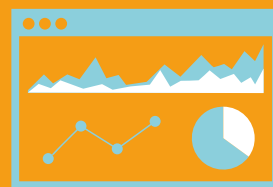# TECH PARTNERSHIP
skills for the digital economy

Employer Insights: skills survey 2015

The Tech Partnership is a growing network of employers, collaborating to create the skills for the digital economy. Its leadership includes the CEOs of major companies in the tech industry, heads of technology from companies across the economy, and small company representation. The Tech Partnership is recognised by government as the Industrial Partnership for the Digital Economy. It owns and is supported by the Tech Partnership Company, a registered charity, and is taking forward the work of e-skills UK.

To deliver on its strategic aims and objectives, the Tech Partnership monitors and reports on developments within/impacting the digital labour market using data provided from existing secondary sources (public/private) combined with primary research undertaken for internal use/external clients.

This report sets out the findings obtained from a major survey of employers commissioned during the spring/summer of 2014. It sought to provide a set of baseline data for The Tech Partnership relating to tech employment and skills, recruitment, and adoption patterns for the specific strategically important technologies of cyber security, big data analytics, cloud computing and mobile computing (hereafter referred to as 'strategic technologies').

Survey methodology

The information presented in this report is derived from the collective input of 1,658 UK employers, 479 of which were large employers (250 or more employees) and 1,179 were SMEs (businesses with 1 to 249 employees). Input from these employers was collected via telephone survey during the spring/summer of 2014 and on completion of the survey the resulting dataset was cleaned and weighted to reflect the distribution of businesses in the UK according to estimates obtained from the ONS Interdepartmental Business Register (IDBR).

To ensure efficacy of results, a number of screening questions were employed at the beginning of the survey to ensure that an appropriate respondent was identified (i.e. of a suitable level/role to answer detailed questions pertaining to tech employment/ implementation). In addition, a series of quotas were applied to enable an analysis of the survey data to be undertaken by industry and size.

Further details of the survey methodology, quotas and weighting process are available on request.

CONTENTS

Executive summary

The use of digital technologies is almost universal among UK businesses. Use of strategic technologies is growing, and more tech specialists are entering the workforce.
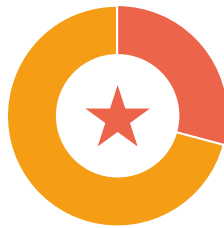
The use of digital technologies is almost universal among UK businesses. Use of strategic technologies is growing, and more tech specialists are entering the workforce. Yet problems remain in recruiting the necessary talent, and addressing skills gaps within the workforce is an ongoing challenge.

The Tech Partnership surveyed over 1,500 businesses across a range of industries to provide an accurate understanding of where the barriers to recruitment lie, how skills gaps in the workforce are addressed, and how strategic technologies are changing businesses' approach to tech.
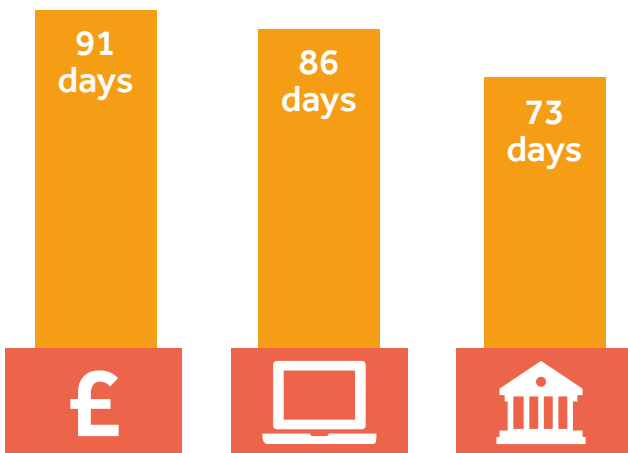
99%

of employers expect to increase or maintain the number of tech specialists they employ during 2015

Almost half (42%) of all firms recruiting tech specialists reported that some or all of these positions had been hard-to-fill

Four out of ten (38%) large companies recruited tech specialists in the past year

85%

of hard-to-fill positions are difficult to recruit to because of a lack of tech specialist skills

