



cutting through complexity

Tech Monitor

A most up-to-date source
of UK tech sector data and
analysis each quarter

Compiled for KPMG by Markit
November 2014

Tech Monitor/UK

A snapshot report for the tech industry, giving an informative overview of market performance and expert insight on trends and outlook.

EXECUTIVE SUMMARY

A strong 12 months for the Tech sector but storm clouds ahead?

We commissioned our first Tech Monitor report a year ago to track the state of the UK tech sector, focusing on three key questions – how have UK technology businesses performed, how confident were they about the business and employment outlook, and where are the technology clusters in Great Britain?

Over the last 12 months, our surveys have shown a UK Tech sector that has consistently outperformed the wider economy, recording its best growth performance in almost a decade and importantly, is actually creating job growth in an era of 'jobless economic recovery'.

Our latest report continues this good news story with UK Tech companies remaining in expansion mode underpinned by strong sales, new business volumes and an optimistic outlook for the level of future business activity, including capex spend and job hiring.

While we can justifiably celebrate the strength of UK technology businesses and notwithstanding the high confidence levels of UK Tech companies, there are some warning signs that there may be storm clouds ahead. Our survey shows that although key indices such as business activity, new orders, employment levels and future expectations remain in positive territory, there has been a noticeable slowdown in the rate of expansion. With technology now firmly embedded as an enabler for most businesses and an integral part of consumer lives, there is an increasingly held view that the Tech sector should be seen as a leading indicator or bellwether for the wider economy. Add to this, the fact that tech expenditure is increasingly easy to flex as a result of disposable consumer products and the advent of variable usage pricing cloud solutions replacing old world fixed price models, and the case for the Tech sector as a barometer for wider economic health is strengthened. If this hypothesis holds true, the slowdown in Tech indices combined with recent negative newsflow on issues such as Ebola, Eurozone slowdown, and Middle East conflicts, as well as uncertainties arising from an upcoming general election make for a worrying cocktail. The next three to six months should be carefully monitored to see if this slowdown is just a blip in the UK tech sector growth story or if it represents the start of a wider downturn in the UK economy.

Our report also continues to show that the top technology clusters are centred in the South East with the top five based along the M4 corridor and London scoring the highest for micro and small tech enterprises. There exists therefore, the opportunity to spread the success of UK technology sector to other parts of the UK.

The importance of a strong technology sector cannot be overstated given its pervasive influence on businesses and consumer activity, and the role it plays in generating economic activity. It is therefore reassuring to see in our quarterly surveys, how well the UK Tech sector is doing and the growing recognition it is getting in the media and political parties of all persuasion. We must not however, take this success for granted and continue to ensure it gets the right support and focus in terms of education, availability of talent, infrastructure, media coverage and fiscal policy.

Tudor Aw

KPMG Technology Sector Head



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UK tech sector experiences growth slowdown in Q3

OVERVIEW

Key points from the Q3 2014 data:



UK tech sector experiences solid rise in business activity in the third quarter of 2014...



...but the rate of expansion has cooled from its recent post-recession peak



New business growth remains strong, despite slowing over the summer

Q3



Job creation rebounds in Q3, while employment growth softens across wider UK economy



Stronger rise in payroll numbers supported by accelerated staff recruitment at small tech companies in Q3



Almost two-thirds (62%) of UK tech companies anticipate a rise in business activity over the year ahead, while only 8% forecast a decline



Expectations for business activity over the year ahead are far more buoyant than the UK-wide benchmark



Special feature mapping tech clusters across UK regions and local authorities:



Key findings from tech cluster analysis:

- **Reading** tops the table for the largest footprint of tech enterprises in the local private sector business population...
- ...with Reading's proportion of tech firms (around 19%) standing at three times the UK average
- The **M4 corridor**, which includes Reading, retains its place as the geographical area with the deepest concentration of tech companies
- **London** tops the UK regional table for concentration of small tech companies in the local business population, but the **South East** attracts the greatest proportion of larger tech firms.



Tech growth: Slowest rise in tech business activity for over a year

TECH GROWTH

Tech Monitor UK uses a specially selected panel of tech sector executives within the Markit UK Purchasing Managers' Index® (PMI®) surveys, to provide a unique and up-to-date assessment of the sector's economic performance. Growth and jobs trends are benchmarked against Global PMI® series and other key economic indicators.

Main findings in Q3 2014*

UK tech companies remained firmly in expansion mode during Q3, but momentum has slowed from the rapid pace seen during the first half of 2014, according to the latest KPMG/Markit Tech Monitor UK survey. Despite softer overall growth of business activity, the latest survey highlights that new contract wins have held up strongly over the summer, helping support solid business optimism and job creation across the sector.

Adjusted for seasonal influences, the headline Business Activity Index registered 55.6 at the end of Q3 2014, well above the 50.0 value that separates expansion from contraction in the tech sector. However, the index was down from 59.7 at the end of Q2 and signalled the slowest rate of activity growth since mid-2013.

Looking at 2014-to-date, the average index reading (59.2) highlights that tech growth has outperformed the UK-wide benchmark for private sector output (58.4).

As a result of the rapid start to 2014 and sustained growth through this summer, the tech sector looks on course to register its strongest calendar year of expansion since at least 2007.

Survey respondents highlighted supportive domestic economic conditions, improving access to funding and greater business investment spending as key factors boosting business activity during the third quarter of 2014.



Tech sector sales growth remains strong

Latest survey data indicated a further strong increase in new contract wins across the UK tech sector. At 58.0, the index measuring new business volumes was well above the neutral 50.0 value and much stronger than its long-run average (53.6).

The latest reading was down from 60.4 at the end of Q2 2014, which signalled a moderate slowdown in the rate of new business growth over the summer.

Nonetheless, higher levels of new business have now been recorded at UK tech companies for just over two years, which is the longest period of continuous expansion since the onset of the global financial crisis in 2007/08.

Reports from survey respondents highlighted stronger demand from domestic clients, alongside new business gains from international markets during the third quarter of 2014.



Tech PMI Business Activity Index, 50 = no change



— Tech Companies

55.6
Business Activity Index posted Q3 2014

60.0

50.0 neutral mark

Tech PMI New Orders Index, 50 = no change



— Tech Companies

40.0

Tudor Aw, Head of Technology at KPMG, commented:

UK tech companies have had yet another strong quarter but worryingly, the rate of expansion has slowed which may reflect wider macro economic and political issues.

Source: Markit/KPMG.

*Index numbers vary between 0 and 100, with levels of 50 signalling no-change from the previous month. Readings above 50 signal an increase since the previous month, whilst postings below 50 indicate a decrease. The greater the divergence from 50, the greater the rate of change signalled by the reading.

Methodology notes can be found on page 32.

Tech growth: Cost pressures remain muted, but profitability softens in Q3

TECH GROWTH



Tech sector demand patterns cont...

A number of tech companies noted that successful marketing and promotional initiatives had boosted sales over the summer. Moreover, some firms cited stronger spending patterns among public sector clients, particularly the education sector.

The latest survey highlighted a renewed rise in volumes of outstanding business across the tech sector at the end of Q3 2014. At 52.1, up from 47.6 in Q2, the index measuring work-in-hand (but not yet completed) signalled a moderate accumulation of unfinished business.

Anecdotal evidence suggested that increased pipelines of work outstanding reflected new product development and strong underlying client demand. Some companies noted that staff recruitment delays had contributed to a build-up of outstanding business during the latest survey period.

Average prices charged fall for first time in 2014 to date

UK tech companies indicated relatively subdued cost pressures at the end of the third quarter. The index measuring overall cost burdens posted 54.7, up only slightly from 54.4 in Q2 and still well below the long-run series average (57.0).

Source: Markit/KPMG.

*Index numbers vary between 0 and 100, with levels of 50 signalling no-change from the previous month. Readings above 50 signal an increase since the previous month, whilst postings below 50 indicate a decrease. The greater the divergence from 50, the greater the rate of change signalled by the reading.

Methodology notes can be found on page 32.

Survey respondents that reported a rise in input costs mainly cited higher salary payments. There were also some reports that increased office rental bills had pushed up overall costs.

Meanwhile, average prices charged by tech companies fell marginally at the end of Q3, which they largely linked to strong competition for new work, discounting strategies and muted cost inflation. At 49.8, the index was below the 50.0 no-change value for the first time in 2014 so far.

