



Tech Monitor

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

Compiled for KPMG by Markit
December 2015

TechMonitor/UK

/ flip page



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Executive summary

UK tech sector closes in on six years of sustained job creation, despite growth slowdown in 2015...



Tech Sector growth slows down but still plenty to smile about!

// This latest edition of KPMG's Tech Monitor report represents the third year that we have been tracking the state of the UK Tech community, covering key questions on the level of business activity, profitability, employment growth rates, and business confidence, as well as monitoring where tech clusters are in the UK. Since the end of the financial crisis, we have seen a UK Tech sector that has delivered six years of continuous growth and created jobs at a faster and higher rate than the rest of the UK economy.

Last year, we warned that we were seeing for the first time, storm clouds on the horizon and this has proved to be the case. While still growing, the pace of growth in the Tech Sector has slowed down in 2015 to its lowest level in 2 1/2 years and profitability has fallen for the first time since Q1 2013 despite low cost inflation. This reflects headwinds from uncertainties before the outcome of the general election, geopolitical issues and increased competition.

All that said, the Tech Sector is still in good health and there is plenty to smile about. Tech Enterprises continue to deliver growth and create jobs, albeit at slower rates, and importantly are optimistic about future growth and job hire intentions.

Our annual Tech Cluster survey, also shows a vibrant UK Tech sector with two notable findings. Firstly, the number of Tech Enterprises has risen by a third since 2010, double the growth for all private sector enterprises and equating to a new Tech enterprise every hour for the last five years! Crucially, this growth has occurred throughout the UK with some 63 Local Authorities achieving double digit growth since 2014.

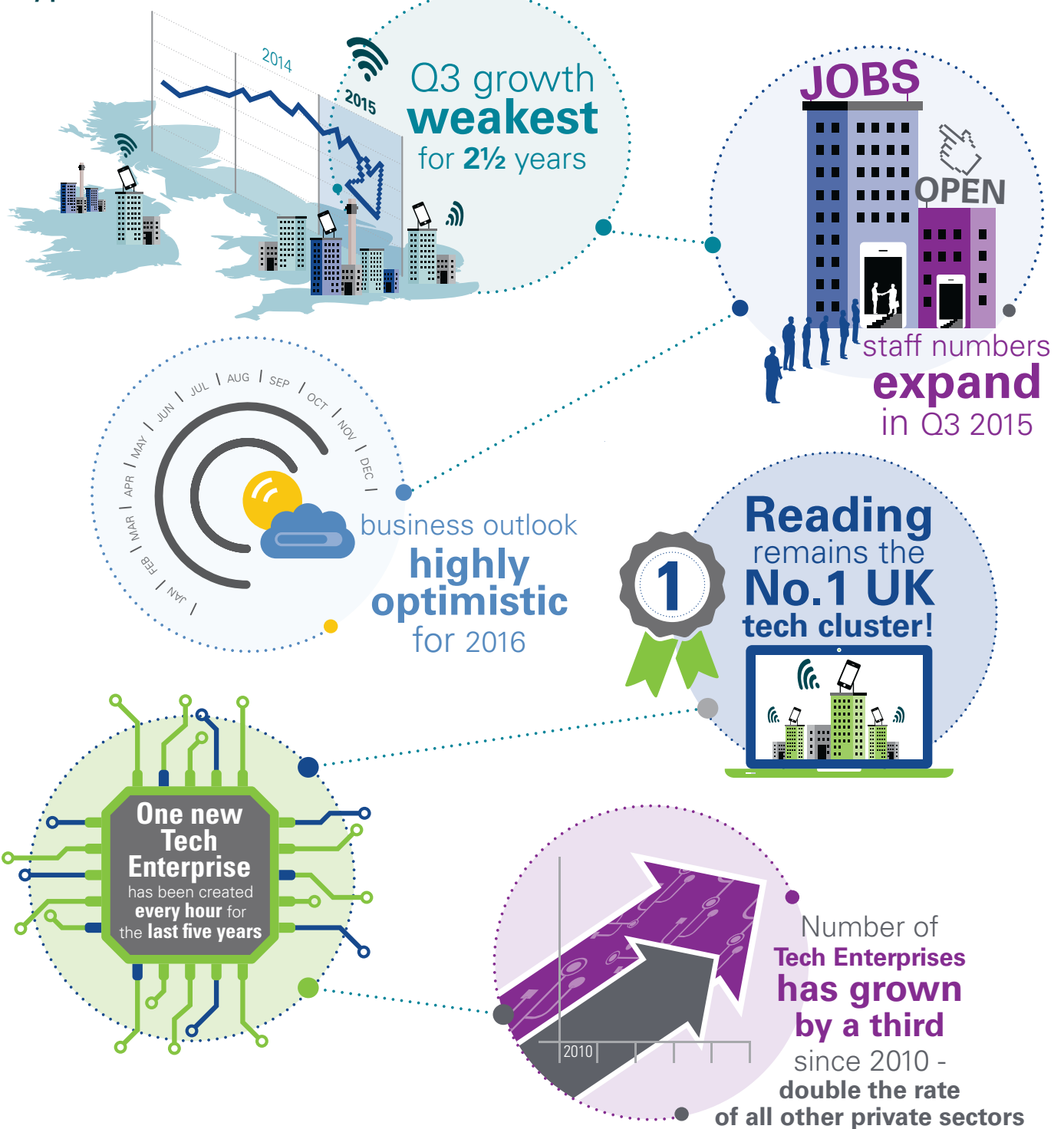
We can therefore be justly proud of the Tech scene and be optimistic for the future of what must be a key sector for the UK. It is important however, that more be done to help ensure the continued growth of the sector, particularly around STEM subject education, regulatory and fiscal conditions, and last but not least, profile within the media to highlight the importance and success of the sector. //

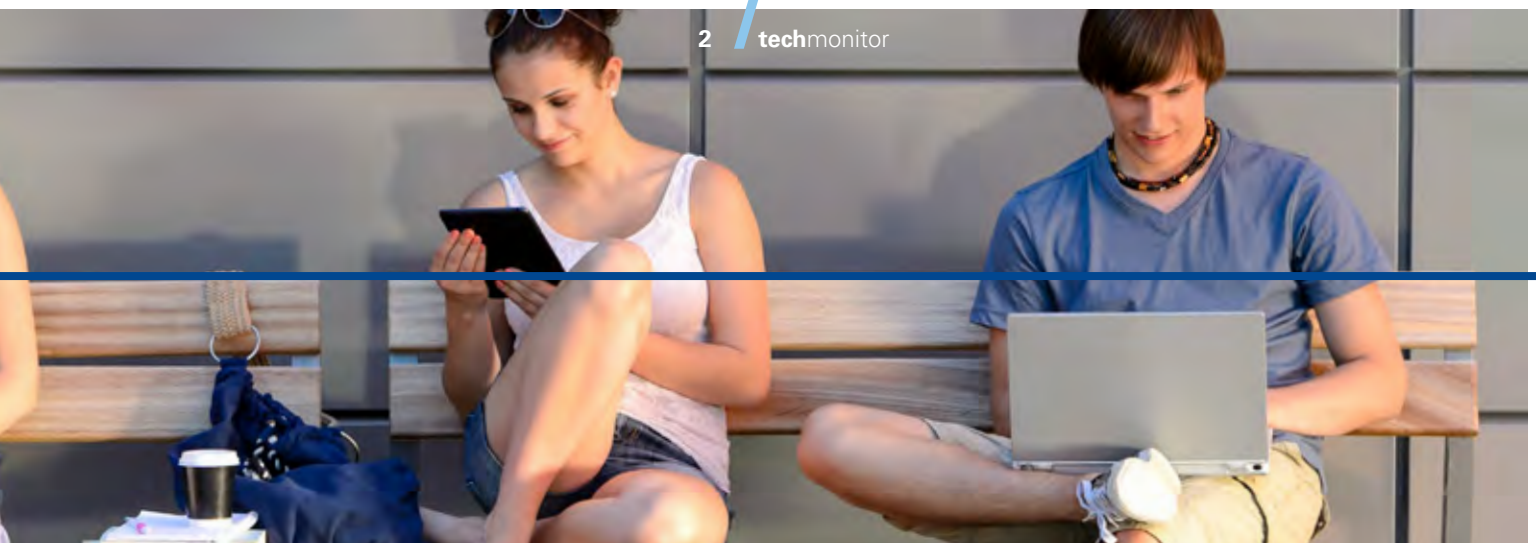
Tudor Aw
KPMG Technology Sector Head



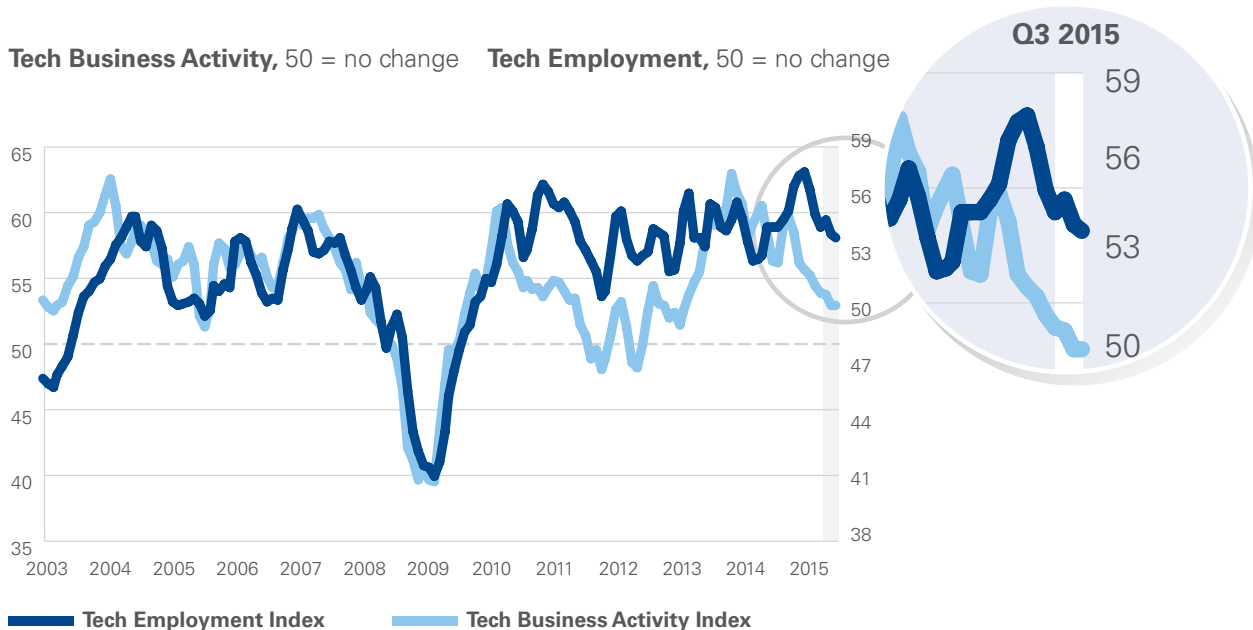
OVERVIEW

Key points from the Q3 2015 data:





