stock also varies. Compared to the average for TVB, Slough and Reading both have a high incidence of retail businesses (signifying their predominantly urban character and function). Slough also has a relatively high incidence of both production and wholesale businesses, an observation that may owe much to the proximity of Heathrow Airport. Meanwhile in Reading, the incidence of "finance and Insurance" businesses is high relative to the average for TVB. The incidence of "information and communication" businesses is high in every part of TVB, but it is highest (in relative terms) in Wokingham. The highest concentration of "professional, scientific & technical" businesses is seen in Wokingham and Windsor and Maidenhead.

Looking at the **sectoral distribution of employment**, a slightly different distribution is apparent. Across all the unitary authority areas, "information and communication" accounts for either the highest (Slough 15% and Wokingham 15%), second highest (Bracknell Forest 13%, West Berkshire 11%, and Windsor and Maidenhead 11%) or third highest (Reading 12%) proportion of employment in 2012. In Bracknell Forest, Reading, and Windsor and Maidenhead, the "professional, scientific and technical" sector has the highest proportion of employment (16%, 15% and 13% respectively).

Compared to other areas we looked at, TVB has the highest proportion of employment in the "information and communication" sector (13%). The proportion of employment in the sector is at least 6 percentage points higher than in the comparator areas – Oxfordshire, the South East, London and England.

Table 35: Active enterprises by main industry sector in %, 2012, Thames Valley Berkshire and comparator areas

Industry	Bracknell Forest	Reading	Slough	West Berkshire	Windsor & Maidenhead	Wokingham	Thames Valley Berkshire	Oxfordshire	South East	London	England
Agriculture, forestry & fishing	0.7%	0.1%	0.2%	3.6%	0.8%	1.1%	1.3%	4.7%	2.8%	0.1%	4.2%
Production	3.5%	3.8%	5.7%	5.2%	4.2%	4.2%	4.4%	4.8%	5.1%	3.3%	5.8%
Construction	11.8%	7.1%	7.0%	10.8%	7.7%	10.5%	9.1%	9.8%	11.3%	8.0%	10.5%
Motor trades	2.7%	2.4%	3.7%	3.0%	2.1%	2.4%	2.7%	2.8%	3.0%	1.5%	3.0%
Wholesale	4.6%	3.8%	7.1%	4.8%	4.8%	4.8%	4.9%	3.9%	4.6%	4.9%	4.9%
Retail	7.9%	11.5%	10.6%	6.8%	8.9%	6.2%	8.5%	9.0%	9.6%	9.8%	10.8%
Transport & storage (inc. postal)	2.2%	2.7%	8.6%	2.6%	2.3%	2.3%	3.1%	2.3%	2.9%	2.3%	3.2%
Accommodation & food services	4.3%	7.1%	4.8%	5.1%	5.8%	3.5%	5.2%	6.4%	5.8%	6.1%	6.3%
Information & communication	14.8%	16.3%	14.2%	11.6%	12.2%	16.7%	14.1%	7.9%	8.8%	11.3%	6.9%
Finance & insurance	1.6%	3.1%	2.4%	2.1%	1.9%	1.6%	2.1%	1.8%	2.3%	3.5%	2.6%
Property	2.0%	2.8%	2.4%	3.4%	3.6%	2.5%	2.9%	3.1%	3.3%	4.9%	3.6%
Professional, scientific & technical	19.3%	16.3%	12.2%	17.9%	22.1%	21.9%	18.7%	17.8%	16.9%	20.3%	14.8%
Business administration and support services	9.8%	8.7%	8.1%	8.4%	8.8%	8.8%	8.7%	7.5%	7.7%	8.0%	7.1%
Public administration and defence	0.4%	0.6%	0.5%	0.6%	0.3%	0.3%	0.5%	1.5%	0.7%	0.6%	0.9%
Education	3.2%	2.2%	2.1%	2.3%	2.6%	2.2%	2.4%	3.8%	2.6%	2.1%	2.5%
Health	4.3%	5.6%	4.7%	3.6%	3.9%	3.8%	4.2%	5.1%	5.3%	5.1%	5.7%
Arts, entertainment, recreation and other services	6.8%	6.0%	5.7%	8.1%	7.8%	7.2%	7.1%	7.9%	7.3%	8.3%	7.1%
TOTAL	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Source: SQW analysis of IDBR

Table 36: Employment by main industry sector in %, 2012, Thames Valley Berkshire and comparator areas – *for sectors accounting for more than 5% of employment*

Industry	Bracknell Forest	Reading	Slough	West Berkshire	Windsor & Maidenhead	Wokingham	Thames Valley Berkshire	Oxfordshire	South East	London	England
Agriculture, forestry & fishing	[<5%]	[<5%]	[<5%]	[<5%]	[<5%]	[<5%]	[<5%]	[<5%]	[<5%]	[<5%]	[<5%]
Production	[<5%]	5%	10%	12%	6%	7%	7%	9%	8%	[<5%]	10%
Construction	[<5%]	[<5%]	[<5%]	6%	5%	[<5%]	[<5%]	[<5%]	5%	[<5%]	5%
Motor trades	[<5%]	[<5%]	[<5%]	[<5%]	[<5%]	[<5%]	[<5%]	[<5%]	[<5%]	[<5%]	[<5%]
Wholesale	13%	[<5%]	7%	7%	5%	6%	6%	[<5%]	5%	[<5%]	[<5%]
Retail	10%	11%	7%	8%	9%	7%	9%	10%	11%	9%	10%
Transport & storage (inc. postal)	[<5%]	[<5%]	11%	[<5%]	[<5%]	[<5%]	[<5%]	[<5%]	[<5%]	5%	5%
Accommodation & food services	5%	6%	[<5%]	6%	8%	5%	6%	7%	7%	7%	7%
Information & communication	13%	12%	15%	11%	11%	15%	13%	6%	6%	7%	[<5%]
Finance & insurance	[<5%]	[<5%]	[<5%]	[<5%]	[<5%]	[<5%]	[<5%]	[<5%]	[<5%]	8%	[<5%]
Property	[<5%]	[<5%]	[<5%]	[<5%]	[<5%]	[<5%]	[<5%]	[<5%]	[<5%]	[<5%]	[<5%]

Industry	Bracknell Forest	Reading	Slough	West Berkshire	Windsor & Maidenhead	Wokingham	Thames Valley Berkshire	Oxfordshire	South East	London	England
Professional, scientific & technical	16%	15%	8%	8%	13%	11%	12%	12%	9%	13%	8%
Business administration and support services	8%	7%	11%	7%	7%	11%	8%	6%	8%	10%	8%
Public administration and defence	[<5%]	5%	[<5%]	[<5%]	[<5%]	[<5%]	[<5%]	[<5%]	[<5%]	5%	5%
Education	8%	6%	6%	8%	9%	13%	8%	15%	10%	8%	9%
Health	7%	13%	7%	7%	9%	7%	9%	12%	12%	10%	13%
Arts, entertainment, recreation and other services	[<5%]	[<5%]	[<5%]	7%	8%	5%	5%	5%	5%	5%	5%
TOTAL	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

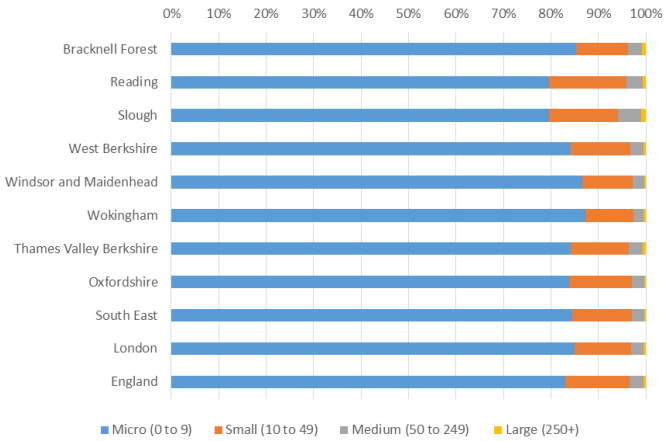
Source: BRES; figures may not sum due to rounding

Business size

As Figure 21 shows, micro businesses made up the vast majority (84%) of businesses in TVB in 2012. This is very similar to the comparator areas. The distribution across the other categories in TVB – small businesses 12%, medium businesses 3%, and large businesses 1%– is also very similar to the comparator areas.

The size distribution varies more between the unitary authorities within TVB. Wokingham has the largest proportion of micro businesses (87%) and Slough the smallest (80%).

Figure 21: Active business units by number of employees, 2012, Thames Valley Berkshire and comparator areas, in percent



Source: SQW analysis of IDBR

Large businesses make up a very small proportion of the business population, less than 1% in all areas. However, TVB has a larger proportion (0.6%) of large businesses than the comparator areas: Oxfordshire, the South East, London and England.

Within TVB, Slough is the area with the highest proportion (0.9%) of large businesses within its business stock, while Windsor and Maidenhead is the area with lowest proportion (0.4%).

Table 37: Active business units by number of employees, 2012, Thames Valley Berkshire and comparator areas, in %

	Micro (0 - 9)	Small (10 - 49)	Medium (50 - 249)	Large (250+)
Bracknell Forest	85.35%	10.85%	3.06%	0.74%
Reading	79.68%	16.17%	3.45%	0.70%
Slough	79.62%	14.53%	4.94%	0.91%
West Berkshire	84.25%	12.56%	2.70%	0.50%
Windsor and Maidenhead	86.57%	10.71%	2.33%	0.39%
Wokingham	87.21%	10.19%	2.14%	0.45%
Thames Valley Berkshire	84.10%	12.38%	2.95%	0.58%
Oxfordshire	83.92%	13.09%	2.59%	0.40%
South East	84.43%	12.56%	2.63%	0.38%
London	84.96%	11.87%	2.69%	0.47%
England	83.09%	13.56%	2.90%	0.45%

Source: SQW analysis of IDBR

In terms of the number of large businesses, ONS publishes rounded figures (to the nearest 5) to ensure that information attributable to an individual or individual organisation is not identifiable in published outputs. Looking at the breakdown of large businesses, the largest proportion of these fall into the 250 to 499 employees' category. All unitary authorities are home to businesses with between 500 and 999 employees. None of the unitary authorities within TVB has close to 10 businesses with more than 1,000 employees (see Table 38).

Table 38: Active business units by number of employees, 2012, Thames Valley Berkshire and comparator areas[143]

	Micro (0 - 9)	Small (10 - 49)	Medium (50 - 249)	*250 - 499*	*500 - 999*	*1,000+*	Large (250+)	Total
Bracknell Forest	4,050	515	145	*20*	*10*	*5*	35	4,745
Reading	5,665	1,150	245	*30*	*15*	*5*	50	7,110
Slough	3,945	720	245	*35*	*5*	*5*	45	4,955
West Berkshire	7,650	1,140	245	*35*	*10*	*0*	45	9,080
Windsor and Maidenhead	7,800	965	210	*25*	*10*	*0*	35	9,010
Wokingham	6,715	785	165	*25*	*5*	*5*	35	7,700

[143] Statistical disclosure control methodology is applied to IDBR data to ensure that information attributable to an individual or individual organisation is not identifiable in any published output. Counts of businesses are rounded to the nearest 5 to avoid disclosure. Cell counts and totals are rounded independently and thus components may not add to totals. www.detini.gov.uk/usage_of_the_idbr-2.docx

	Micro (0 - 9)	Small (10 - 49)	Medium (50 - 249)	*250 - 499*	*500 - 999*	*1,000+*	Large (250+)	Total
Thames Valley Berkshire	35,825	5,275	1,255	*170*	*55*	*20*	245	**42,600**
Oxfordshire	28,050	4,375	865	*95*	*30*	*10*	135	**33,425**
South East	337,500	50,225	10,520	*1,020*	*340*	*145*	1,505	**399,750**
London	356,635	49,840	11,305	*1,155*	*500*	*315*	1,970	**419,750**
England	1,843,215	300,750	64,405	*6,450*	*2,325*	*1,100*	9,875	**2,218,245**

Source: IDBR

4-3. International flows

TVB has long been a prominent destination for in-bound investment to the UK and international trade is an important focus for economic growth. In this Section, we therefore draw on published data – most particularly a report commissioned by BIS[144] – and we reflect on the performance of TVB and a number of relevant comparator LEP areas. We consider, first, the contribution of foreign-owned businesses to economic performance and then, second, the incidence of export. Note though that not all data are available for all areas.

Contribution of foreign owned businesses

In terms of the share of employment in foreign-owned businesses, around one fifth of employment in TVB is in foreign-owned businesses (22.3%). Overall, 10.4% of employment is in USA-owned businesses; 7.2% is in businesses from elsewhere in the EU; and 4.8% is in businesses with other international ownerships (see Table 39).

On this metric, TVB has the second highest proportion of foreign-owned employment of the comparator LEP areas. Only Swindon and Wilshire has a higher share of employment in foreign-owned businesses (23.9%). The share of TVB's employment in foreign-owned businesses is around 10 percentage points higher than the LEP average.

Table 39: Share of foreign-owned employment, market-based sectors, LEPs 2009

LEP area	USA	EU	RoW	Total foreign-owned employment
Thames Valley Berkshire	10.4%	7.2%	4.8%	**22.3%**
Enterprise M3	6.5%	10.0%	2.5%	**18.9%**
Buckinghamshire Thames Valley	6.9%	5.8%	3.5%	**16.2%**
Swindon and Wiltshire	6.1%	9.7%	8.0%	**23.9%**
Pan London	5.4%	6.3%	4.1%	**15.9%**
Gr. Cambridge & Gr. Peterborough	3.3%	5.6%	2.4%	**11.4%**
Oxfordshire LEP	3.7%	5.7%	2.2%	**11.6%**
LEP Average	4.3%	5.5%	2.8%	**12.6%**

[144] Harris and Moffat, 2013. Inward Investment and Exporting in the LEPs Report to BIS

Source: Harris and Moffat (2013)[145] analysis of ARD[146] data (gross output has been weighted by population weights)

Location quotients for employment in foreign-owned businesses in the LEP areas (1997-2008), suggest that TVB has considerably more than the national average. Swindon and Wiltshire, Enterprise M3 and Oxfordshire also have a high concentration of foreign-owned employment relative to GB.

Table 40: Location quotients[147] based on foreign-owned employment in LEPs, Great Britain 1997-2008[148]

LEP area	LQ
Thames Valley Berkshire	1.7
Enterprise M3	1.3
Swindon and Wiltshire	2.0
Pan London	1.0
Gr. Cambridge & Gr. Peterborough	0.9
Hertfordshire	1.0
Oxfordshire	1.1
Great Britain	1.0

Source: Harris and Moffat (2013) calculations based on ARD data

Foreign-owned businesses contribute more than half of TVB's gross output (51.4%). The highest contribution is made by EU businesses. Looking at the other LEP areas, three comparator areas (Swindon and Wiltshire, Buckinghamshire Thames Valley and Enterprise M3) have a higher proportion of foreign-owned gross output.

Table 41: Share of foreign-owned gross output, market-based sectors, LEPs 2009

LEP area	USA	EU	RoW	Total foreign-owned gross output[149]
Thames Valley Berkshire	15.8%	18.9%	16.7%	**51.4%**
Enterprise M3	17.7%	25.2%	10.0%	**52.9%**
Buckinghamshire Thames Valley	19.2%	29.8%	14.1%	**63.1%**

[145] Harris and Moffat, 2013. Inward Investment and Exporting in the LEPs Report to BIS

[146] ONS Annual Respondents Database

[147] The average location quotient (LQ) for each LEP based on 1997-2008 data. Each LQ statistic measures the proportion of employment in the LEP which is foreign-owned relative to how much of GB employment is foreign-owned; a value greater than 1 indicates that (relative to the nation) the LEP specialises in employing people in plants that are foreign-owned, while a value less than 1 shows that the LEP had a lower proportion of jobs in the foreign-owned sector.

[148] Harris and Moffat, 2013. Inward Investment and Exporting in the LEPS.
Harris and Moffat have used the definitions provided by BIS on which local authorities belong to each LEP (see Table A2.1 in the appendix). Note some local authorities belong to more than one LEP, and they have therefore included them in each LA to which they belong.

[149] Equates to sales or turnover

Swindon and Wiltshire	26.4%	28.9%	18.5%	**73.9%**
Pan London	9.5%	25.5%	8.6%	**43.7%**
Gr. Cambridge & Gr. Peterborough	9.5%	15.7%	6.2%	**31.4%**
Oxfordshire LEP	7.1%	26.5%	6.2%	**39.8%**
LEP Average	10.0%	19.8%	8.3%	**38.1%**

Source: Harris and Moffat (2013)[150] analysis of ARD[151] data (gross output has been weighted by population weights)

Export

Data on export performance is based on the 2011 Community Innovation Survey (CIS) survey which sampled of over 28,000 UK enterprises with 10 or more employees across manufacturing and services sectors and achieved a 50% response rate[152].

Table 42 shows that in 2010, 36.3% of enterprises in TVB sold to international markets. The TVB proportion of enterprises exporting is slightly (2.3 percentage points) above the LEP average of 34.0%. Of the comparator areas, Swindon and Wiltshire has the highest proportion of enterprises selling to international markets (51.1%).

Table 42: Percentage of market-based establishments exporting, 2010, by LEP

LEP area	Percentage of market-based establishments exporting
Thames Valley Berkshire	36.3%
Enterprise M3	34.0%
Buckinghamshire Thames Valley	50.3%
Swindon and Wiltshire	51.5%
Pan London	46.5%
Gr. Cambridge & Gr. Peterborough	33.6%
Hertfordshire	34.9%
Oxfordshire	37.6%
LEP average	34.0%

[150] Harris and Moffat, 2013. Inward Investment and Exporting in the LEPS
[151] ONS Annual Respondents Database
[152] BIS, May 2012, First findings from the UK Innovation Survey 2011, Science and Innovation Analysis http://www.bis.gov.uk/assets/biscore/science/docs/f/12-p107-first-findings-uk-innovation-survey-2011.pdf and http://webarchive.nationalarchives.gov.uk/+/http://www.bis.gov.uk/policies/science/science-innovation-analysis/cis

Source: Harris and Moffat (2013) analysis of 2011 CIS[153] survey (weighted data)

[153] Excludes a very large number of smaller establishments (especially those which are sole proprietors and firms employing less than 10 workers – the overwhelming majority of all firms). However, those establishments included cover the overwhelming majority of output (and to a lesser extent employment) produced in the LEPs.