Weakest profitability rise since mid-2013

The index measuring profitability at UK tech companies posted 52.2 in Q3, down from 55.0 in Q2, to signal a much slower improvement in profitability across the sector. Moreover, the latest increase in profitability was the slowest for just over a year. However, a number of firms reported confidence that ongoing investment spending and new product initiatives will boost profitability over the long-term.

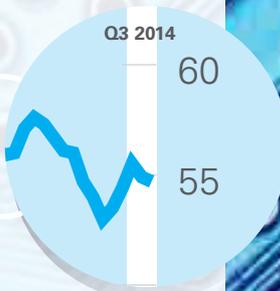


Tech PMI Backlogs of Work Index, 50 = no change



— Tech Companies

Tech PMI Input Price Index, 50 = no change



— Tech Companies

Tech PMI Profitability Index, 50 = no change



— Tech Companies

Employment trends: Stronger expansion of tech sector payroll numbers

EMPLOYMENT TRENDS

In this section of Tech Monitor UK we compare tech sector employment trends against equivalent indices from Markit's UK Purchasing Managers' Index® (PMI®) surveys, providing a timely barometer of tech hiring patterns in the context of overall UK private sector labour market developments.

The main findings for Q3 2014* are:

KPMG/Markit Tech Monitor UK data indicated that employment at tech companies continued to rise in the third quarter of 2014. Staffing levels expanded at a sharper rate than in the second quarter, although growth remained below that seen in the opening three months of the year.

The index measuring UK tech sector employment posted 54.5 in Q3, up from 52.3 in Q2. The latest reading pointed to a solid rate of job creation, albeit slower than that recorded across the UK private sector as a whole. The respective index for the UK averaged 54.9 in Q3.

Although remaining robust, the average rate of employment growth in the tech sector has been slightly slower than the trend across the wider UK economy so far in 2014. This reflects a marked acceleration in the latter, as companies have stepped up recruitment in response to improvements in

the general economic climate. It follows a prolonged period of UK companies keeping a tight rein on headcounts – PMI data signal only modest increases in private sector employment between 2010 and 2013.

In contrast, employment growth in the tech sector was consistently solid over this period. Tech firms also made smaller cutbacks to staffing levels in the 2008/9 downturn than their peers across the wider UK economy.

Tech companies therefore seem to have been better-placed to absorb the upswing in activity this year within existing capacity, without having to ramp up staff recruitment to the extent seen across the UK private sector economy at large.

Anecdotal evidence suggested that tech sector employment growth during Q3 continued to be underpinned by company expansion programmes and new product development initiatives.

Additionally, there were reports of sales teams being expanded to capitalise on positive demand prospects, while other respondents were looking to expand production capabilities in anticipation of new contract wins in coming months.

Comparison with UK-wide trend, and company size breakdown

Tech Monitor UK data indicates that small tech sector firms (those that employ fewer than 50 people) added to their staffing levels at a solid pace during Q3.

The index measuring employment at small tech companies came in at 54.1, up sharply from 51.0 in Q2. The latest figure pointed to a rate of employment growth that was only marginally slower than for all tech companies in Q3.

Source: Markit/KPMG.

*Index numbers vary between 0 and 100, with levels of 50 signalling no-change from the previous month. Readings above 50 signal an increase since the previous month, whilst postings below 50 indicate a decrease. The greater the divergence from 50, the greater the rate of change signalled by the reading.

Methodology notes can be found on page 32.



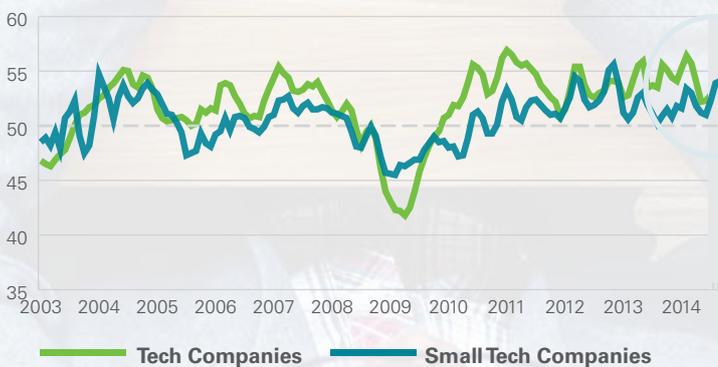
PMI Employment Index, 50 = no change



Tudor comments:

It is noteworthy that the UK Tech sector's recovery since the financial crisis has been accompanied by job creation, thereby bucking the wider jobless economic recovery we have seen in other sectors.

PMI Employment Index, 50 = no change



Economic context: Tech sector remains key engine of global growth in Q3

ECONOMIC CONTEXT

This section examines recent economic developments and how they relate to UK tech sector business conditions.

Global Sector PMI

Business Activity/Output Index, sa, 50.0 = no change, 2014 Q3 Average



Key

- FN Financials
- TK Technology
- ID Industrials
- HC Healthcare
- CG Consumer Goods
- CS Consumer Services
- BM Basic Materials
- TL Telecommunication Services

At the end of Q3 2014, the NASDAQ was up by around **7.6%** from the start of 2014

UK tech business activity mapped against UK GDP

Tech PMI, 50 = no change

UK GDP, q/q % change



UK tech business activity mapped against the NASDAQ

Tech PMI, 50 = no change

NASDAQ yoy % change



Sources:

Global Composite PMI™ and Global Sector PMI™ data sourced from JPMorgan and Markit, 'Technology' sector includes Technology Equipment and Software & Services.

UK GDP data sourced from the Office for National Statistics. At the time of writing, figures were available up to Q2 2014.

Stock market data sourced from Reuters EcoWin.



The main findings for Q3 2014 are:

The UK economy looks to have experienced another solid expansion through the summer of 2014, although latest survey data showed some signs of easing in the manufacturing sector amid headwinds to export sales. Nonetheless, there have been recent upward revisions to UK GDP, and IMF forecasts place the UK on course to rank as the fastest growing G7 nation in 2014. Together this is feeding a perception that the UK economy is performing more strongly than at any other time since the financial crisis.

Improving domestic economic fundamentals should support growth momentum in coming months, with unemployment at a six-year low and inflationary pressures remaining relatively weak. Meanwhile, resilient confidence towards the business outlook has also helped to boost spending and investment, notwithstanding some short-term worries about euro area growth and wider geopolitical tensions.

Developed world leads growth rankings

The Global Composite PMI™ posted 54.9 at the end of Q3, to signal a solid expansion of worldwide economic activity. The developed

world continued to enjoy stronger momentum than the emerging economies, led by the US and UK, while growth in the 'BRIC' countries remained only modest relative to post-crisis trends.

Technology sector is key global growth driver

The latest Global Sector PMI™ data, which provides an insight into worldwide industry performance, showed that technology companies remain a crucial source of growth for the wider global economic recovery. This was highlighted by the Global Technology Sector Output Index averaging 57.0 in Q3 2014, which indicated a sharp rate of expansion that was only exceeded by one other broad sector (Financials).

Equity markets

At the end of the third quarter, the NASDAQ composite index, the benchmark for US technology stocks, was up by approximately 7.6% since the start of 2014, buoyed by improving business conditions across the tech sector. However, the NASDAQ has since edged down at the start of the Q4, with some analysts citing a fall in investors' risk appetite amid concerns of an easing in the pace of global growth in 2015.

Tech outlook: Tech companies expect to outperform wider UK private sector

TECH OUTLOOK

This section contains analysis of UK tech firms' business expectations for 2015, derived from Markit's UK Purchasing Managers' Index® (PMI®) surveys.

Tech firms' business opportunities:

- "Improving products. Larger market size and share."
- "UK ventures opening up."
- "New business wins will ramp up over next 6-9 months, economy seems to be improving."
- "Confidence is continuing to grow."
- "New products in development. New acquisition in Germany leading to product transfer to UK."
- "Investments being made into the business, which in turn is expected to drive higher revenues."
- "New website will increase sales."
- "Larger export order demand for new product."
- "New product launches in Q3 should positively impact on Q4 sales."
- "More customers are looking to change suppliers."

The main findings for Q3 2014 are:

UK tech companies retain an upbeat outlook for business activity over the next 12 months. Growth of activity is expected by a net balance of +54.3% of tech firms, signalling a strong degree of confidence.