91 days

86 days

73 days

33

The average time taken to fill a tech specialist vacancy is 33 days
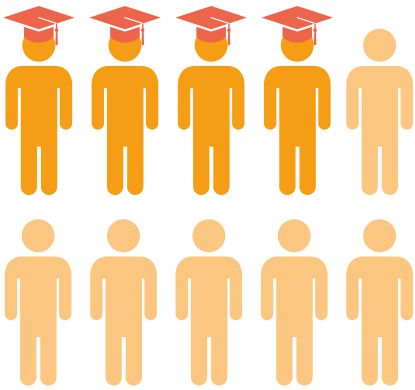
The financial services industry, at an average of 91 days, struggles the most to recruit to hard-to-fill tech specialist positions, followed by the tech industry itself (86 days) and the public sector (73 days)
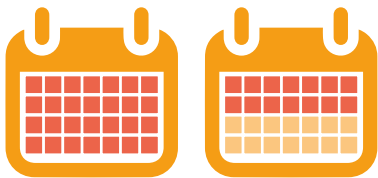
61

But...the average time taken to fill one of the hard-to-fill vacancies is almost double that, at 61 days

Four out of every ten (39%) junior tech specialist roles are filled by individuals leaving full time education...

...with 58% of those coming from studying a computing-related discipline

6 weeks

Once a skills gap within a company's tech specialist staff is identified, it takes an average of 6 weeks to address

1/20

Just one out of every 20 companies has ever taken on an apprentice to fill a tech specialist role...

1/10

...but one in ten say they are likely to take on an apprentice in the coming year

An estimated 182,000 businesses in the UK experience skills gaps among their tech specialist staff

Of the businesses identifying skills gaps within their tech workforce, 96% stated that missing key technical skills was a problem

72%

Almost three-quarters (72%) of large firms that employ tech specialists identified skills gaps within their workforce

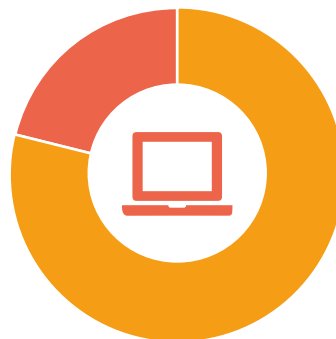Those businesses rated the average proficiency of their tech workforce at 79%

The biggest barrier to recruiting leavers from full-time education is a lack of technical skills

24%

A quarter (24%) of employers cited a lack of training as a major reason for skills gaps in their workforce

More businesses are adopting strategic technologies to safeguard their business and deliver new opportunities

Two out of every three businesses (62%) now have cyber security systems in place

Almost as many (59%) use mobile computing

Large companies are more likely to have implemented emerging technologies

27%

of the biggest employers now use big data analytics to support their work

One in five (20%) businesses anticipate increasing the amount they spend on tech in 2015

2014

2015

56%

And more than half (56%) of companies that have implemented cloud computing will further increase their spending on that technology

1 Tech adoption

The use of the internet has risen consistently such that, by 2013, the proportion of firms with internet access was 95%, and 80% of all businesses have their own website.

ADOPTION OF STRATEGICALLY IMPORTANT TECHNOLOGIES

The use of technology is almost universal amongst UK businesses.

