KPMG
cutting through complexity

Tech Monitor UK

Understanding tech clusters and tracking the UK tech sector's outlook for employment and growth

www.kpmg.com/uk/techmonitoruk

Foreword

Technology is widely seen by most countries as one of the key industries for the 21st century, not only as a key sector in itself for generating economic output and employment, but also for underpinning the growth of other industries - everything from defence to healthcare to financial services. Yet despite its importance, it has not been an industry that has traditionally had a high profile in the UK compared to other sectors such as financial services, media, fashion and going further back, manufacturing. In recent years of course, this has begun to change along with the increasing use of consumer technology in our daily lives. Happily, the UK tech sector is beginning to get the profile and attention that it needs – it is no longer unusual to read about tech entrepreneurs in our daily newspapers and political parties of all persuasions have recognised the need to promote this important sector in its policies. It is against this backdrop of growing recognition for the tech sector in the UK that we have commissioned this report, the first in what we see as an ongoing series. The report looks to answer three important questions about the tech sector in the UK. Firstly, where are the technology clusters in Great Britain? Secondly, what are the employment trends at UK tech companies? Last but not least, how confident are UK technology companies about the business outlook?

The report comes up with a number of key findings. Perhaps not surprisingly, it identifies the South East as the key region for technology clusters with the top 10 tech clusters being close to the M4, M3 or M25 motorways - all providing easy access to Heathrow Airport and Gatwick Airport. Importantly, the report finds that the tech sector has generated solid rates of job creation over the last four years and that it has consistently outpaced other UK private sectors in creating jobs since the global financial crisis in 2008/09. In terms of business outlook and confidence, we can take heart that tech companies in the UK are bullish about the next 12 months. Optimism is at one of the highest levels since data was first recorded in late 2009 and also continues the trend that tech companies are consistently more upbeat regarding hiring intentions then other UK sectors.

We hope that you find this report interesting and that it helps raise the profile of the tech sector in the UK, and we welcome feedback about the findings or suggestions for the next report.

Tudor Aw

KPMG Technology Sector Head

Contents

1 Executive summary

Location of UK technology sector employment clusters

Key findings:

- Wokingham is the number one tech employment cluster in Great Britain.
- The proportion of tech jobs in Wokingham is more than five times the UK average.
- The top 10 tech jobs clusters are all close to the M4, M3 or M25 motorways.
- Around 70% of all local authorities in the South East exceed the UK average.
- London is in second place, with 64% of its boroughs surpassing the UK trend.
- Cambridge, South Cambridgeshire, Christchurch and Tewkesbury have the largest concentrations of tech jobs outside of the South East.

Source: Office for National Statistics, Markit calculations.

UK technology sector job hiring and growth trends

Key findings summer 2013:

- UK tech sector output growth is the fastest since May 2010.
- Employment growth remains much stronger than the UK-wide trend.

Source: Markit.

UK technology sector business outlook

Key findings summer 2013:

- Tech companies are the most confident about the business outlook since at least 2009.
- UK tech firms plan to increase employment strongly over the next 12 months.
- Growth expectations at tech companies outstrip UK private sector average.
- Job hiring among tech firms is set to exceed the UK average.

Source: Markit.

2 Introduction

i) About the research

KPMG commissioned Markit Economics to compile new economic data for the UK technology sector, by drawing together official labour market figures and Markit's proprietary survey information on UK private sector economic trends.

The research is intended to provide an in-depth geographical snapshot of technology sector employment patterns and clusters. This one-off snapshot is complemented by Markit's business survey data, which provides the most up-to-date assessment of technology sector job hiring trends, and the outlook for employment and growth in 2013/14.

In the following analysis, three key questions are addressed.

1. Where are the technology clusters in Great Britain? (Section 3)

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 industrial specialisation. (Please note that data for NI was not available).

2. What are the recent job hiring trends at UK technology companies? (Section 4)

The second strand of the research is the creation of a business cycle indicator for the technology sector, the UK Tech Sector Purchasing Managers' Index (PMI). This survey-based index provides a new method for tracking job creation and economic growth at UK technology companies on a high-frequency basis, with 10+ years of data history available up to August 2013.

3. How confident are UK technology companies about the business outlook? (Section 5)

In the final section, we analyse Markit's proprietary Business Outlook survey data for the UK tech sector, to provide a unique gauge of job hiring intentions and 2013/14 growth expectations among technology companies.

ii) Data sources and concept

The Annual Business Register and Employment Survey (BRES), produced by the Office for National Statistics (ONS), is the underlying data source for technology cluster information, alongside official quarterly labour market data series and ONS national accounts information.

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.

By bringing together these data sources, and applying our own analysis, we estimate the technology sector footprint in more than 350 UK local authorities.

Markit's regular UK Manufacturing and Services Purchasing Managers' Index (PMI) surveys of approximately 2,000 private sector businesses is used to compile figures for technology sector performance and its ranking against the wider economy.

Technology sector employment is a 'workplace based' concept, rather than an 'occupation based' concept in this analysis. A full explanation of the methodology is provided in Section 6, which outlines how Markit Economics used official data and proprietary information to produce the research that follows.

FINDING THE PULSE

LOCATION OF UK TECHNOLOGY SECTOR EMPLOYMENT CLUSTERS

KEY FACTS

#1 WOKINGHAM

Wokingham is the number one tech employment cluster in the UK

5X

Proportion of tech jobs in Wokingham is more than five times the UK average

TOP 10
Tech Clusters
M4 M3 M25

The top 10 tech jobs clusters are all close to the M4, M3 or M25 motorways

70%

70% of all local authorities in the South East have a higher proportion of tech workers than the national average

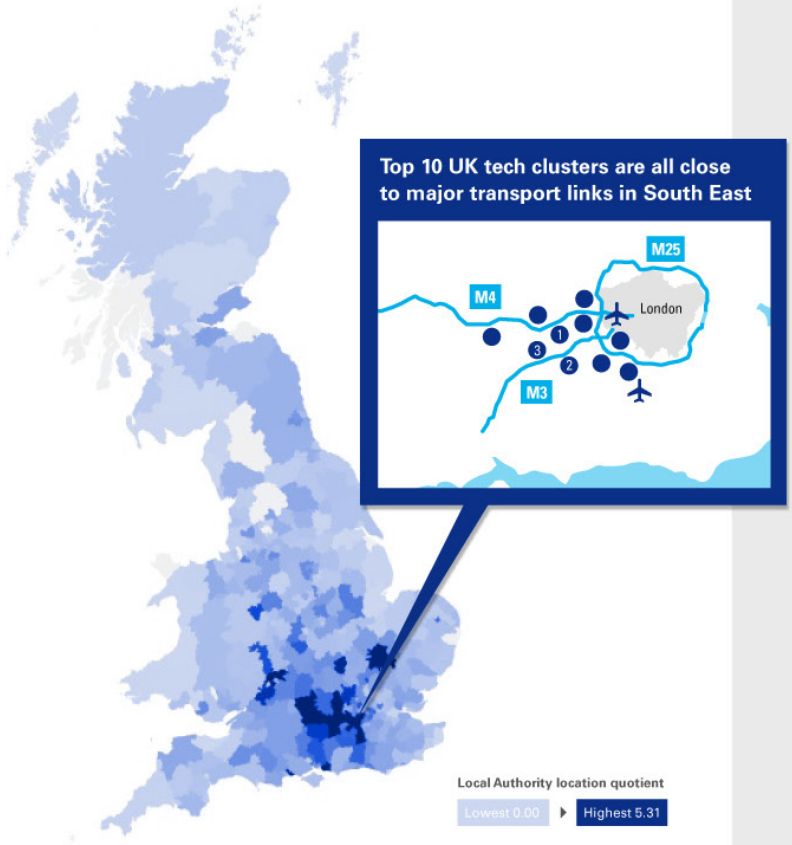
Where are the technology clusters in the United Kingdom?

The top 10
local authorities with the highest proportion of tech workers were all in the South East of England

Overall
126 local authorities (out of a total of 363) had a higher proportion of tech employees than the national average

The top 25
ranked local authorities all had over twice the national proportion of tech employees

Cambridge,
South Cambridgeshire, Christchurch and Tewkesbury have the largest concentration of tech jobs outside of the South East



1 Wokingham
Wokingham, as the highest ranked local authority for tech jobs concentration, is home to large multinational firms in the Thames Valley Business Park and Sutton Business Park

2 Rushmoor
Rushmoor local authority features a number of tech firms at business parks such as IQ Farnborough and the Farnborough Aerospace Centre

3 Hart
Third-placed district Hart is home to large tech companies in the Bartley Wood Business Park in Hook and Meadows Business Park in Blackwater

3 Where are the technology clusters in Great Britain?

Key findings:

- Wokingham is the number one tech employment cluster in Great Britain.
- In Wokingham, the proportion of tech jobs is more than five times the UK average.
- The top 10 tech jobs clusters are all close to either the M4, M3 or M25 motorways.
- Around 70% of all local authorities in the South East exceed the UK average.

In this section, we estimate the areas within Great Britain that have the largest local footprint of tech jobs. The Office for National Statistics publishes location quotients by local authority in Great Britain, and we have adapted this raw data to provide the figures and analysis contained in the remainder of this section.

Location quotients are ratios derived by comparing the concentration of industry jobs in local authorities with the national share of employment in the same industry. We have estimated 'tech sector' location ratios for well over 350 local authorities in Great Britain, and the full methodology is outlined in section 6.

Local authorities across Great Britain are ranked according to their relative tech workforce numbers, with the results illustrated in the map below and tables that follow. Any location quotient above one signals a greater than average concentration of tech jobs in a local area. Additional data tables/charts are in the appendix (section 7).