4-4. Business perspectives

As an input into the Strategic Economic Plan, a dozen or so in-depth business consultations were completed in October and November, 2013. These spanned businesses of different sizes based in different places and focusing on different activities. Whilst limited in number, they provide an important – business-based – perspective on the economy of Thames Valley Berkshire today; in the main, they are entirely consistent with the findings from other stands of analysis.

Main activities in Thames Valley Berkshire

For many of the firms with which we spoke, their facility in Thames Valley Berkshire is either their main or regional HQ. Therefore management and administration is a feature of all firms' activities, and in some cases the main function in TVB. However, many firms also undertake other activities in the area, including development, engineering support, sales and marketing. From our consultations, it appeared that few, if any, undertake pure research: the main centres of research such as Oxford and Cambridge are seen as more suitable, but TVB can be well suited to development and design work, particularly where that is closely related to feedback from marketing and sales.

Reasons for and benefits of location in Thames Valley Berkshire

In discussion, it transpired that firms' main reasons for locating in TVB reflect its national and international connectivity - proximity to London and to Heathrow Airport, and accessibility to the national motorway and rail network. For some international firms, UK's centrality in international time zones is also important, as is use of the English language (compared with elsewhere in Europe). For IT firms, the availability of the specialist skills in the Thames Valley is also cited as an attraction.

More generally, the area is considered to offer a good quality of life, excellent schools and a variety of living environments. However, the advantages of TVB in these respects are more important for people aged over 30. For most people under 30, businesses report that London has more attractions. This observation was corroborated through our discussions with graduate recruits and interns at one of the major Corporates in TVB.

Future intentions regarding growth

The small firms we interviewed all intended to grow in Thames Valley Berkshire. For those expecting to expand into other parts of the UK or internationally, TVB was expected to remain the HQ.

However, most of the larger firms we interviewed were expecting to grow elsewhere rather than in TVB. This was for a mix of reasons including the availability and cost of skilled people, and access to the world's fastest growing and biggest markets. The exceptions were financial and professional services firms; these regarded Reading as a good regional centre for further growth.

We did not interview any businesses which expected to reduce their size locally or leave the area, although several said this would be reviewed if Heathrow Airport ceased to be the UK's main hub airport.

Use of local services, networks and higher and further education

Amongst our consultees, most foreign firms based in TVB appear to make little use of locally based professional services and networks. An increasing number have their head office in London rather than TVB, and make the major decisions about use of external services either there or at overseas HQs.

Some firms have links with the education sector locally. For example, one company commented on the improved quality of computer science graduates from University of Reading, and Cisco is one of the sponsors of a University Technical College in Reading. However, most recruit from the universities and colleges which have the most relevant courses nationally, and in some cases internationally. There are also examples of links being established with education institutions in adjoining areas – for example, one company is working with a FE College based in West London to train apprentices.

People issues

Most firms interviewed identified recruitment and retention as the main constraint on growth. The major corporates generally do not have difficulty recruiting graduates, although there were concerns about national skills shortages in some areas, including computer science and engineering.

Many firms expressed concerns about losing young people once they had two or three years of experience (in the words of one consultee, "*just as they are becoming useful*"), almost invariably to London. Salaries are considered to be competitive, but the London lifestyle appears to be irresistible to people in their 20s. Older workers are happier to settle in TVB, valuing attractions such as good schools, attractive villages and a varied housing stock.

The lack of young people's preparation for work, including an unwillingness to work hard, was also a concern expressed by some firms.

Infrastructure issues

Consultees commented that Thames Valley Berkshire's economy is, essentially, car-based. Most modern business space is on business parks, which generally are much more accessible by car than public transport. In addition, the settlement pattern is polycentric, resulting in complex work and leisure journeys between urban areas, rather than a concentration of movement along a small number of major radial routes into a single centre.

This puts serious strains on the existing transport infrastructure, which is already at or close to capacity. However, firms generally were quite sanguine about congestion – possibly because it is no worse in TVB than in most of the rest of SE England. There was strong support for the redevelopment of Reading station, and for direct access to Heathrow from the west. There were also suggestions for improvements: for example, faster services on the Reading to Waterloo line, and improvements to M4 junctions and radial routes into Reading.

Mobile connectivity as well as fast broadband was considered extremely important. An increasing proportion of business is done remotely, but firms need access to very high capacity telecoms in order to make the most of technology (such as video conferencing) and thereby reduce the need to travel.

Housing supply is regarded variously as both a problem and an advantage of the area. The variety of housing and living environments is a selling point, but problems for young people in affording basic housing is a problem. Some firms identified this issue as a major impediment to recruitment.

The poor quality of some town centres in TVB is a major issue for firms. Among our consultees – and whilst acknowledging that major re-investment is now taking place – Bracknell and Slough were identified in these terms ("no bars, no restaurants, no buzz"). There was a general view that TVB needs vibrant, attractive town centres with meeting places for young professionals in order to compete more effectively with London as a place to work.

Other issues and comments

Business incubation

Two of the major firms consulted – Cisco and Telefonica – have established incubators to support young people to develop innovative ideas into new businesses. In both cases the corporates provide co-working space free of charge, mentoring and some financial support for a period of six months to a year. The young entrepreneurs are then either supported to develop their business further, or recruited, or they go their separate ways.

In both cases these incubators are in central London, because that is where most innovative young people want to be. TVB was not the location of choice, despite Cisco having surplus property in Reading and Telefonica having a major presence in Slough.

Access to finance

Although difficult to generalise, a number of business consultees commented that there is a substantial amount of growth capital available to IT firms at present, mainly from US. This observation might be sectorally-specific.

4-5. Conclusions

The evidence presented in this paper points to the vibrancy of TVB's business community. It is a diverse community with some major corporates but also many SMEs. Sectorally, the importance of activities relating to information and telecommunications is clearly apparent

The evidence distilled from a recent report to BIS provides some key insights into the extent to which that business community is – genuinely – internationally focused. Inward investment is clearly very important to TVB and a high proportion of economic activity is, ultimately, in foreign ownership. TVB also performs reasonably strongly in terms of the incidence of export activity; although above the national average, it is in this domain perhaps a little less distinctive.

Consultations with businesses generated a wide range of perspectives on TVB. In all cases, there appeared to be some commitment to the local area. There were general – although not universal – frustrations in respect of recruitment, particularly in relation to science, technology, engineering (including computer science/engineering) and mathematics; in this domain, the draw of London was widely acknowledged and this observation was corroborated through discussions with young recruits to TVB. Whilst congestion was an issue, it was also acknowledged to be an endemic problem across the south of England. For many though – particularly the inward investors and the corporates – it was uncertainties in relation to the future of Heathrow Airport that were considered to be the greatest concern and the greatest potential threat to re-investment.

From Evidence Paper 4, a number of important messages were taken forward into the development of the Strategy and Implementation Plan. These are summarised below.

Key observations from Evidence Paper 4	Implications for the SEP
The extent and depth of business-to-business networks in TVB is relatively limited…	Strong business networks are an important part of a successful local economy. They greatly improve the flow of information between firms, encourage innovation and reduce risk. Well networked places typically have a plethora of formal and informal, long term and ephemeral, physical and virtual networks, formed for a wide variety of purposes. Typically network structures are 'messy', with multiple access points, new networks emerging and old ones dying. TVB already has a variety of networks, ranging from well-established local chambers to the social gathering of financial and business service professionals in and around Reading's Forbury Square. If these networks could be deepened and extended, the local economy

	would function in a more integrated way and firms – particularly the large corporates – would 'grow stronger roots'. Three things are needed: better meeting places (one business said of one of the TVB town centres – 'no bars, no restaurants, no buzz'); animateurs within key sectors whose (part time) job it is to stimulate the formation and deepening of networks; and on-going commitment from lead firms to make the networks work. More generally, there is a need to improve the support – formal and informal – that is available to businesses in TVB with the aspiration and potential to grow.
TVB is an intrinsically international economy…	TVB is competitive internationally as well as nationally, and has been successful in attracting investment from new as well as traditional sources. But it must maintain that competitiveness through investment in people, ideas, places and communications. TVB LEP needs to work closely with others, particularly UKTI, to attract new international investment. This will include: undertaking and publishing research into TVB's strengths compared to its main competitors elsewhere in Europe; joining overseas missions where appropriate to raise the profile of TVB and support development of B2B relationships; and working with the University of Reading to exploit the business and investment potential of the University's international alumni network, and to make links between foreign students at the University (including its overseas campuses) and firms in TVB. Through the Strategic Economic Plan, there is a need to encourage foreign businesses already in the area to reinvest and grow in TVB.
Businesses need more people with skills and qualifications in Science, Technology, Engineering and Mathematics (STEM)…	Among the businesses that contributed directly to the development of the Strategic Economic Plan, the availability of potential recruits with expertise in science, technology, engineering and mathematics (STEM) featured among the most frequently aired concerns. For some, the issues are acute: the challenge of both recruitment and retention is such that some businesses are opting to channel future growth to international locations which in turn means that growth is foregone for both TVB and the UK. The shortage of STEM-related skills is not unique to TVB. Central government has developed a range of strategic responses and the voluntary/charitable sector is also very active; Gatsby, for example, has funded the formation of STEMNET, which creates opportunities to inspire young people in STEM via its 24,000+ STEM Ambassadors, the STEM Clubs network, and projects including brokering enhancement and enrichment activities between schools and business. It will be important that ventures of this type are actively encouraged and promoted within TVB. Locally, there are examples of businesses within TVB taking a lead directly. In addition, Cisco, Microsoft, PBA and Network Rail are co-sponsoring the Reading University Technical College with a particular focus on computer science and engineering. Our intention is to build on this good practice and publicise and disseminate the lessons that can be learned from it.

	However, the supply side deficit is acute. A good number of businesses within TVB are therefore seeking to tap into international labour markets and yet many are thwarted by the challenges of visas and work permits.
There is a need to break into "*low pay – no pay*" cycles...	As one of the UK's major centres for business, TVB supports a diverse workforce and provides a wide range of employment opportunities. However, some residents across TVB struggle to compete in TVB's labour market, and find themselves under- or unemployed, or working outside of TVB in low skilled employment. It is apparent that too much employment in TVB brings with it limited career progression and the training opportunities that are needed to permanently move people away from "low-pay – no-pay" cycles. Further – and informed by population projections – it is clear that TVB must invest in its existing workforce, particularly by refreshing the skills of older workers.

Evidence Paper 5
Skills, Education and Employment

5-1. Introduction

This Evidence Paper provides supporting evidence on the need for, and nature of, investment in education and skills (E&S) in TVB. The paper summarises the E&S imperative with respect to supporting economic growth and, linked closely to this, discusses the immediate and longer term E&S needs of TVB businesses. Building upon this, consideration is given to how the E&S needs and priorities for TVB align, and support, national E&S policies and programmes.

Education, Skills and economic growth in TVB

Economic output is derived through a combination of capital and labour inputs, as well as a third, less tangible variable, Total Factor Productivity (TFP). TFP measures the residual output not accounted for through capital and labour. Economists argue that TFP is predominately influenced by advances and innovations in technology. Whilst difficult to estimate accurately, economists argue that it is increases in TFP that tend to drive genuine and sustainable increases in productivity and economic growth. This raises two important questions for TVB:

- does TVB's current and future workforce have the skills and knowledge to exploit technological advances and innovations both now and in the future?
- does TVB's current and future labour pool have the requisite skills and knowledge to make a meaningful contribution to global and national technological advances and innovations?

In order for TVB to achieve its vision for growth, a positive response is needed to both. The first question is crucial for ensuring that TVB maintains and increases its share of national economic output and Gross Value Added (GVA). The second is crucial for enabling TVB to maintain and enhance its future competitive advantage vis-à-vis other national and international economies, hence securing economic output and GVA growth for future generations.

So how close is TVB to being able to answer 'unequivocally yes' to both of these questions? The next Section considers the immediate and longer term needs of TVB's businesses.

5-2. The immediate and longer term needs of TVB's businesses

Introduction

Notwithstanding some significant variation across the area, TVB has a relatively well qualified workforce, with the proportion qualified above Level 3 (i.e. A-Level) and Level 4 (i.e. undergraduate degree) above national averages. However, qualifications *per se* offer a fairly blunt proxy for skills. Indeed, in order for qualifications to translate into a workforce that can drive economic growth and increased productivity, qualifications need to lead to a range of *applied skills and wider aptitudes* that are actually *in demand* by business.

There is no straightforward way of assessing the extent to which TVB's workforce currently reflects this imperative. However, drawing upon a range of sources we can make a considered judgement regarding any gaps in skills and wider aptitudes that need to be addressed. These sources include:

- the views of the businesses consulted with as part of our work to support the development of the TVB SEP
- research undertaken to assess skills gaps and the future needs of TVB's key sectors

The views of the businesses consulted with as part of our work to support the development of the TVB SEP

People

Most firms interviewed identified recruitment and retention as the main constraint on growth. The major corporates generally do not have difficulty recruiting graduates, although there were concerns about national skills shortages in some areas, including computer science and engineering.

Many firms expressed concerns about losing young people once they had two or three years of experience (in the words of one consultee, "*just as they are becoming useful*"), almost invariably to London. Salaries are considered to be competitive, but the London lifestyle appears to be irresistible to people in their 20s. Older workers are happier to settle in TVB, valuing attractions such as good schools, attractive villages and a varied housing stock. The lack of preparation for work, including an unwillingness to work hard, was also a concern for some firms.

An example of the reported difficulties associated with recruitment and retention in TVB is provided in the box below.

Box 4: Perspectives from a large engineering firm

This company is a large engineering and construction business in the oil and gas, refining, chemicals, power, pharmaceuticals and minerals & metals sectors, employing hundreds of people from Thames Valley Berkshire. It operates globally and its clients are overwhelmingly international.

To be able to grow, the firm needs to be able to recruit more qualified engineers. However, despite very competitive starting salaries for new graduates, and average salaries of well over £50k, it faces tough challenges, with potential recruits stating that the cost of living in Thames Valley Berkshire is prohibitive.

As a global business, the company has operations overseas. Increasingly, it is seeking to recruit through its overseas operations. Once staff are employed by the firm, internal transfers may be possible. These are much more straightforward to negotiate and arrange than to go through the route of direct international recruitment to Thames Valley Berkshire. Although direct international recruitment has been considered, it is not as straightforward due to the cost, complication and schedule implications of obtaining visas and work permits on behalf of the recruits.

The challenge of recruiting specific qualified engineers in Thames Valley Berkshire is such that a high proportion of the firm's future growth will most likely be focused on its non-UK operations. The reason for this is the recruitment challenges it faces in Thames Valley Berkshire. Its international competitors (particularly those in Korea, China and India) are able to draw on much larger 'pools' of qualified engineers to meet their needs, and which they can also do so cost-effectively.

The firm comments that the issues it is facing are very similar to those faced by others in its field, a number of which are operating locally.

Source: SQW consultation with TVB based engineering firm, 2013

Infrastructure

The poor quality of some town centres in TVB is a major issue for firms. Among our consultees – and whilst acknowledging that major re-investment is now taking place – Bracknell and Slough were identified in these terms ("no bars, no restaurants, no buzz"). It was argued that TVB needs vibrant, attractive town centres with meeting places for young professionals in order to compete more effectively with London as a place to work.

Housing supply is regarded variously as both a problem and an advantage of the area. The variety of housing and living environments is a selling point, but problems for young people in affording basic housing is a problem.

Use of local services, networks and higher and further education

Some firms have links with the education sector locally. For example, one ICT firm commented on the improved quality of computer science graduates from University of Reading, whilst another is sponsoring the University Technical College in Reading. However, most recruit from the universities and colleges which have the most relevant courses nationally, and in some cases internationally. There are also examples of links being established with education institutions in adjoining areas – for example, one firm consulted with is working with Richmond College to train apprentices.

Assessing skills gaps and the future needs of TVB's key sectors

With respect to assessing the skills gaps and future skills needs for TVB, two important pieces of research have been undertaken within TVB over the last few years. These are discussed in turn below.

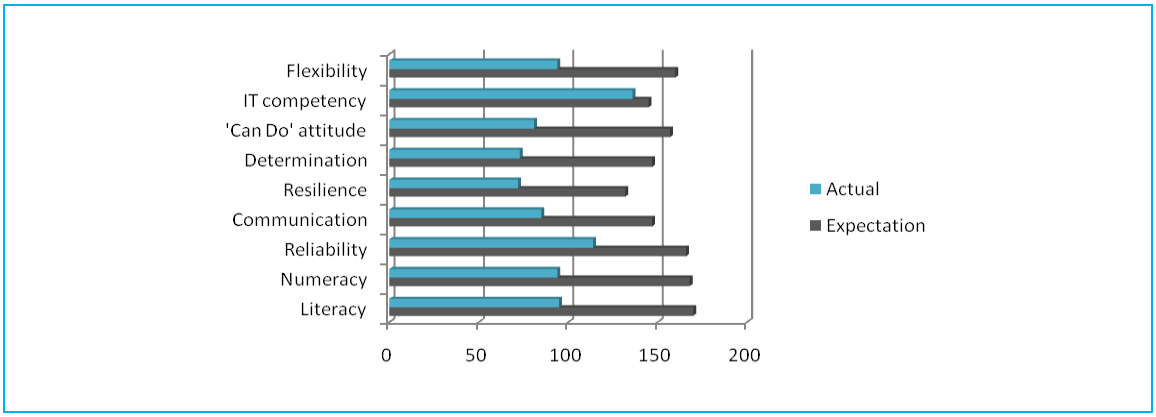
Getting the basics right - 'Work Readiness Survey 2011', Berkshire Education Business Partnership Organisation

In 2011, the Berkshire Education Business Partnership Organisation (BEBPO) assessed the work readiness of young entrants to the labour market. The study was undertaken in light of recommendations set out in the Wolf Review[154], regarding the provision of vocational education. These included cuts of around £25m in funding for the Education Business Partnership Organisation to support work related learning.