The use of the internet has risen consistently such that, by 2013, the proportion of firms with internet access was 95%, and 80% of all businesses had their own website.
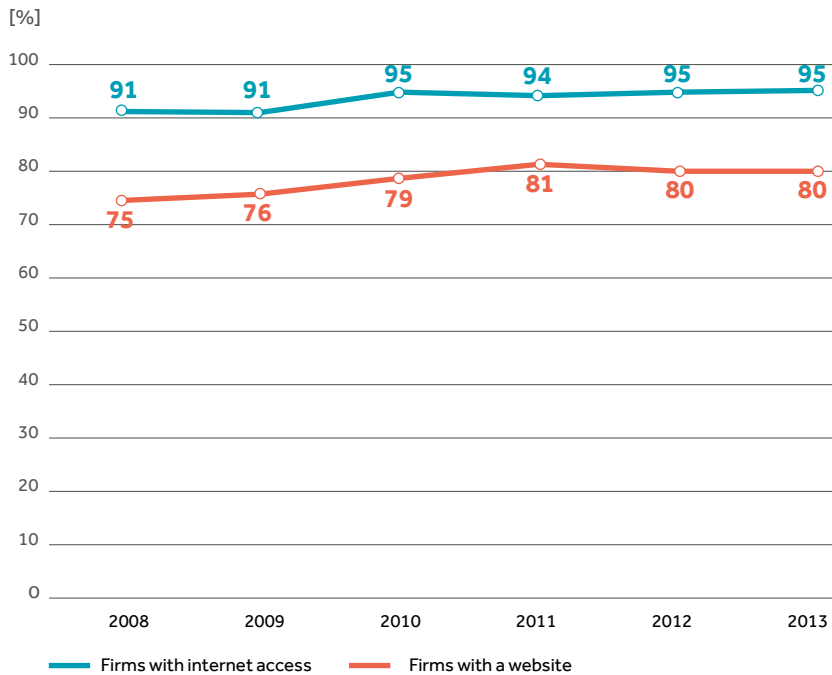
Figure 1: Business adoption of internet/websites, 2008–13

[%]

Year	Firms with internet access	Firms with a website
2008	91	75
2009	91	76
2010	95	79
2011	94	81
2012	95	80
2013	95	80

— Firms with internet access   — Firms with a website

Source: The Tech Partnership analysis of data from the ONS e-commerce survey

In this increasingly 'online' business world, the technologies of cyber security systems, mobile computing, cloud computing and big data analytics are of increasing importance. The threat of cyber attacks is a real, present danger to every business, while mobile, cloud and big data provide the opportunity for new services and competitive advantage in every sector of the economy.
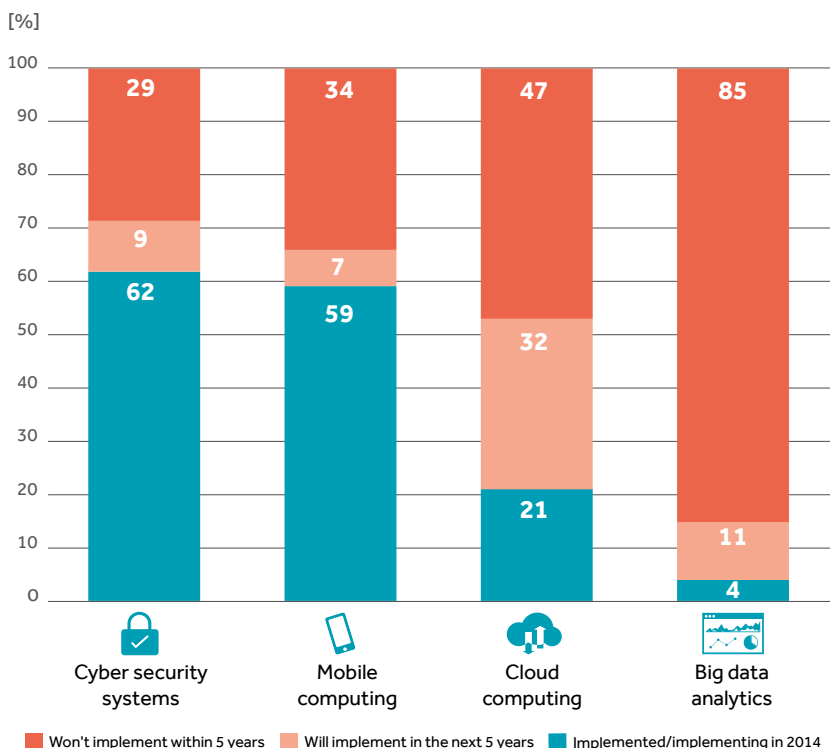
This Tech Partnership Employer Insights research has investigated the adoption of these four technologies (hereafter referred to as 'strategic technologies') in businesses across the UK.

The level of adoption for specific strategic technologies varies substantially. As can be seen in figure 2 below, around six out of every ten UK businesses either have implemented or are in the process of implementing cyber security systems and mobile computing. On the other hand, only around one in five are utilising cloud computing and less than one in twenty currently exploits big data analytics.