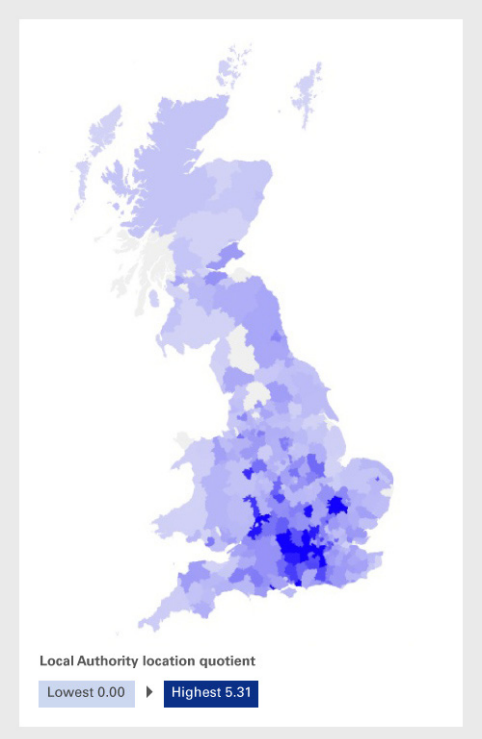


Figure 1: Heatmap of UK tech jobs clusters, by local authority

The ten local authorities with the highest proportion of tech workers were all in the South East of England.

Overall, 126 local authorities (out of a total of 363) recorded a quotient greater than one.

The top 25 ranked local authorities all had over twice the national proportion of tech employees. Tech clusters were mostly found in the South East and London.

The concentration of tech employment in the South East was greater than the national average in 47 of 66 local authorities, with Wokingham in Berkshire having more than five times the national proportion of tech workers.

In London, 21 out of 33 local authorities had a higher proportion of tech workers than the

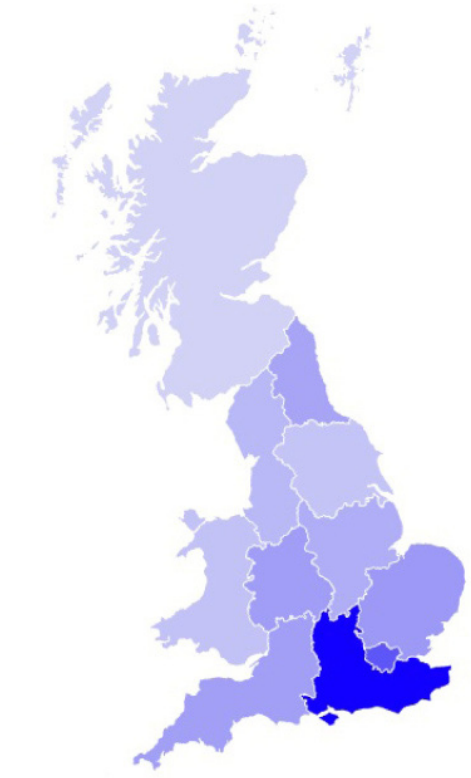
national average. The local authority with the greatest concentration of tech workers, Richmond upon Thames, scored a location quotient of 2.37, signalling that the area had nearly two-and-a-half times the national proportion of tech employees.

Although a majority of tech clusters were found in the South East and London, there were local authorities within other regions that had high proportions of tech workers. Tewkesbury, in the South West, scored the highest location quotient (2.76) outside of the South East, ranking it eleventh out of all local authorities. The second-highest concentration of tech workers outside of the South East and London was in Christchurch in the South West (2.45) followed by Cambridge (2.4) and South Cambridgeshire (2.32) in the East of England.

3.1 Regional Comparison (average local authority location quotient)

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

Figure 2: Footprint of tech sector jobs by region



Regional Tech Location Quotient Rankings

Ranking	Region	Tech Location Quotient[1]
1	South East	1.66
2	London	1.28
3	East of England	0.91
4	West Midlands	0.87
5	South West	0.86
6	North East	0.80
7	East Midlands	0.73
8	North West	0.63
9	Wales	0.54
10	Yorkshire and Humber	0.52
11	Scotland	0.40

Sources:
1 Markit estimates, based on ONS data

After calculating the average location quotient for each of the eleven regions of Great Britain, only the South East and London have a higher proportion of tech workers relative to the national average.

The highest tech location quotient was recorded in the South East, where the proportion of tech workers is on average more than one-and-a-half times the national proportion. The greatest tech clusters in the region were in Wokingham, Rushmoor and Hart.

London has the second-highest proportion of tech workers nationally, particularly in the boroughs of Richmond upon Thames and Hounslow.

At the other end of the spectrum, Scotland recorded the lowest quotient, followed by Yorkshire and Humber, indicating that the tech sector is responsible for employing a substantially lower proportion of people in these regions than the national average.

In Scotland, the proportion of tech workers was less than half the national average, although some individual local authorities exceeded the UK-wide benchmark.

3.2 Tech clusters around major transport links in the South East

The ten local authorities with the highest concentration of tech jobs are all located in the South East of England. These areas sit within close proximity to three motorways, the M3, M4 and M25, providing easy access to Heathrow Airport and Gatwick Airport, as well as relatively short train journeys to London.

Major multinational tech companies, as well as smaller 'high tech' firms, are based throughout the purpose-built business parks located within the top ranked local authorities.

Wokingham, the highest ranked local authority for tech jobs concentration, is home to large multinational firms in Thames Valley Business Park and Suttons Business Park. These business parks are in very close proximity to Reading, and the nearby Green Park is another example of tech sector employment concentrated close to the Wokingham district/Reading local authority boundary line.

Farnborough, within the second-ranked Rushmoor local authority, features a number of tech firms at business parks such as IQ Farnborough and the Farnborough Aerospace Centre (adjacent to Farnborough Airport).This trend continues for third-placed Hart district and beyond, with Bartley Wood Business Park in Hook and Meadows Business Park in Blackwater home to a number of large tech companies in the local authority.

Figure 3: Heatmap of location quotients in the South East. Top 10 UK local authorities in yellow and key transport infrastructure highlighted

Figure 4: Top 10 local authority tech quotient rankings

Top 10 local authority tech quotient rankings

Ranking	Region	Local authority	Tech location quotient[(1)]
1	South East	Wokingham	5.31
2	South East	Rushmoor	4.70
3	South East	Hart	4.13
4	South East	Slough	3.91
5	South East	Mole Valley	3.48
6	South East	Runnymede	3.22
7	South East	Windsor and Maidenhead	3.18
8	South East	Reading	3.11
9	South East	Woking	3.03
10	South East	West Berkshire	2.80

Source: (1) Markit estimates, based on ONS data.

3.3 A closer look at London

Larger than average tech footprints were seen almost two-thirds of all London boroughs, although the highest concentrations of tech sector employment were largely seen towards the west of London.

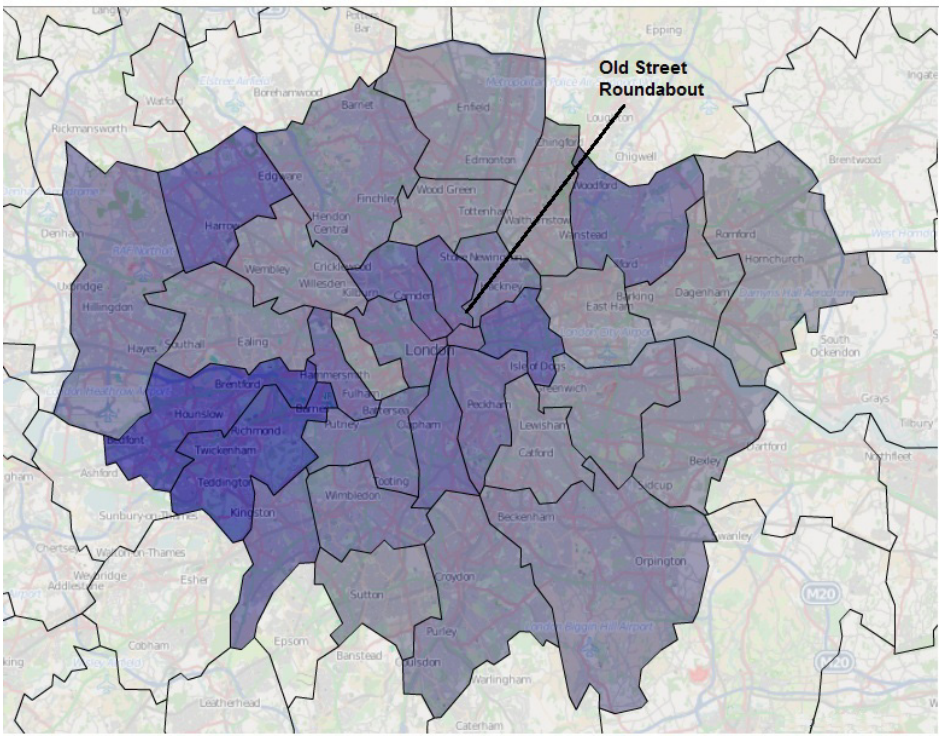
Richmond upon Thames had the highest concentration of tech employment (2.37), followed by Hounslow (2.28). Like the hotspots outside of the capital, both of these areas have close links to the M3, M4 and Heathrow Airport.

The area around Old Street Roundabout, which sits on the boundary of Hackney and Islington, featured among the larger tech employment concentrations in London, with those boroughs scoring tech location quotients of 1.41 and 1.70 respectively.

There are several intuitive explanations why the 'Tech City' area around Old Street Roundabout did not feature at the top of the London table of tech sector employment concentrations. Firstly, it straddles the London boroughs of Hackney and Islington, which both have large, diverse local economies and are home to many multinational companies, especially in the financial services, advertising and market research industries. This means that the tech sector can and does employ many thousands of people without having a particularly large overall footprint.

Secondly, the ONS location quotient data are based upon employment at VAT-registered companies in 2011, so may not fully capture start-up companies and small businesses that have sprung up in 'Tech City' more recently. Moreover, the location quotients capture the number of employees working in a local area, rather than the number of enterprises, and are therefore sensitive to the location of large tech companies, which are generally headquartered along the M3 and M4 corridor.

Figure 5: Heatmap of location quotients in London, with Old Street Roundabout highlighted



3.4 Full local authority breakdown

The following heatmaps illustrate the distribution of tech workers within each of the eleven Great Britain regions by local authority. The regions are ranked by their average proportion of tech workers 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 employment (tech quotient). To give additional perspective, the tables also feature the total number of jobs across all industries in each of the local authorities (based on 2011 ONS jobs data).