Tech Business Activity, 50 = no change **Tech Employment**, 50 = no change



Key points from the Q3 2015 data:

- UK tech sector business activity expanded at a relatively subdued pace in Q3 2015, with the latest growth figure the weakest since early 2013
- Despite a sustained slowdown in activity growth and softer gains in overall new work, the latest survey highlighted widespread optimism about the year-ahead outlook
- More than half of the survey panel (54%) anticipate a rise in business activity over the next 12 months, while only 7% forecast a decline
- Confidence levels were down since Q2, but still stronger than the UK private sector as a whole
- Tech companies appear to have backed their optimism with sustained job hiring in Q3...
- ...with the sector now closing in on six years of sustained employment growth

Special feature key points:

- Reading retains its position as the number one UK tech cluster in 2015
- More than one-in-five enterprises based in Reading are tech sector firms (22%), which is almost three times the national average (8%)
- The M4 corridor continues to host the most concentrated tech clusters, with Wokingham and Slough completing the top three spots in local authority rankings
- Warwick saw the fastest increase in tech sector enterprises since 2014 (+28%), followed by Hackney (+25%) and Rotherham (+21%)
- Findings suggest that the number of tech-related enterprises in the UK private sector has risen by almost one-third since 2010 (+31.3%)

Tech growth: Slowest rise in UK tech sector business activity since Q1 2013

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 2015*

The latest *KPMG/Markit Tech Monitor UK* survey highlighted a slower expansion of business activity at UK tech companies during the third quarter of 2015, thereby continuing the softer growth trends seen throughout the year so far.

A number of survey respondents suggested that more cautious client spending patterns, alongside reduced risk appetite, had resulted in weaker new business gains and a subsequent moderation in activity growth.

In particular, panel members cited concerns related to sluggish demand from public sector clients, as well as increased uncertainty about the global economic outlook and a corresponding squeeze on business investment.

Although the latest survey points to the slowest expansion of overall new work for just under three years, UK tech firms continued to report strong confidence about the outlook for growth at their business units.

Almost eight times as many tech companies (54%) expect a rise in business activity over the year ahead as those that forecast a decline (7%).

UK tech companies commented on forthcoming product launches, rising R&D expenditure and staff hiring, entry into new markets and greater efforts to boost export sales.

Weakest tech sector growth for 2½ years

At 52.8, the headline seasonally adjusted *KPMG/Markit Tech Monitor UK* Business Activity Index remained above the 50.0 no-change value in Q3 2015.

Although still in expansion territory, the index was down from 53.7 in Q2 and signalled the slowest pace of business activity growth for two-and-a-half years.

A slowdown in UK tech sector growth in Q3 continues the general downward trend experienced since the index reached a 10-year high in early-2014. Moreover, the loss of momentum mirrored the pattern seen across the wider UK private sector during the summer.

New business volumes rise only modestly

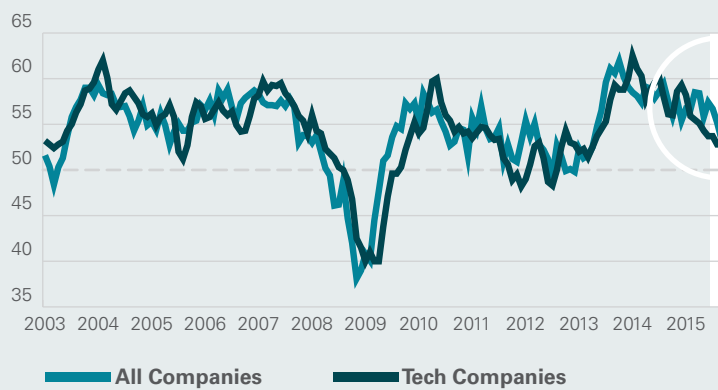
Q3 2015 data suggested another slowdown in new business growth across the UK tech sector. At 51.5, the index fell sharply from 55.8 in Q2 and pointed to the weakest expansion in incoming new work since Q4 2012.

As a result, the latest reading signalled only a marginal upturn in new work received by UK tech sector companies, with the pace of growth also below the post-crisis average (54.1). Reports from survey respondents suggested that greater caution among clients had contributed to reduced willingness to commit to new projects. Moreover, there were reports that intense competition for new work, especially in domestic markets, has resulted in lower margins and price discounting in order to support sales volumes.

At the same time, UK tech companies continued to cite rising export sales as a key growth tailwind in Q3 2015. Anecdotal evidence highlighted solid demand from clients in both the U.S. and euro area, alongside a boost from new sales initiatives and project wins in emerging markets.



Business Activity Index, 50 = no change



Tech PMI New Orders Index, 50 = no change



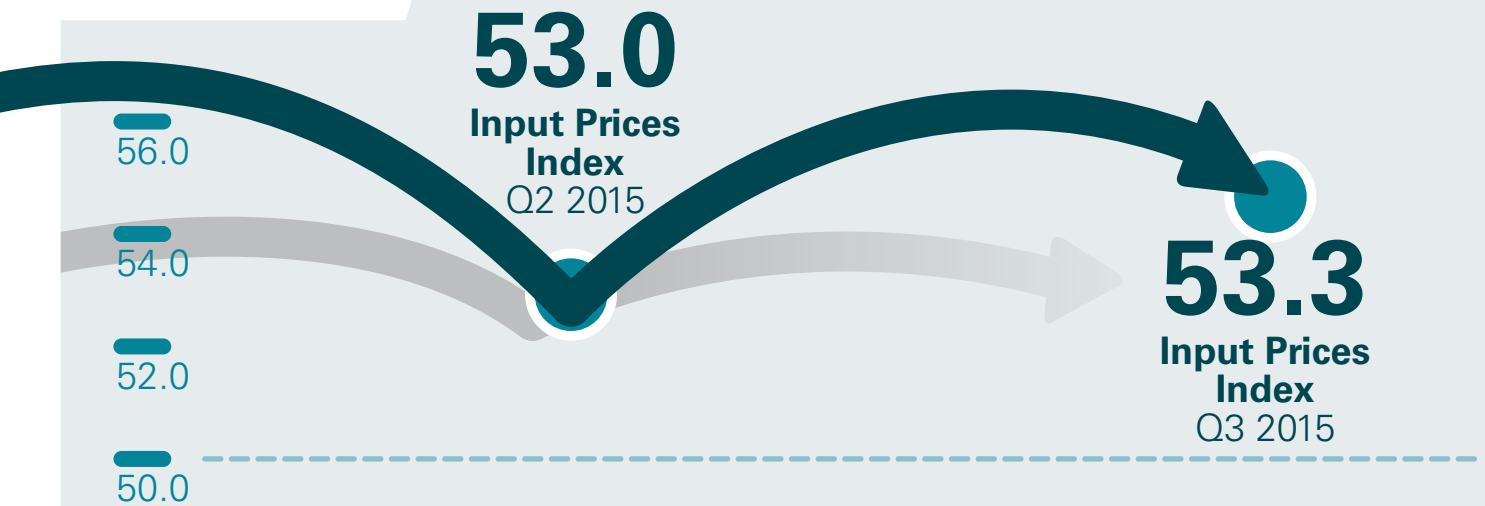
Source: Markit/KPMG.

*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 40.

Tech growth: UK tech sector profitability declines for the first time in 2½ years

TECH GROWTH



Despite another overall increase in new business levels, tech firms signalled a modest reduction in volumes of work outstanding. Although the Backlogs of Work Index rose from 47.5 to 48.5 in Q3, the index has remained below the neutral 50.0 threshold throughout 2015 so far. Companies that reported lower levels of unfinished work mainly pointed to robust staff hiring at their units.

Q3 2015 data indicated a further solid increase in workforce numbers across the UK tech sector, albeit the least marked pace of hiring since mid-2014 (see section 2 on Employment for more details).

Cost inflation remains close to a six-year low, despite upward pay pressures

UK tech sector firms continued to benefit from subdued input cost inflation in Q3 2015. At 53.3, the Input Prices Index picked up slightly from 53.0 in Q2, but this was still the second-lowest reading for six years.

Reports from survey respondents highlighted lower fuel and energy prices. However, at the same time, panel members also commented on strong salary pressures and rising office rents.

Meanwhile, the latest survey pointed to another marginal reduction in average prices charged by UK tech sector companies. At 49.5 in Q3 up slightly from 49.0 in Q2, the Prices Charged Index signalled that the pace of output price discounting was in line with the long-run survey average.

Profitability falls for the first time since Q1 2013

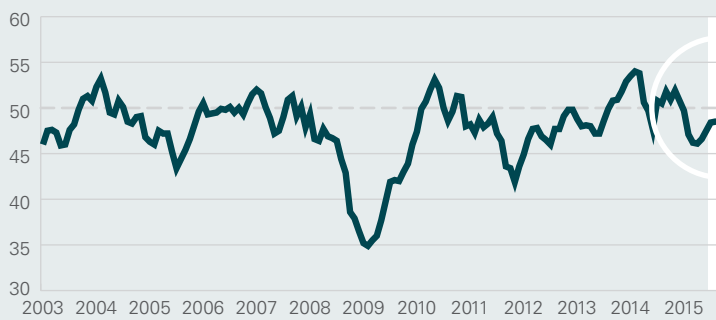
The latest *Tech Monitor UK* survey indicated a slight deterioration in profitability across the sector. At 49.6, down from 53.9 in Q2, the index registered below the 50.0 no-change threshold for the first time since Q1 2013.

Reports from survey respondents suggested that competitive pressures and the need to offer price discounts to secure new work had weighed on profitability in Q3 2015. In some cases, tech firms noted that higher salary costs had also contributed to pressure on operating margins.

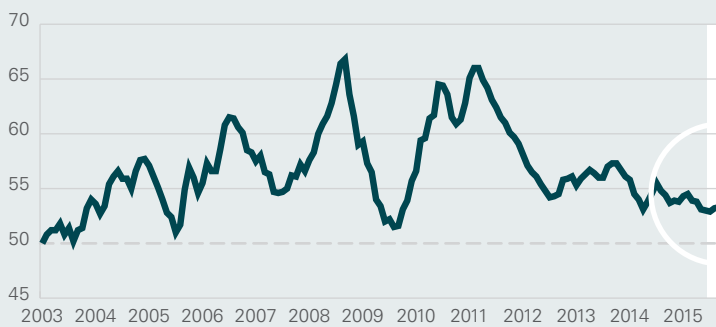
Source: Markit/KPMG.

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Methodology notes can be found on page 40.

