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### A Future Powerhouse for Technology Autumn 2017



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Welcome to the Autumn UK Powerhouse report

### This edition provides a close look at the current strength of the economy and an analysis of the technology sector.

Irwin Mitchell launched UK Powerhouse back in October 2015 to coincide with the Conservative Party Conference in Manchester. At the time, George Osborne was Chancellor of the Exchequer and his brainchild, the Northern Powerhouse, was an idea that was still in its infancy. Irwin Mitchell was broadly supportive of the initiative, but as a firm we thought the approach was too narrow and that much more could be done to boost output and productivity across the whole of the UK.

Two years on and the drive to rebalance the UK's economy has become stronger and although the government has been criticised for its lack of investment, I genuinely think we will see a difference over the coming years. It requires a long-term approach and the important thing is that it is still on the agenda.

Our City Growth Tracker on page 16 certainly highlights the enormity of the task that lies ahead. For example, the top 10 for both GVA and employment growth is still dominated by cities located outside of the North and Midlands.

There's clearly a lot to do and in the same way that the government's economic policies must evolve, we have continued to develop our UK Powerhouse reports. We have increased the number of locations that are examined and in this edition there is a special focus on the technology sector. Digital technology contributes  $\pounds 97$  billion to the economy and this report examines and provides recommendations for some of the challenges the sector faces in the future.

Of course, all businesses irrespective of where they are based and what sector they operate within are all dealing with the same economic uncertainty. Although our report points to the UK economy growing at a stronger rate of 0.3% in the second quarter of 2017, the annual growth rate actually slowed to 1.5% – the weakest reading since 2013.

A slow growing economy can be a major disrupter for any business and can lead to numerous threats and opportunities. Whatever the challenge, we want to work closely with you to ensure that together we can support and help drive future success for your business.

If you have any questions regarding issues raised in this report, please don't hesitate to contact us.

Victoria Brackett CEO of Business Legal Services

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The number of jobs is estimated to rise by at least 24% over the next decade as digital industries take over as the motor of economic growth in the country.



£45.7 billion

Business investment rose by 0.5% to



Milton Keynes, Cambridge, Oxford, Reading, Ipswich, Norwich and Aberdeen were the only cities to achieve annual **GVA growth** of at least 2.0% in the second quarter.





Birmingham, a centre of British automotive manufacturing, saw annual GVA growth slow from 2.1% in the first quarter to 1.6% as car sales have dropped markedly.

### 

London has by far the largest technology sector. Between Q4 2012 and Q4 2015, London's technology **GVA increased by** £1,921 million to £10,619 million (a 22% increase).



The UK economy grew at a marginally stronger rate of 0.3% in the second quarter of 2017. The annual growth rate slowed however to just 1.5% – the weakest reading since 2013.

### O4 £299 million

Newcastle has the largest technology GVA turnover among the northern cities, with Manchester and Leeds being the second and fifth largest technology sector employers respectively in 2016. Leeds also has the seventh largest GVA turnover, at £299 million in Q4 2015 and Manchester follows as ninth largest.



### Recommendations

To ensure the UK is a future powerhouse for technology, we've worked with Cebr to highlight recommendations for the sector. We believe the technology industry needs to concentrate on tackling the shortage of highly skilled employees by encouraging more women to enter the industry. More code academies to increase the number of people with the necessary skills in programming languages are also required.

Infrastructure also needs to develop by increasing investment in ultra-fast fibre, making it more accessible to all, especially in rural regions. It's essential to establish a plan that allows the existing data flows between the UK and the rest of Europe to continue before the UK officially leaves the EU.

The report also recommends a change in the current UK entrepreneur tax relief scheme as currently, small firms are encouraged to sell out early, thus inhibiting the number of businesses reaching unicorn size.



# Irwin Mitchell's Powerhouse Tracker

Official economic data sources for the UK's cities are often dated and fail to provide a reliable snapshot of the UK's localised economies – the last set of regional economic accounts corresponds to the economy in 2015. To more accurately estimate current economic activity, Cebr has utilised a range of more timely indicators to create a 'nowcast' of GVA and employment for a range of key cities across the UK. The latest outputs of this give us a picture of how the regional economies of the UK are performing in 2017.

### Key Facts

Quarterly UK GDP growth ticked up slightly to 0.3 % in the second quarter of 2017. In annual terms, however, growth slowed to just 1.5 %, the slowest rate since 2013 as the squeeze on consumers' budgets results in lower spending figures.

Milton Keynes took the top spot from Cambridge in Q2 2017 in terms of GVA growth, though on average, growth rates slowed compared to the previous quarter. Milton Keynes boasts a healthy technology sector and benefits from its strategic location between Cambridge and Oxford, which came second and fourth respectively. Further to the East, cities including Ipswich and Norwich underline East Anglia's leading role in terms of research, development and technology. A number of science parks and research clusters help the cities attract a highly educated workforce resulting in decent growth rates.

With topics ranging from automation to artificial intelligence or biotech technology, and especially digital technology, will be a pivotal field of economic activity in the future. In the UK, this future has already begun as digital technology contributes £97 billion to the economy and provides 1.64 million jobs. The sector focus of this report looks at the technology powerhouses across the UK and shows the challenges faced by the sector. Investment in skills and digital infrastructure are among the most often cited policy recommendations but to make the most of the UK's promising position in technology, a holistic strategy is required.