Figure 6: Interpreting UK location quotients for tech jobs

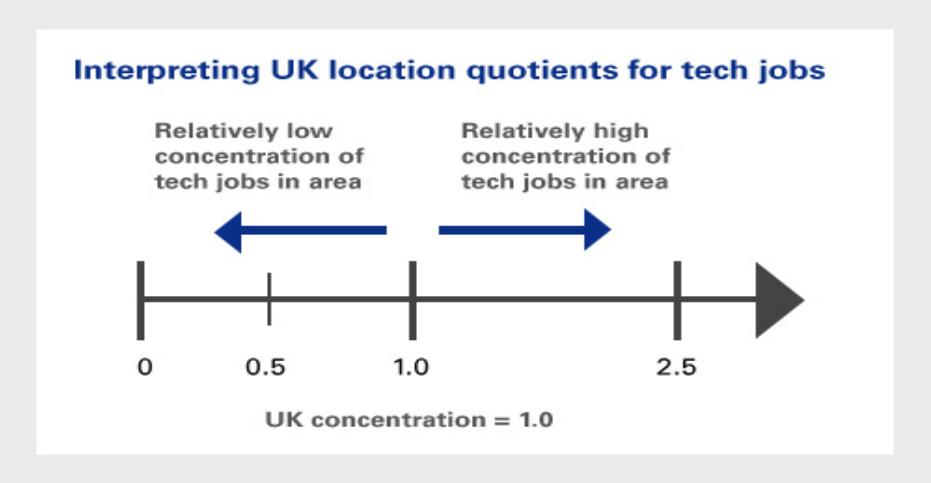
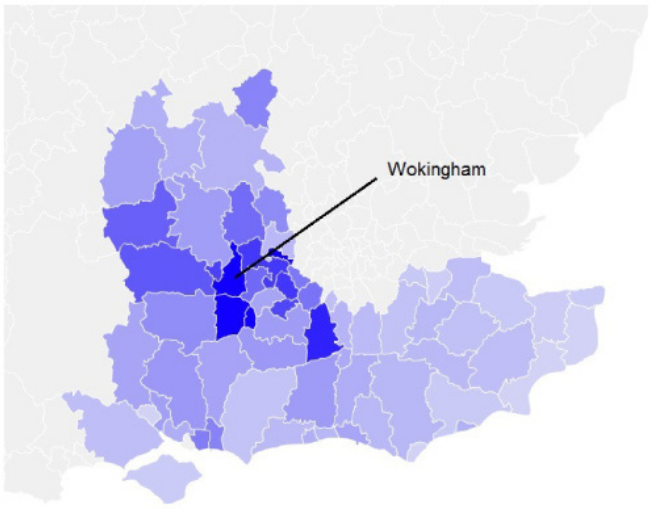


Figure 7: South East tech employment



Local Authority location quotient

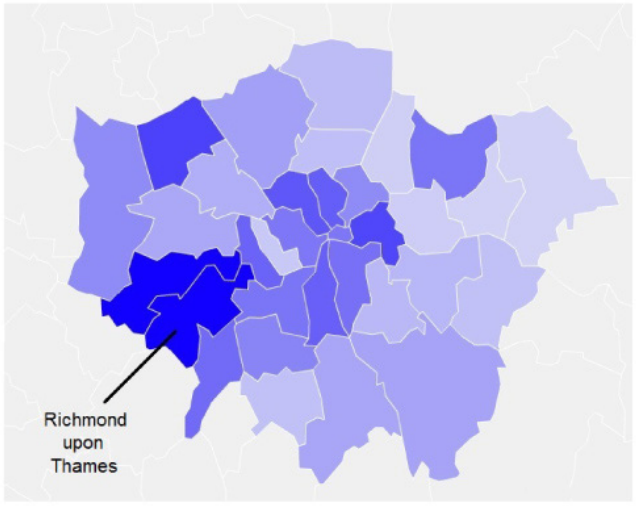
Lowest 0.19 ▸ Highest 5.31

South East: Local Authority Rankings

Tech Location Quotient[1]	Local Authority	Total Jobs[2] (All Types)
5.31	Wokingham	81,000
4.70	Rushmoor	51,000
4.13	Hart	46,000
3.91	Slough	87,000
3.48	Mole Valley	52,000

Sources:
1 Markit estimates, based on ONS data
2 ONS jobs density (2011), includes self-employed and HM Forces

Figure 8: London tech employment



Local Authority location quotient

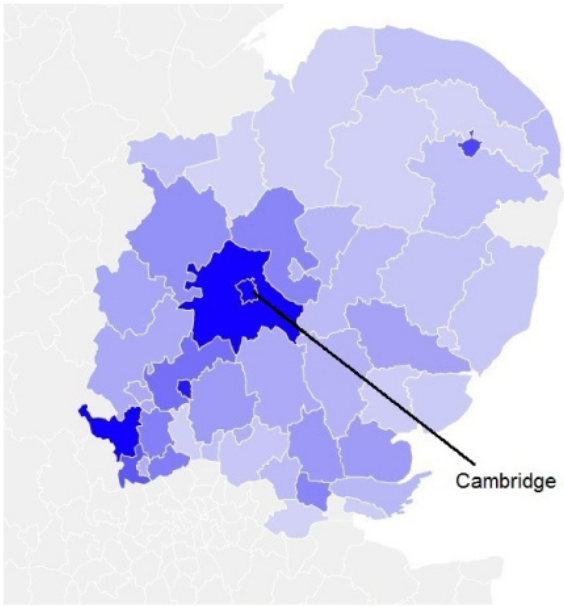
Lowest 0.51 ▸ Highest 2.37

London: Local Authority Rankings

Tech Location Quotient[1]	Local Authority	Total Jobs[2] (All Types)
2.37	Richmond upon Thames	95,000
2.28	Hounslow	150,000
1.87	Harrow	76,000
1.84	Tower Hamlets	251,000
1.74	Camden	325,000

Sources:
1 Markit estimates, based on ONS data
2 ONS jobs density (2011), includes self-employed and HM Forces

Figure 9: East of England tech employment



East of England: Local Authority Rankings

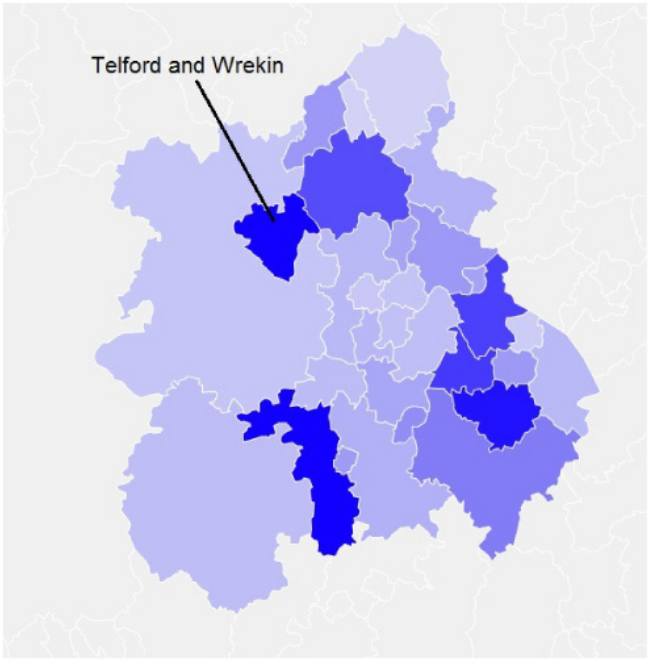
Tech Location Quotient[1]	Local Authority	Total Jobs[2] (All Types)
2.40	Cambridge	98,000
2.32	South Cambridgeshire	82,000
2.12	Dacorum	71,000
1.97	Stevenage	47,000
1.69	Norwich	94,000

Sources:
1 Markit estimates, based on ONS data
2 ONS jobs density (2011), includes self-employed and HM Forces

Local Authority location quotient

Lowest 0.22 ▸ Highest 2.40

Figure 10: West Midlands tech employment



West Midlands: Local Authority Rankings

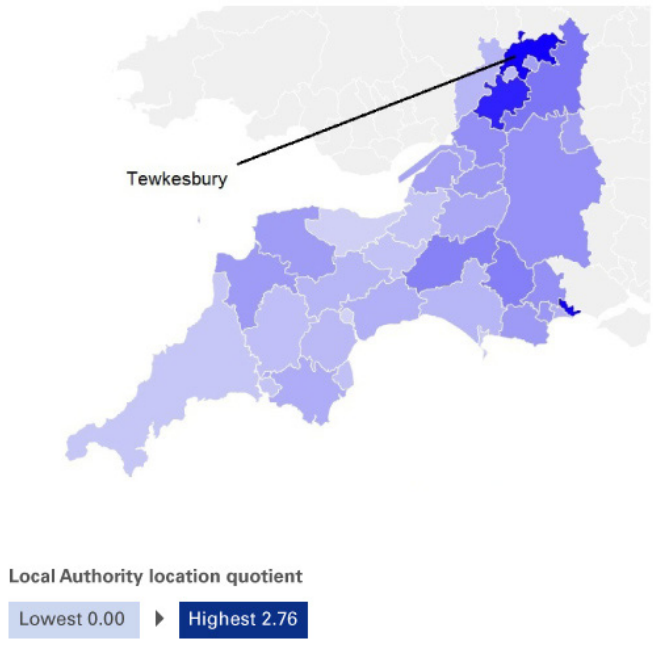
Tech Location Quotient[1]	Local Authority	Total Jobs[2] (All Types)
2.00	Telford and Wrekin	85,000
1.92	Malvern Hills	31,000
1.82	Warwick	91,000
1.58	Solihull	108,000
1.54	North Warwickshire	44,000

Sources:
1 Markit estimates, based on ONS data
2 ONS jobs density (2011), includes self-employed and HM Forces