The research consisted of an online survey which was conducted in July 2011. This gleaned responses from 182 employers in the TVB area that either had recent experience of taking on school-age students from work placement schemes, or had expressed an interest in the subject of young people in the workplace. The sample captured a wide range of employer types including large corporates, SMEs, public sector employers, and a small number of third sector organisations. The survey sought to evidence and uncover the extent of any mismatch between the skills and attributes of young labour market entrants and the expectations and needs of employers.

Figure 22: No. of employers expecting students to have very strong or good skills for further development compared with their experience of student competencies (n=182)

[154] Review of Vocational Education, The Wolf Report, Professor Alison Wolf, March 2011



Source: Work Readiness Survey 2011, Berkshire Education Business Partnership Organisation

Asking employers about a range of core skills, behaviours and attitudes, the survey revealed a complex pattern of mismatches, as can be observed from Figure 22:

- Across the core skills (of literacy, numeracy, communication and IT competency), the largest mismatches were in numeracy and literacy where 93% and 92% of employers expected skills to be very strong or good for further development. In each case, this compared with just over 50% of employers describing the actual competency of new recruits in similar terms. The consequence was a gap of 43/42 percentage points between the two measures.
- There was less of a skills mismatch with respect to IT competency. Around 80% of employers expected skills to be very strong or good for further development, with the reported reality being only marginally under this. However, with literacy skills (and communication skills) below expectation, it is likely that this is having a detrimental effect on the effective use of IT software (such as emails).

More broadly, and coupled with the mismatch between expectations and reality with respect to wider behaviours (reliability, resilience, and flexibility) and attributes (determination and having a 'can-do' attitude), the survey pointed to a young labour market entry pool that may be ill-equipped to live up to the expectations of employers.

The research concluded that there is a need for continued and improved dialogue and understanding between schools and employers, with significant efforts demanded from both to improve the readiness for work of students.

Evidence and insight provided by Jobcentre Plus suggest that issues surrounding work readiness, coupled with low levels of career aspirations, are also having real consequences for TVB residents aged over 25. It was reported by Jobcentre Plus that of the c 2,000 unemployed residents aged

between 25 and 34 in TVB in 2013, over 50% had been out of work for over six months. In contrast, whilst around the same number of TVB residents aged between 18 and 24 were unemployed, 10% of this cohort had been out of work for over six months. It was reported that whilst younger labour market entrants can generally find employment in TVB, too many end up in low paid jobs with limited opportunity for career progression. As a result, by the time this cohort are aged between 25 and 34, they do not possess the skills and wider aptitudes required to compete in the labour market.

Skills for the future - 'Sector Analysis', Thames Valley Berkshire LEP, Employment, Education and Skills Group (EESG)

Through the EES Group, in 2011 the TVB LEP commissioned a study to assess:

- TVB's main employment sectors
- the future skills likely be demanded by these sectors
- the extent to which education and skills provision is (and will be) able to deliver these skills.

Reporting in January 2012, the study relied on publically available data as well as a series of regional and sector-specific research papers. A summary of the analysis for the five priority areas of economic activity identified as being important in employment and GVA growth terms for TVB is provided in Table 43 below.

With the possible exception of logistics, the common theme running through the future skills gap analysis is a major shortage of workers skilled in appropriate Science, Technology, Engineering and Mathematics (STEM) both now, and based upon available forecasts, in the future. Whilst much of the future skills gaps have been estimated on a national or South East England basis, the importance of these sectors for TVB's economic growth make skills gaps surrounding STEM even more pressing.

Table 43: Summary of findings from the Sector Analysis study

Sector	Summary	Future skills needs
Information and Communications Priority area: ICT	The LEP area has one of the highest concentrations of ICT firms and employment in ICT. It is one of the largest sectors accounting for 13 per cent of all businesses and is a large contributor to Berkshire's overall GVA. Apprenticeship and course provision appear to be adequate although this may need to be increased to reflect growing demand.	Skills gaps currently affect around 75% of technology professionals, particularly in ICT programme management, supplier management and service management[155]. The changing nature of skills in the UK is predicted to continue to be primarily in high value roles such as project management, systems architecture, business process, change management, security, risk management, analytics and web / internet development, with an increasing need for customer, consumer and business-oriented skills as well as sophisticated technical competencies. In the immediate term (1 -3 years) employers report a priority need for IT & Telecoms professionals to have high level security and data protection skills to enable them to develop, integrate and maintain security solutions across many different systems and applications[156].
Professional, Scientific and Technical Priority area: Energy, Pharma and Life Sciences	Energy, Pharma and Life Sciences are priority sectors for the LEP. It is a large sector employing 11 per cent of all employees and accounting for 17 per cent of all businesses in the area, 93 per cent of which employ 10 or less people. Growth in this sector is forecast to be strong. There is already good provision in this sector but this may need to be increased to match forecast demand. Skills that will be required in the future will comprise a mix of technical and management skills.	Skills that require attention include science, technology, engineering and maths (STEM) and those skills needed to support the shift to a low carbon economy. Life sciences and medical technologies are experiencing gaps in mathematical, technical and leadership and management skills. Future drivers for skills will be heavily linked to emerging technologies. Specific skills needs in advanced engineering include circuit design, control systems, and mathematical modelling. Skills shortages are a particular problem in the composites sector and electrical installation. Environment and energy businesses are highly dependent on STEM skills at Levels 2 to 4 associated with engineering and research and development

[155] SEEDA Skills Priority Statement 2011-2012
[156] e-skills UK Technology Insights 2011

Sector	Summary	Future skills needs
		roles. Parts of this sector are still in a formative stage but the number of STEM graduates is not expected to be sufficient to meet demand. Alongside engineering, skills such as mathematical modelling, prototyping and computer simulation are expected to be in short supply.[157] For Semta's sectors in the UK there is expected to be a net requirement for over 136,000 people with intermediate and higher level qualifications (NVQ Level 3 plus or equivalent) over the period 2010 to 2016. Semta's sectors were most likely to report skills gaps for skilled trades/craft and management occupations[158].
Financial and insurance Priority area: Business and financial services	Finance and Insurance is a relatively small sector in the LEP area but contributes significantly towards overall GVA. Growth is predicted in this sector although given the small size, it is unlikely that numbers will be large. Provision appears adequate with both L2 and L3 apprenticeships and a reasonable number of courses available. Future skills needs within the sector are forecast to be higher level and very specific to the industry.	Skills shortages include management, analytical, statistical and regulatory compliance areas. Future shortages are forecast in skills such as risk management, corporate governance and legal services, in part driven by stricter regulation[159]

[157] SEEDA Skills Priority Statement 2011-2012
[158] SEMTA Sector Skills Assessment 2010
[159] SEEDA Skills Priority Statement 2011-2012

Sector	Summary	Future skills needs
Public Admin and Other Priority area: energy (utilities) and Defence (Public Admin and Other)	Higher level skills are needed to develop the knowledge economy. The knowledge economy underpins creative research and development, which is essential for growth[160]. Higher-level skills (QCF 4+) are critical to the development of the energy industries and to their ability to meet future challenges. Evidence suggests that there will be an increasing demand for engineers from various disciplines (e.g. electrical, mechanical, design, etc.) to develop and deploy new technologies and processes across the breadth of the energy and utility sector[161].	The Public Admin sector employs 8 per cent of Berkshire's workforce and comprises the LEP priority areas of Defence. This sector is forecast to decrease in size and this may be exacerbated by the public sector cut-backs. Provision in this sector appears adequate with apprenticeships at both L2 and L3 and a reasonable number of courses available. The energy sector is relatively small but is a priority area for the LEP. There are links with the Professional, Scientific and Technical sector in terms of research and development and the requirements of higher level skills in this industry will continue to be in demand.
Transport and Storage Priority area: logistics	Improving managerial skills is important if the sector is to remain competitive in future; Nearly half of the workforce do not have a level 2 qualification, a much higher proportion than the average figure of 29% across all sectors. It is forecast that by 2017 there will be considerable demand for managers, customer service positions as well as for transport and machine operatives.	Four per cent of all Berkshire employees work within the Transport sector and this is also a priority area for the LEP. Employment growth within the sector is forecast to remain static to 2016. Local area intelligence suggests that there will be predicted jobs growth of c2,500 (inc. 400 HGV) in this sector to 2013. While there are a number of L2 apprenticeships available, there do not appear to be any at L3. However, there appears to be a reasonable number of courses at 19+. The industry will require a mix of higher level skills as well as generic and job-specific skills to remain competitive over the next 5 years.

Source: adapted from 'Sector Analysis', Thames Valley Berkshire LEP, Employment, Education and Skills Group (EESG), QandA Research

[160] Creative & Cultural Skills: Sector Skills Agreement for the creative and cultural industries 2010
[161] Energy and Utility Skills: Sector Skills Assessment 2010

Summary

There are two main routes for the SEP to influence the education and skills of its current and future workplace population.

- The first surrounds TVB's residents and ensuring that labour market participants of all ages, and particularly the young, are educated and prepared for work in a way that meets, and ideally exceeds, the expectations of employers. At present however, the Berkshire EBPO survey in 2011 and our more recent consultations with businesses would suggest that labour market entrants are falling well short across a number of core skills, behaviours and attitudes. There is a recognised need for a continued and improved dialogue and understanding between schools and employers, with significant efforts demanded from both to improve the readiness for work of students. For unemployed residents that are now older and already part of the labour market, measures are required to support, (re)skill and broker this cohort so that they can effectively compete for TVB job vacancies.
- The second surrounds TVB's existing and future workforce. A proportion of the workforce will consist of those that live and work in the area, but as is currently the case, large numbers will commute into the area from elsewhere. The above analysis has demonstrated that skills gaps are currently constraining economic growth. Given the growth potential identified for knowledge/science-based sectors in TVB, unless addressed, these gaps will continue to hold back the area's ability to exploit and contribute to technological advances and innovation – the key driver to sustainable economic growth and increased productivity.

Responses developed from within TVB

The skills agenda has long been a high priority for TVB – and indeed for the LEP – and already a range of responses have been developed. The SEP is not therefore starting from (anything like) a blank canvass.

Recognising the need to improve work readiness, as well as facilitate improved connectivity between young TVB residents and the labour market, TVB LEP has developed an *Education Blueprint for Berkshire*[162]. Building on the previous work of partners, and with a significant call for business involvement, the Blueprint sets out a series of actions to:

[162] Education Blueprint for Berkshire, Thames Valley LEP

- develop the self-management of young people in Berkshire
- develop the communication skills of young people in Berkshire.

In addition, the City Deal for Berkshire includes provision for: *a new integrated pathway for young people that would ensure every young person is supported to make a successful transition towards and into employment, offering support tailored to individual need and more effective targeting of limited resources*[163]. This will involve a new pan-TVB employment and skills hub that will serve as the Gateway to skills and employment opportunities for 16-24 year olds.

Finally, issues relating to learning and skills feature strongly within the LEP's strategy for the EU Structural and Investment Funds.

[163] Thames Valley Berkshire City Deal application, 2013

5-3. Building upon, and linking with, national policy priorities

This Section considers how the E&S needs of the TVB align with, and can contribute, to national policy and activities. The Section is split into two sub-sections: the first assesses current reform to vocational education and qualifications, whilst the second focuses on national STEM policy.

Reform to vocational education and qualifications

In April 2013, the Department for Business Innovation and Skills (BIS) published "*Rigour and* Responsiveness in Skills" which set out the measures that Government will take to accelerate reforms in vocational education and the associated skills system. The core principles of the strategy are, as its title suggests, twofold:

- to ensure that vocational qualifications are ***rigorous*** so that they equip a worker to practise in their chosen role
- to ensure that this will be achieved within a system that is ***responsive*** – i.e. providing the flexibility for education and training providers to deliver what is really wanted by learners and employers.

Six areas of activity seek to deliver against these principles which are set out in Table 44.

Table 44: Areas of activity to support the "Rigour and Responsiveness" strategy

Area of activity	Summary
Raising standards	Introduction of a 'Chartered Status' as a new internationally recognised mark of quality for learners and employers; development of a faster intervention regime for when performance of schools and colleges falls below the required standard; and improvements in the quality of information to individuals and employers on the quality of provision.
Reforming apprenticeships	The standards for completing an Apprenticeship will be set by the employer, and an Apprentice's competencies tested at the end of training. Employers will have much greater flexibility in deciding what training individuals need to get to that standard.
Creating Traineeships	Introduction of the Traineeship programme to provide a combination of a focused period of work preparation, a high quality work placement and training in English and maths.

Area of activity	Summary
Meaningful qualifications	In an effort to make qualifications relevant rigorous and recognised, in order to remain eligible for government funding, they will need to meet these criterion as well as demonstrate strong employer input
Funding improving responsiveness	Introduction of new approaches such as loans for those aged 24 or over, and direct employer funding through the £340m Employment Ownership Pilots (EOP)
Better information and data	Improving the quality and access to information regarding provision, including access through apps and mobile devices

Source: adapted from 'Rigour and Responsiveness in Skills', Department for Business Innovation and Skills, April 2013

Following this strategy, in October 2013 BIS published an implementation plan for the reform of apprenticeships[164] alongside guidance for a new apprenticeship trailblazer programme[165]. Initially focused on eight sectors[166], the programme will work with a range of corporates and SMEs to test the new approach to, and configuration of, apprenticeships in England.

As part of the reform of apprenticeships, BIS's adult skills funding arm, the Skills Funding Agency (SFA), is promoting Higher Apprenticeships (HAs) which are seen as a key route to up-skilling the workforce.

Data provided by the Skills Funding Agency suggest that across TVB, around 300 people started HAs in 2012/13. The most common subjects were accounting; care leadership and management; management; and IT web and telecoms (all offering up to Level 4 and some Level 5 qualifications, but noting that HAs can go as high as Level 7). However, the availability of funding for HAs varies by age:

- 16-18 year olds are eligible for full funding for apprenticeships
- those aged between 19 and 23 receive 50% funding which needs to be matched by employers
- those aged 24 and over require funding through a combination of private sector and available individual loan funds (launched as part of BIS' Rigour and Responsiveness strategy).

With respect to the skills gaps identified in the Section 2, it is this latter group that are most likely to be most suited to HAs (i.e. those already skilled and in-work, but with their potential constrained due to skills gaps). However, there has to be a concern that the combination of employer contributions

[164] The Future of Apprenticeships in England: Implementation Plan, BIS, October 2013
[165] The Future of Apprenticeships in England: Guidance for Trailblazers, BIS, October 2013
[166] These eight sectors are aerospace, automotive, digital industries, electro technical, energy and utilities, financial services, food and drink manufacturing, and life sciences & industrial sciences

and individual loan funds may be insufficient to stimulate sufficient demand (and supply) for HAs in TVB.

National STEM policy and activity

Despite resounding agreement across government regarding the importance of developing a current and future workforce with competencies in STEM -related subjects, there is no one overarching strategy, or indeed Government department that appears to be responsible for championing the STEM agenda.

STEM in secondary schools

Strategic ownership for STEM for schools lies with the Department for Education (DfE). In 2011, DfE published *Good Timing: Implementing STEM Careers Strategy in Secondary Schools*. This followed a three year research programme to explore the potential to embed STEM careers awareness in the early stages of secondary education. A key part of this research involved the development of a new pilot, the STEM Careers Awareness Timeline Project, which was commissioned to explore the potential to embed careers activity in STEM subject lessons and extracurricular programmes for pupils at Key Stage 3.

In the same year, DfE also published the three year evaluation of its STEM Cohesion Programme[167]. The nation-wide Cohesion Programme involved 11 action programmes such as continuing professional development, careers, and enhancement and enrichment (e.g. practical workshops or design challenges), and was the then Government's response to a call for better coordination of the organisations involved in STEM education.

Building on the findings from the Cohesion Programme and a range of other initiatives designed to support STEM activity, the dominant 'reading between the lines' message from the DfE STEM Careers Strategy was that with severe cuts to public sector spending (and education), it was left to schools to embed the good practice that had been developed over the preceding years. The text box below provides an example provided in the strategy of what a successful STEM Careers Timeline schools looks like.

Box 5: What are the characteristics of a successful STEM Careers Timeline school?

[167] The STEM Cohesion Programme, Final Report, July 2011, Department for Education, produced by NFER

In a successful Timeline school, careers activity is embedded in schemes of work. STEM teachers are aware of overlap between subjects through the key stage and refer to 'real-world' relevance of concepts and ideas as a matter of course. STEM teachers and careers staff (external and internal) provide a balanced mix of STEM-related career and qualification options, generic careers related information and impartial careers guidance. STEM departments plan strategically for the key stage so that careers references permeate curricular and extracurricular activity. All pupils begin to explore the range of potential career paths they could follow, aspire to new ambitions and are aware of a range of sources of information and advice. The school will also recognise the close links between STEM, employability skills and enterprise.

Source: Good Timing: Implementing STEM Careers Strategy in Secondary Schools, Department for Education November 2011

In order to help support the development of good practice, the strategy launched two strategic planning tools, the STEM Manager and STEM Planner. These were intended to "*help schools to establish an environment in which STEM careers can flourish, and to support schools in producing a timeline of enhancement activity, balanced across STEM subjects and through Key Stage 3".* These on-line tools are hosted by the National STEM Centre, which is funded by the Gatsby Charitable Foundation.