Figure 2: Adoption of specific strategic technologies

[%]

	Cyber security systems	Mobile computing	Cloud computing	Big data analytics
Won't implement within 5 years	29	34	47	85
Will implement in the next 5 years	9	7	32	11
Implemented/implementing in 2014	62	59	21	4

Source: The Tech Partnership Employer Insights research

It is notable that businesses also predict that it is unlikely that adoption of big data analytics will increase a great deal over the next 5 years, rising to only 15% of companies by 2019.
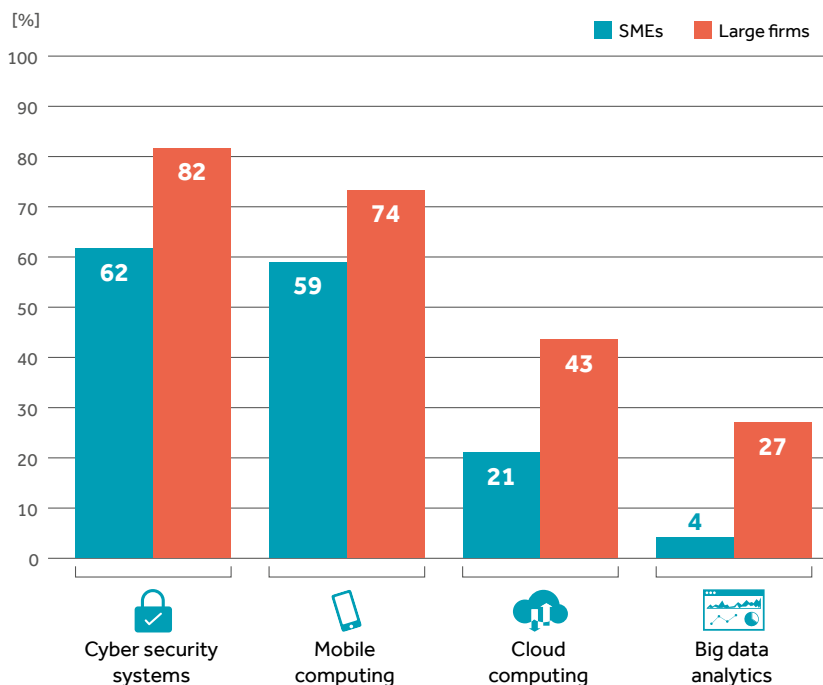
However, it should be noted that in surveys considering business analytics / data science more broadly (i.e. not restricted to 'big data' specifically), a significantly greater proportion of companies report uptake. For example, the adoption rate for enterprise resource planning systems (ERP) (which covers data management and analytics for key business activities) is reported by the ONS as being 23% of businesses currently, rising to 57% of businesses by 2019.[1]

Adoption levels of the four strategic technologies assessed through this survey vary significantly by size of organisation. As more than 99% of UK firms are classed as Small and Medium Enterprises (SMEs), the overall adoption levels registered will primarily reflect their level of take up.

Figure 3 below shows the differing adoption levels according to size of company.