Local Authority location quotient

Lowest 0.28 ▸ Highest 2.00

Figure 11: South West tech employment

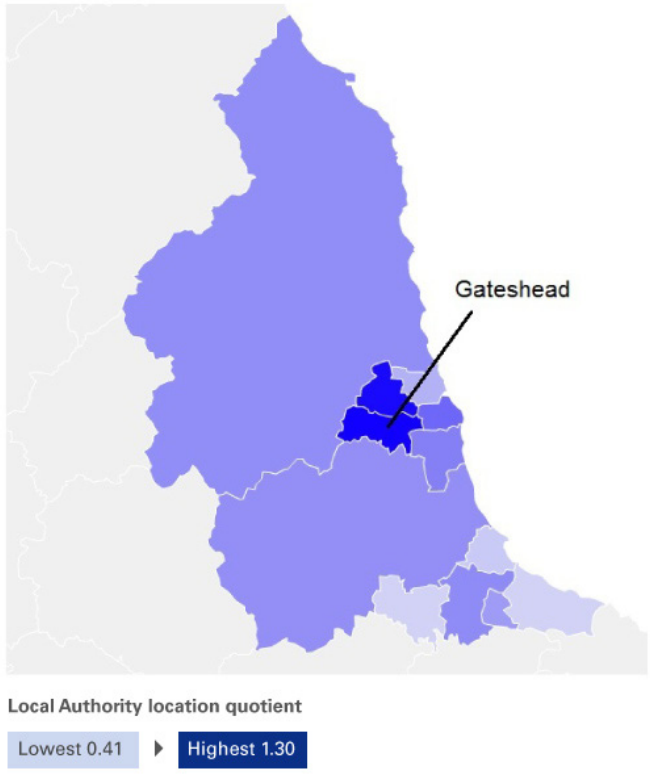


South West: Local Authority Rankings

Tech Location Quotient[1]	Local Authority	Total Jobs[2] (All Types)
2.76	Tewkesbury	44,000
2.45	Christchurch	22,000
2.17	Stroud	57,000
1.45	Cotswold	46,000
1.37	North Dorset	33,000

Sources:
1 Markit estimates, based on ONS data
2 ONS jobs density (2011), includes self-employed and HM Forces

Figure 12: North East tech employment

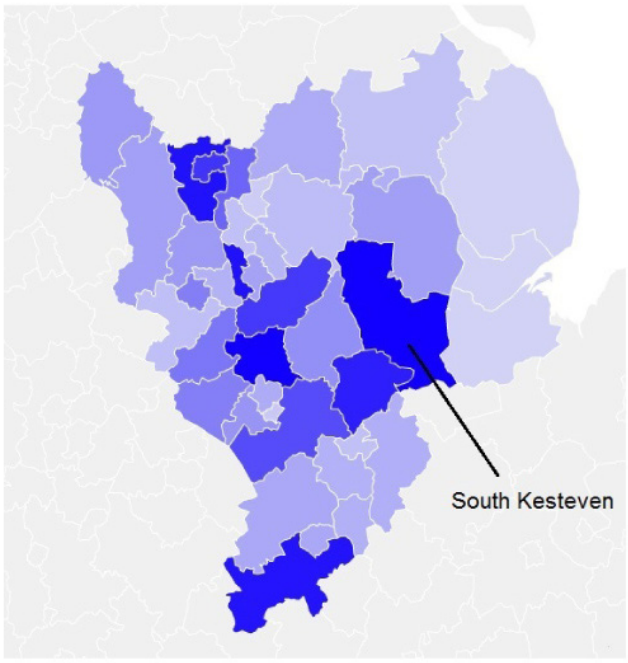


North East: Local Authority Rankings

Tech Location Quotient[1]	Local Authority	Total Jobs[2] (All Types)
1.30	Gateshead	101,000
1.27	Newcastle upon Tyne	190,000
0.97	South Tyneside	48,000
0.89	Sunderland	126,000
0.85	Stockton-on -Tees	89,000

Sources:
1 Markit estimates, based on ONS data
2 ONS jobs density (2011), includes self-employed and HM Forces

Figure 13: East Midlands tech employment



Local Authority location quotient

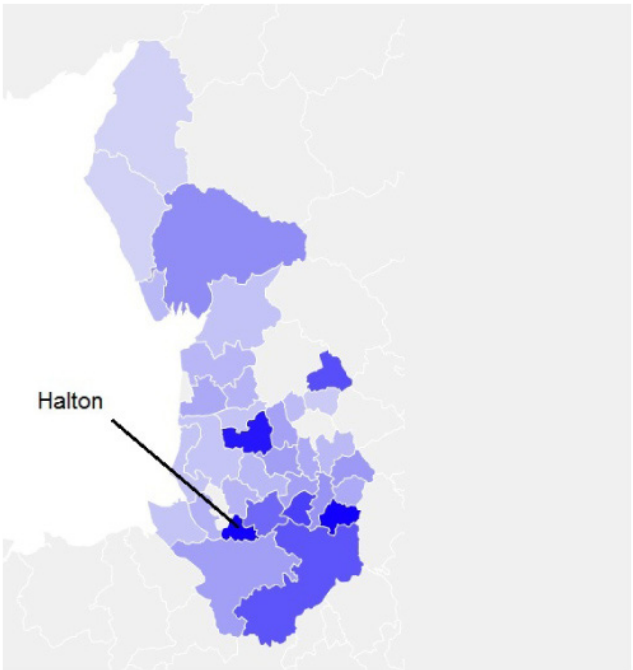
Lowest 0.05 ▸ Highest 1.51

East Midlands: Local Authority Rankings

Tech Location Quotient[1]	Local Authority	Total Jobs[2] (All Types)
1.51	South Kesteven	62,000
1.45	Charnwood	70,000
1.37	North East Derbyshire	31,000
1.37	Broxtowe	42,000
1.36	South Northamptonshire	36,000

Sources:
1 Markit estimates, based on ONS data
2 ONS jobs density (2011), includes self-employed and HM Forces

Figure 14: North West tech employment



Local Authority location quotient

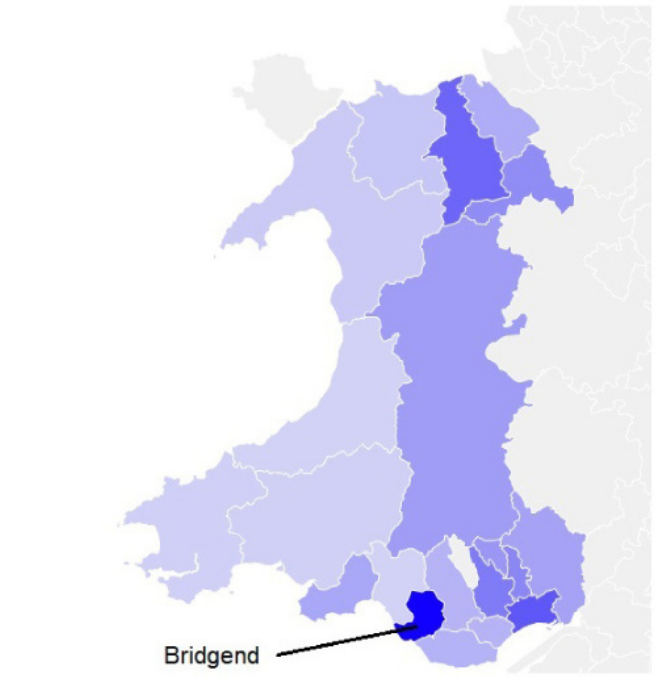
Lowest 0.17 ▸ Highest 1.45

North West: Local Authority Rankings

Tech Location Quotient[1]	Local Authority	Total Jobs[2] (All Types)
1.45	Halton	59,000
1.37	Stockport	140,000
1.28	Chorley	48,000
1.11	Trafford	142,000
1.05	Pendle	37,000

Sources:
1 Markit estimates, based on ONS data
2 ONS jobs density (2011), includes self-employed and HM Forces

Figure 15: Wales tech employment

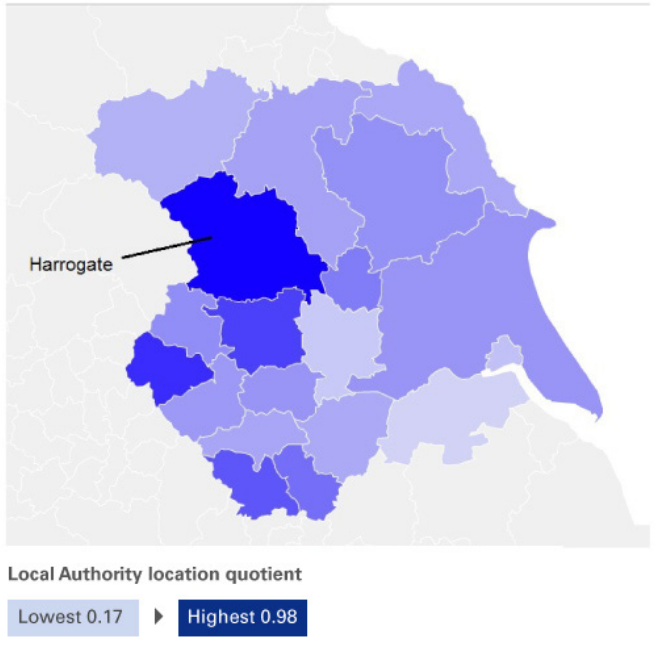


Wales: Local Authority Rankings

Tech Location Quotient[1]	Local Authority	Total Jobs[2] (All Types)
1.37	Bridgend	57,000
1.00	Newport	79,000
0.94	Denbighshire	43,000
0.85	Caerphilly	57,000
0.80	Torfaen	37,000

Sources:
1 Markit estimates, based on ONS data
2 ONS jobs density (2011), includes self-employed and HM Forces