Business expansion strategies, new product developments and entry into new markets are the main reasons underpinning confidence among tech firms, according to the latest anecdotal evidence.

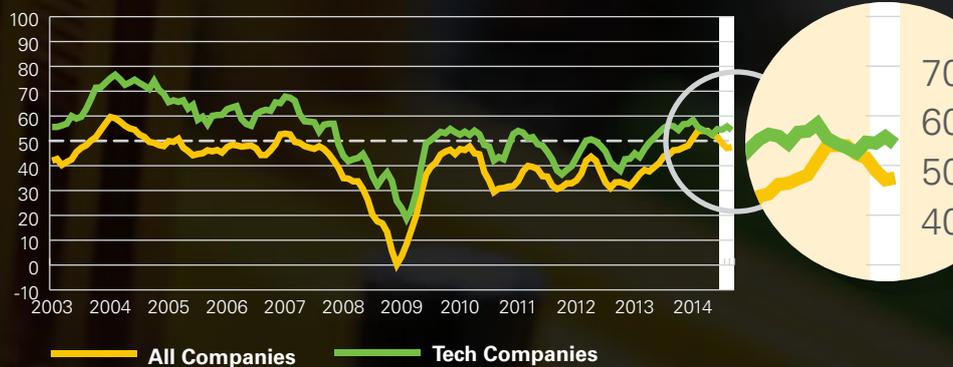
Improving conditions in the wider economy were also reported to have led companies to upwardly revise their forecasts.

Tech firms are more positive than their counterparts across all UK industry sectors. This is highlighted by the UK-wide net balance posting +47.5%.

The tech sector has generally recorded stronger confidence regarding future activity than the UK average since the series began in 2003.



Business activity expectations, net balance %



Tudor comments:

It is encouraging that despite the recent slowdown in the rate of growth, Tech business leaders remain confident in their outlook for the year ahead.

Growth threats reported by tech companies:

- “ New product investment required.”*
- “ Increased competition in marketplace.”*
- “ Completing a large project and gap as we replace that business with a number of smaller new sales building up a partner network.”*
- “ Client moving to alternative strategy for services we currently provide.”*

Source: Markit/KPMG.

* Methodology notes can be found on page 32.

Special feature: Mapping tech enterprise clusters across UK regions and local authorities

SPECIAL FEATURE

In this section, we estimate the areas within the UK that have the largest local footprint of tech companies. The Office for National Statistics publishes business enterprises counts by local authority and standard industrial code in the UK, and we have used this raw data to provide the location quotient figures and analysis contained in the remainder of this section.

Location quotients are ratios derived by comparing the concentration of business enterprises in local authorities with the national share of enterprises in the same industry. We have estimated 'tech sector' location ratios for the 380 local authorities in Great Britain (see methodology section for full details). Local authorities across Great Britain are ranked according to their relative concentration of tech sector enterprises, with the results illustrated in the map below and tables that follow. Any location quotient above 1 signals a greater than average concentration of tech companies in a local area.

About the research

The research is intended to provide an in-depth geographical snapshot of technology sector enterprise clusters across the UK.

The research maps the geographical footprint of the UK technology sector on a Local Authority basis, by applying Markit's analysis to the latest available Office for National Statistics (ONS) data for local business counts.

Data sources and concept

The Inter-Departmental Business Register (IDBR), produced by the Office for National Statistics (ONS), is the underlying data source for technology cluster information. Introduced in 1994, the IDBR is the comprehensive list of UK businesses that is used by government for statistical purposes.

IDBR provides the main sampling frame for surveys of businesses carried out by the ONS and by other government departments. It is also a key data source for analyses of business activity. The IDBR covers over 2.1 million businesses in all sectors of the UK economy, other than some very small businesses (those without employees, and with turnover below the tax threshold) and some non-profit making organisations.

This analysis uses the 'enterprise counts' method, with 2013 data the most up-to-date vintage available. An Enterprise can be defined as the smallest combination of legal units (generally based on VAT and/or PAYE records) that is an organisational unit producing goods or services, which benefits from a certain degree of autonomy in decision-making, especially for the allocation of its

current resources. An enterprise carries out one or more activities at one or more locations. An enterprise may be a sole legal unit.

Applying our own analysis and definition of UK tech sector standard industrial codes (SICs), we estimate the technology enterprise footprint for the 380 local authorities in Great Britain.

A full explanation of the methodology is provided on page 32, which outlines how Markit Economics used official data and proprietary information to produce the research that follows.

This work contains statistical data from ONS which is Crown Copyright. The use of the ONS statistical data in this work does not imply the endorsement of the ONS in relation to the interpretation or analysis of the statistical data.



Reading has the highest concentration of tech enterprises in the local business population, followed by neighbouring **Wokingham** and **Slough** in the Thames Valley

The proportion of tech enterprises in Reading is **three times the UK average**

The top five tech enterprise clusters are all along the **M4 corridor**

London is the highest ranking UK region for the proportion of tech enterprises

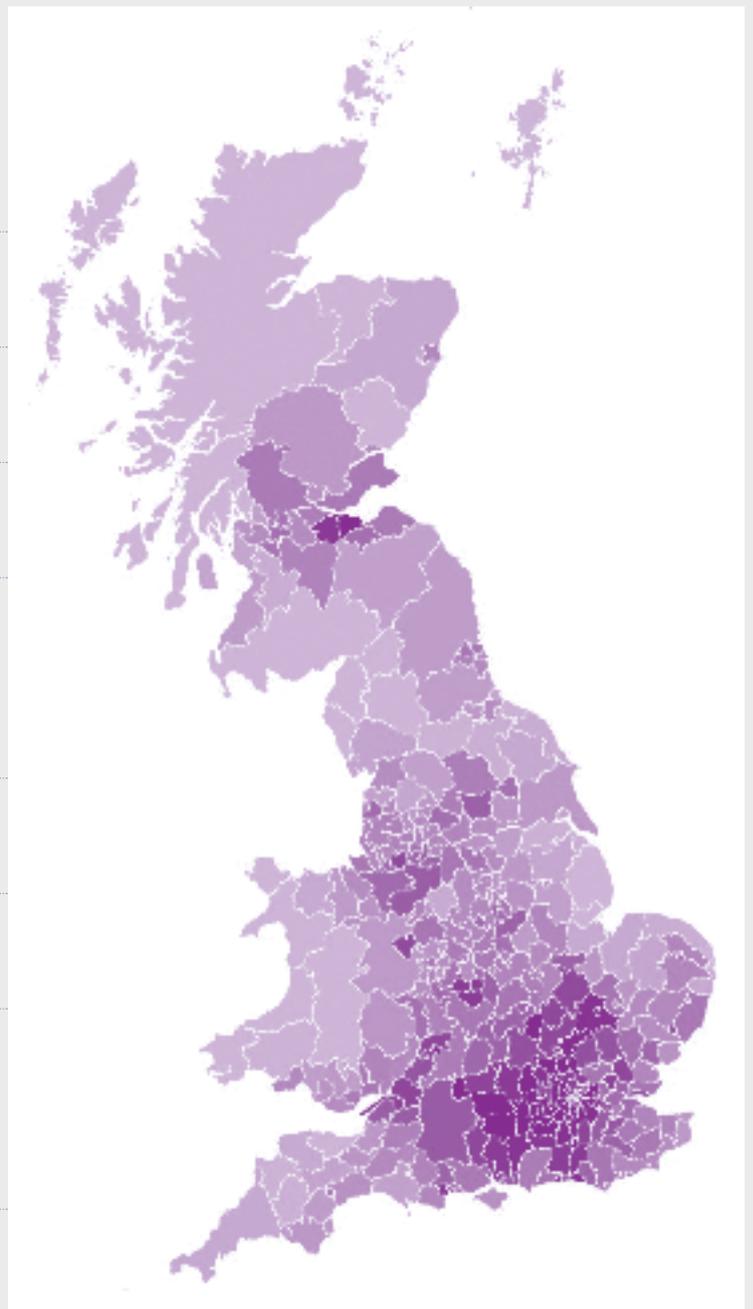
Tower Hamlets is the highest ranking area within Inner London, while **Hounslow** is the highest ranking for concentration of tech enterprises in Outer London

London scores highest for **micro and small tech enterprises**

The South East has the greatest proportion of **larger tech companies** (50 employees+)

Cambridge has the largest concentration of tech enterprises outside of London and the South East, followed by **Swindon**, while **Edinburgh** scores highest outside of the south

Nine out of eleven UK regions have at least one local cluster of tech enterprises exceeding the national average



Where are the technology clusters across the UK?