Locally, schools and colleges can also access support, advice and access to wider teacher and employer networks through STEMNET, which is funded through BIS, DfE, the Gatsby Charitable Foundation and the Scottish Government. STEMNET runs three national programmes:

- *the STEM Ambassadors programme* which brings volunteers working in STEM sectors into the classroom to stimulate pupils and enthuse them about STEM subjects and careers
- *STEM Clubs* which supports teachers in taking pupils beyond the curriculum
- *STEM Advisory Network* which provides schools with help to deliver STEM lessons and enrichment projects.

More recently (July 2013), the Council for Science and Technology submitted guidance to DfE for improving STEM education in secondary schools, with a particular focus on the curriculum for those preparing for GCSE and A-Level examinations. The guidance expressed concern that the pressure placed on schools to perform at these predominately written-based examinations was pushing practical work – seen as essential for the development of key STEM attributes – into the margins. The impact or influence resulting from this guidance is not yet known.

STEM for post 17 college and adult learners

Strategic responsibility for those outside of compulsory education is less clear. There have been a series of funding initiatives and reviews:

- BIS has overall responsibility for adult skills and learning but, to date, has not published any kind of statement or strategy for post 17 and adult learners with respect to STEM. The aforementioned BIS' '*Rigour and Responsiveness in Skills'* strategy makes no mention of STEM. That said, the actions surrounding the need to make qualifications *relevant, rigorous and recognised* are implicitly geared towards ensuring vocational training is focused on addressing current skills gaps (e.g. in STEM) and is taught in a way that involves hands-on and practical application.

- The most recent review commissioned by BIS regarding STEM was undertaken Professor John Perkins. His review of Engineering Skills, was published in November 2013. The review sets out a series of calls on government and industry to improve the supply of school pupils, especially girls, which engage and thrive in STEM based subjects. Perhaps most telling is Perkins' final statement[168]:

  There have been dozens of Government reports, select committees and independent reviews into the future of engineering skills over the past 150 years. I would go further. It is time for concerted action by the profession, industry and Government, to achieve the goals for engineering which we all share.

- *The National STEM Centre* based in York hosts the UK's largest collection of STEM teaching and learning resources. Alongside on-line resources such as the STEM Manager and STEM Planner, the centre provides teachers of STEM subjects with access a range of high-quality support materials. It also facilitates networking between employers, professional bodies, schools and colleges in order to promote collaboration and improved STEM careers awareness.

- *The UK Commission for Employment and Skills (UKCES)* oversees the Growth and Investment Fund (GIF). The fund invites competitive bids to support employer-led projects aimed at levering in greater investment in the skills required to fulfil growth potential. To date (November 2013) 37 projects have been supported across the UK.

Summary

Given the importance of sectors that rely heavily on STEM based skills and competencies for economic growth in TVB and the UK, the absence of a national strategy and action plan promoting STEM related

[168] Review of Engineering Skills, Professor John Perkins, BIS, November 2013

activity in primary through to adult education is noteworthy. It appears to be in contrast to the approaches being adopted in other nations, territories and states[169]. This provides both threats and opportunities for TVB:

- the threat is that the area will lose competitive advantage as STEM related skills gaps in TVB's priority areas of economic activity continue to constrain potential
- there could be an opportunity for TVB to lead the way in lobbying government and setting exemplary practice in embedding and supporting STEM based education and skills development, as well as providing a blueprint for a cohesive national strategy for action
- there may be a particular role for the TVB corporates – particularly those with a strong STEM pedigree – to lead a private sector response. This could involve building upon relationships with the area's University Technology Colleges – as reported above, Reading UTC is already involved with ICT firms in supporting the development of computing graduates.

[169] See for example. http://www.dfeest.sa.gov.au/Portals/1/Documents/science/STEM_Skills_Strategy_for_South_Australia.pdf (South Australia)
http://www.delni.gov.uk/es/2857p_stem_booklet_v5.pdf Northern Ireland)
https://www.ncstem.org/stem-strategy.html (North Carolina)

Evidence Paper 6
Spatial Framework

6-1. Introduction

In terms of spatial backdrop to the Strategic Economic Plan (SEP), Thames Valley Berkshire (TVB) is a complex area. Administratively, there are six local planning authorities and – the new "duty to co-operate" notwithstanding – there are six different sets of documentation defining the local planning context; these have been produced at different times with locally-determined policy priorities.

TVB's economic geography

Functionally, the east of TVB is very strongly influenced by Heathrow Airport and London, and much of its undeveloped land is inside the Metropolitan Green Belt. Conversely, the west of Thames Valley Berkshire is largely rural and it includes some protected landscapes, notably part of the North Wessex Downs Area of Outstanding Natural Beauty. The central area within the former county of Berkshire is much more urban in character. Previously, these three broad sub-divisions have been recognised as three distinctive functional economic areas (although, in practice, they are very difficult to define precisely and there is a great deal of porosity in terms of their boundaries).

TVB's polycentric character

Against this backdrop – and with respect to its *internal* economic geography – Thames Valley Berkshire is clearly polycentric; a number of different towns play key local roles. In this context, it is instructive to reflect on the population of the main urban areas, defined *not* in relation to local authority boundaries but in terms of their physical footprint (using the "bricks and mortar" definition of urban areas developed by ONS).

On this definition – and based on data from Census 2011 – the Reading Built-Up Area (BUA) had a resident population of 318,000, well over a third of the TVB total. The next largest BUA was Slough (164,000), followed by Bracknell (77,000).

Table 45: Population of Built-Up Areas – as defined using the "bricks and mortar definition" in 2011

Built-Up Area	Usual Resident Population	Built-Up Area Subdivision	Usual Resident Population
(Greater London)		Bracknell BUASD	77,256
Maidenhead BUA	64,831		
		Maidenhead BUASD	63,580
		Paley Street BUASD	415
		Taplow BUASD	518

		Touchen-end BUASD	318
Newbury/Thatcham BUA	68,258		
		Ashmore Green BUASD	837
		Cold Ash BUASD	1,765
		Curridge BUASD	413
		Longlane BUASD	464
		Newbury BUASD	38,762
		Thatcham BUASD	26,017
Reading BUA	318,014		
		Arborfield Cross BUASD	710
		Arborfield Garrison BUASD	2,968
		Crowthorne BUASD	14,263
		Reading BUASD	218,705
		Theale BUASD	2,835
		Tokers Green BUASD	335
		Wokingham BUASD	42,728
		Woodley BUASD	35,470
Slough BUA	163,777		
		George Green BUASD	950
		Poyle BUASD	3,567
		Slough BUASD	155,298
		Stoke Poges BUASD	3,962
Windsor BUA	33,348		
		Eton BUASD	2,123
		Windsor BUASD	31,225

Source: SQW analysis of 2011 Census

A similar analysis was completed by ONS on the basis of 2001 Census data. Comparing the two datasets provides real insight into the process, scale and character of growth across TVB between 2001 and 2011:

- In 2001, Bracknell was defined as part of the "Reading/Workingham Urban Area" [170]; ten years later, it was redefined – on a similar "bricks and mortar" definition – as part of Greater London.

[170] This area – defined across three unitary authority areas – maps closely onto the "*Reading Diamond*", a spatial construct that gained some currency and formed the basis for a formal Local Economic Assessment (produced by the University of Reading and published in July 2010)

Because of this, the overall population of the Reading BUA appeared to decline over the period. However if Bracknell is separated from both datasets, the population of the Reading BUA (which in both cases includes Wokingham) increased by about 6% over the period while that of Bracknell grew by 9%

- Overall, the BUA that grew most quickly in population terms – on a like-for-like definition – was Newbury/Thatcham BUA; its population grew by 21% over the decade
- Slough BUA also saw rapid population growth; on these data we estimate this be an increment of 15%
- The overall population of TVB (defined in terms of unitary authority areas) was recorded as 861,870 in the 2011 Census and 800,113 in 2001. This suggests growth of just under 8% over the decade.

The inference is that the BUAs accounted for the majority of TVB's population growth. This picture is broadly consistent with planning policy which would suggest that growth has largely been accommodated in (or close to) these principal settlements.

Patterns of commuting within and beyond TVB

ONS released travel to work (origin-destination) data from the 2011 Census in July 2014 – *after the SEP was completed*. These data provide further important insights into TVB's functional economic geography.

Excluding those that work from home, or have no fixed workplace, or outside the UK, it is apparent from the 2011 Census that just under 370,000 residents identified their place of employment (i.e. their workplace) as being within TVB in the week before the Census. The Census also tells us that just shy of 430,000 TVB residents were in employment (of which 369,000 had a fixed workplace within the UK but outside their home).

The table below shows *where those who work in TVB live*. It indicates that of those whose workplace is (say) Bracknell Forest, 40% also live there while 34% commute into Bracknell Forest from outside TVB. On this measure, the Unitary Authority area which relies most on workers from outside TVB is Slough. Conversely, in West Berkshire, over half of those with local workplaces also live in the Borough.

Table 45a – Where those who work in TVB actually live

	Place of work

usual residence : 2011 census merged local authority district	Bracknell Forest	Reading	Slough	West Berkshire	Windsor & Maidenhead	Wokingham
Bracknell Forest	**19,001**	1,936	1,878	833	4,910	4,620
Reading	2,247	**33,960**	1,052	6,255	1,361	7,778
Slough	751	910	**24,062**	271	6,380	517
West Berkshire	1,027	9,199	518	**36,364**	611	2,498
Windsor and Maidenhead	2,135	1,297	5,865	542	**23,072**	1,692
Wokingham	6,371	12,616	1,767	2,659	3,124	**21,690**
Live outside TVB	15,971	16,307	28,200	22,994	20,585	13,655
Live outside TVB as %	34%	21%	45%	33%	34%	26%
Live and work in own UA as % of workplace population	40%	45%	38%	52%	38%	41%

(Source: SQW analysis of Census 2011 – Table WU02EW - Location of usual residence and place of work by age (MSOA level); data based on All usual residents aged 16 and over in employment the week before the Census)

The next table focuses on the residents of TVB and considers where they work. It suggests that overall, around 107,000 residents work outside TVB. The most self-contained UA area is West Berkshire (with 56% of residents in employment working locally) while the least self-contained are Bracknell Forest and Wokingham. In both Slough and Windsor & Maidenhead, over 40% of residents in employment have workplaces outside TVB.

Table 45b – Where TVB's residents work

	Usual residence					
place of work : 2011 census merged local authority district	**Bracknell Forest**	**Reading**	**Slough**	**West Berkshire**	**Windsor & Maidenhead**	**Wokingham**
Bracknell Forest	**19,001**	2,247	751	1,027	2,135	6,371
Reading	1,936	**33,960**	910	9,199	1,297	12,616
Slough	1,878	1,052	**24,062**	518	5,865	1,767
West Berkshire	833	6,255	271	**36,364**	542	2,659
Windsor & Maidenhead	4,910	1,361	6,380	611	**23,072**	3,124
Wokingham	4,620	7,778	517	2,498	1,692	**21,690**

Work outside TVB	16,825	14,022	22,924	14,150	22,951	16,273
Work outside TVB as %	34%	21%	41%	22%	40%	25%
Work inside own UA as %	38%	51%	43%	56%	40%	34%

(Source: SQW analysis of Census 2011 – Table WU02EW - Location of usual residence and place of work by age (MSOA level); data based on All usual residents aged 16 and over in employment the week before the Census)

A very important dimension of TVB's spatial economy concerns flows to and from London. The table below shows that almost 43,000 TVB residents work in London while around 24,000 Londoners commute into TVB. However, it is important to recognise that "London" in this context includes outer London (and Heathrow Airport) as well as central London. Slough has substantial flows of workers in both directions (and 45% of all Londoners working in TVB actually work in Slough). Conversely, Windsor and Maidenhead "exports" large numbers of residents to work in the capital, but the reverse flow is very much smaller. Further west in TVB, the volume of "flows" to/from London is lower; nevertheless, over 3,000 West Berkshire residents have workplaces that are in the capital.

Table 45c – Commuting flows to and from London

	Number of residents of TVB (and its UA areas) working in London	Number of London residents working in different parts of TVB
TVB total	42,839	24,289
• Bracknell Forest	• 5,184	• 2,541
• Reading	• 4,600	• 2,444
• Slough	• 13,190	• 11,104
• West Berkshire	• 3,042	• 1,119
• Windsor and Maidenhead	• 11,093	• 4,837
• Wokingham	• 5,730	• 2,244

(Source: SQW analysis of Census 2011 – Table WU02EW - Location of usual residence and place of work by age (MSOA level); data based on All usual residents aged 16 and over in employment the week before the Census)

Purpose and structure of this paper

In this Evidence Paper, we examine the spatial framework for economic growth across Thames Valley Berkshire. This assessment is informed by a review of three key documents (or groups of documents) for each local authority area:

- the most recent **Local Economic Assessment** (noting that upper tier authorities have a duty to produce LEAs and that this duty survived the change of government (even though the guidance for LEAs introduced by the previous administration was dropped))
- the most recent **local economic strategy** (which is not a statutory requirement and although most areas have one, approaches to local economic strategies vary substantially)
- the most relevant statement of **local spatial planning policy** (recognising that this too is complicated as the national and regional frameworks for planning have been fundamentally changed several times over the last decade (with the introduction and then demise of regional planning (the South East Plan); the provisions of the Localism Act 2011; and the publication of the National Planning Policy Framework (NPPF) in 2012).

For each unitary authority area, we consider existing policies and plans; their progress in implementation; and the implications for the future, particularly insofar as they impact on economic growth and hence the SEP.

This spatial framework is one that provides the backdrop to – and the spatial context for – the SEP in the short term. Longer term, however, the SEP must help to define, inform and shape that framework, particularly as Local Plans are gradually revised and refreshed. In this context, it is important to note that in general, existing Local Plans are broadly based on the housing targets set out in the (now revoked) South East Plan; government guidance is that that these cannot be considered up to date and will need to be revised, starting with a new Strategic Housing Market Area Assessment (SHMAA).

6-2. Bracknell Forest

Overview

Bracknell Forest abuts Surrey to the east; Hampshire to the south; Wokingham to the west; and Windsor and Maidenhead to the north. There are two main settlements within the borough: Bracknell (a post war New Town) and Crowthorne (which is very much smaller). The borough as a whole has a population of around 115,000 people and it is home to about 67,000 jobs. Local analyses suggest that in terms of conventional economic indicators, Bracknell Forest is generally successful: it ranks 13th (of 380) local authorities in terms of "knowledge economy competitiveness"; residence-based earnings are amongst the highest in the UK; and the borough is home to the UK (or European) headquarters of companies such as Dell, Hewlett Packard and Panasonic[171].

In response to this generally sanguine assessment, an economic strategy has been developed by the Bracknell Forest Economic and Skills Development Partnership. Its main provisions are summarised in Box 6 below. The emphasis on older people is distinctive.

Box 6 - Working Together for Sustainable Economic Prosperity: A Local Economic Development Strategy for Bracknell Forest, 2011-2014 – Summary of Vision and aims linked to the Action Plan

Vision: Bracknell Forest will be an excellent place to live and work – where sustainable economic prosperity has been achieved through innovative and dynamic partnerships between the borough's businesses and communities

Action Plan:

- **Business growth** – to ensure that Bracknell Forest continues to be an attractive location for major businesses not only to retain its existing businesses but to promote future enterprise development
- **Skills and learning** – to ensure that everyone has access to appropriate work and skills development opportunities regardless of age allowing them to play a part in Bracknell Forest's economic future
- **Green economy** – to develop the green economy in Bracknell Forest as an important future driver of business growth and job creation
- **Infrastructure** – to develop a modern communications infrastructure and a requisite variety of housing options that meet the changing needs of Bracknell Forest businesses, employers and residents
- **Older people** – to ensure that older people play an active and fully-recognised role in the borough's efforts to achieve sustainable economic prosperity; and to develop care for the older people as an important growth sector of the Bracknell Forest economy

[171] *A Local Economic Development Strategy for Bracknell Forest, 2011-2014* Bracknell Forest Economic and Skills Development Partnership

In terms of spatial planning, while some policies from the Bracknell Forest Local Plan (adopted January 2002) remain in force, the Core Strategy Development Plan Document (adopted February 2008) provides a more recent indication of aspirations for the borough through to 2026. In relation to the SEP, the following provisions from current planning policy are especially important:

- The regeneration of Bracknell town centre is a clear priority. A Masterplan is in place and planning permission has been given for the provision of additional housing, employment, leisure and health facilities. The council's intention is that Bracknell town centre should be the focus for future major development within the borough
- However in the long term, development in Bracknell (town) is likely to be complemented by two further mixed use schemes (both just to the north of Bracknell) which are proposed (the larger of which is a long term venture)
- Overall, the council makes provision for the delivery of 11,139 net additional dwellings in the period 2006-26; this is the number included in the (now revoked) South East Plan plus the shortfall from the period to 2006. In the first 10 years (to 2016), 900 units should come from Bracknell Town Centre; 2,100 from (already consented) sites at Peacock Farm and Staff College; and around 150 or more from the first phase of Amen Corner (950 units in total). The second 10 year phase is dominated by the Whitegrove/Quelm Park site
- In terms of employment provision, there is a commitment to intensify employment uses in Bracknell town centre and existing employment areas; and to include employment uses in the planned new mixed use developments. The documentation suggests no requirement for additional employment land.

In practice, Bracknell Forest is making headway with the commitments set out in the Core Strategy. In particular, there are private sector proposals for major town centre investment in Bracknell. The *Bracknell Regeneration Partnership*, comprising Schroders and Legal and General, is redeveloping the 1960s retail centre in phases to include units for Waitrose and Marks and Spencer as well as a cinema. Separately, three old high rise office blocks are being converted to residential use.

Between 2006 and 2011, the borough delivered 2,118 net additional housing units, an average of 353 per annum. Over the 20 years of the Core Strategy, the average annual figure is 557 but Policy CS15 front-loads housing delivery, so over the period 2006-2011 the actual annual target was 572 dwellings per annum. The achieved rate of housing delivery has therefore been some way adrift of the target.