Figure 16: Yorkshire and Humber tech employment

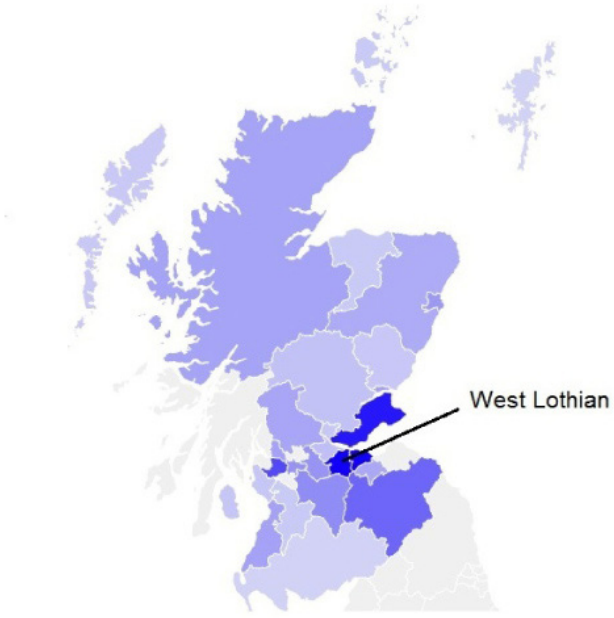


Yorkshire and Humber: Local Authority Rankings

Tech Location Quotient[1]	Local Authority	Total Jobs[2] (All Types)
0.98	Harrogate	94,000
0.85	Calderdale	100,000
0.79	Leeds	450,000
0.73	Sheffield	274,000
0.66	Rotherham	105,000

Sources:
1 Markit estimates, based on ONS data
2 ONS jobs density (2011), includes self-employed and HM Forces

Figure 17: Scotland tech employment



Local Authority location quotient

Lowest 0.00 ▸ Highest 1.15

Scotland: Local Authority Rankings

Tech Location Quotient[1]	Local Authority	Total Jobs[2] (All Types)
1.15	West Lothian	80,000
1.12	City of Edinburgh	331,000
1.03	Fife	146,000
0.84	Renfrewshire	79,000
0.73	Scottish Borders	51,000

Sources:

1 Markit estimates, based on ONS data

2 ONS jobs density (2011), includes self-employed and HM Forces

THE HEALTH OF THE SECTOR

UK TECHNOLOGY SECTOR JOB HIRING AND GROWTH TRENDS

KEY FINDINGS

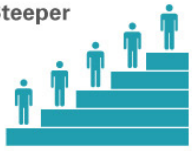
Faster

UK tech sector output growth is the fastest since May 2010.

Stronger

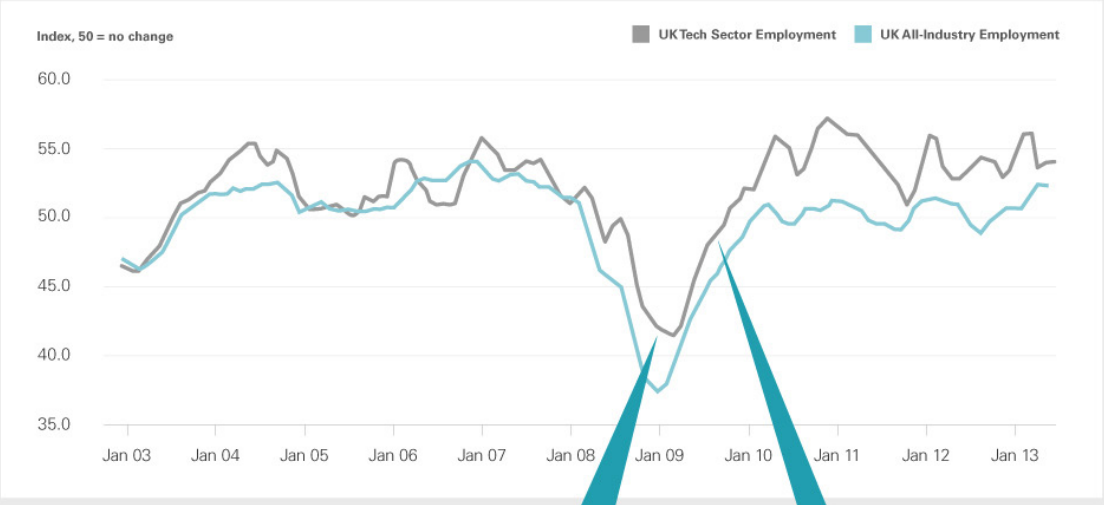
Employment growth much stronger than the UK-wide trend

Steeper



Larger tech companies report steeper growth in job hiring than smaller tech firms.

Tech sector jobs growth mapped against the wider UK economy



Hiring trends

Job hiring trends in the UK tech sector have consistently outpaced those seen across the UK private sector as a whole

Jobs growth

UK tech sector jobs growth saw shallower downturn at the worst point of recession...

Market recovery

...and started to see a labour market recovery before the wider UK economy

4 Job hiring and growth trends at UK tech companies

Key findings in August 2013:

- UK tech sector output growth is the fastest since May 2010.
- Employment growth much stronger than the UK-wide trend.
- Larger tech companies report steeper growth in job hiring than smaller tech firms.
- Tech sector cost inflation is picking up, but still relatively subdued.

Having identified which local authorities are home to clusters of tech employment, we now look to Markit's Purchasing Managers Index (PMI) surveys for a unique and up-to-date assessment of the UK tech sector's economic performance.

The new tech sector PMI data in the following analysis has been derived by creating a sub-category of approximately 150 UK tech companies from Markit's regular survey panels of manufacturers and service providers.

The full definition of tech companies is outlined in the methodology section of the report. All figures are seasonally adjusted and results presented as three month moving averages.

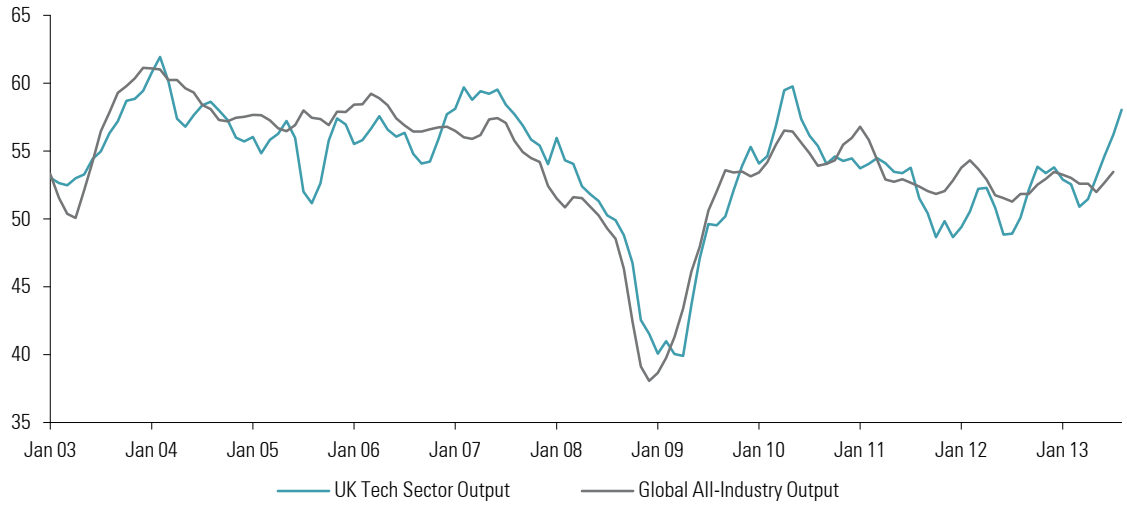
Index numbers vary between 0 and 100, with levels of 50 signalling no-change from the previous month. Readings above 50 signal an increase since the previous month, whilst postings below 50 indicate a decrease. The greater the divergence from 50, the greater the rate of change signalled by the reading.

Tech sector output growth is the fastest since May 2010

The chart below shows the output performance of UK tech companies over the past decade, mapped against equivalent survey data from the Global All-Industry Output Index. At 58.1 in August, up from 56.2 in July, the reading for UK tech companies indicated a robust rate of overall business activity growth that was the fastest since May 2010. The strongest ever reading was recorded in February 2004 (61.9), whilst the lowest point was reached in April 2009 (39.9).

UK tech sector output mapped against the wider global economy

Index, 50 = no change



The figures show that UK tech company output rebounded strongly after the global financial crisis in 2008/09 and has now expanded throughout much of the past four years. Most recently, output growth has accelerated sharply following a relatively soft patch at the beginning of 2013, and the upswing in the sector during August was notably faster than seen across the wider global economy.

Employment growth remains much stronger than the UK-wide trend

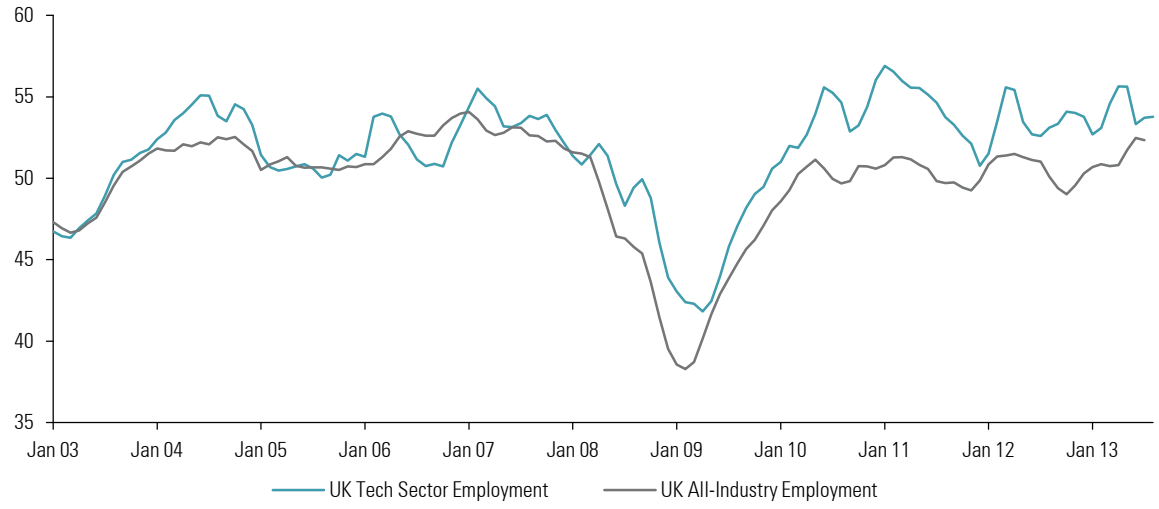
A sustained improvement in business activity at UK tech companies over the four years to August 2013 has led to solid rates of job creation within the sector. The chart below shows UK tech company employment trends against the UK All-Industry benchmark over the past decade.