Figure 3: Adoption of strategic technologies by company size

Source: The Tech Partnership, Employer Insights research

As can be seen, the proportion of large employers that have

1   ONS e-commerce survey, 2014.

implemented each of the four technologies is around 20 percentage points higher than that for SMEs on average – 23 percentage points in the case of big data analytics.
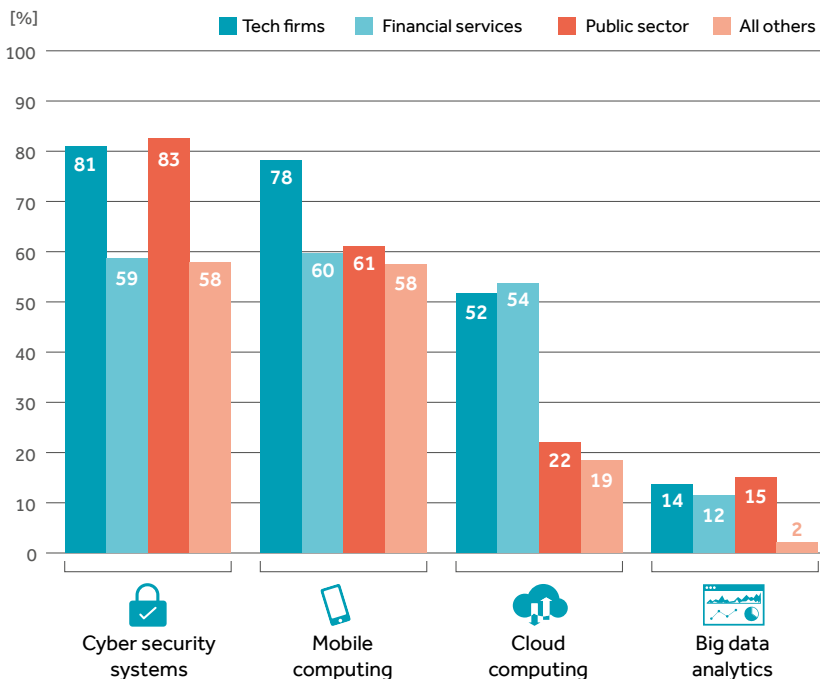
Over the next five years, a similar pattern looks likely to be maintained. In each area, larger companies are more likely to anticipate adoption than smaller companies. In the case of big data analytics, for example, it is estimated that around 42% of large companies will have implemented the technology by 2019, compared with just 14% of SMEs.

Adoption of these strategic technologies also varies significantly by industry. Unsurprisingly, the tech industry itself shows a consistently high level of adoption for each of these strategic technologies. That said, public sector organisations were slightly more likely to have implemented cyber security policies and big data analytics. Cloud computing implementation, on the other hand, was slightly higher amongst financial institutions as illustrated in the chart below:

42%

By 2019, 42% of large companies will be using Big Data Analytics

Figure 4: Adoption of specific strategic technology by industry

Source: The Tech Partnership, Employer Insights research

IN-HOUSE VS OUTSOURCED ACTIVITY

The Tech Partnership research assessed the extent to which the introduction of cyber security systems, mobile and cloud computing are outsourced. Figure 5 shows the differences between large company and SME approaches. For example, while SMEs are more likely to outsource cyber security systems than larger companies (46% compared with 31% of firms), they are much more likely to implement and operate mobile computing in-house.

Figure 5: Proportion of work on specific strategic technologies that is outsourced
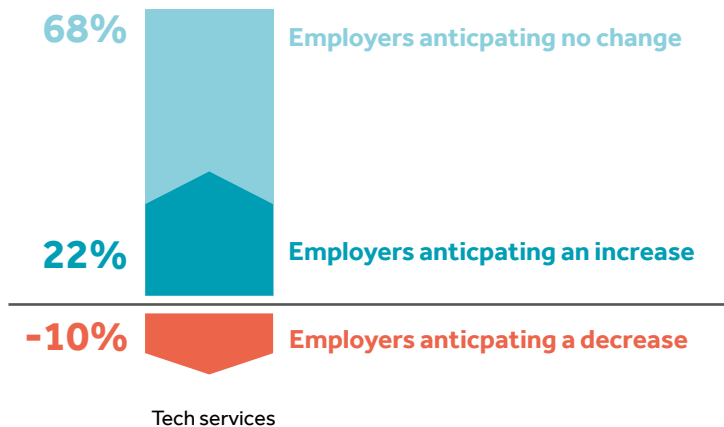

Source: The Tech Partnership, Employer Insights research

FUTURE SPENDING PATTERNS

The Tech Partnership employer research considered future spending patterns, on digital technology overall (services, software and hardware) and on the four strategic technologies being assessed.

An overall increase in tech spending during 2015 was anticipated by one fifth (20%) of businesses surveyed, with a similar proportion forecasting growth in the amount they will spend on each of hardware, software and services. Declining expenditure was anticipated by one in ten employers but the majority of employers forecast no significant change in tech spending over the coming year.