Implications for the SEP

The spatial planning framework for Bracknell Forest makes provision for growth, mainly though the regeneration of Bracknell, and the intensification of uses within it. Progress has been made on the town centre regeneration scheme throughout the downturn.

In economic terms, the local emphasis is on the knowledge economy. However there is also recognition that whilst Bracknell Forest can claim a number of "blue chip" corporates, this results in some vulnerabilities; hence, the imperative to encourage enterprise and support local SMEs is sizeable. There is a recognition also that population ageing is an important cross-cutting issue.

6-3. Reading

Overview

According to ONS Mid-Year Population Projections, the borough of Reading had a population of 157,000 in 2012. However as long ago as in 2001 – using a "bricks and mortar" definition – the population of Reading was recognised to be 232,000[172]; moreover, in terms of its physical form, the same analysis suggested that "Reading" really needed to be understood within a yet-wider urban area which was labelled as "Reading/Wokingham" by ONS (with a total population in 2001 of 370,000.

The inference is that the borough of Reading is significantly "under bounded": it relates to a territory that is much smaller than the town's urban footprint. This observation is not new, and nor is it unique: elsewhere, Cambridge is much larger than the area administered by Cambridge City Council and the footprint of Norwich is significantly greater than the jurisdiction of Norwich City Council. In the case of Reading, for a time, the "functional urban area" was given tangible expression through the "Reading Diamond" initiative and it was codified – and to some extent quantified – through a Reading Diamond Local Economic Assessment; this was completed in 2010 and it defined the "Diamond" as the whole of the Reading, Wokingham and Bracknell Forest unitary authority areas together with a handful of wards from West Berkshire[173].

These comments are not a political statement but they are important in contextualising borough-level data, analysis, strategy and policy: the borough of Reading accounts for, perhaps, half of the wider functional urban area of which it forms the core. And data suggest that the borough of Reading

[172] At this time, the population of the borough was 144,100 (according to the Adopted Core Strategy for the Borough of Reading (see page 8))

[173] *Reading Diamond: Local Economic Assessment* Completed by the University of Reading, July 2010

faces some distinctive socio-economic challenges, certainly when compared to the wider area. As the LEA for example observed in relation to skills, "*the general level of qualifications in the Diamond is higher than is found regionally or nationally, though there are serious pockets of educational weakness, especially in certain areas of Reading itself*"[174].

Reading UK CIC is the Economic Development Company for Reading. It has a business-led board and on the question of geography, it describes its own remit in the following terms: "*We focus on Reading whilst being cognisant of the permeable nature of its functional economic area (FEA), the wider sub region and how that sub region affects Reading's economy. We choose our alliances accordingly, the 'test' being that they should ultimately benefit Reading*"[175]. Within this context, it has developed a strategy for "*Reading UK CIC's role in promoting and sustaining the potency of Reading's functional economic area".* The main provisions within it are summarised in Box 7 below.

Box 7: Driving Reading's world class economy: an economic development strategy – Summary of vision and strategy

Vision for Reading in 2030 and beyond:

- We have a globally significant economy that is successful and buoyant, and we are recognised as a key business location on Europe. We are a world-renowned centre of excellence for new, sustainable technologies based on our green knowledge economy
- Businesses of every size and shape are attracted to and want to stay in Reading, because of its unrivalled location and connectivity
- Sharing the benefits of our prosperity more widely has been achieved through investment back into the local economy, quality schools and other education establishments
- Voluntary, community and faith groups harness the energy and skills of people in our wider economy

Strategy:

- **Promoting and sustaining the local economy –** with various outcomes, including: Reading becomes a city; reduced carbon footprint; better balanced economy; more funds invested in business infrastructure; location for Foreign Direct Investment; town centre operational issues resolved; sustained relationship between large and small companies; increased business births and growth of businesses
- **Skills and education** – with various outcomes, including: enhanced profile of retail; failure in Level 2 skills redressed; Level 3 achievement and apprenticeships seen as the norm; business informed of funding and policy; better business engagement in skills and training; closer co-operation across the skills escalator and improved progression for 14-19 year olds; more highly skilled workforce; and *Skills for Business* brand recognised
- **Transport, housing and infrastructure** – working with TVB LEP, recognising that Reading has benefited from £1bn of investment in Reading Station and Junction 11 (M4), but influencing the next generation of investment; and working with local authorities across the functional economic area to ensure that "*appropriate housing provision supports the growth of the town*"

[174] *Reading Diamond: Local Economic Assessment* Completed by the University of Reading, July 2010 – page 2

[175] Reading UK CIC Economic Development Strategy Précis

In relation to spatial planning – which is obviously a statutory function for all unitary authorities – boundaries are necessarily "hard". The Core Strategy for Reading (part of the Borough's Local Development Framework) was adopted in January 2008. This notes the rapid growth of Reading over the previous decade (including as a retail centre following the completion of Oracle Shopping Centre). It sets out a vision which emphasises quality of life and the importance of inclusiveness in "*embracing the challenges of a dynamic, inclusive urban community*".

In terms of the spatial strategy, the emphasis is placed on sustainability and directing development to areas most in need of physical, economic or social regeneration. As a result, four locations are identified as sustainable locations for future development:

- Reading Central Area – with a focus on high density, mixed use schemes, including development around the station to form "a top class gateway to Reading"
- South West Reading – A33 Corridor, including Green Park 3
- District/Local Centres
- Redevelopment of existing employment areas.

The first two of these locations are regarded as the principal locations for future economic growth. Specifically, the intention is that major office development (i.e. development larger than 2,500 sq m) will be directed to the centre of Reading and along a high accessibility corridor focused on the A33. In turn, this is associated with a new station at Green Park and proposed mass rapid transit links to the south.

In relation to housing, the South East Plan made provision for 10,420 dwellings (521 dwellings per annum (dpa)) over the 20 year period. However, Reading was subsequently designated a Growth Point and provision is made in the Core Strategy for 572 dpa between 2006 and 2016, and 521 dpa in the subsequent decade; over the 20 year period therefore, the housing target is 10,930 dwellings. The statement is made that the future distribution of housing provision will be aligned with the spatial strategy. In practice, the AMR shows average delivery of 597 dpa over the period 2006-2011 – which is ahead of target.

Implications for the SEP

In terms of its functional economic role, Reading is crucially important for the SEP. Within the borough-level policy framework – spatial and otherwise – there is something of a tension. On the one hand, the wider economic role and potential is clearly recognised and the responsibilities that come with it are acknowledged (not least through the work of Reading UK CIC); the spatial response is

defined in terms of some combination of the Reading Central Area and the A33 Corridor (to the south). On the other hand, the challenges surrounding genuine deprivation in parts of the borough are clearly a priority too: within Reading, the issue is less unemployment than "in-work poverty" in the context of very high living (and particularly housing) costs; and issues around skills continue to be a concern. Exaggerated because of its under-bounded geography, the borough must therefore navigate two very different imperatives, both of which are important.

6-4. Slough

Overview

Slough is a small (in terms of land area) urban borough which is very constrained – including by the M4 motorway (to the south) and Metropolitan Green Belt (partly in Slough, but mainly in adjacent areas). As an economy, Slough is very distinctive and it has been fundamentally shaped by its connectivity – to Heathrow Airport; via the M4 motorway; and via the Great Western Railway (from Paddington to Reading and beyond).

Partly because of the tightness of its boundaries (which tend to exaggerate the statistics), Slough appears to be very different from elsewhere in Thames Valley Berkshire. In particular, it is much more ethnically diverse: around 50% of the resident population is white British, and the Local Economic Assessment for East Berkshire reports that since 2005, the number of white UK national residents within the borough has declined by about 19%[176]. The LEA also notes that large parts of the population are very transient and one immediate consequence is that estimating the size of the resident population is a fraught exercise: there is now general agreement that the 2001 Census massively underestimated the size of Slough's population while Mid-Year Population Estimates from ONS for 2012 put the figure at around 142,000.

Within the borough, there is a substantial difference between the workplace-based and residence-based economies. Specifically, the (low) occupational and skills profile of Slough residents contrasts sharply with the profile of jobs available in the borough (which often demand higher level skills). Within the borough, there are around 87,000 jobs. At almost £600, the median gross weekly pay of full time employees identified on a workplace basis is much higher than that of Slough's employed residents (£520)[177], suggesting two quite distinctive working populations. This is corroborated by commuting data which suggest that 40,000 people commute into Slough to work while 26,000 local residents work outside of the borough[178].

As set out in the LEA, the borough's economy is defined, effectively, around two key locations:

- Slough Trading Estate: As Europe's largest trading estate in single ownership (SEGRO), Slough Trading Estate (STE) accounts for almost a quarter of all employment in the borough

[176] *East Berkshire Local Economic Assessment*, Regeneris Consulting, August 2011. Note that "East Berkshire" related to the borough of Slough and the Royal Borough of Windsor and Maidenhead

[177] Data for 2012 sourced through the Annual Survey of Hours and Earnings

[178] *Slough Local Development Framework Core Strategy 2006-2026 (adopted December 2008)* – para 7.75

– around 17,000 jobs in total. There are some major employers located on STE including Mars, Telefonica O2 and UCB. STE has attracted firms from a range of sectors including the manufacture of food, pharmaceuticals and medical and surgical equipment; and telecommunications. Overall, however, the performance of STE is quite mixed: the western side of STE is attracting significant investment while the (older) eastern side is experiencing decline. Overall, there has been a net loss of employment on STE over recent years[179]

- Slough town centre: According to the LEA, Slough town centre has seen substantial job loss over recent years – with total employment falling from 18,900 jobs in 2003 to 15,100 in 2008[180]. No further explanation is provided. The LEA notes, however, that *"the loss of employment in town centres against a backdrop of growing employment elsewhere indicates a marked decline in the economic health of these areas relative to their surrounding areas"*[181].

In relation to Slough, a "strategic response" was prepared on the back of the LEA[182]. This identified a number of clear economic priorities – although their status locally is not entirely clear. These included the following:

- address falling town centre employment – including through the implementation of the Heart of Slough scheme
- address decline on the eastern side of Slough Trading Estate
- address barriers to enterprise in Slough (linked to financial barriers, the dominance of large employers, and the availability of premises)
- investigate and respond to the issues relating to population transience in Slough, and respond to the specific needs of the migrant population
- build on the strong performance of schools, but also attempt to tackle skills mismatches (between the population that lives locally and the jobs that are available within Slough).

[179] There has been a simplified planning zone covering the majority of the Slough Trading Estate since 1995. This allows certain types of development to take place without specific planning permission, providing a number of conditions are met. The current scheme, adopted on 12th November 2004, provides the framework for regeneration and development on the Trading Estate until 2014

[180] Note that the underlying data may not be wholly robust at this scale

[181] *East Berkshire Local Economic Assessment*, Regeneris Consulting, August 2011. Note that "East Berkshire" related to the borough of Slough and the Royal Borough of Windsor and Maidenhead – page 75

[182] *East Berkshire LEA: Strategic Response*, Regeneris Consulting, August 2011

In December 2013, a new *Economic Development Strategic Plan for Growth, 2013-18*, was finalised. This set out a borough-level vision for growth, in which "*Slough is an economically vibrant and successful entrepreneurial town. It is a town where businesses and residents can grow and fulfil their potential, making Slough a great place to live and work*". The surrounding narrative emphasised the importance of proximity to Heathrow Airport, and links with London. Beyond this, it emphasised priorities in relation to competitive workforce; business generation, retention and inward investment; and physical and transport infrastructure.

The Slough Local Development Framework Core Strategy 2006-26 was adopted in December 2008. It sets out a vision, focused around the comprehensive redevelopment of parts of the town centre; the imperative for a thriving local economy; and the need for a range of jobs for its workforce which will be increasingly skilled. Within this context:

- In relation to employment, the presumption is made that no new land is needed but instead growth can be accommodated through the intensification of use of existing sites. Existing Business Areas are to be retained and, in particular, the commitment is made to work with SEGRO on the preparation of a Masterplan for STE. In general, the intention is that intensive employment generating uses should be concentrated in Slough town centre – although, exceptionally, some will be allowed on STE as part of a comprehensive approach to regeneration. Overall, the intention is to provide for 10,000 jobs in the town centre and a further 3,000 on STE
- As regards housing, the Core Strategy commits to 6,250 new dwellings between 2006 and 2026 of which around half will be in the town centre.

Some headway is being made in the delivery of these commitments. The rate of housing development in Slough between 2006 and 2011 (437 dpa) was ahead of the annual target (315 dpa). In addition, the Borough Council has set up a Local Asset Backed Vehicle with a developer/contractor to deliver the Heart of Slough regeneration scheme, including a mixture of retail, civic and residential development. An early phase of the programme has already delivered a dramatic new bus station.

Implications for the SEP

Slough is distinctive in a Thames Valley Berkshire context and – in some respects – it is the most extreme manifestation of the pros and cons of global interconnectedness. The imperative for town centre regeneration is very clear, as is the need for a creative response to the opportunities and challenges linked to the Slough Trading Estate. Within the borough, there are some major social challenges – and the skills profile of residents is one element. The transience of the population,

together with its increasing ethnic diversity, makes these very difficult to address. On the other hand, Slough can point to a very impressive business population and a strong incidence of major corporates. The limited relationship between its workplace- and residence-based populations is noteworthy and looking ahead, stronger links ought to be forged.

6-5. Windsor and Maidenhead

Overview

The Royal Borough of Windsor and Maidenhead (RBWM) is located in the eastern-most part of TVB and – like neighbouring Slough – it has particularly strong links with London. In population and employment terms, RBWM and Slough are similar in scale; both have a resident population of just under 150,000[183] and both accommodate around 75,000 (employee) jobs[184] (and closer to 90,000 jobs in total[185]). However in most other respects, they are quite different from each other; indeed the foreword to their joint Local Economic Assessment states that they are "*two very different yet inextricably linked places*".

Within RBWM, employment has historically been concentrated in the principal towns: Windsor and Eton; and Maidenhead. However the joint LEA suggests that employment in both of these towns has decreased over recent years. This is flagged as a concern.

Another distinctive feature of RBWM concerns its business demography. Certainly compared to Slough, it has historically had a high incidence of small businesses and a relatively low incidence of large ones. This correlates strongly with a high rate of self-employment. However more recent data suggest that both of these patterns might be changing: the incidence of self-employment is declining while larger businesses appear to be becoming more prolific.

Sectorally, RBWM has a distinct concentration of employment in "*banking, finance and insurance*"; indeed, data included within the joint LEA suggested that this sector alone accounted for almost a third of the borough's total (compared to around a quarter of the total for the South East). Equally, it is noted that this sector accounts for almost half of the Borough's total business population. Within the sector, "*IT and software*" is recognised to be particularly important, accounting for over 5,000 jobs in the Borough[186].

Another very important sector for RBWM is tourism. The Borough has several attractions of international importance. These include Windsor Castle (and Windsor Great Park); Legoland; and Ascot Racecourse. The joint LEA suggests that the sector accounted for almost 8,000 jobs in the Borough.

---

[183] ONS Mid-Year Population Estimates for 2012

[184] *East Berkshire Local Economic Assessment* – completed in August 2011 by Regeneris Consulting for Slough Borough Council and the Royal Borough of Windsor and Maidenhead

[185] ONS Jobs Density data for 2011

[186] Note thought that these data appear to relate to 2008

From other sources, data point to around 20,000 tourism-related jobs in TVB as a whole[187]. This would suggest that RBWM accounts for around 40% of the total. In economic development terms, the sector poses some challenges. The joint LEA notes that relatively few local people are employed in the sector and that *"local businesses which are struggling to find staff recruit via overseas agencies"*[188].

Overall, RBWM performs very strongly in terms of skills and the incidence of people of working age who are qualified to degree level or above is much higher than the average for the South East. This translates into high levels of resident-based earnings. However workplace-based earnings in the Borough are notably lower. The inference is that the residents are earning high salaries elsewhere (in Slough to some extent, and in London); while a good proportion of jobs in the borough – including many of those in the tourism sector – are taken by in-commuters from elsewhere.

In economic terms, RBWM is very buoyant and the borough performs well on all the main indicators. Looking ahead, transport infrastructure projects – like Crossrail – have the potential to strengthen further the borough's competitive potential. However the SWOT analysis included in the joint LEA also observes that *"physical development constraints throughout RBWM have the potential to impact on the provision of new commercial and residential accommodation with impacts for both businesses and the labour market"*[189]. RBWM does not have an economic strategy as such; however a "strategic response" to the joint LEA has been developed. Key elements of it of relevance to RBWM are summarised below.

Box 8: East Berkshire LEA: Strategic Response (extracts of relevance to RBWM)

Vision: Maintaining the area's success and competitiveness into the future

Strategy:

- **Develop a stronger understanding of business issues –** To address potential risk of firms relocating out of the borough, for example to achieve lower costs
- **Maintaining Berkshire's profile** – Continue to bolster the area's profile nationally and ensure that the investment required to maintain and build on its current performance is available
- **Address falling town centre employment** – Support investment in town centre locations to enhance competitiveness, attract further investment and create employment
- **Ensure continued success of key sectors while diversifying into emerging ones** – This includes some consideration of appropriate future roles for sectors like IT and software, and tourism

[187] This figure was included in a paper submitted to TVB LEP as part of the evidence base for the SEP by a group of stakeholders with a particular focus on tourism. Its ultimate source is some work completed by the Research Department of Tourism South East

[188] *Ibid.* page 63

[189] *Ibid* page 206

- **Support a strong and dynamic entrepreneurial culture in RBWM –** Strengthen and expand levels of entrepreneurship with some additional support and build on the area's success in this regard
- **Support Innovation and R&D** – this is recognised as a potential opportunity but also an area in need of more research

In terms of local planning policy, the situation in RBWM is complex. The existing Local Plan was adopted in July 1999 (and then, with amendments, in July 2003); it had been developed over a number of years, starting in 1989, and the consultation draft was originally published in 1993. The preface states that "*it will be used as the basis for making decisions on planning applications and development proposals in the period up to the year 2006*". It is clearly therefore out-of-date. It is in the process of being replaced – although this process is taking some time. In physical terms, the borough is constrained: the strategic response to the LEA notes that in RBWM, numerous development constraints exist (including the Special Protection Area, the Flood Plain, the Green Belt and the historic environment).