Key findings:

- Reading is the number one local authority tech cluster in the UK (almost one-in-five enterprises are tech firms)
- The proportion of tech enterprises in Reading is three times the national average
- The M4 corridor is the lifeblood of tech sector enterprise concentration, especially for larger firms
- London is the highest ranking region overall, with 88% of its local authorities exceeding the UK average
- London's top ranking is driven by its concentration of micro and small tech enterprises
- Tower Hamlets has the highest concentration of tech enterprises in Inner London
- Hounslow has the greatest concentration of tech enterprises in Outer London
- Cambridge and Milton Keynes are the highest ranked areas outside of London and the M4/M3 corridors

Heatmap of tech enterprise clusters, by local authority

The ten local authorities with the highest proportion of tech enterprises are all in London and the South East of England.

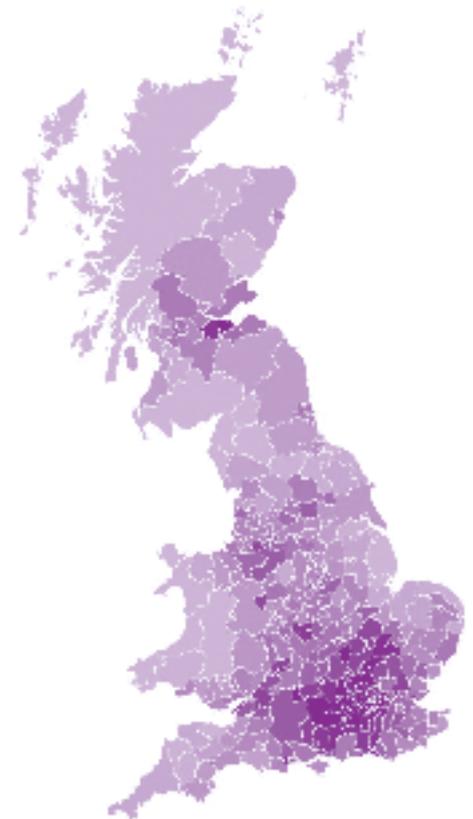
Overall, 134 local authorities (out of a total of 380) recorded a quotient greater than one, which signals a greater than average concentration of tech companies in the local business population.

The **top 15** ranked local authorities all host more than twice the national proportion of tech sector companies. The greatest concentration of tech clusters is along the M4 motorway corridor, stretching from Hounslow in London, through Slough, Bracknell Forest, Wokingham and top-ranked Reading in Berkshire.

In **London**, 29 out of 33 local authorities have a higher proportion of tech enterprises in the local business population than the national average.

The concentration of tech companies in the **South East** is greater than the national average in 48 of 67 local authorities. Eight of these areas have at least twice the UK proportion of tech firms (Reading, Wokingham, Slough, Bracknell Forest, Milton Keynes, Hart, Woking, and Basingstoke and Deane).

Cambridge is the highest ranking area in the East of England, while Broxtowe is the highest in the East Midlands, Newcastle upon Tyne in the North East, Warrington in the North West, Edinburgh in Scotland, Swindon in the South West, Newport in Wales, Coventry in the West Midlands, and Leeds is top in Yorkshire and Humber.



LOWEST – 0.00 → HIGHEST – 2.99

Local authority location quotient

Regional Comparison

Heatmaps are used to illustrate national trends in tech enterprise concentration in the following sections. The darker the colour, the more tech enterprises there are in that region relative to the national proportion of tech enterprises (i.e. the greater the location quotient). The key in each graph outlines the lowest to highest concentration of tech enterprises through colour-coded location quotients.

The highest overall tech location quotient was recorded in London, closely followed by the South East. In each case, the overall proportion of tech enterprises is almost one-and-a-half times the national proportion.

Only London, the South East and the East of England have a higher proportion of tech enterprises than the UK average. However, outside of these three regions, there are still 33 local authorities with a greater than average cluster of tech sector enterprises, led by Swindon (LQ = 2.08) and Cheltenham in the South West (LQ = 1.69) and Edinburgh in Scotland (LQ = 1.67).

At the other end of the spectrum, Northern Ireland recorded the lowest regional location quotient, followed by Wales and the North East, indicating that the tech sector is responsible for a substantially lower proportion of private sector businesses in these regions than the UK average.

Footprint of tech sector enterprises by region

Regional Tech Enterprise Location Quotient rankings		
Ranking	Region	Tech Location Quotient
1	London	1.44
2	South East	1.42
3	East of England	1.10
4	South West	0.89
5	West Midlands	0.83
6	North West	0.79
7	East Midlands	0.76
8	Scotland	0.72
9	Yorkshire and Humber	0.71
10	North East	0.61
11	Wales	0.52
12	Northern Ireland	0.26

Source: Markit estimates, based on ONS data



LOWEST – 0.52 → HIGHEST – 1.44

Local authority location quotient

SPECIAL FEATURE

Regional Comparison: Larger tech companies

A location quotient calculated from counts of all local businesses in an individual sector represents something of an egalitarian approach, since micro companies carry the same weight in the calculation as large businesses in the area. This approach helps highlight the breadth of tech sector concentration, since it illuminates areas with the greatest pool of tech enterprises of all sizes (i.e. one larger employer will not by itself lead to a high enterprise location quotient). On this overall ranking, London narrowly pips the South East to the top spot, and the vast majority of its local authorities are shown to host clusters of tech companies, from Hounslow in West London, to the areas in and around Tech City in Inner East London.

However, if we look at a map of only larger tech sector business (50+ employees), which make up a relatively small proportion of the business population in purely numerical terms, the concentration is greatest in the South East, rather than London. Indeed, the South East is the only region that strongly outperforms the UK-wide benchmark for larger tech companies in the local business population.

There are perhaps two core reasons for the South East's top ranking on this measure; firstly the South East benefits from an abundance of office space in business parks connected to key transport links, which serve as attractive features for larger tech companies. Secondly, since there is already a diverse

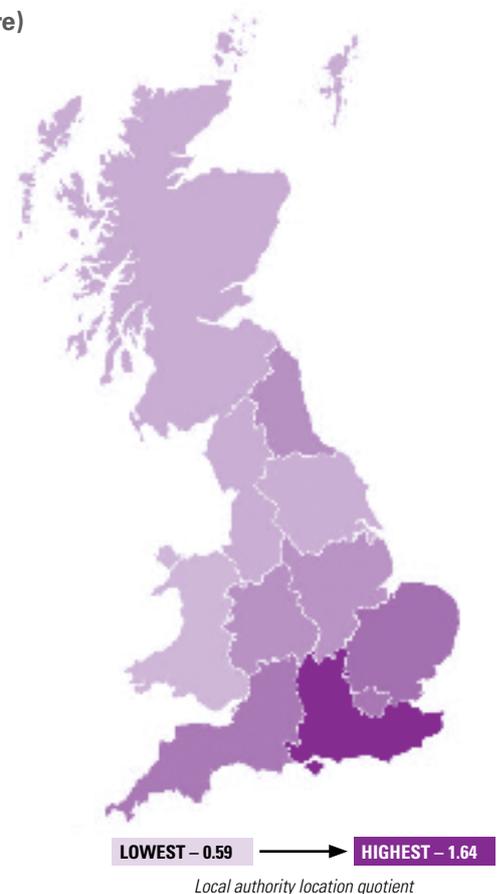
array of large companies from non-tech sectors located in the capital (e.g. financial services, insurance, international HQs), this naturally dampens the concentration of large tech companies within this part of the business population in London.

Notwithstanding this statistical effect, our results highlight that the capital is arguably succeeding best in attracting and sustaining micro and start-up tech sector businesses. Meanwhile, the South East is at the forefront when it comes to larger tech businesses and, moreover, some pockets within the region such as Reading and the wider Thames Valley managing to both attract large tech companies, and sustain a vibrant mix of tech sector firms of all sizes.