At 53.8 in August, little-changed from 53.7 in July, the index measuring UK tech company employment was above the neutral 50.0 value for the forty-fifth month running. The peak rate of job creation in the current cycle was achieved in January 2011 (56.9), and this reading was the strongest seen in the ten-year survey history. The lowest ever reading was 41.8 in April 2009.

The chart below highlights that job hiring trends in the UK tech sector have consistently outpaced those seen across the UK private sector as a whole, especially since the global financial crisis in 2008/09. Moreover, the UK tech sector saw a shallower downturn in employment at the worst point of the recession (early 2009), and started to see a labour market recovery before the wider UK economy (early 2010).

Tech sector jobs growth; all-companies versus smaller firms

Index, 50 = no change



Larger tech companies report steeper growth in job hiring than smaller tech firms

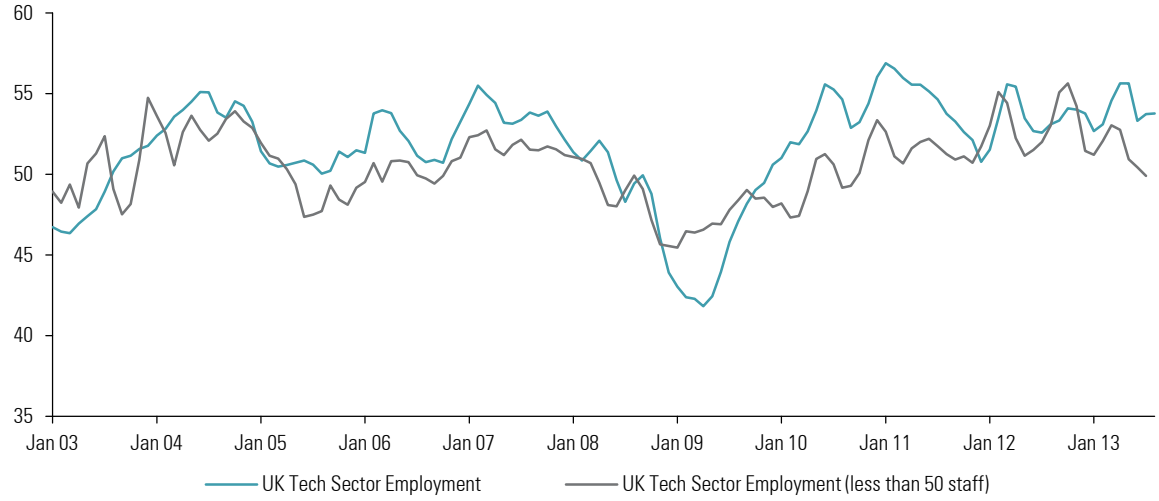
The following chart looks at UK tech sector employment trends, with the group of companies split according to company size (those with less than 50 workers). This sub-set of data provides a useful guide to job hiring trends at larger UK tech companies compared with tech SMEs.

The figures highlight that smaller tech companies tended to hold on to their staff to a greater degree than larger companies during the recession in 2008/09. In the immediate period of the upturn, re-hiring of staff by larger companies looks to have driven job creation (late 2009 and 2010) as SMEs remained cautious on their workforce numbers.

Employment data for 2013 to date shows solid job creation at both SMEs and larger tech companies during the first half of the year, with little difference in growth rates between the two categories. In the second half of 2013, the overall rate of UK tech sector staffing level growth has remained solid, despite some signs of a slowdown in SME job hiring.

Tech sector jobs growth; all-companies versus smaller firms

Index, 50 = no change

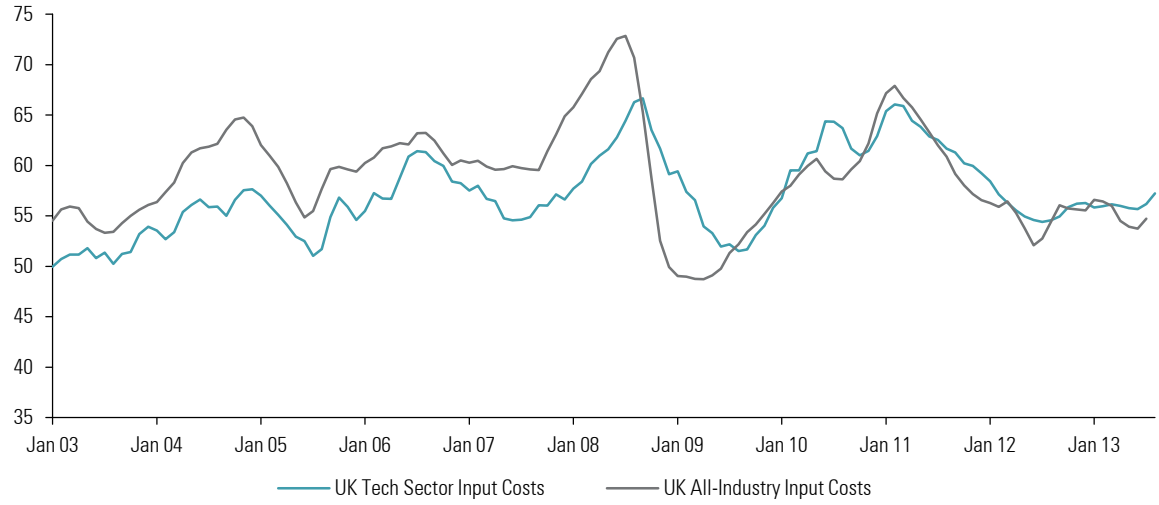


Tech sector cost inflation is picking up, but still relatively subdued

The following chart highlights UK tech sector input cost inflation against that seen for all UK private sector companies over the past decade. Cost inflation at tech companies was much slower than the wider UK trend throughout the five years to late 2008, especially at the end of this period when oil prices were surging to record highs on world markets. Since the global financial crisis and unwinding of commodity price spikes in 2008/09, survey data point to broadly similar trends in cost inflation at tech companies and the wider UK economy.

At 57.2 in August, up from 56.2 in July, the index measuring cost burdens at UK tech companies signalled a robust pace of inflation that was the sharpest since January 2012. Despite now accelerating for four months in a row, the rate of inflation is still subdued compared with the previous cycles, notably the peaks seen in February 2011 (66.1) and September 2008 (66.7). Tech sector input cost inflation trends compared to wider UK economy

Index, 50 = no change



RAISING THE BEAT

UK TECHNOLOGY SECTOR BUSINESS OUTLOOK

KEY FINDINGS

UK tech firms plan to increase employment strongly over the next 12 months

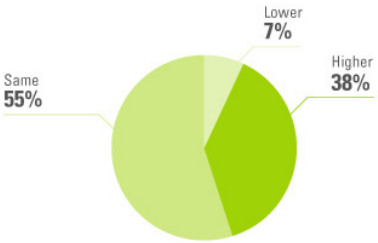
Job hiring among tech firms is set to outstrip the UK average

Tech companies are the most confident about the business outlook since the series began in 2009

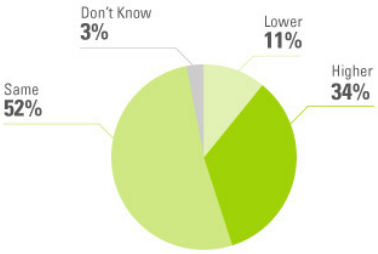
Growth expectations at tech companies are above the UK private sector average

Do you expect employment at your business to be higher, the same or lower in 12 months' time than current levels?

Tech Companies

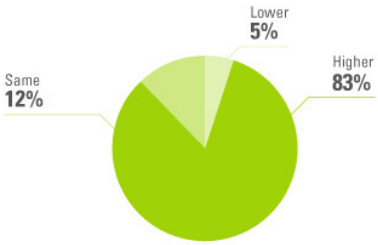


All Companies

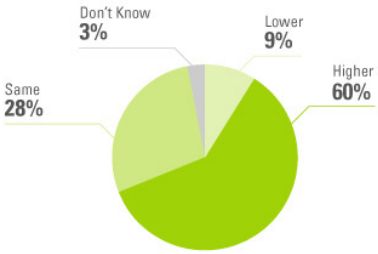


Do you expect business activity to be higher, the same, or lower in 12 months' time than current levels?

Tech Companies



All Companies



5 How confident are UK technology companies about the business outlook?

Key findings in June 2013:

- UK tech firms plan to increase employment strongly over the next 12 months.
- Job hiring among tech firms is set to outstrip the UK average.
- Tech companies are the most confident about the business outlook since the series began in 2009.
- Growth expectations at tech companies are above the UK private sector average.

This section contains analysis of the bespoke Markit survey data on tech firms' business expectations for 2013. Data are based on responses to Markit's tri-annual Global Business Outlook survey, which uses the same panel of companies as the PMI surveys.

In the latest survey conducted in June, there were responses from 649 companies across all sectors, of which one-in-ten were from tech companies (using the same definition as for the PMI data analysis).

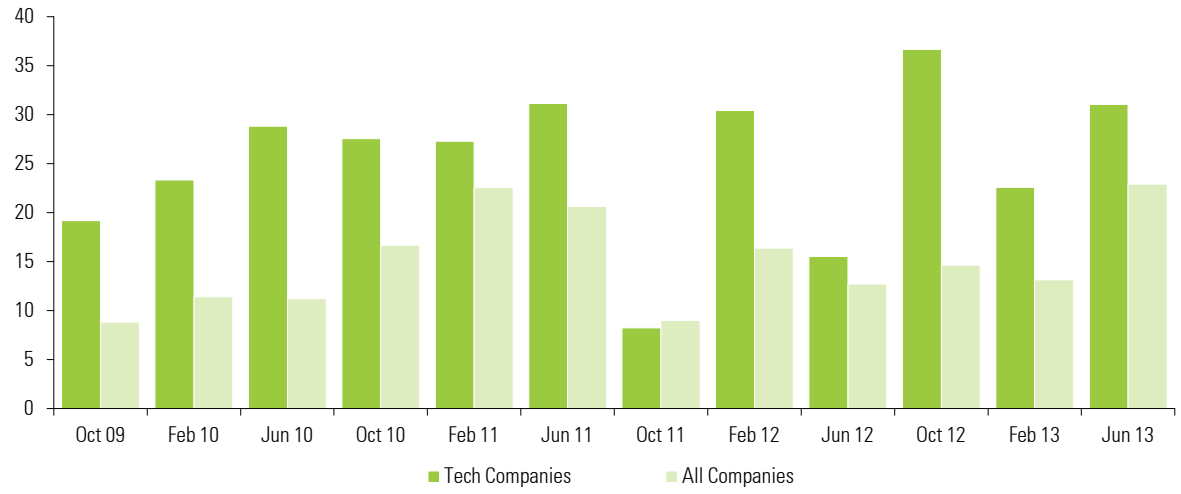
Panellists are asked to state whether they expect each variable (e.g. output, employment etc.) to increase, remain the same or decrease over the next twelve months.