Tech PMI Backlogs of Work Index, 50 = no change

Tech Companies

Tech PMI Input Prices Index, 50 = no change

Tech Companies

Tech PMI Profitability Index, 50 = no change

Tech Companies

**Tudor Aw,
Technology Sector
Head at KPMG
commented:**

"This quarter's survey have confirmed the trend seen to date for 2015, that the pace of growth in the Tech sector is slowing and this is translating to a drop in profitability despite low cost inflation. Anecdotally, we are seeing pricing increasingly coming under pressure and a key determinant in winning new work."

Employment trends: Tech sector closes in on six years of sustained jobs growth

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 2015*

The latest *KPMG/Markit Tech Monitor UK* data indicated that UK tech firms experienced a further expansion in total staff numbers during the third quarter of 2015. Despite the pace of job creation easing further from the record rate registered the start of the year, the overall rate of employment growth remained solid.

The Employment Index for UK tech companies remained above the neutral 50.0 value and posted 53.9 at the end of Q3, down from 54.5 in Q2. Although the index remained firmly above the series long-run average (52.3), it pointed to the slowest rate of hiring since Q2 2014.

A number of tech firms mentioned taking on additional employees as part of planned company expansions, while there were also reports that firms added to their payrolls to support the development of new

products and to expand production capabilities amid forecasts of upcoming new contract wins.

Where lower workforce numbers were registered, these were generally attributed by tech firms to difficulties in replacing staff members that had left voluntarily.

The rate of job creation not only moderated within the tech sector at the end of Q3, but across the UK as a whole. Nonetheless, the UK-wide trend continued to outperform the tech sector in the latest quarter (equivalent index reading of 54.6 at the end of Q3).

However, looking at the average employment index reading since the global financial crisis, the tech sector has registered a sustained upswing in staff numbers since early 2010, while the recovery in UK wide employment trends has only become entrenched in the past couple of years.

Tech sector job hiring trends; company size breakdown

According to the latest *Tech Monitor UK* data, smaller tech companies (those that employ fewer than 50 people) continued to report a slower rate of job creation compared with the average for all tech companies during Q3.

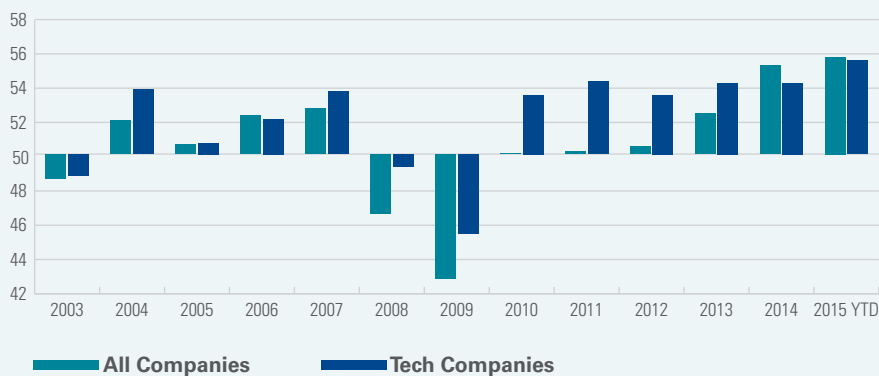
At 51.3 at the end of Q3, the index monitoring employment at small tech firms was down slightly from 51.5 in Q2. Although above the 50.0 neutral value, the latest index reading was the lowest since Q3 2013.

Source: Markit/KPMG.

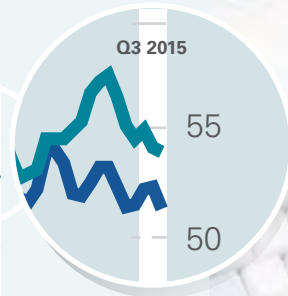
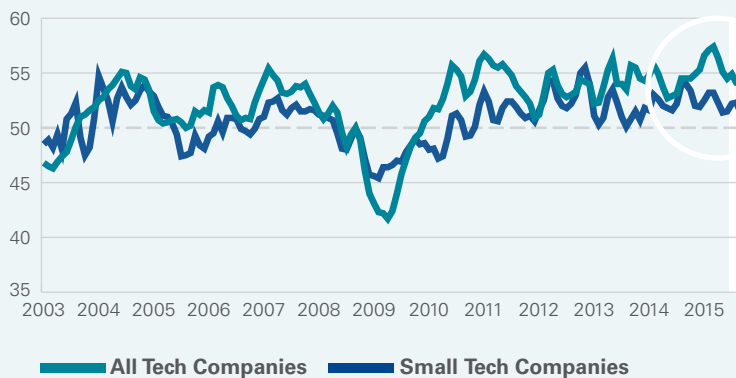
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Methodology notes can be found on page 40.

PMI Employment Index, 50 = no change



PMI Employment Index, 50 = no change



**Tudor Aw,
Technology Sector
Head at KPMG
commented:**

"Despite the slowdown in business activity and decrease in profitability for UK Tech companies, it is encouraging to see that employment growth rates remain strong, reflecting long term confidence in the sector."

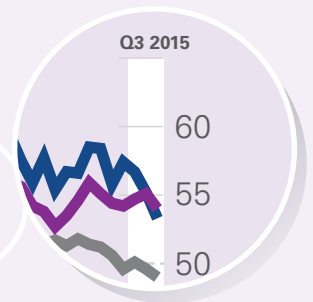
Economic context: UK economic growth softens as global economy loses momentum

ECONOMIC CONTEXT

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

Developed and emerging markets

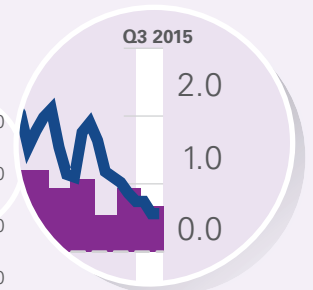
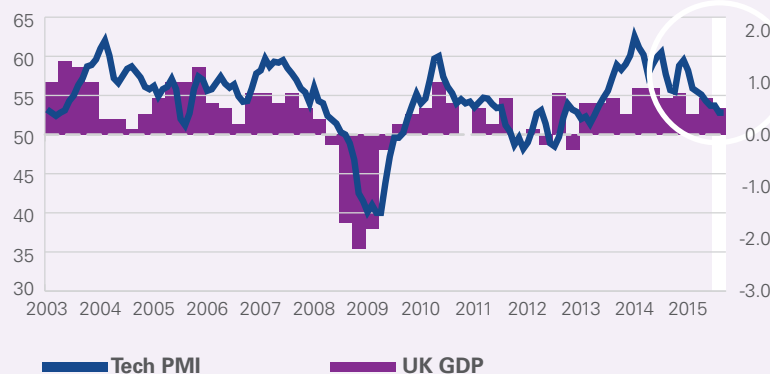
PMI Output Index (manufacturing and services), 50 = no change



UK tech business activity mapped against UK GDP

Tech PMI, 50 = no change

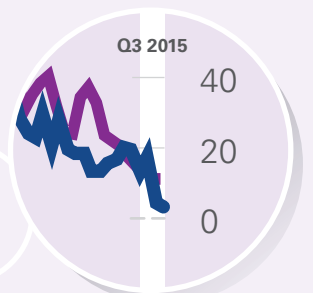
UK GDP, qoq % change



UK tech business activity mapped against the NASDAQ

Tech PMI, 50 = no change

NASDAQ yoy % change





Key points for Q3 2015

The UK economy expanded at a slightly softer pace in Q3 2015, with official figures signalling a 0.5% quarterly rate of GDP growth, following the 0.7% rise seen in Q2. Weaker UK GDP growth patterns mirrored the cyclical slowdown shown by the latest *UK Tech Monitor* data, with both suggesting less momentum than seen at any time in 2014.

While the tech sector has enjoyed a longer and more rapid recovery than the wider UK economy in recent years, the extent of the outperformance has narrowed greatly in 2015. In fact, for the first time in just over two years, comparisons of the UK Tech Monitor against UK GDP suggest that Q3 growth conditions were broadly similar.

Sluggish demand patterns from the euro area and emerging markets were key factors that dampened UK economic growth in Q3, with net trade weighing heavily on third quarter GDP. Manufacturers have been hit hardest by the global trade slowdown, while strong domestic consumer demand has enabled a sustained recovery across parts of the service economy.

The IMF have downgraded their forecast of global growth from

3.3% to 3.1% for 2015, as a China-led slowdown in emerging markets gathered momentum. In developed markets, upcoming growth headwinds on the horizon include a gradual normalisation of US monetary policy, alongside concerns that the euro area malaise is becoming more entrenched.

Equity markets fall from recent peaks

The NASDAQ composite index, the benchmark for US technology stocks, fell by -3.2% on a quarterly basis in Q3 2015, while on the annual measure it was up a relatively modest +2.8%. This reflected the general pattern seen across global equity markets in Q3, as concerns over a deeper slowdown in China impacted investor sentiment and led to markets retreating from peaks seen earlier in the summer.

Once again, this year has seen the UK Tech Monitor move closely in line with the performance of US technology stocks. Both indicate positive tech momentum so far in 2015, but a slowdown from the breakneck speeds seen in 2013 and 2014. Moreover, the reasonably tight relationship between the two series highlights that developments in the UK tech sector are closely entwined with the cyclical trends seen among US tech companies.

Global economy suffers from deepening EM downturn

The latest JPMorgan/Markit Global PMITM pointed to a further softening of growth momentum across the world economy. This was highlighted by the Composite Output Index posting at 53.5 on average in Q3, down from 53.7 in Q2.

Divergent economic performances between the developed and emerging markets adds to uncertainty about the future direction of the global economy. A resurgent US economy remains the standout performer among developed markets. However, an impending normalisation of monetary policy by the Federal Reserve carries downside risks for both U.S growth and emerging market performance. The IMF expect global GDP to rise by 3.6% in 2016, an improvement from 2015 but down from a prior forecast of 3.8%.

Sources: PMI® data sourced from Markit, CIPS.

UK GDP data sourced from the Office for National Statistics. At the time of writing, figures were available up to Q3 2015.

Stock market data sourced from Reuters EcoWin.

Tech outlook: Optimism towards the business outlook reaches its lowest so far in 2015

TECH OUTLOOK

This section contains analysis of UK tech firms' business expectations for 2016, derived from Markit's UK *Purchasing Managers' Index® (PMI®)* surveys.

The main findings for Q3 2015 are:

Tech firms in the UK continued to express a high level of optimism towards the 12-month business outlook. A net balance of +46.1% of tech companies forecast business activity to expand over the coming year, compared with a net balance of +51.4% at the end of Q2. Though still indicative of a strong level of optimism, the latest net balance was the lowest since the end of 2014.

Positive expectations towards future growth prospects were linked to new product development initiatives, refined marketing strategies, and planned entries into new markets.

However, an uncertain global economic outlook was reportedly a key factor weighing on overall confidence in the latest quarter.