### Annual GDP growth for second quarter is at its lowest since 2013

The UK economy grew at a marginally stronger rate of 0.3% in the second quarter of 2017. However, the annual growth rate slowed to just 1.5%.

One of the most considerable downward pressures on GDP growth was the decline in household consumption expenditure growth, which slowed from 0.4% in the first quarter to 0.1% in the second quarter – the weakest quarterly rate of expansion since the end of 2014. Growth in retail sales has dropped markedly ever since inflation started to rise more quickly towards the end of 2016.

On a more positive note, government spending grew at a relatively strong pace. General government expenditure grew by 0.6 % in the second quarter. This was in part the result of increased healthcare spending, meaning that government spending contributed 0.1 % point to the headline GDP figure.

Business investment rose by 0.5 % to  $\pounds45.7$  billion in the second quarter from  $\pounds45.4$  billion in the previous quarter. In addition, gross fixed capital formation increased by 0.6 % in the quarter, driven by information, communication and technology equipment and other machinery and equipment.

Net trade had a neutral impact on GDP in the second quarter. Exports of goods increased by 1.5% between the first two quarters of 2017, but exports of services decreased by 0.4%. At the same time, imports increased by 0.4% for goods and 1.8% for services.

Figure 1

GDP growth (RHS); UK expenditure components percentage contribution to GDP growth (LHS), quarter-on-quarter



On a sectoral basis, services maintained the role of chief growth driver, and showed quarteron-quarter growth of 0.5%. Production and construction acted as drags on growth, with construction output estimated to have decreased by 1.3%.

The latest labour market figures have painted a positive picture. The unemployment rate fell a further 0.1% to 4.3% in the three months to July, its lowest in over four decades.

Economic headwinds had a palpable impact on the UK's economic performance in the second quarter of 2017, which is reflected in lower growth rates for the cities in the powerhouse tables. Milton Keynes and Cambridge have swapped places at the top of the Q2 table.

Situated almost equidistant between the renowned university towns of Cambridge and Oxford (which come in second and fourth place), Milton Keynes profits from a booming technology sector. A number of industry leaders have opened offices in the city including Siemens, T-systems, ICT InfoTech and IQ Software Services. Furthermore, the government based its Transport Catapult research centre in Milton Keynes, which promotes intelligent mobility solutions. The research in the centre focusses on various areas, from smart infrastructure and data analysis to developing new business models in the transportation field.

### Almost two-thirds of businesses started in Ipswich are still operating after three years

The leading quartet of cities, completed by Reading in third place, underlines the growth potential that lies in technology based innovation. Using technology as a growth driver enables these cities to jump ahead of other conurbations that are more focussed on traditional manufacturing and production industries.

Ipswich, Norwich and Aberdeen are the only other cities to achieve annual GVA growth of at least 2.0 % in the second quarter. It is no surprise that so many cities in the East are bundled at the top of the growth table. The region is renowned for its contributions to life sciences and pharmaceutical research accounts for 20% of EU funding to the UK for drug discovery, 23% for regenerative medicine and 14% for personalised medicine<sup>1</sup>.

Following the Oxford - Milton Keynes - Cambridge corridor, Ipswich is another city in the East of England that offers excellent conditions for business. This holds especially true for start-ups and entrepreneurs: almost two-thirds of businesses started in Ipswich are still operating after three years according to ONS business demographic statistics. Telecommunications research is tradition in Ipswich, as evidenced by the BT Adastral Park, a science and research park which was opened in 1975.

Also situated in the East of England, Norwich benefits from the proximity to renowned universities, a highly educated workforce and the cluster effects with nearby Cambridge and Ipswich. Norwich Research Park is the most prominent research institution in the city, employing over 12,000 people including 3,000 researchers. Activities span from environmental sciences to food and health sciences.

 $1 \ http://www.edp24.co.uk/business/these-are-the-east-of-england-s-strongest-scientific-industries-1-5211202$ 

"There is an urgent need for the UK education sector to encourage and promote technology skills learning and careers in a variety of tech fields. The lack of enthusiasm amongst employers so far for making use of funds raised by the Apprenticeship Levy is disappointing and suggests further incentives are needed to tempt businesses within the technology sector to provide vocational training."

> Alan Lewis Partner, Employment

The cities with the next highest Q2 GVA growth rates are Bristol, London and Brighton. As the largest city in the South West, Bristol is home to a thriving start-up scene which has delivered numerous successes such as the cloud-rendering firm YellowDog, which harnesses and monetises under-utilised computer power for fast CGI and animation rendering services. Aspiring entrepreneurs benefit from a thriving support system and can exchange and develop ideas in one of the numerous co-working spaces and business incubators such as the Bristol and Bath Science Park.

Start-ups looking to collaborate will also find plenty of company in the capital. London is well-known for its start-up scene, especially in the digital and creative sectors – the so-called 'Flat White Economy'. Like no other city in the UK, London attracts individuals from other English regions as well as from overseas. The mix of local and international minds has helped shape London's business community. Proximity to leading world class institutions and business contacts increases the appeal of London, though high costs of living and expensive commercial property rents are obstacles to cash-stripped start-ups.