Implications for the SEP

RBWM is one of the most buoyant parts of TVB but it is also very constrained physically. Its sectoral profile and business demography suggest that it has intrinsic growth potential. One of the challenges for the SEP will be to ensure that this potential is realised for the benefit of TVB. Currently, many of its highly qualified residents are commuting out of the borough to work and it will be important that local jobs are aligned with local aspirations. Encouraging and sustaining high levels of enterprise – as indeed identified in the Strategic Response to the joint LEA – would appear to be a top priority. Appropriate support will also need to be given to the area's tourism sector – particularly those elements that link to international business tourism.

6-6. West Berkshire

Overview

West Berkshire is – in some respects – quite different from the other unitary authority areas that together comprise TVB. Most immediately – and although it contains Newbury and Thatcham, and abuts Reading in the east – it is far more rural and spatially extensive; much of its territory is also an Area of Outstanding Natural Beauty. This distinctive spatial backdrop underpins a particular set of both challenges and opportunities in relation to future economic growth.

Overall, the economy of West Berkshire is dominated by small and micro-enterprises. Data included within the area's Local Economic Assessment[190] suggest that 85% of businesses employ fewer than 10 people. However West Berkshire is also home to some of TVB's major corporates – prominent examples include AWE, KPMG, Hewlett Packard, Matsushita Communications, Vodafone and Bayer. Arlington Business Park – immediately adjacent to Junction 12 of the M4 at Theale – is identified as the principal focus for commercial activity; and in functional terms, this links strongly to the growth of the wider Reading area.

West Berkshire Council published an economic strategy in October 2013 – and the main provisions of it are set out in Box 9 below. In its foreword, it explains that West Berkshire needs to be understood in the wider sub-regional context and the observation is made that "r*eturning to rates of growth previously achieved in the period 1995 to 2005 will be the ultimate challenge in the coming years, especially given an increasingly competitive environment in what continues to become an increasingly global economy".*

Box 9: West Berkshire – "Open for business" Local Economic Development Strategy for West Berkshire

Vision: West Berkshire Council will work proactively and openly with partners and stakeholders to maintain strong and resilient economic prosperity. We will provide an environment that creates opportunities for business growth that make a real difference to all people's lives, with businesses that start, stay and develop in the area.

Objectives:

- *Work with partners to ensure that local skills meet the needs of today's business and work environments.*
- *Promote West Berkshire as a good location for business, leisure, learning and life*
- *Enable effective infrastructure that supports economic growth* – including consideration of housing, transport and superfast broadband, etc.

[190] *Local Economic Assessment, 2011,* West Berkshire Council

- *Encourage inward investment and business retention across all sectors* – including business support, economic intelligence, incubation provision for start-ups and growth units, and removing barriers to enterprise
- *Actively support sustainable rejuvenation and regeneration projects in key locations* – including Newbury, Thatcham, Hungerford, etc., plus Arlington Business Park and Greenford Business Park

Key principles in achieving Economic Objectives:

- *Working in partnership with those supporting the local economy to ensure a co*-ordinated and collaborative approach to economic growth and retention
- *Building and maintaining relationships with those in the business and education sectors to mutually support the local economy, with a strong channel for two*-way communication
- *Working closely with Regional Economic Organisations such as Thames Valley Berkshire Local Economic Partnership (LEP*) and through the LEP with relevant Government Economic Departments such as UKTI and BIS

In the narrative accompanying the strategy, the distinctive character of West Berkshire's economy is played out. There is some emphasis on issues facing rural areas – although these are cast mainly in terms of the challenges of broadband, affordable housing, the need to raise aspirations in relation to tourism and the significance of the equine sector. More generally, there is a strong emphasis on the favourable sectoral structure; the high incidence of small firms; and the implicit potential for growth. However some intrinsic challenges and risks are also recognised (although these are not unique to West Berkshire). The observation is for example made that:

> *Within the ICT sector, West Berkshire appears to have some strengths in software publishing and 'other' telecommunications activities, although these strengths are weaker when compared to Berkshire and Oxfordshire. However, the recent relocation of Vodafone's international business functions to Paddington highlights the vulnerability of the ICT and telecommunications sectors*[191].

On the spatial planning side, the West Berkshire Core Strategy (2006-2026) was formally adopted in July 2012 (as the first Development Plan Document within West Berkshire's new Local Plan). This includes a strategic objective linked to the economy, namely *"to provide for a range of sizes and types of employment land and premises in the right locations to respond to the forecast changes in economic activity, the location of new residential development and the specific needs of the rural economy, including the equestrian and horseracing industries".*

The Core Strategy makes provision for at least 10,500 net additional homes between 2006 and 2026. It states that "*the main focus for housing growth will be Newbury, Thatcham and the east of the district".* Within this context:

[191] *West Berkshire – Open for Business. A Local Economic Development Strategy for West Berkshire, 2013-2018,* West Berkshire Council –page 16

- In relation to **Newbury**, two strategic urban extensions are proposed – one at Newbury Racecourse (to the east of Newbury) and a second at Sandleford (to the south of Newbury) (para 4.9). Overall, it is suggested that Newbury should accommodate 5,400 new dwellings – just over half of the district-wide total. *Area Delivery Plan Policy 2* also states that "*Newbury will be the main focus for business development over the plan period*"

- There is planned development at **Thatcham** but on a smaller scale: provision is made for 900 homes, mainly to the south of the town. In employment terms, the intention is to support employment through designated Protected Employment Areas and also to encourage small scale office development in the town centre.

- The **Eastern Area of West Berkshire** will accommodate 1,400 new homes in order to *"support the growth of the Reading area and to sustain services in the rural centre of Theale".* In employment terms, the intention is that Theale town centre will accommodate small scale office development while Arlington Business Park, Station Road and adjacent estates will continue to provide sustainable employment opportunities.

In relation to the delivery of housing, West Berkshire delivered an average of 480 dpa between 2006 and 2011 against an annual target of 525. Over the early years of its Plan period, it is therefore some way adrift. This shortfall should be addressed when the major sites (near Newbury) come forward.

Implications for the SEP

West Berkshire ranges from edge-of-Reading to deeply rural in terms of its economic character and it is, arguably, the most diverse area within TVB. Growth within the district is certainly constrained and the Local Plan emphasises strongly that growth should be focused, in the main, on Newbury. The vibrancy of Newbury as a hub within the wider TVB economy is therefore important in relation to overall growth ambitions. In this context, the analyses produced by West Berkshire Council point to both opportunities and challenges: there is intrinsic growth potential but there have been examples – in particular in relation to Vodafone – of major economic functions being moved out of the area. Sustaining the formation of new businesses and the growth of existing ones will need therefore to be a priority.

6-7. Wokingham

Overview

The borough of Wokingham abuts Reading to the west and the town of Bracknell to the east; it is bisected by the M4 motorway. Within the borough, the larger settlements include Wokingham, Twyford, Winnersh, Woodley, and Earley. Functionally, these are strongly linked to Reading and Bracknell – a fact that was recognised through the production of a joint Local Economic Assessment for the Reading Diamond[192].

The borough's population numbers about 160,000[193] people and there are estimated to be around 81,000 jobs[194]. On most socio-economic data, Wokingham performs very strongly. The proportion of its working age population qualified to degree level or above is nine percentage points higher than the South East average; residence-based measures of median full time employee gross weekly pay are about £90 higher than the regional norm; and the incidence of employment in the highest occupational groups is nine percentage points higher. Sectorally, Wokingham tops the national league tables in the incidence of tech-based employment[195]; and the inference is that the borough's IT sector is especially strong.

The borough's Economic Development Strategy is summarised in Box 10 below[196]. Within it, specific provision is made for the development of Thames Valley Science Park at a site in Shinfield (in the borough of Wokingham). Drawing on an Employment Land Study, the strategy also notes that there is a need for a further 51,000 sqm of commercial floorspace to accommodate projected employment growth (based on historic levels of floorspace per worker). While most of this should be achieved through intensifying the uses of existing sites, the comment is also made that *"the provision of incubator units as part of major development could also assist new businesses start up".* More generally, the Strategy is focused strongly on the promotion of innovation and enterprise.

---

[192] *Reading Diamond: Local Economic Assessment* Completed by the University of Reading, July 2010

[193] ONS Sub-National Population Projections for 2012

[194] ONS jobs density estimates for 2012

[195] *Tech Monitor UK: Understanding tech clusters and tracking the UK tech sector's outlook for employment and economic growth,* KPMG, 2013

[196] *Economic Development Strategy, 2010-2013* Wokingham Borough Council

Box 10: Wokingham Economic Development Strategy – Summary of vision and strategy

Vision for Wokingham:

- Wokingham is a key player in the thriving Thames Valley economy, with leading edge innovation, a highly-skilled workforce, and a growing knowledge-based sector set within an attractive environment to live and do business.

Strategy:

- **Promoting Innovation and Enterprise –** To develop a strong globally competitive economy by encouraging emerging technologies and innovation. Encouraging collaboration with the University of Reading and the Growth and Innovation team to advance knowledge transfer, innovation and emerging technologies
- **Enhancing Skills and Creating Economic Activity** – To develop a workforce to meet the needs of both the local and global marketplace by improving links between businesses and education providers to ensure that young people leave education with the skills that the future economy needs, particularly those of innovation and enterprise.
- **Improving the Vitality of the Borough's Towns and Villages** – To create better places for local employment, shopping and entertainment. Deliver the regeneration of Wokingham Town Centre and plan for improvements to Woodley, Twyford and Lower Earley town centres
- **Maximising Inward Investment through a Partnership Approach** – To work with other agencies to a shared agenda to maxims resources and promote a competitive economy. Maximise opportunities to attract inward investment and new funding by working more closely with partners.

Spatially, the Economic Strategy states that *"the top priority for this strategy is the renaissance of Wokingham town centre"*[197]. Within this context, the observation is made that much of Wokingham's catchment is travelling to neighbouring centres for higher order goods and services. In response, a comprehensive redevelopment scheme has been launched, focusing on the town centre.

Wokingham's **Core Strategy Development Plan Document (2006-2026)** was adopted in January 2010. It includes a housing target of 13,232 net additional dwellings over the period 2006-2026. It states that development will be concentrated in four Strategic Development Locations – at Arborfield Garrison (3,400 dwellings); South of the M4 (2,500); North Wokingham (1,500); and South Wokingham (2,500). The Core Strategy itself acknowledges (para 3.17) that there will be a considerable lead in time linked to these developments; however it also states that this will not affect the overall requirements to 2026. In this context, it is perhaps unsurprising that over the period 2006-2011, the delivery of housing in Wokingham has been some way adrift of the average annual target. In response, Wokingham Borough Council has made provision in its draft Managing Development Delivery DPD (2013) to bring forward other sites to provide around 1,000 dwellings which are necessary to demonstrate a five year supply before the SDLs come on stream. Accelerating the delivery of these SDLs will however need to be a priority.

[197] *Economic Development Strategy, 2010-2013* Wokingham Borough Council – page 13

In terms of employment development, the Core Strategy emphasises the importance of Core Employment Areas of which nine are identified; these include Green Park (Reading) and Thames Valley Business Park (Earley). Additionally, through policy CP16, explicit provision is made for the development of a Science Park to the south of the M4 in Shinfield. The surrounding text states further that "*the site will be restricted to appropriate uses for a Science and Innovation Park such as research and development, laboratories and high tech uses together with ancillary and relates uses such as a crèche provided that they do not undermine its key purpose"* (para 4.76).

Implications for the SEP

Functionally, the borough of Wokingham is intrinsically linked with Reading and Bracknell Forest through an urban form that is almost contiguous. However unlike both Reading and Bracknell Forest, Wokingham has some capacity for growth beyond the intensification of existing urban areas, challenging though that is. For the SEP as a whole, it is seriously important that the opportunities linked to this provision are realised fully, noting that this assertion applies as much to employment (particularly through the Thames Valley Science Park) as it does to housing.

6-8. Conclusions

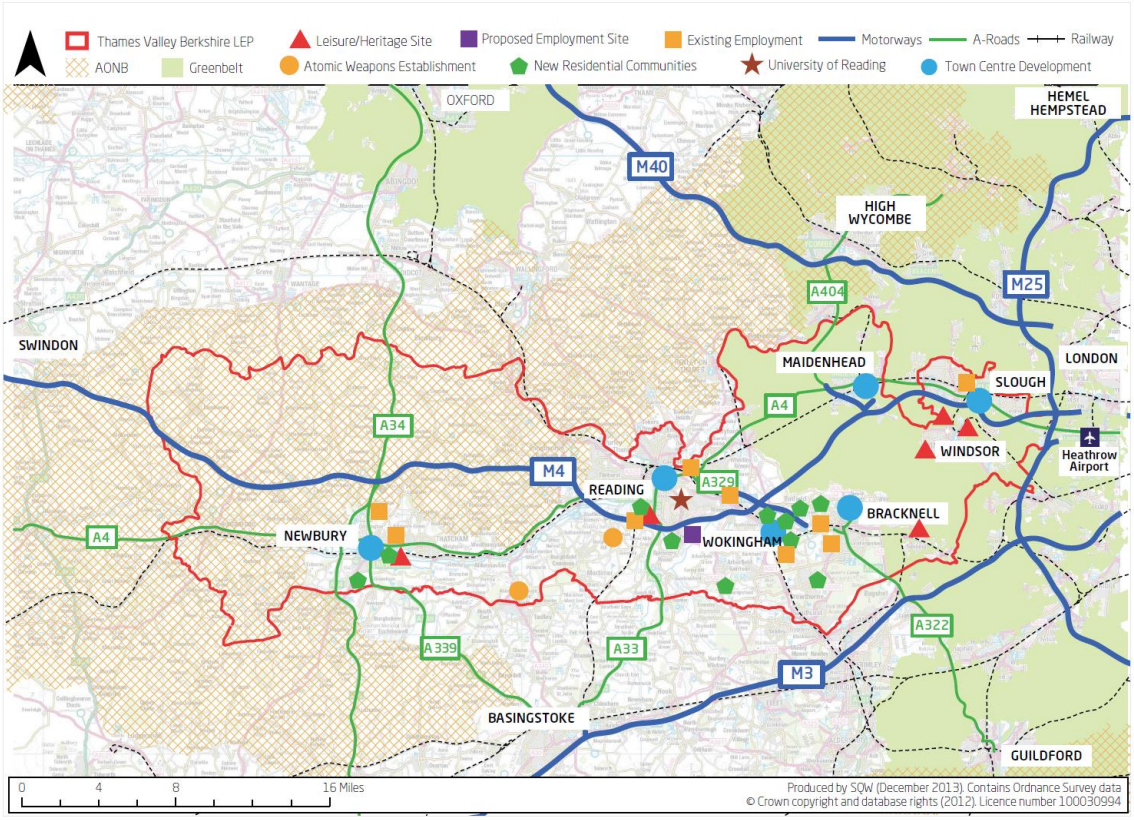
The six unitary authority areas that comprise TVB differ substantially from each other in terms of their capacity for economic and housing growth. Some areas – notably Reading and Slough – are significantly under-bounded and in both cases, there is relatively little land.

Elsewhere, there are more opportunities and the areas which stand out in these terms are Wokingham and, to a lesser extent, West Berkshire. In both cases, these are intrinsically strong local economies: they are both home to a large number of corporates; both have a vibrant population of SMEs; both have a favourable sectoral make-up; and both have a significant IT sector. Moreover it is these two areas that could – potentially – be the hosts for major science park developments: Thames Valley Science Park in the borough of Wokingham and, longer term, the emerging possibility of some kind of science park facility linked to AWE in West Berkshire[198].

In parallel, though, it is crucial that the urban areas of TVB perform strongly. The towns need to be economic hubs and also "emotional" hubs for economic (and related) activity. In this context, there is a crucial role both for the town centres and for edge-of-town employment locations. Substantial regeneration schemes are currently being delivered in several of TVB's towns and in seeking to deliver the SEP spatially, the delivery – and then the success – of these schemes is very important.

[198] Note that this concept has started to emerge since the main planning documents for West Berkshire were published

Figure 23: Spatial framework for growth across Thames Valley Berkshire



Taking all of these different considerations into account, Figure 23 (above) distils the spatial framework for growth across Thames Valley Berkshire. This spatial framework is one that provides the backdrop to – and the spatial context for – the SEP in the short term. Longer term, however, the SEP must help to define, inform and shape that framework, particularly as Local Plans are gradually revised and refreshed.

Evidence Paper 7
Transport and Communications

7-1. Introduction

This Evidence Paper sets the context for the transport infrastructure objectives and strategy for the Thames Valley Berkshire (TVB) Strategic Economic Plan (SEP).

It describes (briefly) the evolution of transport strategy in TVB and the strategic themes that have emerged.

It discusses transport infrastructure and the strategic imperatives in terms of:

- Strategic rail network
- Strategic road network
- Unlocking housing development
- Enhancing urban connectivity

As context, it is important to note that Thames Valley Berkshire is split into six relatively small unitary authorities, each responsible for preparing its own (statutory) Local Transport Plan (LTP). LTPs are now on their third iteration covering the period 2011-26. While LTPs are important local documents, the small physical area covered by each one in Thames Valley Berkshire has made it difficult for them to be truly strategic documents or to engage with national transport planning.

Recognising this, the six authorities joined together in 2007 to form the Berkshire Strategic Transport Forum, which has remained active ever since, despite a changing governance structure. Originally independent, the BSTF was incorporated into Berkshire Economic Strategy Board as one of its four key delivery boards, although the six authorities continued to produce their own local transport plans. The BSTF was recognised by the LEP as the lead transport body and morphed into the Berkshire Local Transport Body.