Business confidence in the tech sector nonetheless remained higher than that recorded across all UK industry sectors at the end of Q3, a trend that has been evident since the series began in 2003. However, the gap between tech firms and that seen UK-wide has narrowed within the past two years. A net balance of +43.2% of all UK companies expect increased business activity in the next 12 months, down slightly from +45.3% at the end of Q2. Mirroring the trend seen across the tech sector, this represents the lowest level of optimism since late-2014.

Business activity expectations (3 month avg), net balance %



Tech firms' business opportunities:

- "Increasing market size and market share."
- "We expect new marketing activities to increase new business."
- "Positive about future business activity due to increasing client demand and new opportunities."
- "Expect to benefit from operational changes and strategic marketing."
- "Increasing customer base and expansion into new sectors."
- "Expect more growth in African markets."
- "New range of products planned."
- "Adoption of cloud based services."
- "Increased investment in our sales staff."

Tech firms' business threats:

- "Intense competition in the industry."
- "Strength of the sterling exchange rate."
- "Global economic conditions appear fragile, subsequently some customers are reluctant to spend."
- "Expecting some existing customers to drop out and we are not sure if we will have them fully replaced by the time they leave."

Tudor Aw, Technology Sector Head at KPMG commented:

"It is clear that business confidence amongst UK Tech companies has taken a hit following tougher trading conditions in recent months and concerns around global geopolitical developments."

Source: Markit/KPMG.

*Methodology notes can be found on page 40.

Special Feature: Identifying enterprises in the UK 'technology industry'

SPECIAL FEATURE

In the analysis that follows, we estimate the areas within the UK that have the **largest local footprint of tech enterprises in 2015**.

We have also compiled estimates for the concentration of tech enterprises **by sub-category of activity** (e.g. software publishing, traditional tech, biotech, fintech, advanced manufacturing, engineering and automotive tech).

In addition to our rankings of UK tech clusters, we examine the local areas experiencing the **fastest rise in tech enterprises since 2014**.

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 over 400 local authorities in the United Kingdom (see methodology section for full details).

Any location quotient above 1.0 indicates a greater than concentration of tech companies in a local area than the UK average.

Defining the UK 'technology industry'

We have expanded our standard definition of UK tech sector companies from that used in the rankings for our Q3 2014 *Tech Monitor UK report*.

An additional 11 standard industrial codes (SIC codes) are combined to derive an overall figure for the tech sector, designed to reflect areas such as biotech, telcos, fintech, other niche information service providers, tech-related industrial process engineering activities and some advanced manufacturing.

Although the number of tech categories has risen to 16 (compared to the usual five SIC codes in Tech Monitor UK), our expanded definition represents only a 20% increase in the number of UK private sector enterprises covered by the tech sector clusters analysis.

In purely numerical terms, the 'computer programming, consultancy and related activities'

standard industrial code contains the largest single amount of tech enterprises.

Using our expanded definition of tech sector companies, we have calculated location quotients for 2010-2014, so as to allow time-series comparisons.

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. A full explanation of the **methodology is provided on page 40**.

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.

Special Feature: UK technology clusters in 2015



Reading retains its position as the number one UK tech cluster in 2015

More than one-in-five enterprises based in Reading are tech sector firms (22%), which is almost three times the national average (8%)

There are 11 local authorities with more than twice the UK-wide proportion of tech sector companies

Warwick saw the fastest increase in tech sector enterprises since 2014 (+28%), bringing it up to 18th in the UK local authority rankings

Hackney was the second-fastest growing area for tech sector enterprises (+25%)

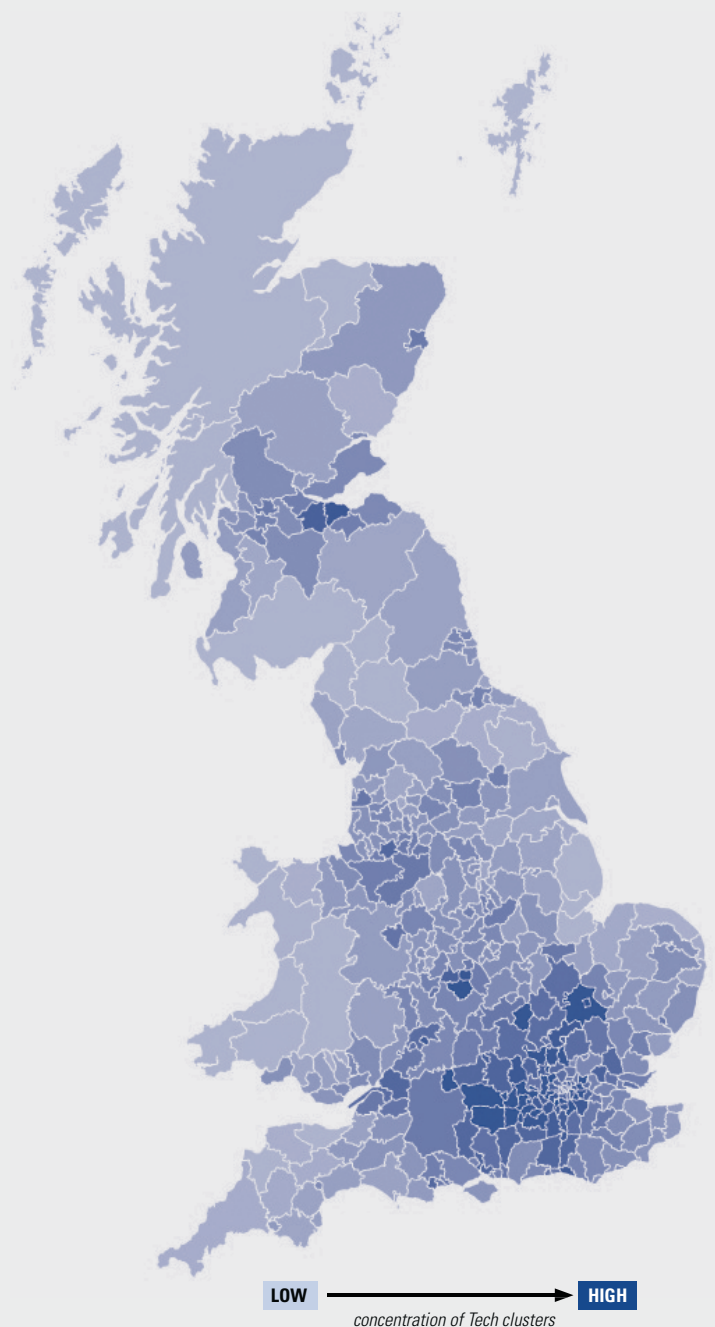
Rotherham (+21%), North Tyneside (+20%) and North Lanarkshire (+20%) complete the top five growth areas, highlighting that all corners of the UK are experiencing strong rises in tech sector enterprise counts

The 'research and experimental development in biotechnology' cluster in **South Cambridgeshire** is the most geographically concentrated sub-category (24 times the UK average)

The **City of London** hosts 10 times the UK level of fintech-related enterprises

Other areas with large subcategories of tech enterprises, include clusters in **Woking, Swindon, Test Valley and Warwick**

Heatmap of UK Tech Clusters



SPECIAL FEATURE

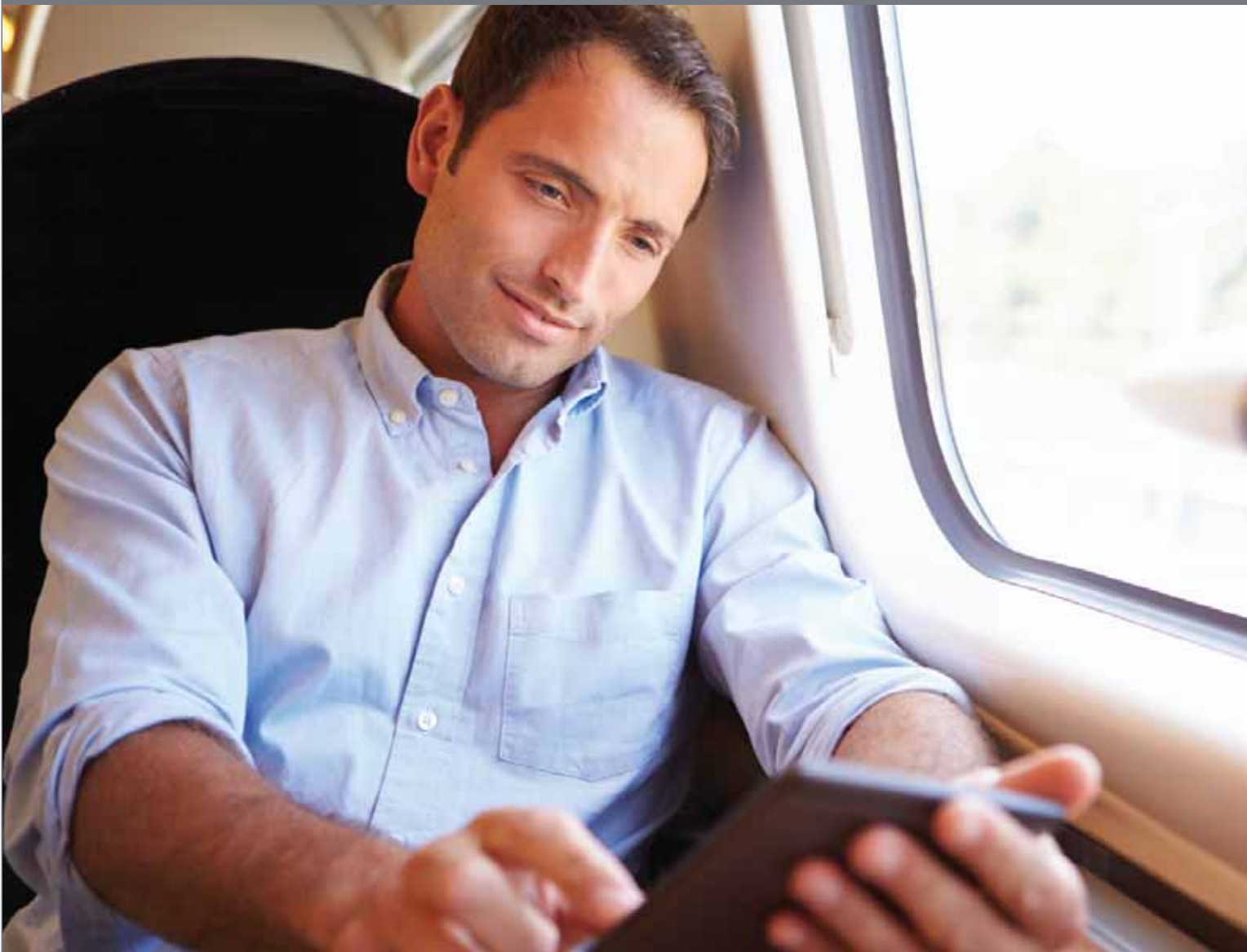
Summary findings

The special feature for this edition of Tech Monitor UK attempts to gauge the scale and scope of the UK tech sector, on a national, regional and local basis. Using official business enterprise data and 16 broad classifications of tech sector activity, we estimate the largest clusters within the UK and the fastest growing local areas.