Footprint of larger tech sector enterprises by region (50 employees or more)

Regional Tech Enterprise Location Quotient Rankings		
Ranking	Region	Tech Location Quotient
1	South East	1.64
2	East of England	1.08
3	London	1.02
4	South West	1.01
5	North East	0.83
6	West Midlands	0.82
7	East Midlands	0.80
8	Scotland	0.65
9	North West	0.64
10	Yorkshire and Humber	0.63
11	Wales	0.59
12	Northern Ireland	0.53

Source: Markit estimates, based on ONS data



Tech clusters in Reading and the wider Thames Valley

All of the top five local authorities with the highest concentration of tech enterprises are located in striking distance of the M4 motorway, representing a corridor of tech clusters from Reading and Wokingham in Berkshire to Hounslow in West London, with Slough and Bracknell Forrest in between. This footprint of tech businesses concentrated within the Thames Valley and beyond includes both major multinationals and a host of smaller tech companies. The top ranked local authorities all offer thriving tech ecosystems, targeted support for small tech enterprises as well as plentiful office space at purpose-built business parks for large multinational technology firms.

Looking at the infrastructure advantages, the top ranking tech clusters lie within close distance

of Heathrow Airport, as well as major motorway routes in the South East, and all enjoy reasonably quick railway links into central London. Many of these areas will also be served by Crossrail upon completion in 2018/19. Reading has arguably been one of the largest recipients of railway infrastructure funding outside of London in recent years, and the town is also set to further benefit from faster connections from rail electrification on the Great Western mainline. There is now a host of new office development underway in the redeveloped station area and a revived proposal for a railway station to serve Green Park business park to the south of the town.

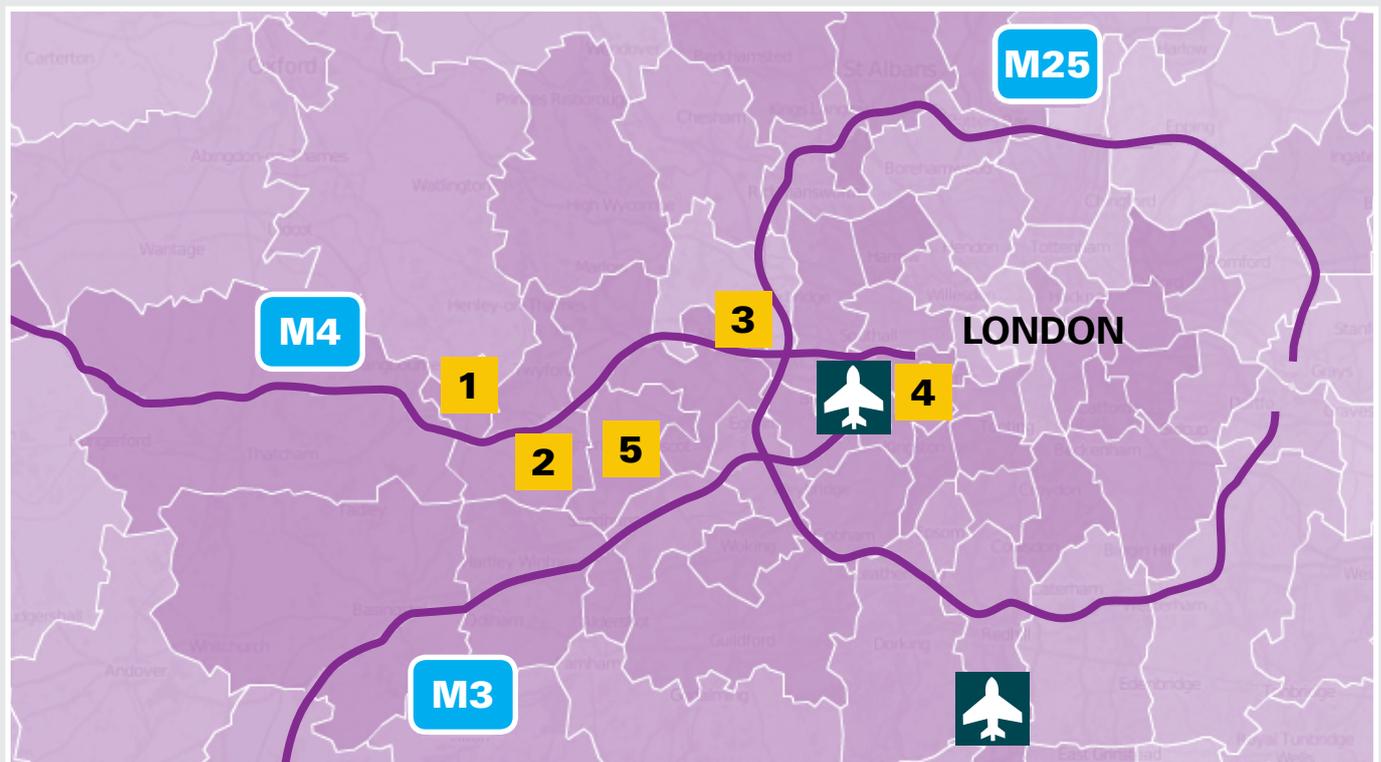
Indeed, perhaps one of the core factors pushing Reading to the top of the tech cluster ranking is the

thriving and expanding Green Park business park, which continues to sustain and boost the local STEM skills base. Major U.S. multinationals such as Cisco Systems, Nvidia, Symantec and Texas Instruments are among the companies located there.

Wokingham, which neighbours Reading to the south east, is the second-highest ranked local authority for tech enterprise concentration, and is also home to a number of large multinational tech firms. Thames Valley Business Park and Suttons Business are located close to the Wokingham district / Reading local authority boundary line and M4 motorway, with these purpose built business parks attracting large companies such as Fujitsu, Microsoft and Oracle, as well as a range of smaller tech sector businesses.

Heatmap of leading tech enterprise location quotients in the South East

(Top 5 local authorities highlighted in yellow.)



SPECIAL FEATURE

Top 15 Local Authority Tech Quotient Rankings (see appendix for Top 25)

Top 15 Local Authority Tech Quotient Rankings				
Ranking	Region	Local Authority	Tech Location Quotient ¹	Previous
1	South East	Reading	2.99	(2.99)
2	South East	Wokingham	2.73	(2.72)
3	South East	Slough	2.62	(2.42)
4	London (O)	Hounslow	2.53	(2.45)
5	South East	Bracknell Forest	2.41	(2.43)
6	South East	Milton Keynes	2.41	(2.28)
7	London (O)	Redbridge	2.34	(2.29)
8	South East	Hart	2.27	(2.23)
9	South East	Woking	2.27	(2.23)
10	South East	Basingstoke and Deane	2.18	(2.17)
11	East of Eng	Cambridge	2.15	(2.05)
12	London (I)	Tower Hamlets	2.12	(2.14)
13	London (O)	Kingston upon Thames	2.10	(2.01)
14	London (O)	Harrow	2.09	(2.02)
15	South West	Swindon	2.08	(1.94)

Source: ¹Markit estimates, based on latest available ONS data (previous year figure and rank in brackets).

A closer look at Inner London

The vast majority of London boroughs have a higher concentration of tech sector enterprises than the UK-wide average, with only Havering, Kensington & Chelsea, Westminster and the City of London having a lower proportion than the national figure. There are also five London boroughs with more than twice the UK-wide footprint of tech sector enterprises, with several of these in the large and diverse Outer London business population.

Despite its strong industrial specialisation in areas such as finance, insurance and media activities, the Inner London boroughs still rank highly in terms of tech sector enterprises, especially towards the east. A relatively strong location quotient of 1.27 in Hammersmith and Fulham is the main exception to the overall eastward trend for tech sector clusters in central London.

Within Inner London, Tower Hamlets scores the greatest location quotient for tech sector enterprises (2.12). The original 'Tech City' area around Old Street Roundabout, which straddles the London boroughs of Hackney and Islington, also helped boost the overall location quotient for tech sector enterprises in Inner London East (1.58). Meanwhile, for Inner London West, the tech sector location quotient is a comparatively lowly 0.97, which highlights a proportion of tech enterprises broadly on par with the UK as a whole.

In addition to the East-West divergence in Inner London, the results highlight that tech enterprise clusters are far from confined to the core 'Tech City' ecosystem in East London, but instead have spilled over to neighbouring boroughs, driven by the proximity but lower office rents available.