The BSTF has never had an obligation to produce a statutory plan but has been an effective vehicle for promoting joint working. It has enabled Thames Valley Berkshire authorities to collaborate on funding bids such as the Local Sustainable Transport Fund (a joint bid between Reading, Wokingham and West Berkshire was successful). It has also enabled co-ordinated support for initiatives such as the Western Rail Access to Heathrow.

The strategic priorities for transport in TVB have remained broadly consistent over time and the emerging priorities for the Strategic Economic Plan do not represent a radical change of direction, although in some cases they represent a change of emphasis.

7-2. Enhancing the Strategic Rail Network

There are two major rail routes that affect TVB. The first is the Great Western mainline from Paddington. On this route, there are several investment projects already underway which will impact on Thames Valley Berkshire, including electrification and new train sets. The two biggest projects are:

- Reading Station improvements: This £850m project is due to complete in 2015. It includes a complete overhaul of the passenger concourses and platforms. This also future-proofs the station layout in the event of Crossrail being extended to Reading and/or greater use of the Reading Waterloo line. BSTF was one of the major advocates of these improvements. The project also includes grade-separated junctions east and west of the station to allow more crossing movements per hour. There is an underpass to the east of the station connecting to North Downs and Waterloo lines, and a flyover being constructed to the west at the junction with the Berks and Hants line (which is also the main north-south freight route.
- Crossrail: Scheduled to open in 2017, Crossrail will reach Maidenhead in 2019, with stations at Langley, Slough, Burnham and Taplow. There will also be a spur to Heathrow and stations at the West London employment centres of Southall and Hayes & Harlington. Crossrail will undoubtedly help travel to work in the eastern half of TVB. However the "time rationale" for Crossrail is to reduce journey times into central London, especially for commuters. To that extent, it offers a challenge to the TVB economy as much as a benefit.

BSTF (and its successor bodies) has also been committed to improving surface access to Heathrow Airport for passengers, freight and for the workforce since 2010. This is one of the LEP's two key projects. It has secured a £500m commitment from the government to create the Western Rail Access to Heathrow (WRAtH). This project is being led by Slough BC on behalf of the LEP in partnership with Network Rail, First Great Western and Heathrow Airport. It will enable passengers from the west to change at Reading for a direct service to Heathrow, rather than travelling into Paddington and out again. There will also be direct services from Slough and Maidenhead. The short rail link (which needs 4km of new tunnel between Langley and Terminal 5) will deliver economic benefits of over £2 billion and create 42,000 new jobs. This project is subject to the Governance for Railway Investment Projects (GRIP) which has 8 stages, with construction commencing at stage 6. The project is currently at GRIP 3.

The strategic objective for TVB is to ensure that WRAtH is delivered by government on programme. Thereafter, TVB is concerned to ensure that the franchising and operational planning of these three projects is strongly coordinated to ensure maximum benefit to the TVB economy. The combined

impact of Reading Station; Crossrail; WRAtH and electrification creates major new possibilities for operating patterns of the Paddington outer Suburban Services from Oxford, Newbury and Basingstoke running through Reading towards LHR and Paddington and Central London. Network Rail's Western Route Study recently announced as part of the LTPP will study the options in great detail and TVB LEP will be a major contributor to that debate.

TVB is also served by connections from the Wessex route into London Waterloo. Investment planning on this route is at a much earlier stage and TVB would like to ensure that its views are taken into account as early as possible. Network Rail's forthcoming Wessex Route study as part of LTTP will address these issues and TVB LEP will be a major contributor to that debate.

TVB has identified its strategic priorities as:

- Southern Rail Access to Heathrow Airport
- Reading to Waterloo services
- Improved connections to the North Downs line to Guildford, Gatwick and Brighton

Once more, TVB's objective is first to ensure that government goes ahead with investment in these projects and secondly that the benefits of a coordinated approach to operations is captured.

7-3. Strategic Road Network

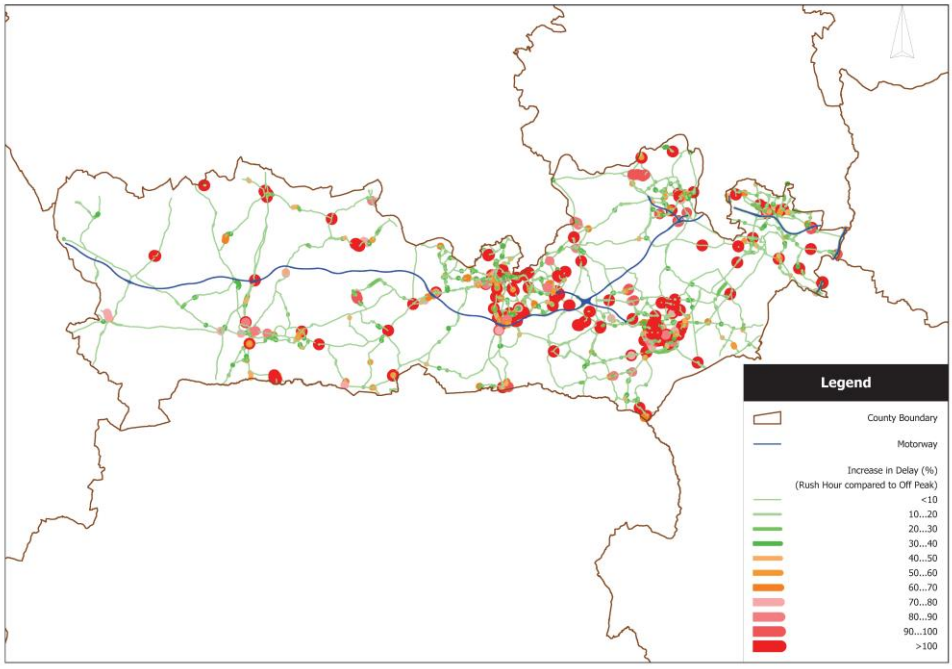
M4 motorway

The M4 is the major road running east-west across the whole area. The M4 has become increasingly constrained by the sheer volume of traffic using it. There is no alternative route and little prospect of constructing one, although some local journeys could use extra capacity on the A4 and/or public transport. Until now, attention has concentrated on junction enhancements to get commuter traffic on and off the motorway at peak times.

Junction 10 is being upgraded by the Highways Agency using Pinchpoint funding. There are no further junction enhancements planned so the next capacity enhancement will come from the Managed Motorway Scheme from London out to Junction 12 (Reading West and Theale). This is not scheduled to start until after 2015 and the detailed design has not yet been decided.

TVB would like government to ensure, at the minimum, that this scheme does not slip behind and would if possible would like it brought forward. It is noted that a similar scheme on the M3 out to Junction 4a Aldershot is scheduled to start in 2013/14.

Figure 24: A map showing the impact of congestion in Thames Valley Berkshire, 2014



North South connections

North-South routes in Berkshire all pose issues. To the east is the M25, which crosses a small part of Slough. The M25 is an important north south route for TVB although this accounts for a small proportion of the total M25 traffic.

The A404/A404M runs from the M4 at Maidenhead to the M40 at High Wycombe and is part of the Highways Agency strategic network. It is an important alternative to the M25 (as well as being a commuter route for people from Buckinghamshire travelling into Slough and other TVB towns). The main constraint is junction capacity, with heavy investment at the A404/M40 junction at High Wycombe. The Highways Agency is also providing pinch point funding for the Bisham roundabout to the north of Maidenhead.

In the west is the A34 which goes from Southampton to Oxford via Newbury. This is the main route for container traffic from Southampton docks to the Midlands. Following the construction of the Newbury Bypass and improvements to the M4/A34 junction, the Berkshire section of the A34 is relatively free flowing. However there are serious bottlenecks at Oxford to the north and at the M3/A404 junction near Winchester that impact on TVB road users, so TVB would support proposals by its neighbouring LEPs to improve these bottlenecks.

There is a distance of over 25 miles between the A404 at Maidenhead and the A34 at Newbury with the major urban area of Reading/Wokingham/Bracknell halfway in between. This area is poorly served by north-south routes and a significant amount of traffic on this section of M4 is travelling to and from the north-south connecting roads.

There are two barriers to north-south movement in central Berkshire, From Reading to Bracknell and thence to the M3, the main route is the A3290 - A329M, A322 corridor. This actually runs approximately west-east but serves as a north-south connection, with up to 25% of traffic using it as a route between the M3 and M4 motorways (according to the Bracknell Forest LTP). However, it is managed and funded locally. Even the A329M is managed by Wokingham BC rather than the Highways Agency.

The TVB authorities have planned and are implementing a series of capacity improvements on this corridor, including a number of junction improvements. However some of these have to be paid for from local resources which is placing a strain on local authority budgets and reducing the amount available from developer contributions towards other priorities. In this strategy these projects are treated as local urban connectivity enhancements. However, in any Local Growth Fund award, TVB would like government to acknowledge the contribution that this corridor makes as an alternative to the strategic road network.

The A3290 ends just south of the Thames and serves Thames Valley Park. The south bank authorities have plans for a new Thames crossing here which would provide a replacement highway crossing the river. This would provide much needed relief for Henley, Sonning, Reading and Caversham bridges. However, this scheme is opposed by the north bank authorities, and we do not underestimate the challenges facing this scheme.

7-4. Unlocking Housing Delivery

Prior to the economic crisis there was a widespread hope, if not an assumption, that a large part of the infrastructure required for housing development would be provided through developer contributions in the form of s106 payments (or, later by the new Community Infrastructure Levy (CIL)). This was especially the case in areas of high demand and high house prices like TVB.

At the same time, transport policy emphasised schemes that delivered a high Benefit: Cost ratio in transport appraisal terms – mainly through savings in travel costs and accident rates. The initial guidance for the Local Transport Body was not completely prescriptive but was consistent with this approach.

Since 2010, the government has introduced measures to prevent onerous developer contributions from undermining development viability but introduced a range of loan and grant funds to help unlock housing delivery. These include (grant and/or finance-based) funding which can be used for transport infrastructure relating to housing development. Programmes include the Growing Places Fund, Local Infrastructure Fund, and Pinchpoint Fund. Large Scale Development Fund and borrowing from the PWLB, all of which have been used in Thames Valley Berkshire.

The Local Growth Fund guidance prioritises housing delivery as well as transport and therefore we have considered transport schemes that unlock housing delivery as well as those that serve wider transport objectives. Autumn Statement 2013 announced that the proposed New Homes Bonus allocation for the Local Growth Fund would be replaced by funding targeted at delivery of large sites.

In the majority of cases, access to Strategic Housing Locations has either already been arranged or requires upgrades to existing transport corridors rather than site specific arrangements. The exception to this is the four Wokingham SDLs. The planning context for these is set out in the separate paper on housing delivery but together they amount to 10,000 dwellings, plus significant employment uses. One of them involves the re development of a Ministry of Defence facility at Arborfield Garrison.

These SDLs are only 3-4 miles apart and the concentration of development is placing a significant strain on local infrastructure, particularly the road network, and all are being planned to include a range of facilities including schools and community facilities. To mitigate the traffic impacts Wokingham BC has planned four local distributor roads, one associated with each SDL, to take the additional traffic. These roads will be part funded by developer contributions over time, but will require a mixture of grant and forward funding - in the shape of prudential borrowing or other public sector loans. The

estimated cost in total is over £100m which is far more than a small unitary authority could expect to fund by itself.

Forward funding for one of the roads has already been secured. South of M4 is a mixed use development incorporating a science park for the University of Reading which is acting as lead developer. Wokingham BC has already helped the University to obtain a loan of £24.7m from the HCA Large Scale Development Fund. This will forward fund the construction of the Shinfield Eastern Relief Road. Construction is programmed to start in 2015 and finish in 2016.

The other three SDLs are expected to follow soon after. Planning and design work on the roads is already beginning and Wokingham Borough Council has allocated funding for this. The gross cost of the three roads is £76m, of which £52m should be provided from developer contributions, leaving a shortfall of £24m to be found. In addition, the roads will be built in phases over several years but developer contributions will also be spread over many years. The SDLs are each in several different ownerships, adding to the complexity. So, in addition to grant funding, there will also be a requirement for prudential borrowing support.

There are also a small number of smaller transport schemes that facilitate large housing developments. They include:

- Sandleford Park scheme in Newbury which costs £1.3m but opens up a 1,000 housing allocation.
- Warfield Link Road, Bracknell Forest which costs £3.5m net but opens up a 2,200 housing allocation.

7-5. Enhancing Urban Connectivity

Much of TVB's expansion since the 1980s has been in the form of Greenfield development, most obviously in the form of out of town business parks and heavily reliant on car borne transport. While there is still potential for some growth in this format, it is reaching the limits of practical sustainability, for a number of reasons.

In spatial planning terms, TV Berkshire is heavily constrained by protected landscape designations, with only a small strip on its southern boundary readily available for development. Even the London Green Belt designation hides a complex set of constraints including flood plains, aircraft noise contours and historic designations around Windsor Castle and the Great Park. It is therefore likely that future growth will require a greater emphasis on urban densification

As discussed in this paper the strategic road and rail network are already operating close to capacity. While there is scope for enhancing existing capacity there is little scope for significant new infrastructure. The last major road built in Berkshire was the A34 Newbury Bypass. So there is a need to minimise trip lengths, keep journeys away from the strategic networks as far as possible and to shift them away from private cars.

As Evidence Paper 6 (spatial framework) discusses, the Reading urban area (defined in terms of its physical footprint, not local authority boundaries) has expanded to a population of about 370,000 – making it one of the larger urban areas in Britain. While it may not be large enough to warrant a tram system like Nottingham, it is certainly large enough to justify significant investment in public transport systems such as guided bus ways.

The transport strategy also needs to respond to the drivers of the Strategic Economic Plan which include improving:

- Attractiveness of town centres
- Accessibility of out of town business parks
- Access to jobs for the workforce.

The Urban Connectivity Enhancements included in Thames Valley Berkshire's strategic programme are a variety of projects but are all directed towards this aim. A number of the schemes achieve more than one objective, particularly where they connect a business park to a town centre. They include:

- Improvements along the A3290)-A329M-A322 corridor, which meets both strategic and inter-urban objectives
- Urban corridor enhancements
- Major investment in Mass Rapid Transit systems in Central Berkshire
- Maidenhead station improvements, to respond to Crossrail.

7-6. Communications

Introduction

Communications infrastructure comprises broadband cabling and wireless networks for data transmission. There are four considerations for the TVB SEP.

Adequate broadband speeds across the broadest proportion of the business (and domestic) population.

The drivers for this are particularly important for SMEs. They include the greater use of homeworking for employees and for SME start-ups. With TVB's strengths in high technology businesses and in international businesses, access to good broadband is an essential to develop the SME supply chain. In the more rural areas, broadband is important to many SMEs in what may appear more traditional industries but can also have international reach – such as horseracing and tourism. The UK government's move to "digital by default" in areas such as VAT and PAYE is also making broadband access a vital tool for any local economy. Finally, adequate home broadband is a powerful attraction for the workforce, especially in TVB's high tech businesses.

Funding for this this strand is the responsibility of BDUK, a government agency set up with the ambition of providing superfast broadband connections to 90% of the UK population and basic 2Mbps speed to the remaining 10% by 2015.

TVB was already on track to achieve 80% roll out of 24Mbps by 2015. However TVB LEP and the six local authorities have taken advantage of the BDUK programme to accelerate this programme and achieve up to 80 Mbps to 91% of the population. They have done this through a £8.06 million contract with BT, funded by TVB and BDUK (25% each) and 50% by BT. The remaining 10% of the population will also have access to basic 2Mbps broadband by 2015.

BT plans to start surveying across Berkshire from early 2014 before embarking on the network build during 2014 and 2015. Delivery will be completed over five phases with connections made to the first premises predicted for autumn 2014.

Ultrafast data capacity for larger businesses.

Historically, TVB with its concentration of research, military and high tech users has been well served by high speed data connections, especially given their emphasis on data-rich applications. However,

the rapid growth in data-rich media and design applications which are often used by much smaller businesses has brought about the need to provide ultrafast broadband across a wider area.

Fibre to the Premises technology – delivering ultra-fast wholesale speeds of up to 330Mbps – will also be deployed by BT in certain areas and will be available on demand should local businesses want the ultra-fast speeds it offers.

Mobile Broadband

The main driver for the deployment of the next generation of mobile broadband is the astonishingly rapid growth of data transmission instead of voice transmission over mobile phones. EE, one supplier is projecting a 750% increase in data usage over the next three years.

All four major UK mobile networks are rolling out 4G network coverage over the next year. However, there is no agreed definition of 4G – it simply means "fourth generation". They have been allocated different parts of the wavelength spectrum with different transmission characteristics - some wavelengths are better suited to long-distance line-of –sight transmission; others to penetrating buildings over shorter distances.

As a result, the real impact of 4G is hard to predict. EE, the first suppler to market offers up to 150Mbps connection, but this usually means achieve speeds of 25Mpbs or less. It is trialling a new technology that would offer 300Mbps.

The UK government has no current plans to intervene in this market to ensure wider coverage; it is a commercial judgment for the suppliers. However it is intervening to deregulate the planning requirements for phone masts, essentially moving towards fewer, taller shared masts. This should reduce costs for suppliers and speed up the installation process.

It is therefore not clear that any intervention by TVB LEP would be effective in speeding up 4G deployment, since there is no clear standard and the technology is still evolving rapidly.

Communications as a Business Opportunity

As TVB contains a high concentration of tech businesses, there is an opportunity not just to use communications technology as it becomes widely available but to take the lead in developing suitable applications for it.

The University of Surrey has created a project to develop 5G technology and accessed £11.6m of funding from the UK Research Partnership Investment Fund (UKRPIF), and circa £24 million from a

consortium of key mobile operators and infrastructure providers including - Huawei, Samsung, Telefonica Europe, Fujitsu Laboratories Europe, Rohde & Schwarz and AIRCOM International.

Enterprise M3 LEP are considering the commercialisation of this work as part of their economic strategy. TVB LEP and the other Greater Thames Valley LEPs are in discussions on how they could provide scale as a test bed for 5G super-fast broadband.