Figure 6: Anticipated change in expenditure on tech services in 2015

68% Employers anticpating no change

22% Employers anticpating an increase

-10% Employers anticpating a decrease

Tech services

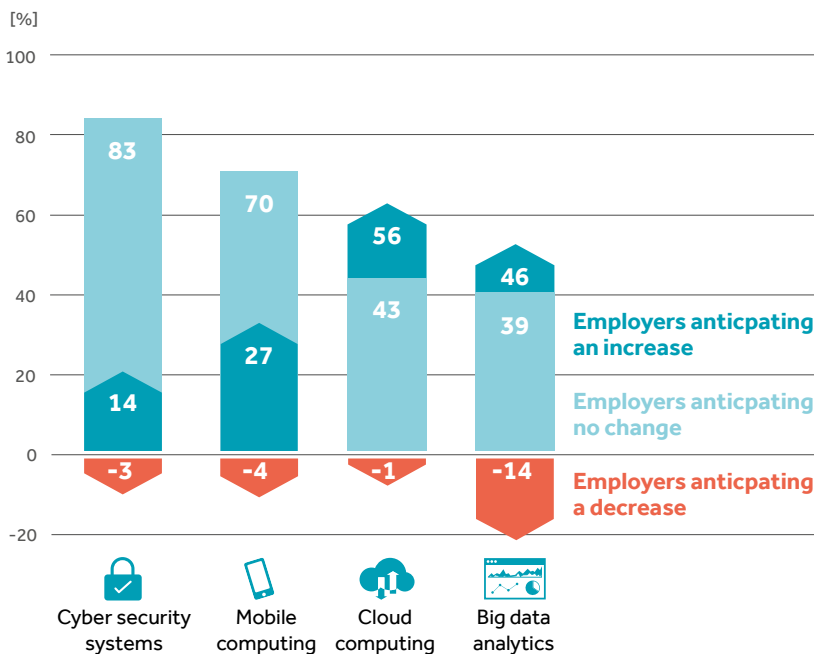Source: The Tech Partnership, Employer Insights research

Large firms are more likely than SMEs to predict an increase in tech spending, in particular in terms of hardware (31% of large firms vs 21% of SMEs) and software (31% and 20% respectively).

SPEND ON STRATEGIC TECHNOLOGIES

Businesses that have already implemented strategic technologies are likely to anticipate further increases in spending on those technologies. For example in the case of cloud computing, some 56% of businesses predict an increase in spending over the next year. Likewise, 46% of companies that have adopted big data analytics report that they are likely to spend more on the technology in 2015.

Figure 7: Anticipated change in expenditure on strategic technologies in 2015

Source: The Tech Partnership, Employer Insights research

The proportion of firms anticipating increases in mobile computing and cyber security spending were much lower by comparison. However, investment in these technologies has already been made by a far greater number of businesses.

2 Employment

The Tech Partnership's latest analysis of data from the ONS shows that there are 1,278,000 people working in tech specialist roles in the UK.

THE TECH SECTOR

The Tech Partnership's latest analysis of data from the ONS Labour Force Survey shows that there are 1,278,000 people working in tech specialist roles in the UK. Of those, 627,000 (49%) are employed in the tech industry itself, while the other 651,000 (51%) are employed in other industries across the breadth of the UK economy.

The same data shows that tech specialist employment is consistently increasing, growing by 6% (71,000) in the year from 2013 to 2014 alone.

TECH EMPLOYMENT TRENDS

The Tech Partnership Employer Insights research assessed changes in employment associated with different kinds of tech activities.

2.4% of businesses reported an increase in tech specialist employment between 2013 and 2014, and the level of increase was broadly consistent with that shown in the analysis of ONS data referred to above.

When asked about employment levels in the coming year, 7% of employers reported an intention to increase the number of tech specialists they employ, compared with just 1% predicting that the number would decline.

There are 1,278,000 tech specialists working in the UK

Figure 8: Companies increasing tech specialist employment

2013–14	2014–15
2.4%	6.8%

Source: The Tech Partnership, Employer Insights research

Employment growth for tech specialists over the coming year is forecast to be highest for junior positions with 11.8% firms predicting rising employment at this level. By contrast, employment of 'standard/mid-level' tech specialists was anticipated to increase in 4% of businesses surveyed, while just 1.3% forecast increased employment in managerial positions.