Our findings suggest that the number of UK private sector enterprises engaged in tech-sector related activities has risen by almost one-third since 2010 (+31.3%). This represents a net gain of approximately 45,000 enterprises over a five year period, which has been spread across all UK regions and local areas. To put it another way, the number signifies **one additional tech sector enterprise every hour of the day for the past five years.**

Looking at the data for 2015, we find that all 12 UK regions experienced a rise in the number of tech sector enterprises since latest year. At the same time, some 63 local authorities saw double-digit growth since 2014. The greatest rise is estimated for Warwick (+28%), followed by Hackney (+25%) and Rotherham (+21%).

Meanwhile, in terms of the areas with the largest footprint of tech sector enterprises, the top three spots in the local authority rankings contain familiar areas on the M4 corridor; Reading, followed by Wokingham and Slough.



In Reading, we estimate that the proportion of tech sector companies in the local business population (22%) is just under three times the UK average. Cambridge, Milton Keynes, Woking and the London local authorities also score highly in the rankings.

When we look at the results by sub-category of activity, there are large clusters of tech sector specialisms throughout the UK. South Cambridgeshire stands out for its proportion of biotech enterprises, Nuneaton & Bedworth for automotive-related tech, and of course the City of London for its fintech sector.

In the analysis that follows, we start by assessing the UK regional landscape and growth trends, then we break these figures down to reveal the local authorities with the greatest tech sector footprints, as well as the areas with the fastest rises in their tech sector business population.

Table 1: UK local authorities: top 30 tech sector enterprise clusters in 2015

Rank	Local area	UK Region	LQ
1	Reading	(SE)	2.81
2	Wokingham	(SE)	2.65
3	Slough	(SE)	2.41
4	Hounslow	(LN)	2.33
5	Milton Keynes	(SE)	2.33
6	Woking	(SE)	2.24
7	Bracknell Forest	(SE)	2.20
8	Cambridge	(EE)	2.16
9	Hart	(SE)	2.09
10	Basingstoke and Deane	(SE)	2.07
11	Redbridge	(LN)	2.04
12	Tower Hamlets	(LN)	1.96
13	Harrow	(LN)	1.93
14	Watford	(EE)	1.86
15	Kingston upon Thames	(LN)	1.85
16	Swindon	(SW)	1.82
17	West Berkshire	(SE)	1.77
18	Warwick	(WM)	1.74
19	Windsor and Maidenhead	(SE)	1.73
20	South Cambridgeshire	(EE)	1.73
21	Surrey Heath	(SE)	1.71
22	Greenwich	(LN)	1.70
23	Hillingdon	(LN)	1.66
24	Croydon	(LN)	1.66
25	Newham	(LN)	1.65
26	Welwyn Hatfield	(EE)	1.65
27	Rushmoor	(SE)	1.64
28	Dacorum	(EE)	1.63
29	Merton	(LN)	1.62
30	Lewisham	(LN)	1.62

Special Feature: Regional Analysis; largest concentration of tech companies

SPECIAL FEATURE

London narrowly tops the table for the greatest proportion of tech sector enterprises in 2015, with a location quotient of 1.38 (see Table 2). This figure signifies that the concentration of tech firms in the capital is 138% of the UK-wide figure.

Outside of London, only the South East (1.35) and the East of England (1.10) also host a greater proportion of tech sector enterprises than the UK average.

Meanwhile, the West Midlands (0.89) is the next closest to matching the UK-wide footprint of tech sector firms, reflecting a strong contribution from advanced manufacturing and automotive tech specialisms.

These regional figures can be seen as the macro view of tech sector prevalence, but they mask important localised clusters. When we look at the more granular local authority data, we continue to find there are large and diverse tech clusters across every part of the UK (see section 5).

As a case in point, at the lowest end of the table Northern Ireland recorded a regional location quotient of 0.32, which indicates that the footprint of tech firms is only around one-third of the UK average.

However, despite having the lowest overall regional ranking, the enterprise figures for Northern Ireland still show pockets of strength in several tech sector categories (e.g. manufacture of air, spacecraft & related machinery) and some outperforming local authorities (Belfast's location quotient was 0.77, around double the NI average).

This is also the case for all 12 UK regions, which is covered more fully in section 5, where we examine the local authority data for tech sector enterprise clusters.

Table 2: Footprint of tech sector enterprises by region

Region	% Tech Sector Enterprises	Location Quotient (LQ)
London	10.6%	1.38
South East	10.4%	1.35
East of England	8.5%	1.10
West Midlands	6.8%	0.89
South West	6.7%	0.87
North West	6.4%	0.83
Scotland	6.2%	0.80
East Midlands	5.8%	0.75
Yorkshire and The Humber	5.5%	0.71
North East	5.5%	0.71
Wales	4.4%	0.56
Northern Ireland	2.5%	0.32
United Kingdom	7.7%	1.00

LQ = location quotient. The higher the LQ, the greater the concentration of tech firms in the local business population relative to the UK average. **Source:** Markit calculations, based on IDBR snapshot 2015



Moreover, heatmaps are used to illustrate national trends in tech enterprise concentration in each of 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.

Footprint of tech sector enterprises by region



LOWEST – 0.56 → HIGHEST – 1.38

Local authority location quotient



SPECIAL FEATURE

Regional Analysis; largest concentration by category of tech activity

Our estimate for regional tech sector clusters takes in 16 categories of business activity that can be broadly defined as tech-related areas, which is a larger coverage than the usual five standard industrial codes (SICs) in *Tech Monitor UK*.

The expanded definition aims to also include areas such as biotech, telcos, fintech, other niche information service providers, tech-related

industrial process engineering activities and some advanced manufacturing.

We note that location quotients calculated from counts of all local businesses in a particular sub-sector represents something of an egalitarian approach, since micro companies carry the same weight as the largest businesses in the area. This approach helps highlight

the breadth of tech company concentration across the UK regions, and captures the areas with the greatest pool of businesses in the sector.

The following table highlights the UK region with the greatest cluster of tech sector enterprises in each of these 16 broad sub-categories.

Table 3: UK regions: top tech sector enterprise clusters by sub-category

SIC	Description	Greatest Regional Concentration	LQ
(All)	Tech sector enterprises	London	1.38
26	Manufacture of computer, electronic & optical products	East of England	1.49
27	Manufacture of electrical equipment	East Midlands	1.34
303	Manufacture of air & spacecraft & related machinery	Northern Ireland	2.13
582	Software publishing	South East	1.46
620	Computer programming, consultancy & related activities	London	1.51
631	Data processing, hosting & related activities; web portals	London	1.59
2931	Manufacture of electrical & electronic equipment for motor vehicles	West Midlands	2.40
2932	Manufacture of other parts & accessories for motor vehicles	West Midlands	2.92
6120	Wireless telecommunications activities	South East	1.36
6130	Satellite telecommunications activities	South East	1.57
6190	Other telecommunications activities	London	1.29
6499	Other financial service activities, ex. insurance & pension funding, n.e.c.	London	2.20
6399	Other information service activities n.e.c.	London	1.65
7211	Research & experimental development on biotechnology	East of England	2.04
7219	Other research & experimental dev. on natural sciences & engineering	East of England	1.44
71121	Engineering design activities for industrial process & production	North East	2.01

LQ = location quotient. The higher the LQ, the greater the concentration of tech firms in the local business population relative to the UK average.

Source: Markit calculations, based on IDBR snapshot 2015



London's lead is underpinned by having the greatest footprint of tech sector enterprises across 5 of the 16 broad sub-categories, including core tech sector services (SICs 620 and 631) as well as fintech-related areas (SICs 6499 and 6399).

Meanwhile, the East of England has a clear lead in biotech, with around double the UK-wide concentration of enterprises in this area, as well as core tech manufacturing. The South East tops the regional rankings for software publishing and telcos.

The West Midlands scores highest for automotive tech-related areas and the North East stands out as hosting double the UK-wide proportion of enterprises in the 'engineering design' sub-category. In Northern Ireland, the footprint of enterprises in air, spacecraft & related machinery manufacturing is just over twice the UK-wide figure.

SPECIAL FEATURE

Regional Analysis; fastest growing areas in 2015

So far, we have only looked at a static snapshot of tech sector clusters across the UK regions. In this section, our analysis turns to the areas with the sharpest rise in the number of tech sector enterprises since 2014.

All 12 UK regions have experienced a strong increase in the number of tech sector enterprises on a year-on-year basis, with London recording a double-digit expansion during 2015 (+11.6%), followed by the North East (+9.5%) and Scotland (+9.1%) .

Looking at the period 2010-2015, we estimate that all UK regions have experienced more than double-digit growth in their number of tech sector enterprises, led by London (+54.6%) and Scotland (+43.4%).

For the UK as a whole, the number of tech sector enterprises appears to have risen by almost one third (+31.3%) since 2010, which is double the growth rate seen for all private sector enterprises (+16.3%) over the same period.

In numerical terms, we estimate that the number of UK tech sector enterprises has increased by around 45,000 since 2010, which is roughly equivalent to **one additional tech enterprise every hour of the day for the past five years.**

By contrast, the total number of UK manufacturing enterprises has risen by only +2.2% since 2010, while for construction the figure stands at +3.7%, the number of retailers has increased by +2.2%, and private services (inc. tech) is up around 25%.

Table 4: UK regions: fastest rise in number of tech sector enterprises (2015)

Region	% Y/Y	% since 2010
London	11.6%	54.6%
North East	9.5%	27.8%
Scotland	9.1%	43.4%
Wales	8.8%	19.2%
Yorkshire and The Humber	8.5%	25.5%
West Midlands	8.4%	25.3%
East of England	7.7%	22.9%
North West	7.2%	24.5%
Northern Ireland	6.8%	27.5%
South East	6.7%	24.2%
East Midlands	6.6%	19.4%
South West	4.5%	23.4%
United Kingdom	8.3%	31.3%

Source: Markit calculations, based on IDBR

Special Feature: Local Authorities Analysis; largest local concentration of tech companies

SPECIAL FEATURE

This section examines the concentration of tech sector enterprises at the UK local authority level.

We find that there are 137 local authorities (around one-third of the total) with a greater footprint of tech enterprise than the UK-wide figure (i.e. a location quotient higher than 1.0).

Additionally, there are 43 local authorities where the concentration of tech sector enterprises is more than 50% larger than the UK-wide benchmark (i.e. a location quotient higher than 1.5).