While the make-up of London's business community has certainly changed in the past 10 years, the financial and insurance sector still plays a major role in the capital. This is most evident in the City of London, which welcomes over 450,000 workers every day. However, with Brexit negotiations underway, many financial institutions are taking steps to relocate jobs to other countries as uncertainty remains about the future relationship between the EU and the UK.

While no other location will be quickly able to copy London's unique and historically grown place as one of the world's leading financial centres, repercussion might be felt in the form of lower employment growth rates or even declines.

#### While the make-up of London's business community has certainly changed in the past 10 years, the financial and insurance sector still plays a major role in the capital

Cities in the Northern Powerhouse have traditionally been more focussed on manufacturing and production. The slowdown in the UK economy and the weak performance of the production sector are reflected in lower growth rates for cities that rely more on these industries. For example, in ranking of the cities with the highest GVA growth rates, Manchester has dropped seven places since the last report, from 9<sup>th</sup> to 16<sup>th</sup>. In Birmingham, a centre of British automotive manufacturing, annual GVA growth slowed from 2.1% in the first quarter to 1.6% as car sales have dropped markedly.

Higher inflation and weak wage growth will continue to squeeze households' budgets until the end of the year. However, cities with export oriented industries are likely to benefit from the weak pound and the strong growth in world trade volumes. Global freight tonne kilometres posted growth of 11.4 % in July this year continuing a series of strong increases.<sup>2</sup>

2 IATA – Air Freight Market Analysis, July 2017, released 5 September

"As a national law firm, we are seeing more and more of the technology investor community looking for UK investment opportunities as much outside of London as within. This suggests that competition in rooting out prospective investee companies in London remains strong, with VCs, PE houses and others therefore taking even more of an initiative to look elsewhere for the deployment of their funds, perhaps more so than ever before. Regional cities are seemingly capitalising on this opportunity."

> James Paton-Philip Partner, Corporate

The UK employment rate (the proportion of people aged from 16 to 64 who were in work) rose to a new record high of 75.3 % in the three months to July, while the number of advertised vacancies (an indicator of the strength of labour market demand) remained near record-high levels. These developments highlight that businesses continue to increase their workforce numbers.

Out of the monitored cities, Milton Keynes saw the largest increase in employment levels over the second quarter with the number of people in work rising by 1.4%. Milton Keynes has one of the highest GVA-per-worker ratios and is amongst the top UK cities in terms of business start-ups which create new jobs. It is therefore not surprising that the city is able to attract workers.

Belfast rose to third rank in terms of employment growth in Q2 2017. Annual job growth in Northern Ireland's capital stood at 1.2%. Belfast is a popular tourist destination which is key to the region's economy. The organisation Tourism NI aims to grow the tourism sector to  $\pounds 1$  billion by 2020 which would further strengthen both the labour market and wider economy.



#### Figure 2 Top and bottom five cities by annual GVA growth, Q2 2017

Coventry also saw a substantial rise in workforce numbers during the second quarter, with employment rising 1.2%. The city of Coventry has a fairly young workforce with over 40% of the population below the age of 30.

The university cities of Cambridge and Oxford rank amongst the top ten cities with regards to employment growth. The prestigious universities are important employers for the cities and keep attracting both students and highly qualified workers. The Centre for Cities found that Cambridge and Oxford place first and second respectively with regards to the share of the working age population with a qualification at NVQ4 or above<sup>3</sup>.

A number of cities fared worse with regards to employment prospects. Job growth in Middlesbrough for example stood at only 0.3 %. The largest city in the Tees Valley region performs poorly on measures of productivity and the share of more knowledge based work is lower than the national average. As the city relies more on production and manufacturing jobs for growth, only relatively few employment opportunities are being created at present. Employment growth was also subdued in the cities of Hull, Plymouth and Stockport with the rates of expansion of around 0.3 % across all three cities.

#### Figure 3





3 National Vocational Qualification level 4 – equivalent to BTEC Higher National Certificate or Higher National Diplom

### City Growth Tracker Q2 2017

#### GVA

	League table ranking	GVA Q2 2017, £millions (Annualised, constant 2012 prices)	Growth (YoY)	
1	Milton Keynes	10,900	2.6%	/
2	Cambridge	9,100	2.4%	
3	Reading	6,600	2.4%	
4	Oxford	8,300	2.2%	
5	Ipswich	4,500	2.0%	
6	Norwich	2,800	2.0%	
7	Aberdeen	12,300	2.0%	
8	Bristol	13,800	1.9%	
9	Inner London	252,100	1.9%	
10	London	375,800	1.9%	
11	Outer London	123,700	1.9%	
12	Brighton	7,100	1.9%	
13	York	5,000	1.9%	
14	Southampton	5,800	1.9%	
15	Peterborough	5,300	1.8%	
16	Manchester	16,900	1.8%	
17	Exeter	4,000	1.8 %	
18	Greater Manchester	59,100	1.8 %	
19	Wakefield	6,500	1.8 %	
20	Glasgow	19,400	1.7 %	