The survey uses net balances to indicate the degree of future optimism or pessimism for each of the survey variables. These net balances vary between -100 and 100, with a value of 0.0 signalling a neutral outlook for the coming twelve months.

UK tech firms set to hire staff at above-average rate

Employment expectations over next 12 months

Expectations for employment: Net balance %



Tech companies are much more upbeat regarding job hiring than firms across all sectors. Growth of staffing levels over the next 12 months is expected at 38% of tech firms, compared with 7% that anticipate a decline, resulting in a net balance of +31%. This is one of highest levels of optimism recorded since data were first available in late-2009, behind only the reading of +37% posted in October 2012.

Employment expectations among tech firms compare favourably with the situation at companies across all sectors in June 2013. In the case of the latter, growth of employment is expected at 34% of UK firms, versus 11% forecasting a decline, resulting in a net balance of +23%.

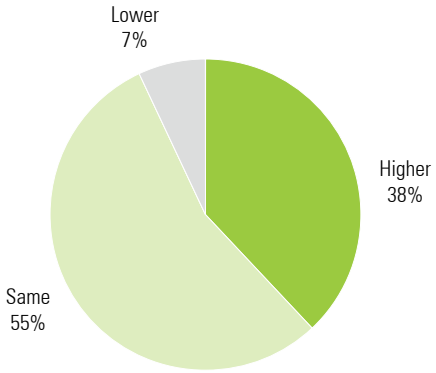
Tech companies have been consistently more upbeat regarding hiring intentions than the UK average since the start of the series almost four years ago, with the sole exception of October 2011 when sentiment was slightly weaker than the UK average.

Tech versus all-UK employment expectations

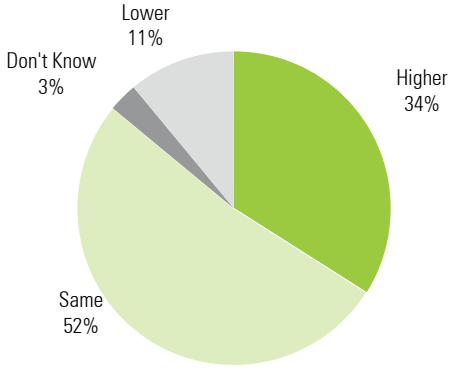
Markit Business Outlook Survey June 2013 results

"Do you expect employment at your business to be higher, the same or lower in 12 months' time than current levels?"

Tech companies employment: Net balance +31%



All companies employment: Net balance +23%



Tech firms report survey-record optimism regarding business activity

Tech firms' positive employment forecasts are underpinned by expected strong growth of workloads over the coming year. Business activity is forecast to rise at 83% of firms, compared with just 5% that anticipate a decline. The resulting net balance of optimists minus pessimists is +78%. This is the highest reading since the start of the series in October 2009.

Looking at companies across all sectors, growth of business activity is forecast by 60%, versus 9% that expect a fall. The resulting net balance is +51%. Although the highest in the series history, this figure remains well below that recorded for tech firms.

Tech companies have signalled stronger confidence regarding future business activity than the average for all UK firms in every outlook period since data were first available in October 2009.

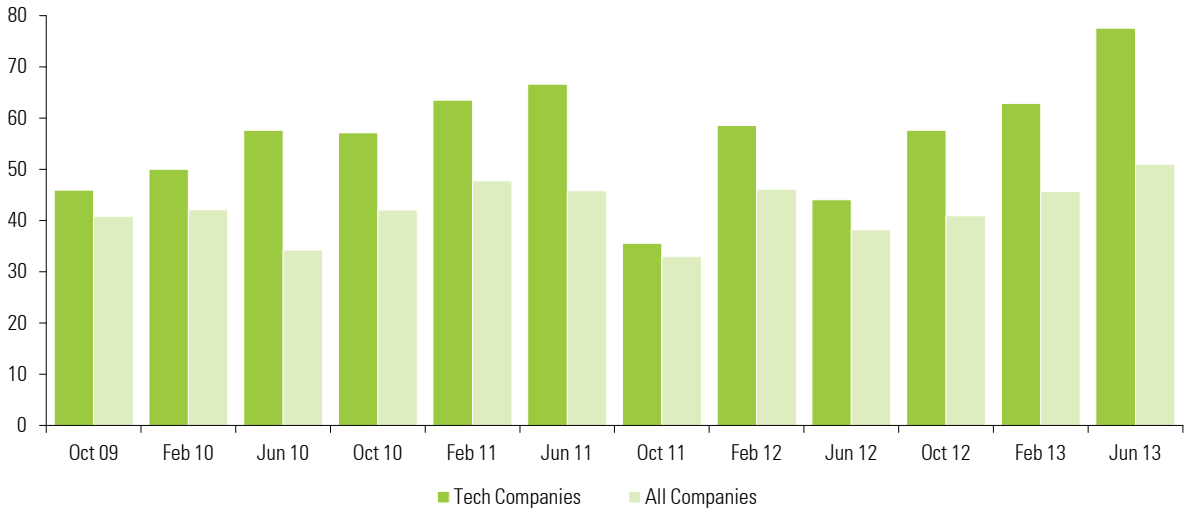
Tech companies' positive expectations for business activity are linked to an anticipated strong expansion of incoming new work over the next 12 months. A net balance of +72% of tech firms predict a rise in new business levels, the highest proportion since data were first available in October 2009. This figure is well above the UK benchmark of +49%.

Similarly, optimism at tech companies regarding both business revenues (+67%) and profits (+62%) has improved since the start of the year and is above the UK average. The latest net balances are the highest since June 2011 and February 2011 respectively.

Tech versus all-UK business activity expectations

Business activity expectations over next 12 months

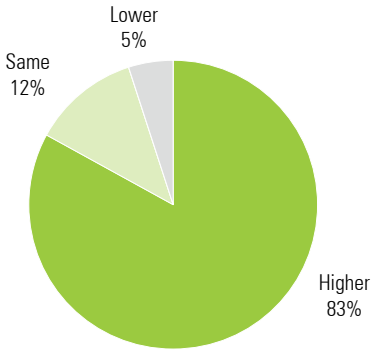
Expectations for business activity: Net balance %



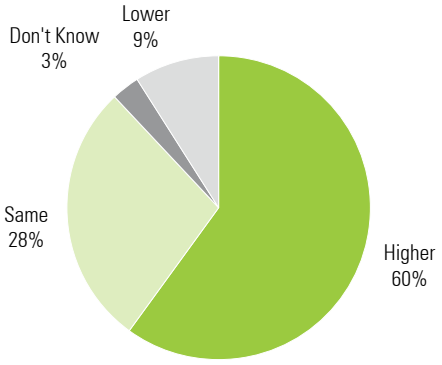
Markit Business Outlook Survey June 2013 results

"Do you expect business activity to be higher, the same or lower in 12 months' time than current levels?"

Tech companies activity: Net balance +78



All companies activity: Net balance +51%



6 Methodology notes

6.1 Local authority 'location quotients'

Location quotients are ratios derived by comparing the concentration of industry jobs in local authorities with the national share of employment 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. (Please note that data for NI were not available).

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

Location quotient = (Ex,r/Er)/(Ex/E)

Where Ex,r is the number of jobs in industry X and region r, Er is the total number of jobs in region r, Ex is the number of jobs in industry X across Great Britain, and E is the total number of jobs in Great Britain.

Calculating a location quotient

Industry 'X' accounts for 5% of all UK jobs, and 10% of all jobs in Wokingham.

Location quotient = (Local share of Industry 'X' jobs)/(UK-wide share of Industry 'X' jobs)

= *(10%)/(5%)*

= 2.0

Wokingham location quotient for Industry 'X' jobs is 2.0.

Industry 'X' has twice the employment footprint in Wokingham 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 jobs **matches the UK-wide trend.**

Location quotients **greater than 1.0** indicate that **industry jobs are more prevalent** in the local authority's labour market than the national share.

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

6.1.1 Identifying jobs in the 'technology industry'

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

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 a weighted combination of the following five categories represents the best available bellwether for the footprint of 'technology jobs' 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).

Business Register and Employment Survey (BRES)s

There were missing/suppressed location quotient data for some local authorities in the official data, but the vast majority (over 95% of all UK local authorities) had data available for at least two of the five SICs for the technology sector.

The weighting of the individual SICs was adjusted to take into account any missing values, and the single largest component (Computer programming, consultancy and related activities) had data for around 98% of all local authorities. Employment figures for at least three of the five categories were available across approximately 75% of all local authorities.

There were missing/suppressed location quotient data for some local authorities in the official data, but the vast majority (over 95% of all UK local authorities) had data available for at least two of the five SICs for the technology sector.

The weighting of the individual SICs was adjusted to take into account any missing values, and the single largest component (Computer programming, consultancy and related activities) had data for around 98% of all local authorities. Employment figures for at least three of the five categories were available across approximately 75% of all local authorities.

6.2 Tech Sector Purchasing Managers' Index (PMI) data

The section covering tech sector economic performance is based on data from Markit's monthly UK Services and Manufacturing Purchasing Managers' Index (PMI) surveys. To create new data for the tech sector, responses were used from a subset of the survey panel. Figures for the tech sector comprise only firms within the following industry groupings:

- IT and other information activities.
- Testing.
- Communications.
- Manufacturing of technology equipment.