EMPLOYMENT PATTERNS FOR STRATEGIC TECHNOLOGIES

Looking at employment levels for strategic technologies over the previous year, cloud computing was the area most often associated with employment growth, with 4.3% of firms reporting an increase.

Employers anticipate that employment associated with other strategic technologies will increase further between 2014 and 2015, however, with 7.1% of firms predicting that they will recruit more employees to work on big data analytics. That compares with just 0.6% of companies predicting a reduction in employment in this area.

11.8%

11.8% of companies anticipate hiring more junior-level tech specialists in 2015

Figure 9: Companies increasing employment on strategic technologies

	2013–14	2014–15
Cyber security systems	2.9	7.1
Mobile computing	3.4	3.6
Cloud computing	4.3	4.3
Big data analytics	1.7	1.8

Source: The Tech Partnership, Employer Insights research

TURNOVER AMONG TECH SPECIALIST POSITIONS

In addition to the change in the overall tech specialist workforce in the UK, the employer survey also considered the turnover within that workforce – i.e. the extent to which tech specialists move from one company to another. Respondents reported that in 2013–2014 the level of turnover for tech specialists positions stood at around 8% of employment as a whole, rising to 10% amongst organisations operating within the tech industry itself.

Figure 10: Level of turnover amongst tech specialists by industry in 2013–14

[%]
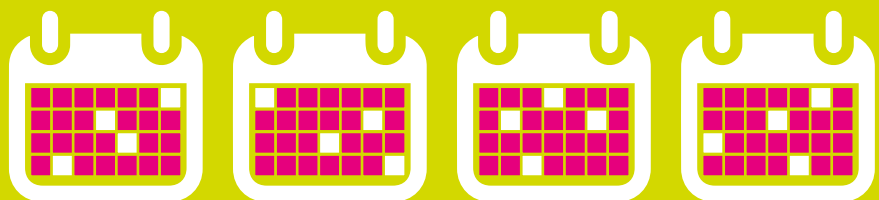

Source: The Tech Partnership, Employer Insights research

3 Skills gaps among tech specialists

When asked to compare the level of skills held by their tech specialists with those required by the business, 50% – the equivalent of around 182,000 businesses UK-wide – identified a shortfall among their staff.

OVERVIEW

There are approximately 364,000 organisations employing tech specialists in the UK. When asked to compare the level of skills held by their tech specialists with those required by the business, 50% – the equivalent of around 182,000 businesses across the UK – identified a shortfall among their staff.

Some 72% of large employers with tech specialists stated that skills gaps existed compared with 49% of SMEs. By industry sector, businesses operating within financial services were most likely to be experiencing gaps of this nature, with 61% of respondents reporting that their workforce were missing skills they needed. As illustrated in the chart below, tech skills gaps were less common among firms outside of the tech, finance and public industry sectors.

50%

Half of all businesses report skills gaps in their tech specialist staff

Figure 11: Incidence of skills gaps amongst tech specialists, by industry

Source: The Tech Partnership, Employer Insights research

THE NATURE AND SCALE OF SKILLS GAPS

Tech specialists were most often thought to have gaps in their technical skills, with 96% of firms reporting skills gaps stating this, followed by