21	Stockport	6,000	1.7 %
22	Nottingham	8,700	1.7 %
23	Portsmouth	5,300	1.7 %
24	Newcastle	9,000	1.7%
25	Leeds	21,000	1.7%
26	Rotherham	4,300	1.6%
27	Swindon	6,500	1.6%
28	Birmingham	24,600	1.6%
29	Bournemouth	4,500	1.6%
30	Derby	6,900	1.6%
31	Coventry	7,600	1.5%
32	Liverpool	10,800	1.5 %
33	Sheffield	11,100	1.5 %
34	Stoke-on-Trent	4,700	1.5 %
35	Edinburgh	18,200	1.5%
36	Bradford	9,300	1.4%
37	Leicester	7,400	1.4%
38	Hull	5,100	1.4%
39	Sunderland	5,700	1.3%
40	Cardiff	9,200	1.3%
41	Swansea	4,400	1.3%
42	Plymouth	5,100	1.3%
43	Wolverhampton	4,600	1.2%
44	Belfast	9,400	1.2%
45	Middlesbrough	3,300	1.1 %

### **City Growth Tracker** Q2 2017

#### Employment

	League table ranking	Level, Q2 2017	Annual % Change	
1	Milton Keynes	164,100	1.4%	
2	York	118,600	1.4%	
3	Belfast	126,900	1.2%	
4	Coventry	186,500	1.2%	
5	Bournemouth	95,600	1.1%	
6	Norwich	136,800	1.1%	
7	Reading	121,900	0.9%	
8	Oxford	123,700	0.9%	
9	Birmingham	550,700	0.9%	
10	Wakefield	150,600	0.9%	
11	Stoke-on-Trent	106,900	0.9%	
12	Greater Manchester	1,260,200	0.9%	
13	Manchester	430,800	0.8 %	
14	Exeter	129,000	0.8 %	
15	Cambridge	132,300	0.8 %	
16	Swindon	118,400	0.8%	
17	Outer London	1,805,800	0.7 %	
18	London	5,007,800	0.7 %	
19	Inner London	3,202,000	0.7%	
20	Leeds	434,500	0.7%	

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21	Nottingham	225,800	0.7%
22	Ipswich	80,900	0.6%
23	Wolverhampton	112,400	0.6%
24	Leicester	210,100	0.6%
25	Liverpool	276,700	0.6%
26	Newcastle	217,300	0.6%
27	Rotherham	96,900	0.6%
28	Glasgow	429,600	0.6%
29	Bristol	335,900	0.6%
30	Sheffield	279,800	0.6%
31	Southampton	144,200	0.6 %
32	Brighton	151,800	0.6 %
33	Swansea	120,100	0.6 %
34	Bradford	212,200	0.5%
35	Sunderland	129,200	0.5%
36	Peterborough	104,600	0.5 %
37	Derby	138,600	0.5 %
38	Aberdeen	186,300	0.5 %
39	Cardiff	221,800	0.4%
40	Portsmouth	108,500	0.4%
41	Edinburgh	342,200	0.4%
42	Hull	144,700	0.3 %
43	Stockport	121,400	0.3%
44	Plymouth	138,600	0.3 %
45	Middlesbrough	75,300	0.3 %



"Digital technology makes a £97 billion contribution to the UK economy despite having a real lack of infrastructure.
Think of what could be achieved if everyone in the UK had access to ultra-fast fibre. The government has made a £1 billion pledge for boosting digital connectivity but will this be spent in time to ensure the UK realises the true potential of this sector before the rest of the world does?"

Aurelia Butler-Ball Associate, Technology and Media

## Sector in focus Technology Dowenbouse Interest May described the technology industry as the "great British success story", as it

In March, Theresa May described the technology industry as the "great British success story", as it contributes substantially to employment growth and productivity. She promised that technology would be one of her economic priorities following Brexit. With the industry's growing importance in the UK economy, the technology sector presents many opportunities as well as challenges. In this quarter's sector focus, we analyse recent trends and examine the key factors affecting the technology industry across UK cities in 2017.

The technology sector is key to the British economy. The UK ranked top against other developed nations in terms of its digital share of GDP <sup>4</sup>, at 10 %. According to the latest Tech Nation <sup>5</sup> findings, UK technology venture capital and private equity investment for 2016 was at least 50 % higher than any other European country, and the turnover of UK digital technology businesses was £170 billion in 2015. Overall, digital technology makes a £97 billion contribution to the UK economy and provides 1.64 million jobs, according to the Tech Nation calculations.

### UK technology venture capital investment for 2016 was at least 50% higher than any other European country

As shown by the Technology Powerhouse table, which tracks the observed growth in UK's cities' technology industries, London has by far the largest technology sector. Between Q4 2012 and Q4 2015, London's technology GVA increased by £1,921 million to £10,619 million (a 22% increase). London also has the highest number of employees in the technology industry, at 659,700 in 2016, and experienced high employment growth between 2013 and 2016 in the industry. Tech Nation found that London had a total digital turnover of £56 billion in 2015, more than double of what it was in 2011.

Outside the capital, Reading was the leader in 2015 in terms of digital business concentration (as shown in the technology City Growth Tracker tables), and also the city with the second highest total digital turnover<sup>5</sup>. The GVA tables for technology powerhouse show that, at £369 million, Reading has the third highest GVA in the technology industry. This represents a 46% increase between Q4 2012 and Q4 2015. Only Southampton and Swansea beat Reading in terms of GVA growth, increasing by 60% and 49% respectively over the same period. Reading was also the 10<sup>th</sup> largest technology sector employer, with 22,300 workers in 2016: a 10% increase since 2013.