The number of companies in this tech definition on Markit's PMI survey panels is approximately 150. Comparative data for the UK private sector overall is based on responses from a survey panel of over 1,000 across all categories.

6.2.1 Tech Sector Purchasing Managers' Index (PMI) data; industry categories

Technology	Technology equipment	Communications equipment	Communications equipment	Manufacturers of communication equipment and products, including LANs, WANs, routers, telephones, switchboards and exchanges
		Semiconductors	Semiconductors	Manufacturers of semiconductors and related products
			Semiconductor equipment and testing	Manufacturers of semiconductor equipment
		Computer hardware	Computer hardware	Manufacturers of personal computers, servers, mainframes and workstations. Includes manufacturers of Automatic Teller Machines (ATMs). Excludes manufacturers of copiers, faxes and related products
		Office electronics and equipment	Office electronics and equipment	Manufacturers of office electronic equipment including copiers and faxes
	Software and services	Computer Services		Companies that provide consulting services to other businesses relating to information technology. Includes providers of computer-system design, systems integration, network and systems operations, data management and storage, repair services and technical support
		Internet		Companies providing Internet-related services, such as Internet access providers and search engines and providers of Web site design, Web hosting, domain-name registration and e-mail services
		Software		Publishers and distributors of computer software for home or corporate use. Excludes computer game producers, which are classified under Toys

6.2.2 About PMI data

Purchasing Managers' Index (PMIs) series are monthly economic surveys of carefully selected companies. They provide an advance signal of what is really happening in the private sector economy, by tracking variables such as output, new orders, employment and prices across key sectors.

The PMI surveys are based upon fact, not opinion, and are the first indicators of economic conditions to be published each month. Moreover, the same methodology is applied across all PMI surveys, making international comparisons, for instance between the UK, US, Eurozone and BRIC countries, possible.

The indexes are widely used by economic analysts in financial institutions, industry and commerce. Notably, central banks in the European Union, United States and Asia now use PMI data to help make interest rate decisions.

The survey is based on questionnaire responses from a panel of purchasing or senior executives. The survey panels are carefully recruited to accurately represent the true structure of the services and manufacturing sectors, determined by geography, company size and 2-digit standard industry classification (SIC) group.

Questionnaires are completed in the latter half of each month and are collected and processed by economists at Markit Economics. Respondents are asked to state whether business conditions for a number of variables have increased, decreased or remained the same compared to the previous month. Reasons for any changes are also requested from respondents.

'Diffusion indexes' are calculated for each variable based upon the results of the questionnaires. These indexes vary between 0 and 100, with levels of 50 signalling no-change from the previous month. Readings above 50 signal an improvement or increase since the previous month, whilst postings below 50 indicate a deterioration or decrease. The greater the divergence from 50, the greater the rate of change as signalled by PMI data.

The indexes are seasonally adjusted to take into consideration expected variations for the time of year, such as annual factory shutdowns and national holidays.

6.3 Tech Sector Business Outlook data

The section on tech companies' expectations regarding future business conditions is based on responses to Markit's Global Business Outlook survey. This survey is conducted on a tri-annual basis, utilising the same panels of firms as the monthly Markit PMI data, and provides a forward-looking indicator of corporate confidence.

To generate time series Business Outlook data for the tech sector, the same definition of companies was used as for the tech sector PMI data:

- IT and other information activities.
- Tech testing.
- Communications.
- Manufacturing of technology equipment.

6.3.1 About Business Outlook data

The Business Outlook survey gives a unique perspective on future business conditions from worldwide manufacturers and service providers. The survey asks panellists to give their views on a range of key business variables over a 12-month horizon.

Data are collected during a defined 'polling' period of approximately two weeks. Data are based on a survey of around 11,000 manufacturers and service providers worldwide that are asked to give their thoughts on future business conditions. The number of companies polled within the UK is approximately 1,000.

Data collection is undertaken via the completion of questionnaires three times a year at four-month intervals. A combination of phone, fax, website and email are used, with respondents allowed to select which mechanism they prefer to use.

Panellists are asked to state whether they expect each variable (e.g. output, employment) to increase, remain the same or decrease over the next twelve months.

The survey uses net balances to indicate the degree of future optimism or pessimism for each of the survey variables. These net balances vary between -100 and 100, with a value of 0.0 signalling a neutral outlook for the coming twelve

months. Values above 0.0 indicate optimism amongst companies regarding the outlook for the coming twelve months while values below 0.0 indicate pessimism.

The net balance figure is calculated by deducting the percentage number of survey respondents expecting a deterioration/decrease in a variable over the next twelve months from the percentage number of survey respondents expecting an improvement/increase.

Questions are asked regarding expectations for a number of key business variables. For example:

"Q. Please state whether you expect your business activity levels (volume of work) to be higher, the same or lower in twelve months' time compared to current levels."

7 Appendix

7.1 Top 25 local authority tech jobs quotients

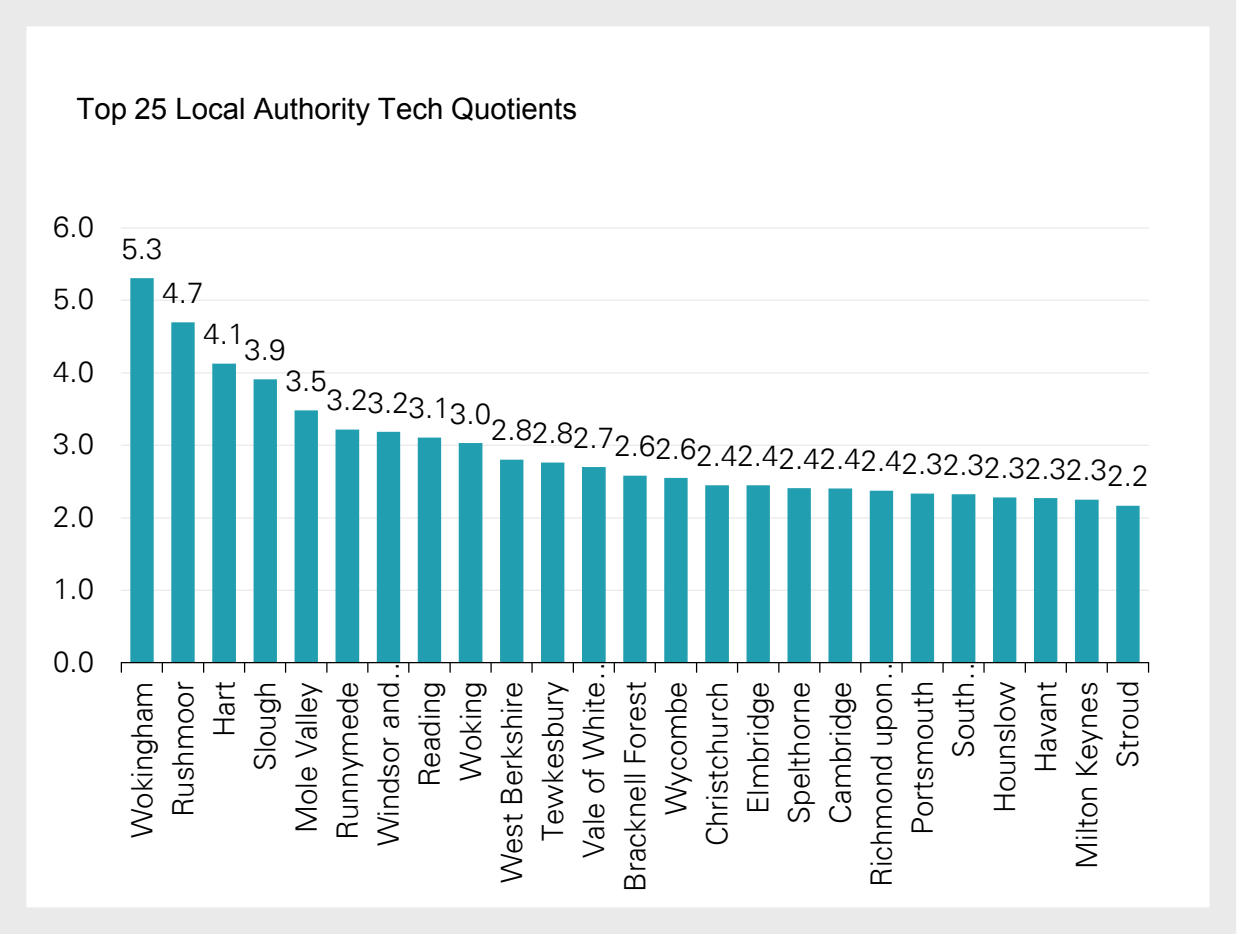
Figure 18: Top 25 local authority tech quotient rank

Top 10 local authority tech quotient rankings			
Ranking	**Region**	**Local authority**	**Location quotient(1)**
1	South East	Wokingham	5.31
2	South East	Rushmoor	4.70
3	South East	Hart	4.13
4	South East	Slough	3.91
5	South East	Mole Valley	3.48
6	South East	Runnymede	3.22
7	South East	Windsor and Maidenhead	3.18
8	South East	Reading	3.11
9	South East	Woking	3.03
10	South East	West Berkshire	2.80
11	South West	Tewkesbury	2.76
12	South East	Vale of White Horse	2.70
13	South East	Bracknell Forest	2.58
14	South East	Wycombe	2.55
15	South West	Christchurch	2.45
16	South East	Elmbridge	2.45
17	South East	Spelthorne	2.41
18	East of England	Cambridge	2.40
19	London	Richmond upon Thames	2.37
20	South East	Portsmouth	2.33
21	East of England	South Cambridgeshire	2.32
22	London	Hounslow	2.28
23	South East	Havant	2.27
24	South East	Milton Keynes	2.25
25	South West	Stroud	2.17

Source: (1) Markit estimates, based on ONS data.

7.2 Top 25 local authority tech jobs quotients

Top 25 local authority tech quotients



Source: Markit estimates, based on ONS data.

Table of figures

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