Inner London footprint of tech sector enterprises

Regional Tech Enterprise Location Quotient Rankings		
Ranking	Region	Tech Location Quotient
Inner London – East		1.58
1	London (All)	1.44
2	South East	1.42
3	East	1.10
Inner London – West		0.97
4	South West	0.89
5	West Midlands	0.83
6	North West	0.79
7	East Midlands	0.76
8	Scotland	0.72
9	Yorkshire and Humber	0.71
12	North East	0.61
11	Wales	0.52
12	Northern Ireland	0.26

Source: Markit estimates, based on ONS data

SPECIAL FEATURE

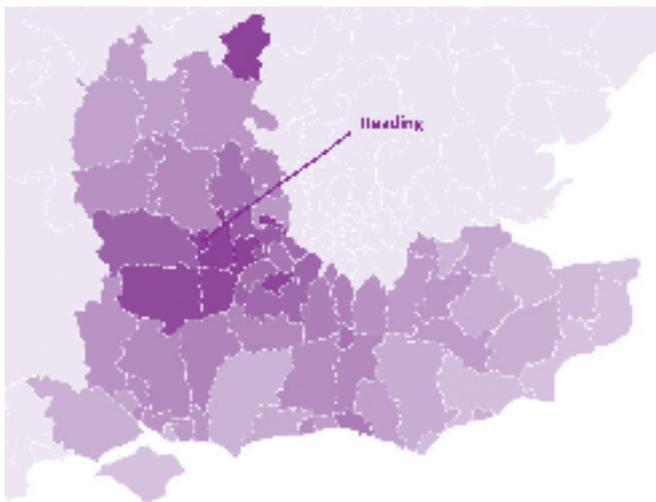
Full Local Authority breakdown

The following heatmaps illustrate the distribution of tech enterprises within each of the eleven Great Britain regions by local authority. The regions are ranked by their proportion of tech firms in the local business population relative to the national average (ranked from highest to lowest).

Each heatmap is accompanied by a table which outlines the top five ranking local authorities in each region based on its relative proportion of tech enterprises (tech quotient). To give additional perspective, the tables also feature the total number of private sector enterprises across all industries in each of the local authorities (based on 2013 IDBR data).

Local concentration of tech sector enterprises

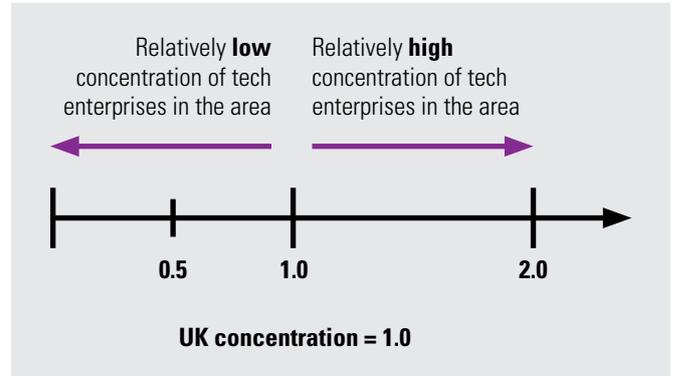
South East



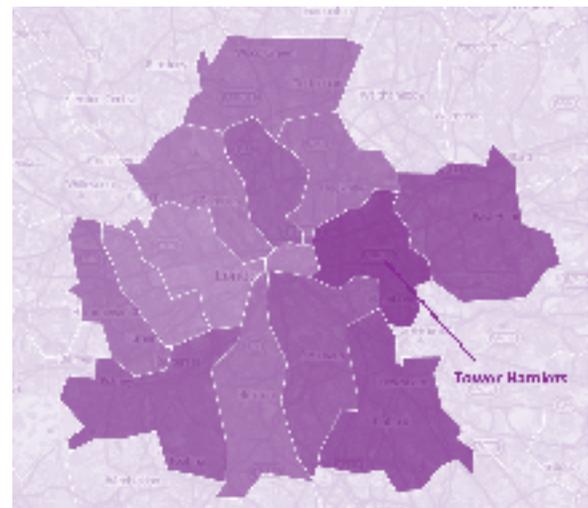
LOWEST – 0.53 → HIGHEST – 2.99

Local authority location quotient

Interpreting UK location quotients for tech enterprises



Inner London



LOWEST – 0.75 → HIGHEST – 2.12

Local authority location quotient

South East: Local Authority rankings

Tech Location Quotient ¹	Local Authority	Total private enterprises ² (all sectors)
2.99	Reading	6,000 (+1.8%)
2.73	Wokingham	7,000 (+1.6%)
2.62	Slough	4,000 (+5.8%)
2.41	Bracknell Forest	4,000 (+0.1%)
2.41	Milton Keynes	9,000 (+3.3%)

Sources:

¹ Markit estimates, based on ONS data

² Inter Departmental Business Register (ONS). Per cent change vs one year ago. Absolute numbers rounded to nearest 1,000.

Inner London: Local Authority rankings

Tech Location Quotient ¹	Local Authority	Total private enterprises ² (all sectors)
2.12	Tower Hamlets	11,000 (+5.5%)
1.84	Lewisham	7,000 (+2.0%)
1.75	Newham	6,000 (+4.2%)
1.66	Southwark	12,000 (-2.9%)
1.63	Wandsworth	14,000 (+0.6%)

Sources:

¹ Markit estimates, based on ONS data

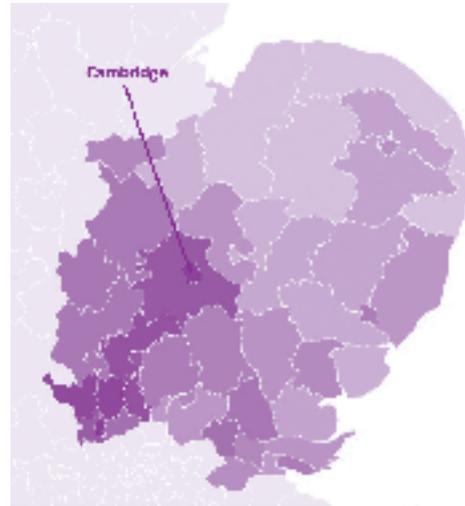
² Inter Departmental Business Register (ONS). Per cent change vs one year ago. Absolute numbers rounded to nearest 1,000.

Outer London



LOWEST – 0.96 → HIGHEST – 2.53
Local authority location quotient

East of England



LOWEST – 0.31 → HIGHEST – 2.15
Local authority location quotient

Outer London: Local Authority rankings		
Tech Location Quotient ¹	Local Authority	Total private enterprises ² (all sectors)
2.53	Hounslow	10,000 (4.7%)
2.34	Redbridge	9,000 (4.6%)
2.10	Kingston upon Thames	7,000 (+0.9%)
2.09	Harrow	10,000 (+4.0%)
1.88	Greenwich	6,000 (+3.6%)

Sources:

¹ Markit estimates, based on ONS data

² Inter Departmental Business Register (ONS). Per cent change vs one year ago. Absolute numbers rounded to nearest 1,000.

East of England: Local Authority rankings		
Tech Location Quotient ¹	Local Authority	Total private enterprises ² (all sectors)
2.15	Cambridge	4,000 (+1.1%)
1.94	Watford	3,000 (+3.9%)
1.76	St Albans	7,000 (+0.9%)
1.72	Dacorum	7,000 (0.5%)
1.62	North Herts	6,000 (-0.3%)

Sources:

¹ Markit estimates, based on ONS data

² Inter Departmental Business Register (ONS). Per cent change vs one year ago. Absolute numbers rounded to nearest 1,000.