McKinsey/OECD (2016). Digital Europe: Realizing the continent's potential
 Tech City, Tech Nation 2017 report

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Milton Keynes is celebrating its 50<sup>th</sup> birthday in 2017. The city, which is one of the UK's top five locations for business start-ups<sup>6</sup> has a history of technology innovation, with Britain's first self-driving 'pod' vehicle being unveiled there in 2015.

Approximately 24,800 people were employed in the Milton Keynes technology industry in 2016, which is partly a result of the high number of tech firms. Milton Keynes is home to leading mobile technology firm AirWatch and benefits from the Biztech Technology Forum which supports IT professionals in the region, a scheme which other cities should consider. Technology GVA growth in this city was 24 % between Q4 2012 and Q4 2015, well above the average of 14 %.

### Manchester and Leeds were the second and fifth largest technology sector employers respectively in 2016

Many northern cities are launching initiatives to support the growing UK technology sector. Tech North<sup>7</sup> has opened in Manchester, funded by the government, with the aim of guaranteeing that the North is part of the UK's ongoing journey to becoming the world's leading digital economy. Newcastle has the largest technology GVA turnover among the northern cities, at £350 million in Q4 2015, an 8 % increase since Q4 2012. An Auxin report<sup>8</sup> for Newcastle City Council found that between 2016 and 2019, the Newcastle technology sector turnover is expected to rise by 28 %. They also expect a similar increase in employment.

Manchester and Leeds were the second and fifth largest technology sector employers respectively in 2016, as shown by the technology City Growth Tracker tables. Leeds also has the seventh largest GVA turnover, at £299 million in Q4 2015 and Manchester follows as ninth largest. Manchester is home to three unicorn companies (Moneysupermarket.com, AutoTrader and The Hut Group) which are start-ups valued over US\$1 billion, and have benefited from the recent BBC move to Salford and the increase in technology employment this created.

To meet the challenges that this sector faces, councils should make a public commitment to supporting the industry through investment in infrastructure. Auxin argues<sup>8</sup> that every successful sector in their research had an organisation dedicated to its development, which can coordinate an investment network. Tech North also identifies that infrastructure investment is required to create sustained technology sector growth. Encouraging infrastructure platforms such as TravelSpirit<sup>9</sup> (a Manchester-based firm aimed at ensuring that new integrated mobility services are universally accessible) could be a springboard for UK start-ups.

6 www.mk50.com/about/50-facts-about-mk

- 7 technorthhq.com
- 8 The Auxin Partnership (2016), Growing the Digital Technology Sector
- 9 travelspirit.io

Currently, there is a lack of digital infrastructure in the UK, a key challenge to the technology industry<sup>10</sup>. Access to ultra-fast fibre needs to be improved in many areas of the UK (especially in rural regions). The UK government has made a £1 billion pledge for boosting digital connectivity, a good indication of their commitment to this industry. However, the broadband connection voucher scheme (which offered subsidies to improve broadband) was shut down at the end of 2015.

### The UK government has made a £1 billion pledge for boosting digital connectivity

At present, the UK attracts more technology investment than any other European country. In the last five years the UK has enjoyed investment worth  $\pounds 28$  billion<sup>10</sup>, considerably higher than the  $\pounds 11.4$  billion in France (which is second highest). However, more than 40 % of businesses in the Tech Nation survey said that a significant challenge was obtaining access to sufficient funding. They suggest that angel investor networks should be developed and supported by the government. In addition, UK universities can aid businesses with access to funding. One example is Sheffield University's Campus Capital, a venture capital firm that builds early stage, high growth investment funds.

The UK is home to three of the world's top ten universities, meaning that potential for innovative technology research is high. Oxford and Cambridge, which ranked in the top two spots of the World Times Higher Education league tables for 2018, continue to make technological breakthroughs every year. Oxford is the city with the second highest GVA in the Technology Powerhouse tables at £498 million in Q4 2015, and Cambridge has the fourth highest.

#### The UK is home to three of the world's top ten universities, meaning that potential for innovative technology research is high

The biggest challenge faced by the technology sector is a shortage of highly skilled employees. Universities UK data<sup>11</sup> shows that between the 2004/5 and 2013/14 academic years, the number of university computer science students fell by 36,795 (28.7 %) to 91,565. This talent shortage could possibly be solved by encouraging more females to enter the industry. At present, in over half of the businesses surveyed by Tech Nation, men outnumber women by at least three to one. In order to fill the predicted skills gap in the industry, businesses should be encouraged to attract, train and retain female talent. The role of the public sector is stressed by Auxin, who advise that councils engage in training workers to have the skills required for the new jobs that are created. Working with local universities and schools, 'code academies' should be opened and expanded.

Around 13% of technology sector jobs are filled by international workers<sup>12</sup>. In October 2015, the Tech Nation visa was created to try and encourage workers from abroad, skilled in technology, to work in the UK. In the first six months, the Home Office issued half of the available visas. However, technology entrepreneurs are worried about future changes in immigration policy<sup>13</sup>. Cebr Deputy Chairman Douglas McWilliams has found that the annual cost to the UK economy of restricting immigration will be £233 billion in ten years' time (assuming a complete halt in immigration). In addition, if the electorate vote for very tight controls on immigration, it will result in a 6% pay cut by  $2023^{14}$ .