Table 5 shows our estimates for the top 30 tech clusters in 2015, based on the 16 sub-categories to tech sector activity.

As with the UK regional analysis, we note that location quotients are calculated from counts of all local businesses in a particular sub-sector, meaning that micro companies carry the same weight as the largest businesses in the area. This approach helps capture the areas with the greatest pool of businesses in a particular sector.

All of the top 10 local authorities have at least double the proportion of tech sector companies compared with the UK-wide concentration (location quotient greater than 2.0).

Reading is the leading area for tech sector enterprise concentration (almost three times the UK-wide figure), followed by neighbouring Wokingham and Slough.

Cambridge is the highest ranked area in the East of England, while South Cambridgeshire scores very highly in some sub-categories of tech activity covered by the rankings (e.g. around 24 times the UK-wide footprint of biotech enterprises).

Eight of the 10 local authorities with the highest proportion of tech enterprises are in the South East of England, while the remainder are in London and the East of England.

The diverse nature of the London economy is a factor behind its absence from the very top of the local authority rankings.

Heatmap 2:
GB tech
enterprise
clusters, by
local authority



However, the local authorities in London score consistently highly across the board (only Westminster and Kensington & Chelsea host a smaller proportion of tech sector firms than the UK average).

In London, 31 out of 33 local authorities have a higher proportion of tech enterprises in the local business population than the national average. For the South East, the figure is 45 of 67 local authorities.

Table 5: UK local authorities: top 30 tech sector enterprise clusters in 2015

Rank	Local area	UK Region	LQ
1	Reading	(SE)	2.81
2	Wokingham	(SE)	2.65
3	Slough	(SE)	2.41
4	Hounslow	(LN)	2.33
5	Milton Keynes	(SE)	2.33
6	Woking	(SE)	2.24
7	Bracknell Forest	(SE)	2.20
8	Cambridge	(EE)	2.16
9	Hart	(SE)	2.09
10	Basingstoke and Deane	(SE)	2.07
11	Redbridge	(LN)	2.04
12	Tower Hamlets	(LN)	1.96
13	Harrow	(LN)	1.93
14	Watford	(EE)	1.86
15	Kingston upon Thames	(LN)	1.85
16	Swindon	(SW)	1.82
17	West Berkshire	(SE)	1.77
18	Warwick	(WM)	1.74
19	Windsor and Maidenhead	(SE)	1.73
20	South Cambridgeshire	(EE)	1.73
21	Surrey Heath	(SE)	1.71
22	Greenwich	(LN)	1.70
23	Hillingdon	(LN)	1.66
24	Croydon	(LN)	1.66
25	Newham	(LN)	1.65
26	Welwyn Hatfield	(EE)	1.65
27	Rushmoor	(SE)	1.64
28	Dacorum	(EE)	1.63
29	Merton	(LN)	1.62
30	Lewisham	(LN)	1.62

LQ = location quotient. The higher the LQ, the greater the concentration of tech firms in the local business population relative to the UK average.

Source: Markit calculations, based on IDBR snapshot 2015

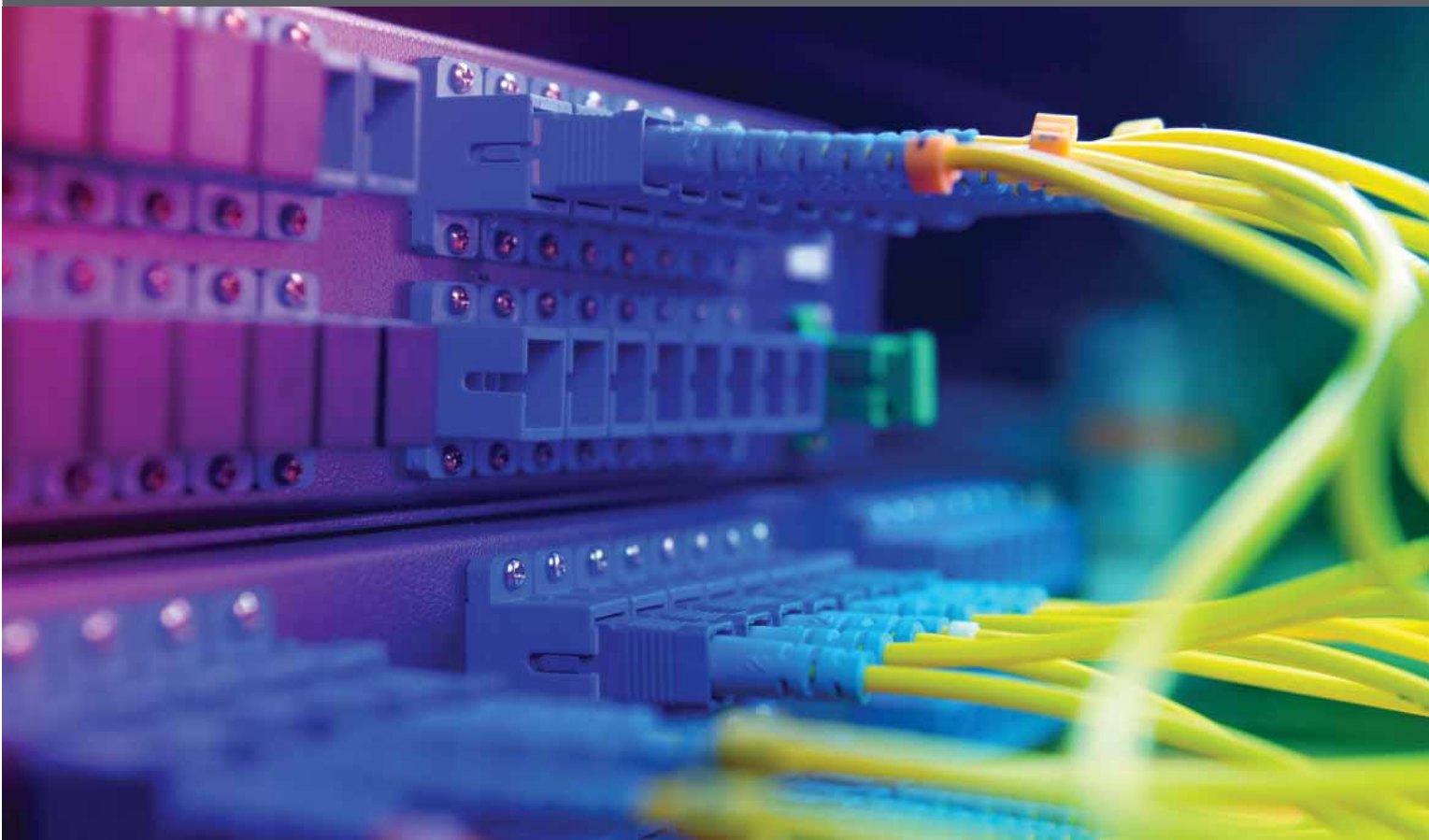
Local Authorities Analysis; largest local concentration by category

Our estimates for local authority level tech sector clusters take in 16 categories of business activity that can be broadly defined as tech-related areas.

The following table highlights the UK local authorities with the greatest cluster of tech sector enterprises in each of these 16 broad sub-categories.

There is a wide spread in terms of local areas with the greatest footprint of tech sector enterprises within the 16 individual sub-categories, with only Reading and South Cambridgeshire occupying the top spot for more than one type of activity.

Insufficient local data was available at the local authority level to provide individual rankings for two sub-types of tech sector activity (SIC 27 and SIC 2931). Moreover, as with the all-sector UK tech cluster analysis, we note that location quotients are calculated from counts of all local businesses in a particular sub-category, meaning that micro companies carry the same weight as the largest businesses in the area. The location quotients therefore reflect the pool of business in a local area relative to the UK-wide level, rather than an estimated contribution to regional economic output.



UK local authorities: top tech sector enterprise clusters by sub-category

SIC	Description	Greatest Local Authority Concentration	LQ
(All)	Tech sector enterprises	Reading	2.81
26	Manufacture of computer, electronic & optical products	South Cambridgeshire	3.8
27	<i>Manufacture of electrical equipment</i>	<i>Insufficient local data</i>	<i>n/a</i>
303	Manufacture of air & spacecraft & related machinery	Woking	10.1
582	Software publishing	Hart	4.7
620	Computer programming, consultancy & related activities	Reading	3.2
631	Data processing, hosting & related activities; web portals	Islington	3.2
2931	<i>Manufacture of electrical & electronic equipment for motor vehicles</i>	<i>Insufficient local data</i>	<i>n/a</i>
2932	Manufacture of other parts & accessories for motor vehicles	Nuneaton & Bedworth	13.3
6120	Wireless telecommunications activities	Test Valley	8.9
6130	Satellite telecommunications activities	Swindon	12.9
6190	Other telecommunications activities	Stevenage	3.4
6499	Other financial service activities, ex. insurance & pension funding, n.e.c.	City of London	9.5
6399	Other information service activities n.e.c.	Reading	3.0
7211	Research & experimental development on biotechnology	South Cambridgeshire	24.4
7219	Other research & experimental dev. on natural sciences & engineering	South Cambridgeshire	9.8
71121	Engineering design activities for industrial process & production	Warwick	6.8

LQ = location quotient. The higher the LQ, the greater the concentration of tech firms in the local business population relative to the UK average.