SPECIAL FEATURE

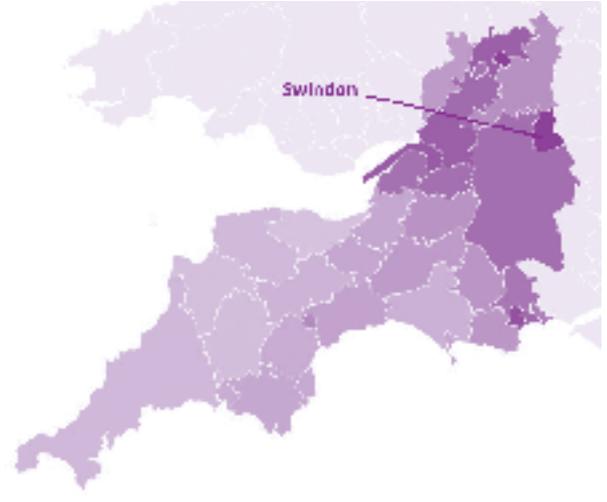
West Midlands



LOWEST – 0.37 → HIGHEST – 1.38

Local authority location quotient

South West



LOWEST – 0.00 → HIGHEST – 2.08

Local authority location quotient

West Midlands: Local Authority rankings

Tech Location Quotient ¹	Local Authority	Total private enterprises ² (all sectors)
1.38	Coventry	7,000 (+1.0%)
1.36	Solihull	7,000 (+0.5%)
1.36	Warwick	6,000 (0.0%)
1.22	Telford and Wrekin	4,000 (-0.8%)
1.07	Rugby	4,000 (+1.9%)

Sources:

¹ Markit estimates, based on ONS data

² Inter Departmental Business Register (ONS). Per cent change vs one year ago. Absolute numbers rounded to nearest 1,000.

South West: Local Authority rankings

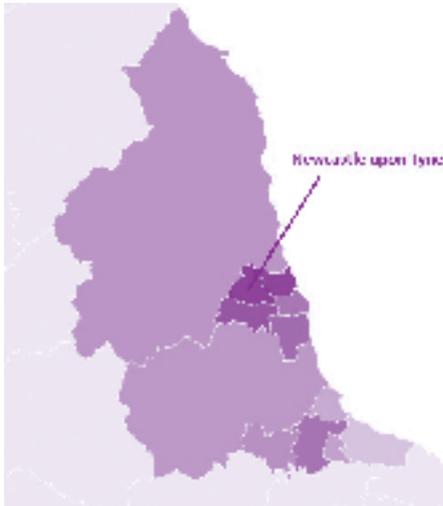
Tech Location Quotient ¹	Local Authority	Total private enterprises ² (all sectors)
2.08	Swindon	6,000 (+2.6%)
1.69	Cheltenham	5,000 (+1.9%)
1.39	Poole	5,000 (-0.7%)
1.30	Bristol	14,000 (+2.2%)
1.26	South Gloucestershire	8,000 (+0.8%)

Sources:

¹ Markit estimates, based on ONS data

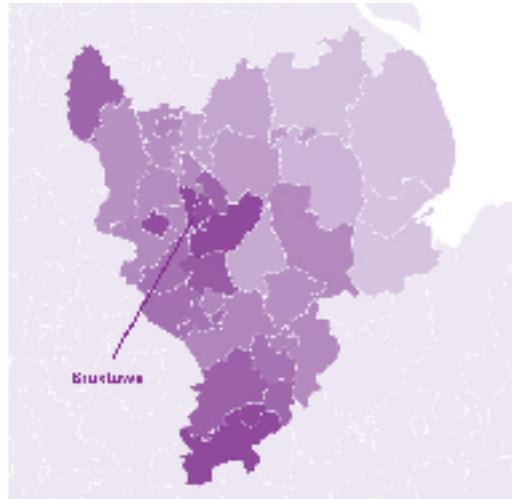
² Inter Departmental Business Register (ONS). Per cent change vs one year ago. Absolute numbers rounded to nearest 1,000.

North East



LOWEST - 0.32 → HIGHEST - 0.87
Local authority location quotient

East Midlands



LOWEST - 0.25 → HIGHEST - 1.09
Local authority location quotient

North East: Local Authority rankings

Tech Location Quotient ¹	Local Authority	Total private enterprises ² (all sectors)
0.87	Newcastle upon Tyne	6,000 (+0.2%)
0.84	North Tyneside	4,000 (+1.0%)
0.74	Gateshead	4,000 (-0.5%)
0.66	Sunderland	4,000 (-1.0%)
0.64	Stockton-on-Tees	4,000 (+1.4%)

Sources:

¹ Markit estimates, based on ONS data

² Inter Departmental Business Register (ONS). Per cent change vs one year ago. Absolute numbers rounded to nearest 1,000.

East Midlands: Local Authority rankings

Tech Location Quotient ¹	Local Authority	Total private enterprises ² (all sectors)
1.09	Broxtowe	3,000 (0.0%)
1.08	Rushcliffe	4,000 (-0.4%)
1.07	South Northants	5,000 (+0.7%)
1.06	Northampton	6,000 (+3.9%)
1.01	Derby	6,000 (+0.3%)

Sources:

¹ Markit estimates, based on ONS data

² Inter Departmental Business Register (ONS). Per cent change vs one year ago. Absolute numbers rounded to nearest 1,000.

SPECIAL FEATURE

North West



LOWEST – 0.16 → HIGHEST – 1.23

Local authority location quotient

Wales



LOWEST – 0.22 → HIGHEST – 0.85

Local authority location quotient

North West: Local Authority rankings

Tech Location Quotient ¹	Local Authority	Total private enterprises ² (all sectors)
1.23	Warrington	6,000 (+2.2%)
1.11	East Cheshire	17,000 (+1.3%)
1.05	Stockport	10,000 (-0.9%)
1.05	Trafford	10,000 (+4.8%)
1.05	Manchester	14,000 (+3.5%)

Sources:

¹ Markit estimates, based on ONS data

² Inter Departmental Business Register (ONS). Per cent change vs one year ago. Absolute numbers rounded to nearest 1,000.

Wales: Local Authority rankings

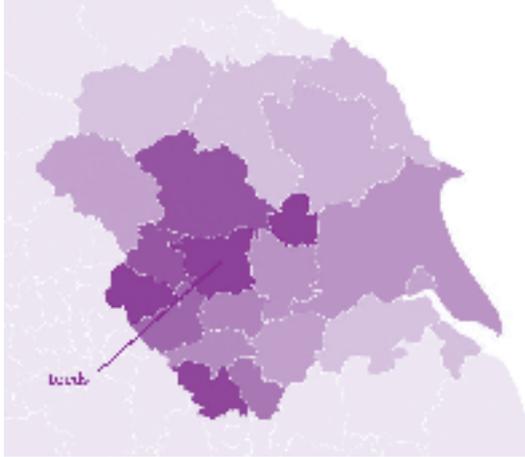
Tech Location Quotient ¹	Local Authority	Total private enterprises ² (all sectors)
0.85	Newport	3,000 (-2.7%)
0.83	Cardiff	9,000 (-0.1%)
0.73	Monmouthshire	4,000 (-1.2%)
0.68	Swansea	5,000 (-0.7%)
0.65	Glamorgan	3,000 (+ 0.1%)

Sources:

¹ Markit estimates, based on ONS data

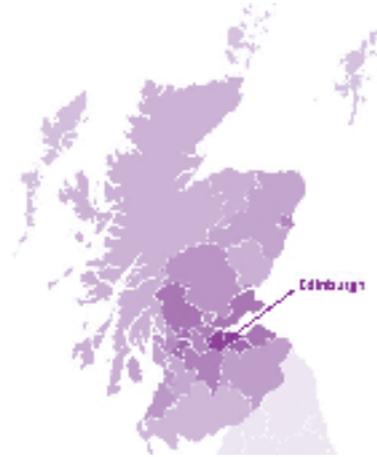
² Inter Departmental Business Register (ONS). Per cent change vs one year ago. Absolute numbers rounded to nearest 1,000.

Yorkshire and Humber



LOWEST – 0.32 → HIGHEST – 1.10
Local authority location quotient

Scotland



LOWEST – 0.12 → HIGHEST – 1.67
Local authority location quotient

Yorkshire and Humber: Local Authority rankings		
Tech Location Quotient ¹	Local Authority	Total private enterprises ² (all sectors)
1.10	Leeds	22,000 (+1.2%)
0.94	Calderdale	7,000 (+0.4%)
0.93	York	6,000 (-4.3%)
0.88	Sheffield	13,000 (-0.1%)
0.79	Harrogate	8,000 (+1.1%)

Sources:

¹ Markit estimates, based on ONS data

² Inter Departmental Business Register (ONS). Per cent change vs one year ago. Absolute numbers rounded to nearest 1,000.