A further challenge thrown up by Brexit is the availability of data flows from the EU. While the UK has committed to the EU General Data Protection Regulation (GDPR), which will commence in May 2018, this does not guarantee cooperation going forward between the UK and EU. It has been estimated that 12% of global data flows pass through the UK by Tech City UK. Consequently, the negative impact of not having a plan regarding data flows in place before the UK leaves the EU could damage the technology industry.

#### 13% of technology sector jobs are filled by international workers

Brexit is not entirely bad news. UK exporters are currently benefiting from the weak pound, although a weak pound also means that imported inputs to technology firms are more expensive. So far, Brexit has not put off investors. An example is Japanese firm Softbank, which bought the UK's biggest tech company ARM Holdings for  $\pounds$ 24.3 billion in Q3 2016.

In order to sustain technology growth in the North of England, Tech North recommend that technology firms need to improve knowledge sharing. They can do this through establishing digital immersion events where technology firms can meet, and organising a '600 that Share' movement where the largest businesses in the region can pledge to support start-ups. It has also been suggested that a Northern contract portal could be set up in order to collate both private and public sector contracts in one place, enabling more opportunities and collaboration. These initiatives all require government cooperation and investment. Therefore, it is imperative that councils are aware of the need to foster an environment that stimulates technology sector growth.

12 Tech Nation UK: Immigration report 2017
13 www.techworld.com/startups/5-ways-uk-government-supports-tech-startups-3652774
14 The flat white economy (2016), Douglas McWilliams



## **GDPR** Don't Be Slow Out Of The Blocks

There is less than one year to go until the new General Data Protection Regulation comes into force on **25 May 2018**.

Our experts can help you over the finish line. www.irwinmitchell.com/gdpr-2018 While technology growth in the UK has been strong in recent years, it will continue to need government support to stay on this growth path. Cebr recommend that the government's start-up loans scheme<sup>15</sup> should be expanded. It currently offers up to £25,000 at a fixed interest rate of 6 % per annum for new business ideas, but a lower interest rate and higher amount businesses can borrow would make this loan useful to more technology businesses. The UK economy also lacks funding opportinities – so-called scale-up cash. The government needs a scheme focussed on helping small technology companies develop, offering cash as well as advice. In addition, the UK entrepreneur tax relief encourages firms to sell out early on, meaning the government is providing the wrong incentives to start-ups, and limiting the number which reach unicorn size. These tax rules need to be changed to avoid so many young firms selling out.

### Local councils should fund knowledge sharing and skill building platforms

Cebr also recommends that local councils should fund knowledge sharing and skill building platforms, which is particularly important in cities with low technology sector GVA, such as Hull and Rotherham. Events run by city councils should include opportunities for new businesses to network and discuss ideas with successful technology entrepreneurs in local areas, and free coding classes could be funded by local government.

### Technology will shape the future of the world and take an increasingly important place in society and our economy

Technology will shape the future of the world and take an increasingly important place in society and our economy. From automation to artificial intelligence and big data, large parts of the economy will be transformed by technological progress. Employment growth in technology sectors stood at 15 % over the last 10 years in the UK. We estimate the number of jobs will rise by at least 24 % over the next decade as digital industries take over as the motor of economic growth in the country. The UK has a solid foundation in the sector with its mix of world class research institutions and a dynamic business sector. In part this is driven by high acceptance of technology in the population – consumers in the UK are much more active online and are more open for new business models than those in in other countries. To stay ahead of the curve, the UK now needs to leverage its position as a leader and innovator in all things digital.

15 https://www.startuploans.co.uk/

### City Growth Tracker Technology Powerhouse

#### Output

League table ranking		GVA Q4 2015, in £ million	Three-Year % Increase	Share of total city GVA, in %	
1	London	1,0618.5	22%	11%	
2	Oxford	498.1	17%	9%	
3	Reading	369.1	46%	22%	
4	Cambridge	366.6	12%	8%	
5	Newcastle	349.8	30%	8%	
6	Glasgow	330.8	21%	7%	
7	Leeds	299.4	-10%	6%	
8	Edinburgh	278.4	26%	6%	
9	Manchester	272.3	27%	6%	
10	Birmingham	260.4	25%	4%	
11	Milton Keynes	254.5	24%	9%	
12	Bristol	226.9	38%	6%	
13	Ipswich	208.9	5%	5 %	
14	Sheffield	184.0	0%	6%	
15	Liverpool	178.0	27%	6%	
16	Nottingham	176.7	18%	8%	
17	Belfast	165.3	-5%	7 %	
18	Brighton	144.2	32%	8%	
19	Portsmouth	139.4	-20%	10%	
20	Aberdeen	113.1	28%	2%	

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21	Cardiff	108.2	17%	4%	
22	Coventry	107.2	10%	6%	
23	Stockport	93.8	5%	6%	
24	Swindon	92.3	30%	5%	
25	Peterborough	88.5	44%	7 %	
26	Bradford	88.2	-4%	4%	
27	Leicester	76.1	1%	4%	
28	Norwich	73.5	17%	3%	
29	Bournemouth	73.5	12%	4%	
30	Southampton	66.4	60%	4%	
31	Derby	63.4	-9%	4%	
32	Exeter	62.1	23%	6%	
33	Sunderland	59.3	1%	4%	
34	Swansea	56.5	49%	5%	
35	Stoke-on-Trent	54.5	20%	5%	
36	York	40.1	-29%	3%	F
37	Wolverhampton	33.7	2%	3%	
38	Plymouth	29.9	3%	2%	
39	Middlesbrough	28.6	11%	2%	Ē.
40	Wakefield	28.1	-17%	2%	ġ
41	Rotherham	20.8	-12%	2%	
42	Hull	18.5	-13%	1%	