Evidence Paper 8
Delivering an uplift in GVA

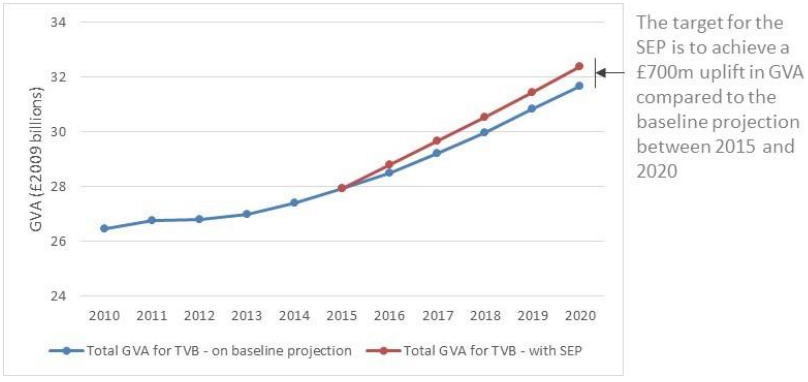
8-1. Introduction

As an input into the development of the Strategic Economic Plan (SEP) for Thames Valley Berkshire (TVB), Cambridge Econometrics (CE) prepared a set of baseline projections based on its Local Economy Forecasting Model (LEFM); these projections are reported in detail in Evidence Paper 1.

The baseline projections pointed to reasonably strong – although not spectacular – growth in Gross Value Added (GVA) across TVB over the period of the SEP. In practice, GVA is a very complex measure but – simplifying greatly – it boils down to the sum of the wages paid and the profits generated by the firms based in TVB[199]. It is therefore a "value" (unlike employment which is measured in jobs) and susceptible to the effects of inflation. Because of this, GVA modelling is completed in constant prices; the GVA projections generated by CE and used to inform the SEP are in constant 2009 prices (which means that they will appear to be lower than more recent, current price, estimates).

Through the SEP, the intention is that the rate of GVA growth should exceed that projected in the baseline. The baseline projection points to an annual growth rate of around 2.5% per annum over the period 2015-2020; through the SEP, the intention is to increase this to 3.0% per annum over the same time period. If this is achieved, by 2020, TVB's GVA will be £32.4bn compared to £31.7bn on the baseline projection. The SEP should therefore deliver an uplift of £700m (in constant, 2009, prices) compared to the baseline. These two scenarios are illustrated in the graphic below

Figure 25: Baseline projection for GVA in TVB; and the target in relation to the SEP



Source: Baseline projections from LEFM

[199] It is in reality a good deal more complex and adjustments have to be for various factors – e.g. depreciation

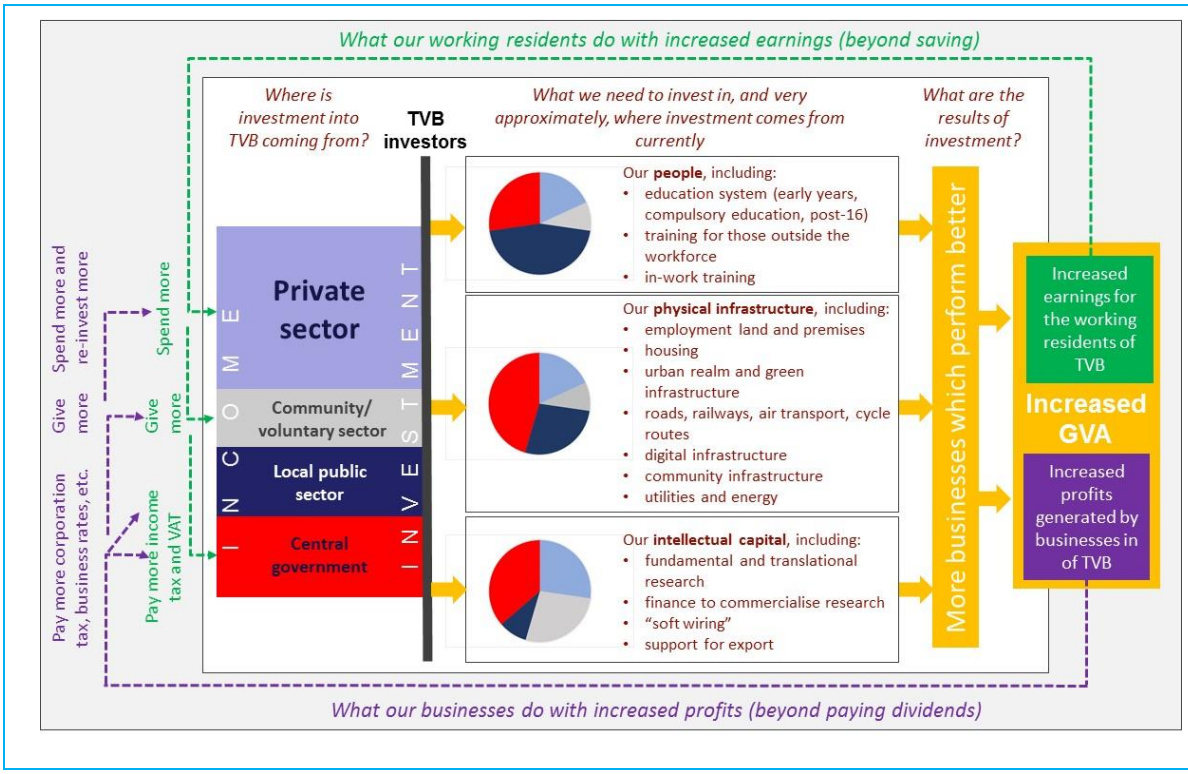
Within this context, the purpose of this paper is to two-fold. First, it considers how this uplift will – in principle – be generated; and what it means – in practical terms – for economic life in TVB. Second, it reflects briefly on the evidence that exists regarding the scale of intervention needed to generate an uplift in GVA (compared to the baseline projection). Both of these issues will need to be taken into account fully in developing the SEP's Implementation Plan.

8-2. How an uplift in GVA might be generated

Investment cycles in TVB

TVB is already a very effective and productive economy. It is also one in which the private sector, local and central government, and other stakeholders are already investing – whether recognised in these terms or not. The "investment cycle" is illustrated in simplified terms in the graphic below and explained in the paragraphs that follow.

Figure 26: How wealth is generated and reinvested currently



Source: SQW

As Figure 26 demonstrates implicitly, the private sector invests by, for example, training its staff, investing in IT and improving premises; all of these investments ought to enhance its ability to compete and "do business". The public sector is also a major investor – in, for example, compulsory education and in the road and rail infrastructure.

All of these investments mean – in principle, and so long as they are not market constrained – that more businesses are able to perform better. As a result, they generate more profit and/or pay higher

wage bills (through increased salaries and/or increased headcounts). In other words, the GVA of TVB as a whole is able to rise. This is shown on the right hand side of the graphic.

Importantly, however, the process does not stop there (as shown on the left hand side). As a result of economic growth, businesses will reinvest their profits; and/or pay dividends; and/or pay tax. Working residents meanwhile will spend part of their salary; save part; and pay some tax. Tax receipts – whether from businesses or individuals – are returned (mainly) to Treasury. There is then some basis for the state to reinvest in local economies through much the same set of processes (education, infrastructure, etc.).

Through the delivery of the SEP, the intention is that this process should ratchet upwards. Key market failures will be addressed – and it is these that will require some additional public sector investment. As a result of this investment, more businesses will be able to grow and hence the private sector investment/re-investment cycle should also be strengthened and accelerated.

What a £700m uplift in GVA looks like

The aim of the SEP is that by 2020, TVB's GVA performance should be £700m better than would otherwise have been the case (i.e. compared to the baseline projection).

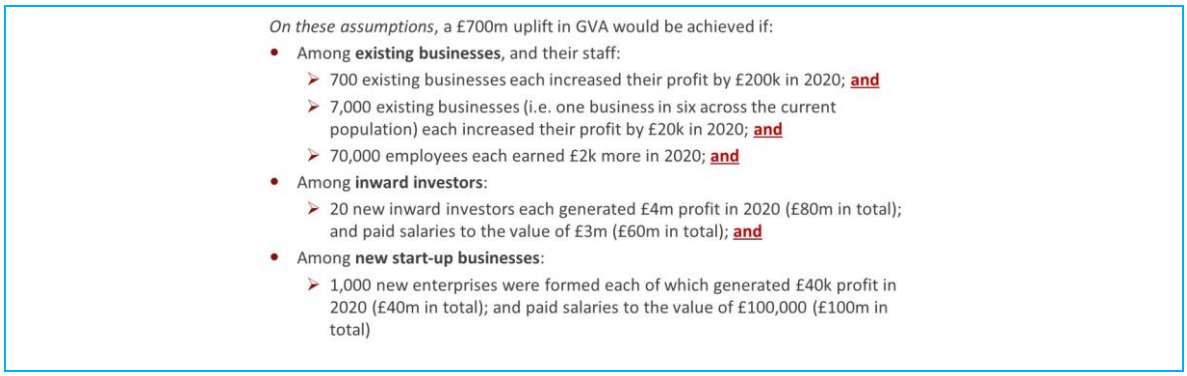
In theory…

A £700m uplift could be achieved in various ways. One theoretical (and highly simplified) scenario is set out below. Note that each of the numbers in Figure 27 is based on three crucial assumptions:

- that they are **net** (of any consequential impact (positive or negative) on other businesses/people in TVB)[200]; *and*
- that they are **additional** (i.e. "over and above" what any business/person might anyway have achieved by 2020); *and*
- that they are **at constant 2009 prices** (so the changes are real, not just inflation-related).

[200] The concept of "net" growth is explained further in the later paragraphs

Figure 27: Possible routes to achieving a £700m uplift in GVA by 2020



In practice…

In reality, the assumptions that preceded are not trivial. On balance, they mean that the outcomes depicted in the graphic signal significantly more ambition than might at first appear.

Perhaps most importantly, the assumption made in Figure 27 is that the growth of (say) an IT business in Wokingham has no impact at all on the growth of another IT business located in Slough. For sectors where clients are *predominantly national or (particularly) international*, this assumption may be reasonable in terms of markets (and it is for this reason that the development of export markets is so important in relation to economic growth). But it also needs to be considered in the context of scarce inputs – like skilled labour. If the Wokingham IT business can only grow by recruiting the Slough firm's staff – and if the latter cannot be replaced – then the overall impact in relation to TVB's GVA could be zero.

If a firm's market is *predominantly local* – which is the case for many local service providers (all of which are targeting the same resident population of TVB) – then the challenges of achieving *net* growth are compounded further. Unless it can find new customers (or unless the overall demand from existing customers increases), there is a strong probability that ultimately, the accelerated growth of one café or one building firm in Reading will simply be at the expense of another; if this is the case, whilst the first café/builder might generate impressive figures in its own terms, these will do nothing for TVB as a whole and contribute nothing to its quest to achieve a £700m uplift in GVA.

More positively, though, any net GVA growth will generate some level of multiplier as the "ripples" spread through the economy. Estimating the scale of the multiplier is a pretty fraught exercise, but it is fundamentally determined by the scale of the territory to which it relates. For the UK as a whole, multipliers are significantly larger at national than at sub-national levels.

The reason for this links mainly to local leakage. All the evidence suggests that the economy of TVB is very porous. There is a substantial volume of both in- and out-commuting and local supply chains are not – in the main – especially strong; one of the comments made during consultations with

businesses in the course of developing the SEP was that local allegiance to suppliers of (in one case) financial and business services is notably lower than is often the case in city-region economies. Hence if a TVB firm employs more people, it is likely that a proportion will commute from outside and therefore their salaries – whilst earned in TVB – are likely to be spent elsewhere. Equally, if a TVB firm needs more legal advice and opts to source that from London rather than locally, it is the London economy that will benefit. The GVA impacts will not therefore be captured in TVB[201].

Overall, our judgement is that multipliers within TVB are likely to be low – perhaps in the order of 1.1-1.2 (compared to, perhaps, 1.4-1.6 in sub-national economies with a major conurbation at their core). This means that in order to generate a net GVA increase, TVB will have to work relatively harder.

Of course, the TVB economic fundamentals are strong and hence growth will happen. But in terms of measuring *net additional* impact, TVB's situation is quite challenging. An analogy is perhaps helpful in this context. The SEP is about filling a bucket (the economy of TVB) with water (GVA) and the aim is to raise the water level faster than would otherwise be the case (i.e. to increase the GVA by £700m above baseline by 2020); there are various flows into the bucket, but the bucket also has holes; and this means that it needs to be filled very rapidly to be able to raise the water level measurably. The good news, however, is that the flow of water into the bucket is strong, and the SEP aims to make it stronger[202].

[201] It is also important to note that the reverse is true. The London economy is growing quickly and it is employing people who live in TVB (and indeed elsewhere). These TVB residents are likely to spend their salaries in TVB and hence the growth of London benefits the economy of TVB through this process

[202] It is also worth noting that some economic strategies try to fill the "holes" (e.g. through reduced out commuting, more local purchasing). These rarely succeed. The TVB SEP is primarily about increasing the "inflow", recognising that much of the benefit will accrue to the UK as a whole rather than necessarily to TVB

8-3. The cost of delivering growth

A question that has been raised in the course of developing the SEP is how much the Plan will cost to deliver. A full response to this question will have to await the development of the Implementation Plan.

Reflecting on the "cost of delivering growth" immediately raises a question terms of "cost for whom"? In practice, the private sector will – and must – invest substantially. It will do so in the course of "doing business" – so long as TVB continues to be its preference in terms of where its business is done. But the public sector will also have to bear some of the tab, and it is in this context that the "cost of delivery" is generally posed. It is also in this context that we have an existing evidence base on which to draw.

Although now the "*ancien régim*", a substantial evidence base was generated during the latter years of the regional development agencies (RDAs). While the institutions might have withered, there is nothing wrong with the evidence base they left behind; indeed, significant sums of public money were spent generating it and it would be churlish to disregard it.

The most significant publication in these terms is one produced by Pricewaterhouse Coopers (PwC) for the (then) Department of Business, Enterprise and Regulatory Reform in March 2009[203]. In essence, its aim was to "*provide an independent assessment of the impact of the spending by each of the nine RDAs and the RDA network as a whole*".

The exercise completed by PwC was substantial and rigorous. It involved reviewing, appraising and then using a raft of evaluation studies completed by the nine RDAs. Whilst these differed from each other in scope, focus and content, all were required to adopt a (more or less) consistent methodology which had previously been set out in the RDA Impact Evaluation Framework. Based on this comprehensive evidence base – but reflecting only on the contribution of jobs to GVA – PwC found that across all interventions the annual impact on GVA resulting from jobs which have already been created or safeguarded is broadly equal to the cost, but if allowance is made for the expected persistence of these benefits, then every £1 of RDA spend will add £4.50 to regional GVA[204]

[203] *Impact of RDA Spending – National Report – Volume 1* Produced by Pricewaterhouse Coopers LLP for the Department of Business, Enterprise and Regulatory Reform, March 2009

[204] *Ibid.* page viii

PwC also noted significant differences according to intervention types. Broadly, it found that in simple (but net and additional) GVA terms, interventions focused on "business" (e.g. business support programmes, access to finance) offered better value for money than those focused on "people" (e.g. training schemes) and "places" (e.g. land remediation, public realm).

From these data, it is worth considering the possible implications for TVB and its SEP. But before we even start, two notes of caution should be registered. One relates to the timescales under consideration and the applicability of the PwC benchmarks in these terms. A second concerns the "routes to impact" considered by PwC. Importantly, PwC's ratios were based only on GVA generated through jobs; they did not have the evidence to consider, for example, the GVA generated as a result of the impact on productivity if firms become more efficient and competitive or individuals' earnings potential is enhanced. In practice, the TVB SEP is not focusing on job creation and therefore there are some limits to the relevance of PwC's findings in the local context.

Nevertheless, putting these notes of caution to one side (on the grounds that the PwC evidence is certainly the best available), is it plausible that the cost to the public sector of delivering a (net additional) £700m uplift in GVA in TVB might be in the order of £155m (i.e. £4.50 of GVA impact for £1 public sector spend)?

Two observations need to be made in response – and these pull in opposite directions:

- First, it might be the case that the cost of an uplift of this scale in TVB could be somewhat greater because of *levels of leakage*. TVB will generate economic output but whether it will capture and claim it is another matter altogether because of the porosity of its boundaries[205]. It is important also to remember that TVB is a very much smaller geographical area than any of the RDA regions (and hence multipliers will be low)

- Second, our expectation would be that the *levels of leverage* achievable in TVB ought to be significantly greater than those achieved, on average, across the English regions. TVB's underlying economy is much stronger than the average for England and the rationale for intervention needs to be cast less in terms of fixing problems than ensuring that intrinsic growth potential is realised. This ought to result in much higher levels of leverage - meaning that modest public sector interventions ought to offer very good value for money overall.

[205] An important related point is that the porosity of TVB is a benefit to the rest of UK, since most of the outflow of wealth (e.g. through purchasing specialist services from London, or paying salaries to in-commuters, or providing management support to manufacturing and sales undertaken elsewhere in UK) benefits the rest of UK and much of the inflow (e.g. inward investment, tourism) is from elsewhere in the world

Although only inference, our judgement would be that the second process should significantly outweigh the first. As a result, the cost of a £700m uplift in GVA ought to be somewhat less than the application of the benchmarks developed by PwC would imply – assuming those benchmarks are relevant and appropriate ones.

In practice, measuring the costs and benefits of economic growth is extremely complicated – and it is often impossible. The economy is a dynamic system with multiple complex feedback loops and – if it is to be done properly – all of these ought to be appropriately modelled. Equally, at the end of the day, the factor that will impact most on TVB's ability to achieve a £700m GVA uplift will be the state of the macro-economy (and interest rates, exchange rates plus wider geo-political stability, etc.). In relation to these wider considerations, it ultimately has very little control.