Scotland: Local Authority rankings		
Tech Location Quotient ¹	Local Authority	Total private enterprises ² (all sectors)
1.67	Edinburgh	15,000 (+1.8%)
1.41	West Lothian	4,000 (+1.6%)
0.95	Glasgow	15,000 (-0.3%)
0.94	Midlothian	2,000 (+1.6%)
0.88	E Dunbartonshire	2,000 (-1.2%)

Sources:

¹ Markit estimates, based on ONS data

² Inter Departmental Business Register (ONS). Per cent change vs one year ago. Absolute numbers rounded to nearest 1,000.

Methodology notes

Local authority 'location quotients'

Location quotients are ratios derived by comparing the concentration of industry enterprises in local authorities with the national share of enterprises in the same industry. These figures measure industry specialisation in local areas, and therefore offer a means to identify industry clusters across UK local authorities.

A location quotient is calculated by taking an industry's proportion of local authority private sector enterprises and comparing it with the UK-wide share of private sector enterprises in the industry, as follows:

$$\text{Location quotient} = (Ex,r / Er) / (Ex / E)$$

Where Ex,r is the number of enterprises operating in industry X and region r, Er is the total number of enterprises in region r, Ex is the number of enterprises in industry X across the United Kingdom, and E is the total number of enterprises in the UK.

Calculating a location quotient

Industry 'X' accounts for **6% of all UK enterprises, and 18% of all enterprises in Reading.**

$$\begin{aligned} \text{Location quotient} &= (\text{Local share of Industry 'X' enterprises}) / (\text{UK-wide share of Industry 'X' enterprises}) \\ &= (18\%) / (6\%) \\ &= 3.0 \end{aligned}$$

Reading location quotient for Industry 'X' enterprises is 3.0.

Industry 'X' has three times the business footprint in Reading as it does for the UK as a whole.

Interpreting location quotients for UK local authorities

A location quotient **equal to 1.0** indicates that a local authority's share of industry enterprises **matches the UK-wide trend**.

Location quotients **greater than 1.0** indicate that **industry enterprises are more prevalent** in the local authority's business population than the national share.

A location quotient **below 1.0** indicates that **industry enterprises are less concentrated** in the local authority business population than the UK-wide trend.

Identifying enterprises in the technology industry

Location quotients for industry enterprises within UK local authorities are calculated from an annual snap-shot of the Inter-Departmental Business register, published by the Office for National Statistics (ONS). The latest available figures were compiled in 2013.

The industry sectors measured by the ONS are based on Standard Industrial Classifications (SICs), which categorise business establishments by the type of economic activity in which they are engaged. As there is no 'catch-all' available for the 'technology sector', we have grouped together five of the most relevant industrial areas within the SIC classification system.

While the 'technology sector' can be said to span a number of SIC groupings, we estimate that the following five categories represent an accurate bellwether for the footprint of 'technology enterprises' within UK local authorities.

The 'Technology Sector' industry groups

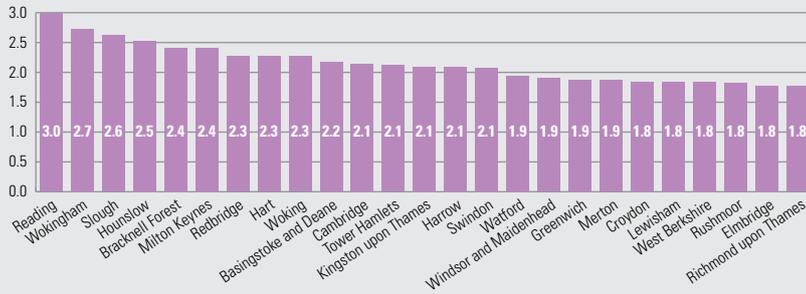
- Software publishing (SIC 582)
- Computer programming, consultancy and related activities (SIC 620)
- Data processing, hosting and related activities; web portals (SIC 631)
- Manufacture of computer, electronic and optical products (SIC 26)
- Manufacture of electrical equipment (SIC 27)

Inter-Departmental Business Register (IDBR)

IDBR provides the main sampling frame for surveys of businesses carried out by the ONS and by other government departments. It is also a key data source for analyses of business activity. The IDBR covers over 2.1 million businesses in all sectors of the UK economy, other than some very small businesses (those without employees, and with turnover below the tax threshold) and some non-profit making organisations. (Source: ONS).

Appendix

Top 25 Local Authority Tech Enterprise Quotients



Source: ¹Markit estimates, based on latest available ONS data

Top 25 Local Authority Tech Quotient Rankings

Ranking	Local Authority	Tech Location Quotient ¹	Previous
1 (1)	Reading	2.99	(2.99)
2 (2)	Wokingham	2.73	(2.72)
3 (5)	Slough	2.62	(2.42)
4 (3)	Hounslow	2.53	(2.45)
5 (4)	Bracknell Forest	2.41	(2.43)
6 (7)	Milton Keynes	2.41	(2.28)
7 (6)	Redbridge	2.34	(2.29)
8 (8)	Hart	2.27	(2.23)
9 (9)	Woking	2.27	(2.23)
10 (10)	Basingstoke and Deane	2.18	(2.17)
11 (12)	Cambridge	2.15	(2.05)
12 (11)	Tower Hamlets	2.12	(2.14)
13 (14)	Kingston upon Thames	2.10	(2.01)
14 (13)	Harrow	2.09	(2.02)
15 (15)	Swindon	2.08	(1.94)
16 (17)	Watford	1.94	(1.88)
17 (16)	Windsor and Maidenhead	1.90	(1.91)
18 (18)	Greenwich	1.88	(1.87)
19 (22)	Merton	1.87	(1.82)
20 (26)	Croydon	1.84	(1.78)
21 (25)	Lewisham	1.84	(1.79)
22 (19)	West Berkshire	1.84	(1.87)
23 (20)	Rushmoor	1.82	(1.85)
24 (31)	Elmbridge	1.78	(1.68)
25 (23)	Richmond upon Thames	1.77	(1.80)

Source: ¹Markit estimates, based on latest available ONS data (previous year figure and rank in brackets).

Tech Monitor UK: Methodology notes

METHODOLOGY NOTES

UK Tech Sector Purchasing Managers' Index® (PMI®) survey data

UK tech sector PMI data is derived from a representative sub-category of approximately 150 tech companies within Markit's regular PMI® surveys of UK manufacturers and service providers. Tech is defined in this report as technology software, technology services and manufacturing of technology equipment. All figures are seasonally adjusted and smoothed using a three-month moving average, to better highlight underlying trends in the data.

Mapping tech enterprises across local authorities and UK regions

The Inter-Departmental Business Register (IDBR), produced by the Office for National Statistics (ONS), is the underlying data source for technology cluster information. Introduced in 1994, the IDBR is the comprehensive list of UK businesses that is used by government for statistical purposes.

IDBR provides the main sampling frame for surveys of businesses carried out by the ONS and by other government departments. It is also a key data source for analyses of business activity. The IDBR covers over 2.1 million businesses in all sectors of the UK economy, other than some very small businesses (those without employees, and with turnover below the tax threshold) and some non-profit making organisations.

This analysis uses the 'enterprise counts' method, with 2013 data the most up-to-date vintage available. An Enterprise can be defined as the smallest combination of legal units (generally based on VAT and/or PAYE records) that is an organisational unit producing goods or services, which benefits from a certain degree of autonomy in decision-making, especially for the allocation of its current resources. An enterprise carries out one or more activities at one or more locations. An enterprise may be a sole legal unit.

Applying our own analysis and definition of UK tech sector standard industrial codes (SICs), we estimate the technology enterprise footprint for the 380 local authorities in Great Britain.

Location quotients are ratios derived by comparing the concentration of industry enterprises in local authorities with the national share of enterprises in the same industry. These figures measure industry specialisation in local areas, and therefore offer a means to identify industry clusters across UK local authorities.

Location quotients greater than 1.0 indicate that industry enterprises are more prevalent in the local authority's business population than the national share.

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'Technology Sector' industry groups:

The industry sectors measured by the ONS are based on Standard Industrial Classifications (SICs), which categorise business establishments by the type of economic activity in which they are engaged. As there is no 'catch-all' available for the 'technology sector', we have grouped together five of the most relevant industrial areas within the SIC classification system.

While the 'technology sector' can be said to span a number of SIC groupings, we estimate that the following five categories represent an accurate bellwether for the footprint of 'technology enterprises' within UK local authorities:

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)





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Oliver for KPMG | OM022152A | November 2014