### City Growth Tracker Technology Powerhouse

#### Employment

League table ranking		Three-year Employment Growth - Transport, Information and Communication, 2013-2016	Employment - Transport, Information and Communication, 2016	
1	London	79,300	659,700	
2	Manchester	3,200	49,200	
3	Birmingham	- 900	48,800	
4	Edinburgh	14,900	41,800	
5	Leeds	1,600	41,200	
6	Bristol	4,300	40,700	
7	Glasgow	3,700	36,500	
8	Milton Keynes	6,400	24,800	
9	Newcastle	5,700	22,500	
10	Reading	2,100	22,300	
11	Liverpool	- 1,000	22,000	
12	Sheffield	1,700	20,000	
13	Southampton	4,900	18,700	
14	Coventry	1,500	18,600	
15	Nottingham	- 4,200	17,500	
16	Cardiff	400	17,000	
17	Brighton	4,700	15,800	
18	Leicester	500	15,000	
19	Swindon	3,900	14,500	
20	Wakefield	2,000	14,400	

21	Cambridge	100	13,200	
22	Peterborough	2,400	13,000	
23	Bradford	-700	13,000	
24	Aberdeen	-2,600	13,000	
25	Stoke-on-Trent	6,600	12,900	
26	Oxford	-2,100	12,800	
27	Derby	2,700	12,500	
28	Plymouth	2,100	11,400	
29	Stockport	1,800	10,400	
30	Hull	-900	10,000	
31	Exeter	-700	9,400	
32	Portsmouth	1,600	8,400	_
33	Rotherham	-1,300	7,500	N In co
34	Sunderland	-500	7,400	
35	Norwich	-2,100	7,400	
36	Wolverhampton	-1,000	7,200	
37	Ipswich	400	7,100	1
38	York	-2,900	6,700	
39	Swansea	-600	6,500	
40	Bournemouth	1,500	6,400	
41	Middlesbrough	600	6,200	

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# Webantic

Based in Manchester, Webantic specialises in software development and large-scale web projects for clients across the UK.

Established in 2011, it offers consultancy services, from start-up support through to data security for global brands such as Mettler Toledo, Allied London and Pizza Express.

Here, co-founder Luke Grimes provides an honest assessment of the city's technology scene along with his expectations over the next five years.

"To say that Manchester is the technology world's 'flavour of the year' would be an understatement. The media can't seem to get enough of the Northern Powerhouse, and Manchester is presented as the epicentre of a hub that is rapidly gaining momentum.

"As a software consultancy business, we've seen the changes in Manchester first-hand over the past five years. While the advancements have been significant, there's some way to go before we reach the peak of the digital landscape.

"Manchester's contribution to the technology scene is undeniable; the city is second to London in terms of job creation, but this comes at a cost. The skills gap has been a huge problem in recent years, especially as large organisations, like the BBC, attract top talent with high wages that make it difficult for smaller firms to compete.

"Thankfully, this is rapidly closing thanks to the likes of Northcoders, Tech North and Manchester Digital that seek to bring more talent to the city. These organisations also provide vital support for start-ups and SMEs, driving innovation and contributing to the reputation that the city has as a champion for technology.

"This has put Manchester very much on the radar of investors. More and more angels, VCs and accelerators are calling the city home, while transport links to London, Berlin, San Francisco and other business destinations make building connections with those further afield a much easier prospect for ventures seeking capital. **Luke Grimes** Co-founder of Webantic

"It's a self-perpetuating circle: technology start-ups attract investors, which in turn attracts more entrepreneurs. As infrastructure improves, with co-working spaces like WeWork, it's never been a better time to set up a tech business in Manchester."

Looking to the future, Luke adds: "Manchester still has some way to go before it truly becomes a trailblazer. Many organisations continue to rely on traditional means of technology, however we are starting to see uplift in organisations who approach us looking for meaningful ways to harness emerging tech, such as artificial intelligence.

"Over the next five years, we expect to see a lot more AI-backed services on home soil, as businesses become more aware of and confident with its applications"

"Over the next five years, we expect to see a lot more AI-backed services on home soil, as businesses become more aware of and confident with its applications. Language processing, data interpretation, image recognition and other functions will enable enterprises to improve their offering or introduce new revenue streams.

"Government initiatives, such as research and development tax relief, will help to drive this innovation, de-risking the investment for both new and established businesses. Besides, before long, the consequences of not adopting technology are likely to far outweigh the risks that come with investing.

"The disrupters of today will soon become the mainstream of tomorrow – when that time comes, Manchester will be perfectly placed to help forward-thinking firms stay ahead of the curve."

## **The National College** for Digital Skills



**Tom Fogden** Dean of the National College for Digital Skills Ada, the National College for Digital Skills, was announced by the Prime Minister in 2014 and it opened its doors to students for the first time last year.

Chaired by serial technology entrepreneur Tom Ilube, the college has a mission to work with the digital industry and deliver an education that empowers its students to progress into highly skilled digital roles and lead flourishing lives.