Source: Markit calculations, based on IDBR snapshot 2015

SPECIAL FEATURE

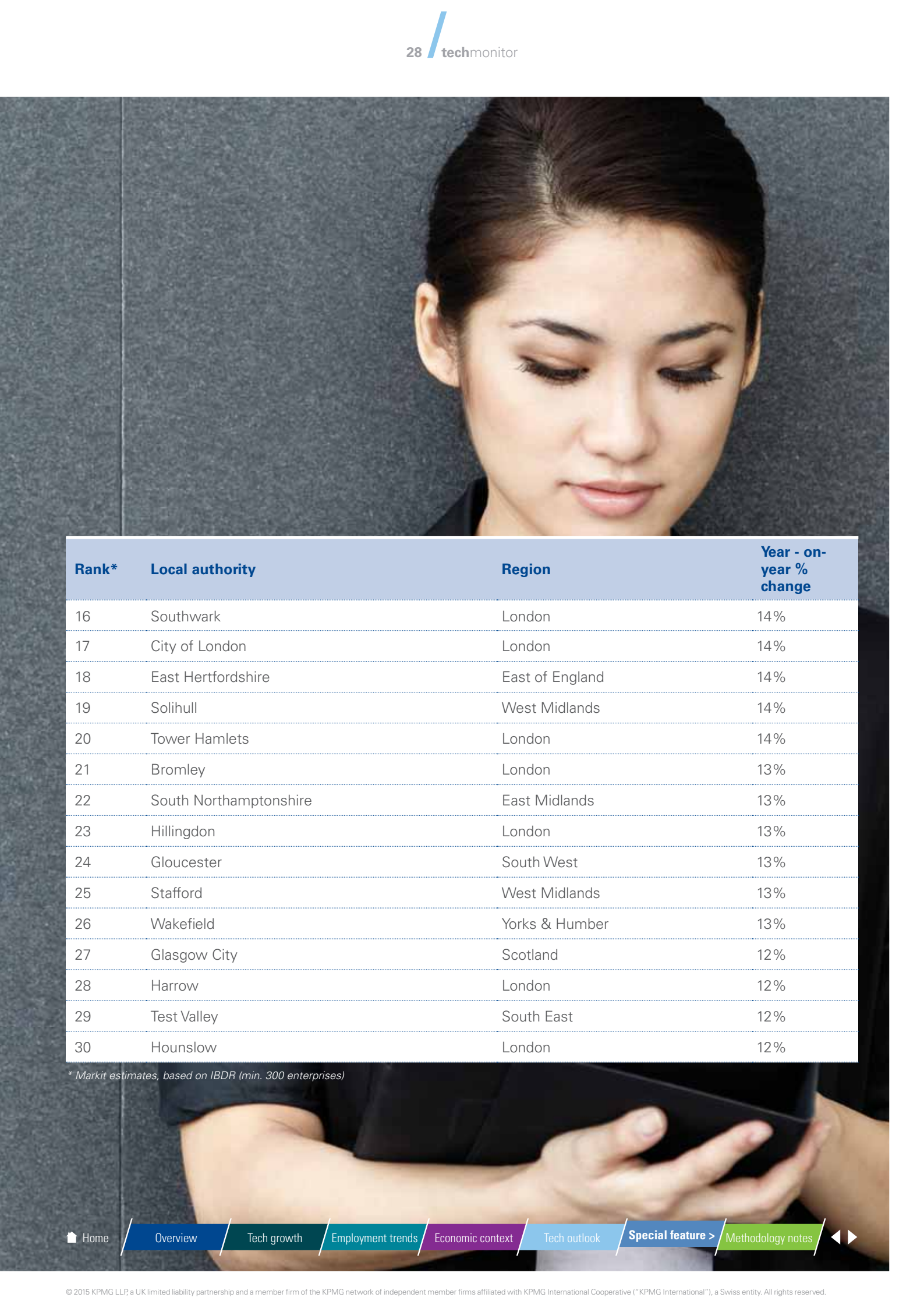
Local Authorities Analysis; fastest growing areas in 2015

In this section, our analysis turns to the local authority areas with the sharpest rise in the number of tech sector enterprises since 2014. These estimates indicate that Warwick (+28%) experienced the fastest increase in tech sector enterprises on a year-on-year basis in 2015, followed by Hackney (+25%) and Rotherham (+21%).

Virtually all of the local authorities covered by this analysis showed an increase in the number of tech sector enterprises since 2014, with 63 out of 203 individual areas experiencing double-digit growth (these estimates exclude the very smallest local areas).

Table 7: UK local authorities: fastest rises in tech sector enterprises since 2014

Rank*	Local authority	Region	Year - on-year % change
1	Warwick	West Midlands	28%
2	Hackney	London	25%
3	Rotherham	Yorks & Humber	21%
4	North Tyneside	North East	20%
5	North Lanarkshire	Scotland	20%
6	Newham	London	19%
7	Islington	London	19%
8	Camden	London	18%
9	Bexley	London	17%
10	Havering	London	17%
11	Waltham Forest	London	17%
12	Cardiff	Wales	15%
13	Barking and Dagenham	London	15%
14	Milton Keynes	South East	15%
15	Dartford	South East	15%



Rank*	Local authority	Region	Year - on-year % change
16	Southwark	London	14%
17	City of London	London	14%
18	East Hertfordshire	East of England	14%
19	Solihull	West Midlands	14%
20	Tower Hamlets	London	14%
21	Bromley	London	13%
22	South Northamptonshire	East Midlands	13%
23	Hillingdon	London	13%
24	Gloucester	South West	13%
25	Stafford	West Midlands	13%
26	Wakefield	Yorks & Humber	13%
27	Glasgow City	Scotland	12%
28	Harrow	London	12%
29	Test Valley	South East	12%
30	Hounslow	London	12%

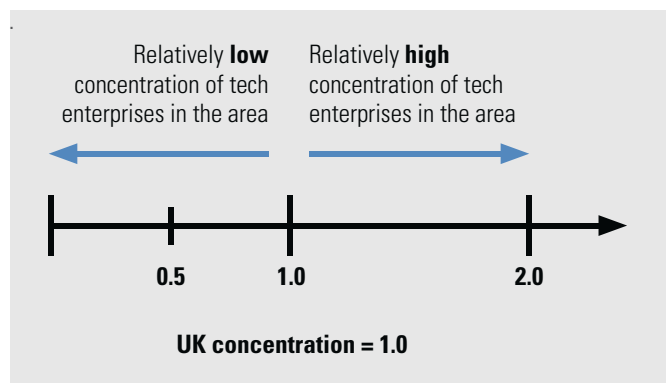
* Markit estimates, based on IBDR (min. 300 enterprises)

Special Feature: Appendix: Full local authority breakdown 2015

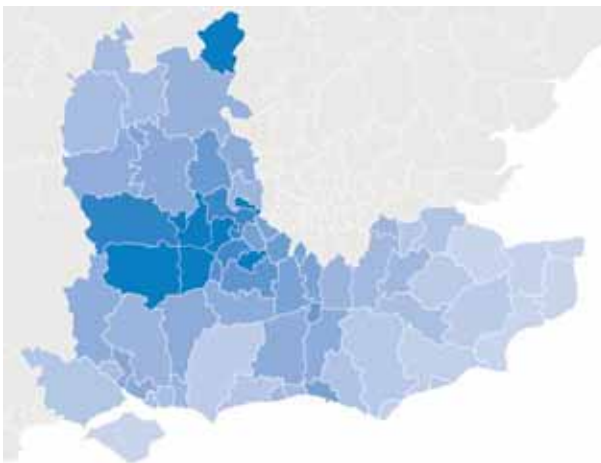
SPECIAL FEATURE

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 percentage of tech companies in the business population in each of the local authorities (based on 2015 IDBR data).



South East



LOWEST – 0.58 → HIGHEST – 2.81

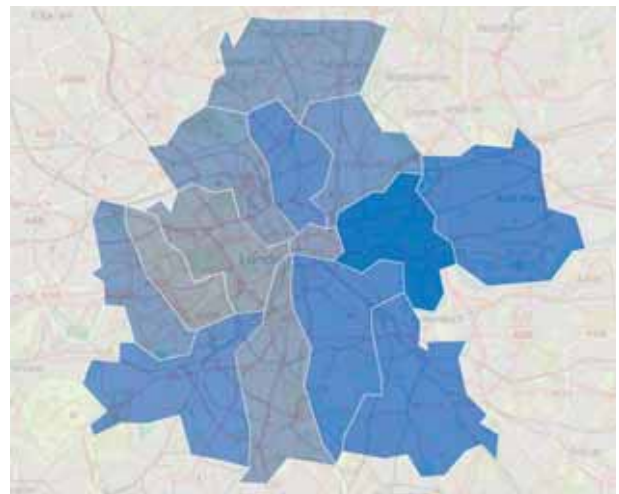
Local authority location quotient

South East: Local Authority Rankings

Local Authority	Tech Location Quotient ¹	% Tech Enterprises
Reading	2.81	21.7%
Wokingham	2.65	20.5%
Slough	2.41	18.6%
Milton Keynes	2.33	18.0%
Woking	2.24	17.3%

Sources: ¹Markit estimates, based on Inter Departmental Business Register 2015

Inner London



LOWEST – 0.74 → HIGHEST – 1.96

Local authority location quotient

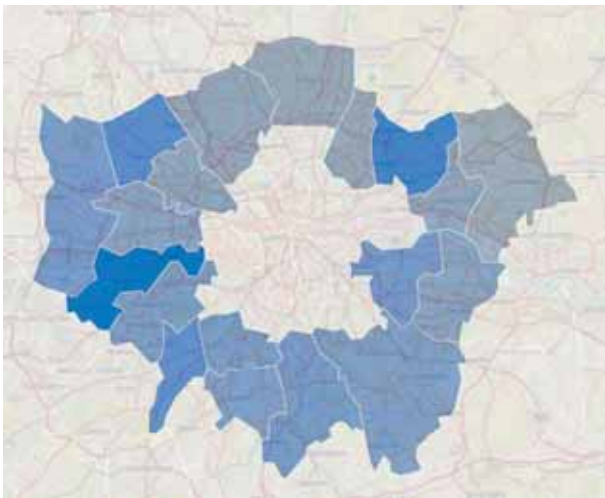
Inner London: Local Authority Rankings

Local Authority	Tech Location Quotient ¹	% Tech Enterprises
Tower Hamlets	1.96	15.1%
Newham	1.65	12.8%
Lewisham	1.62	12.5%
Southwark	1.61	12.5%
Islington	1.57	12.1%

Sources: ¹Markit estimates, based on Inter Departmental Business Register 2015



Outer London



LOWEST – 1.00 → HIGHEST – 2.33

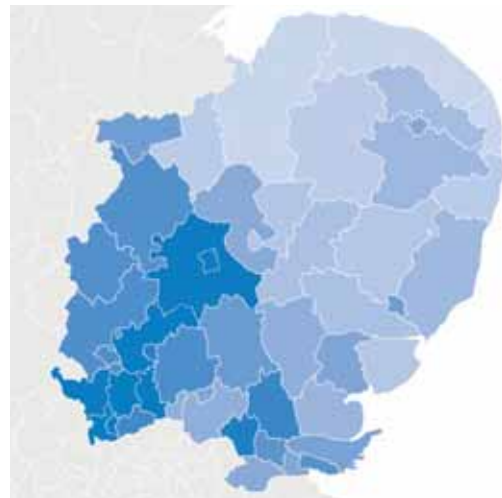
Local authority location quotient

Outer London: Local Authority Rankings

Local Authority	Tech Location Quotient ¹	% Tech Enterprises
Hounslow	2.33	18.0%
Redbridge	2.04	15.8%
Harrow	1.93	14.9%
Kingston upon Thames	1.85	14.3%
Greenwich	1.70	13.1%

Sources: ¹Markit estimates, based on Inter Departmental Business Register 2015

East of England



LOWEST – 0.38 → HIGHEST – 2.16

Local authority location quotient

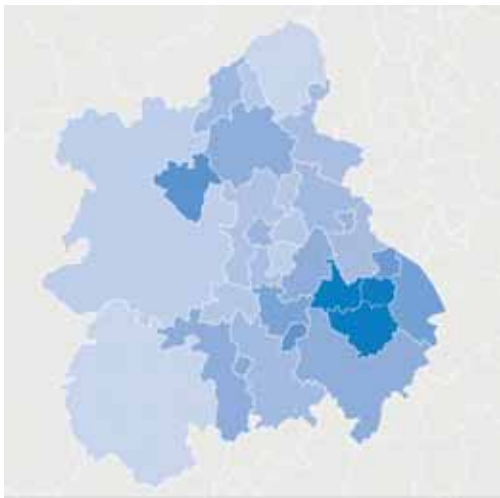
East of England: Local Authority Rankings