"The digital industry is experiencing epic growth but there is a talent shortage" Currently supported by industry partners including Bank of America, Merrill Lynch and Deloitte, Ada seeks to be this bridge between talented young people and the thousands of unfilled technology jobs in the UK. Its mission is to become a centre of excellence for the teaching and learning of advanced digital skills and offer students a viable, high-quality alternative to university.

Commenting on the college's goals and the shortage of skills, Dean of the College Tom Fogden said: "The digital industry is experiencing epic growth but there is a talent shortage. There are thousands of jobs available each year in the UK, but many students are leaving education without the sufficient knowledge and experience to get the job.

"The lack of coding expertise is rightly identified in this report and we believe more needs to be done to make high quality coding instruction accessible and appealing to students from a wide range of backgrounds.

"We teach coding and believe this, along with other technical skills, should be complemented with other fundamental entrepreneurial and creative skillsets"

"At Ada we teach coding and believe this, along with other technical skills, should be complemented with other fundamental entrepreneurial and creative skillsets. These strands are weaved through all our curriculums."

Tom adds: "In analysing the lack of skills, this report is also right to highlight the need to encourage more women into the industry.

"The College is focused on using digital skills as a tool for social mobility and within five years, 50% of our students will be young women and 50% will come from low income households."

# Fuel Ventures

Founded in 2013 by entrepreneur and investor Mark Pearson, Fuel Ventures is a venture capital firm which brings a unique approach to early stage investment.

Focused on supporting the technology sector, all of its early stage portfolio companies are based in its London head office. Bringing together entrepreneurs into an environment of innovation, collaboration and support, it provides a unique combination of mentorship, experience and access to investment required to drive a business and ideas to success.

Fuel Ventures offers a variety of investment opportunities for high net worth individual investors, family offices and institutions, from tax-efficient EIS funds to co-investment and direct investment opportunities.

Sam Jacobs, Fuel Ventures' Business Development Director, is heavily involved with raising investment funds for the organisation and says:

"The UK's technology sector is very popular with investors and currently attracts more venture capital than any other European country.

"We see a lot of interest coming from China. In my opinion, there are a couple of reasons. Firstly, the UK is synonymous with innovation from the time of the Industrial Revolution to current technology-enabled solutions across such as healthcare, renewables, smart cities, financial services, education, logistics, retail, e-commerce, media, advanced manufacturing and engineering. Secondly, there's a strong top-down technology and innovations drive in China which is adding tremendous impetus to the venture capital community. With Chinese students being the largest international group at UK universities, a natural consequence is to look to the UK for collaboration and participation in related areas.



"China sees innovation and advanced technology as being pivotal for economic and social transformation. The UK is a hotbed for investment and collaboration."

"In terms of London, it is clearly an important hub, but investors from China explore beyond the capital city. There is a lot going on in the Northern Powerhouse with university spin-outs up and down the country. For example, cities like Liverpool have adopted a joined-up approach with the public and private sector, recruited talent and are well on the radar of overseas investors."

### "The UK's technology sector is very popular with investors and currently attracts more venture capital than any other European country"

Sam is very optimistic about the opportunities for technology start-ups over the next five years.

"I am excited about the future of this sector. At Fuel Ventures we are contacted by over 100 businesses each month and although we only end up working with a few, there is an abundance of very exciting ideas which have the power to transform, disrupt and provide added value to stakeholders.

"Despite the uncertainty of Brexit, I don't see the appetite for investing from abroad diminishing. Knowledge and IP assets are unconstrained. This year we are stepping up the number of fundraisings that we do and the signs are that the flow of investment into the UK, particularly from China, is getting stronger."

## **Key** contact

## The technology and communications sector is evolving rapidly.

New technologies and developments provide fresh opportunities for businesses almost daily – but the speed and complexity of these changes means the legal landscape is having to adapt rapidly with it.

Expert legal support is crucial to make sure your business has the potential to be what you want it to be. Our technology lawyers work with innovative technology-led businesses nationally to give management teams peace of mind and strategic guidance, helping them save money and focus on growth. We do this by addressing and crucially anticipating the key legal issues that impact on businesses in this sector.

Whether you are an entrepreneur with a new business or a board member of a long-established enterprise business, we have the expertise to help you. We work nationally with a diverse range of clients. Please do not hesitate to contact me in relation to any questions arising from this report or to find out how our legal experts can help your business reach the next level of growth.

To keep up to date with the latest legal deveolpments affecting the technology sector folow: **@TheTechLawyer**.

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#### A report for Irwin Mitchell



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This report has been produced by Cebr, an independent economics and business research consultancy established in 1992. The views expressed herein are those of the authors only and are based upon independent research by them.

#### London, October 2017

#### Methodological Note for the Technology Powerhouse calculations:

Technology as such is not defined as a separate sector in the national accounts as the term originally describes the application of new methods and knowledge gained from research to any type of practical purpose across all industries. As the focus of the most recent technological innovations lies strongly in the digital sphere, we decided to use the "Information and Communications" sector for GVA data as the closest proxy for technology as this sector comprises computer programming, software development and other IT related activities.

The ONS figures for employment by local authority combine the "Information and Communications" and the "Transport" categories. One of the many links between those sectors are the recent advances in intelligent transportation systems including autonomous driving, traffic management systems and infrastructure. Instead of arbitrarily splitting employment in this category we therefore decided to report it as it stands.

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