Local Authority	Tech Location Quotient ¹	% Tech Enterprises
Cambridge	2.16	16.7%
Watford	1.86	14.4%
South Cambridgeshire	1.73	13.4%
Welwyn Hatfield	1.65	12.7%
Dacorum	1.63	12.6%

Sources: ¹Markit estimates, based on Inter Departmental Business Register 2015

SPECIAL FEATURE

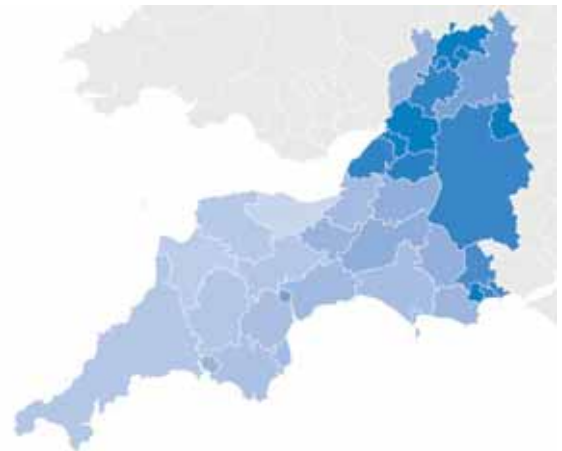
West Midlands



LOWEST – 0.48 → HIGHEST – 1.74

Local authority location quotient

South West



LOWEST – 0.00 → HIGHEST – 1.82

Local authority location quotient

West Midlands: Local Authority Rankings

Local Authority	Tech Location Quotient ¹	% Tech Enterprises
Warwick	1.74	13.5%
Coventry	1.59	12.3%
Solihull	1.37	10.6%
Telford and Wrekin	1.13	8.8%
Redditch	1.12	8.7%

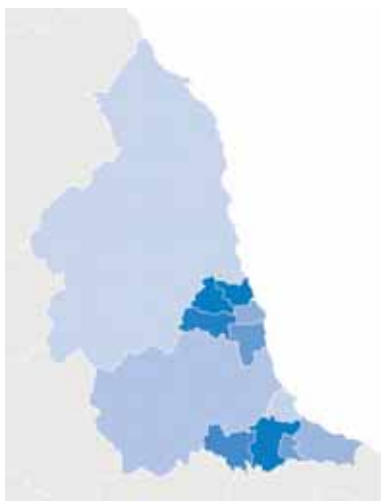
Sources: ¹Markit estimates, based on Inter Departmental Business Register 2015

South West: Local Authority Rankings

Local Authority	Tech Location Quotient ¹	% Tech Enterprises
Swindon	1.82	14.1%
Cheltenham	1.52	11.8%
South Gloucestershire	1.28	9.9%
Poole	1.26	9.8%
Tewkesbury	1.21	9.3%

Sources: ¹Markit estimates, based on Inter Departmental Business Register 2015

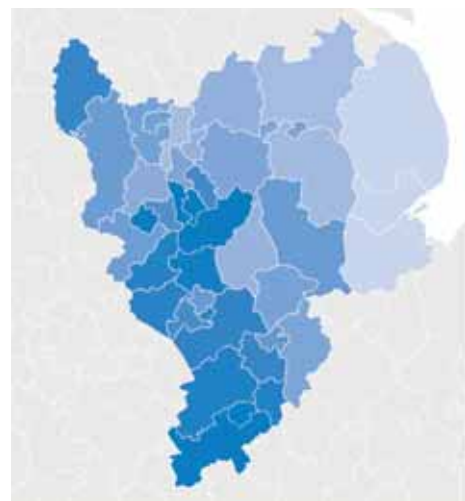
North East



LOWEST – 0.49 → HIGHEST – 0.96

Local authority location quotient

East Midlands



LOWEST – 0.19 → HIGHEST – 1.10

Local authority location quotient

North East: Local Authority Rankings

Local Authority	Tech Location Quotient ¹	% Tech Enterprises
Stockton-on-Tees	0.96	7.4%
North Tyneside	0.91	7.0%
Newcastle upon Tyne	0.90	6.9%
Gateshead	0.82	6.3%
Darlington	0.78	6.1%

Sources: ¹Markit estimates, based on Inter Departmental Business Register 2015

East Midlands: Local Authority Rankings

Local Authority	Tech Location Quotient ¹	% Tech Enterprises
South Northamptonshire	1.10	8.5%
Rushcliffe	1.06	8.2%
Broxtowe	1.04	8.0%
Derby	1.03	8.0%
Nottingham	0.93	7.2%

Sources: ¹Markit estimates, based on Inter Departmental Business Register 2015

SPECIAL FEATURE

North West



LOWEST – 0.20 → HIGHEST – 1.27

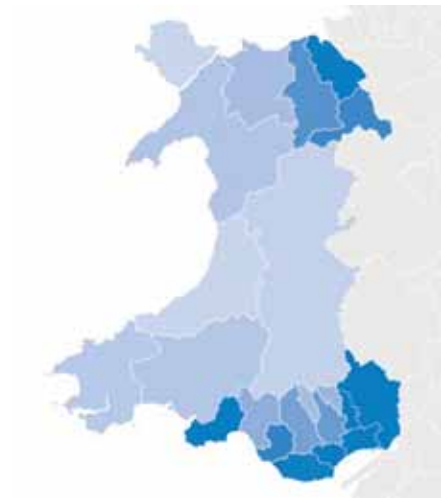
Local authority location quotient

North West: Local Authority Rankings

Local Authority	Tech Location Quotient ¹	% Tech Enterprises
Warrington	1.27	9.8%
Fylde	1.10	8.5%
Cheshire East	1.08	8.4%
Trafford	1.07	8.3%
Stockport	1.07	8.3%

Sources: ¹Markit estimates, based on Inter Departmental Business Register 2015

Wales



LOWEST – 0.24 → HIGHEST – 0.87

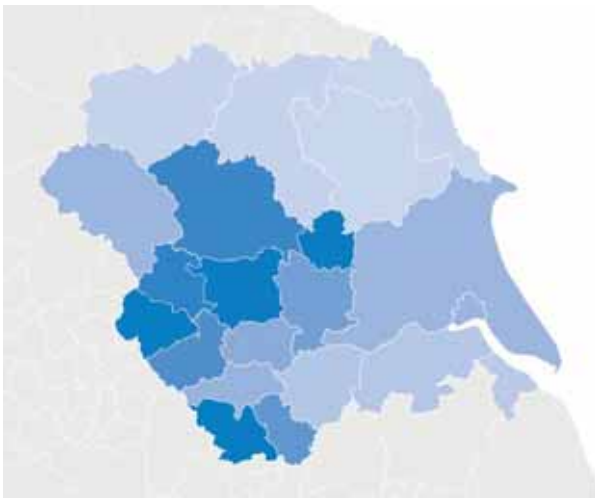
Local authority location quotient

Wales: Local Authority Rankings

Local Authority	Tech Location Quotient ¹	% Tech Enterprises
Torfaen	0.87	6.7%
Newport	0.85	6.6%
Cardiff	0.84	6.5%
Monmouthshire	0.81	6.2%
Flintshire	0.80	6.2%

Sources: ¹Markit estimates, based on Inter Departmental Business Register 2015

Yorkshire and Humber



LOWEST – 0.35 → HIGHEST – 0.99

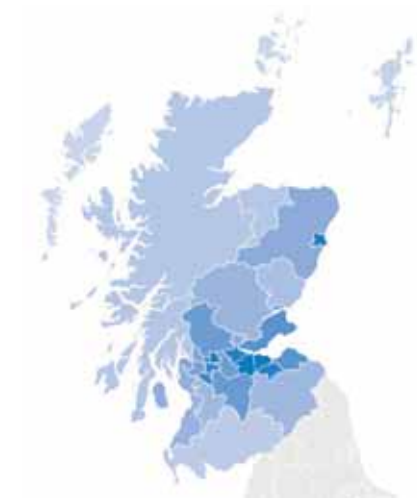
Local authority location quotient

Yorkshire and Humber: Local Authority Rankings

Local Authority	Tech Location Quotient ¹	% Tech Enterprises
York	0.99	7.7%
Leeds	0.96	7.4%
Calderdale	0.92	7.1%
Sheffield	0.89	6.9%
Bradford	0.77	5.9%

Sources: ¹Markit estimates, based on Inter Departmental Business Register 2015

Scotland



LOWEST – 0.13 → HIGHEST – 1.56

Local authority location quotient

Scotland: Local Authority Rankings

Local Authority	Tech Location Quotient ¹	% Tech Enterprises
City of Edinburgh	1.56	12.0%
West Lothian	1.39	10.7%
East Dunbartonshire	1.08	8.3%
Aberdeen City	1.07	8.3%
Midlothian	1.02	7.9%

Sources: ¹Markit estimates, based on Inter Departmental Business Register 2015

Special Feature: Methodology notes

SPECIAL FEATURE

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 **7.7% of all UK enterprises, and 21.7% of all enterprises in Reading.**

$$\begin{aligned} \text{Location quotient} &= (\text{Local share of Industry 'X' enterprises}) / (\text{UK-wide share of Industry 'X' enterprises}) \\ &= (21.7\%) / (7.7\%) \\ &= 2.82 \end{aligned}$$

Reading location quotient for Industry 'X' enterprises is 2.82

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 2015.

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 16 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 16 categories represent an accurate bellwether for the footprint of 'technology enterprises' within UK local authorities.



The 'Technology Sector Cluster' 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)
- Manufacture of air and spacecraft and related machinery (SIC 303)*
- Manufacture of electrical and electronic equipment for motor vehicles (SIC 2931)*
- Manufacture of other parts and accessories for motor vehicles (SIC 2932)*
- Wireless telecommunications activities (SIC 6120)*
- Satellite telecommunications activities (SIC 6130)*
- Other telecommunications activities (SIC 6190)*
- Other financial service activities, except insurance and pension funding, n.e.c. (SIC 6499)*
- Other information service activities n.e.c. (SIC 6399)*
- Research and experimental development on biotechnology (SIC 7211)*
- Other research and experimental development on natural sciences and engineering (SIC 7219)*
- Engineering design activities for industrial process and production (SIC 71121)*

* New addition for the 2015 Tech Monitor UK special feature.

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)

This analysis uses the '**enterprise units**' method, with 2015 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 over 400 UK local authorities.**

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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.

Tech PMI 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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