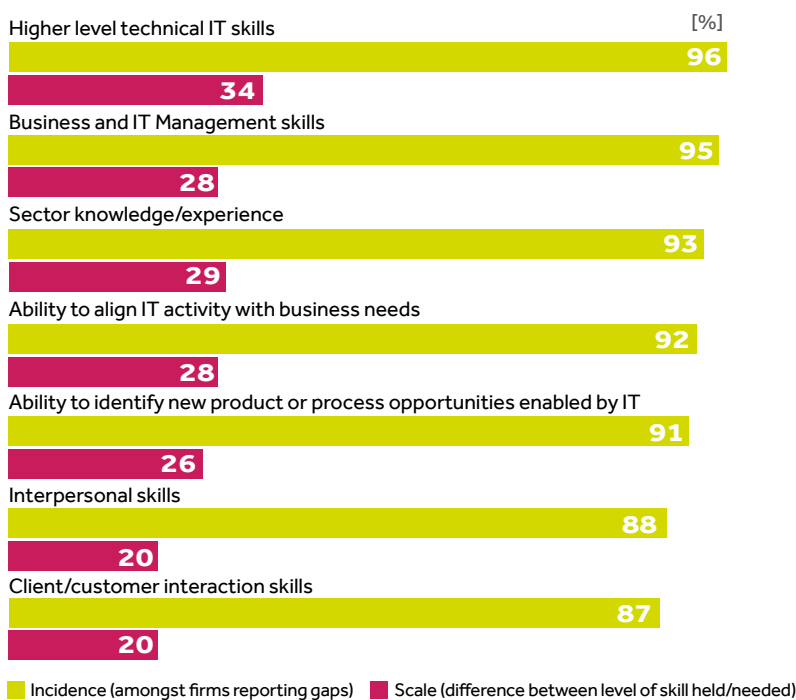Business & IT Management skills (95%) and then sector knowledge/experience (93%). Gaps in the interpersonal skills and client interactions skills of tech specialists were highlighted by 88% and 87% respectively of those reporting gaps.

The survey went on to identify the extent of the gap, by asking for an assessment of proficiency of the individual tech specialists, expressed as a percentage of the skills needed for the job.

On average, employers reported that where there is a skills gap, tech specialists have 79% of the skills needed for the job – i.e. there is a 21% gap in required proficiency.

The proficiency gap ranged from 20% (i.e. 80% proficient) in the case of interpersonal and client interaction skills to as high as 34% (i.e. only 66% proficient) in the case of higher level technical skills of tech specialist staff.

Figure 12: Type and extent of skills gaps amongst tech specialists

[%]

Higher level technical IT skills
96
34

Business and IT Management skills
95
28

Sector knowledge/experience
93
29

Ability to align IT activity with business needs
92
28

Ability to identify new product or process opportunities enabled by IT
91
26

Interpersonal skills
88
20

Client/customer interaction skills
87
20

■ Incidence (amongst firms reporting gaps) ■ Scale (difference between level of skill held/needed)
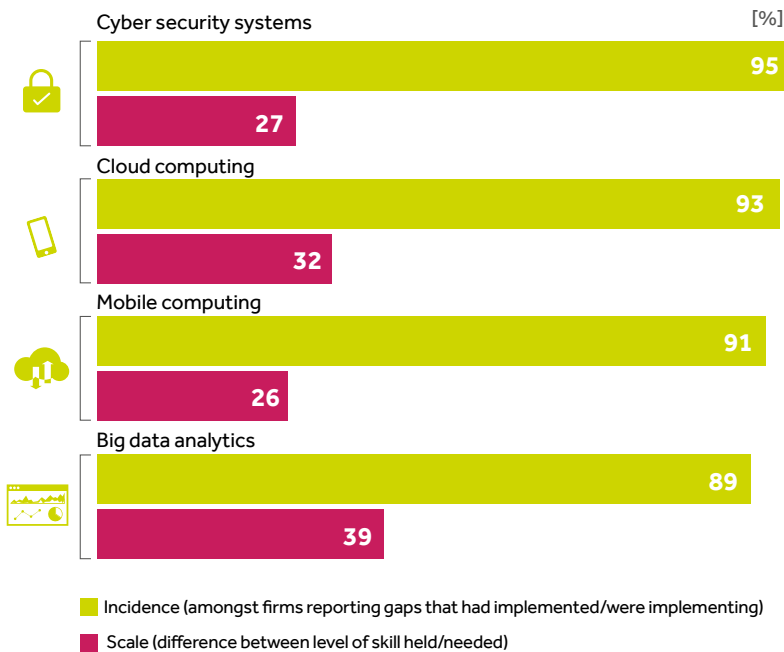
Source: The Tech Partnership, Employer Insights research

SKILLS GAPS AND STRATEGIC TECHNOLOGIES

Gaps in the skills of tech specialists were a common issue for many organisations that have implemented or are in the process of implementing the strategic technologies covered by this employer research. For example, among those that have implemented or are implementing cyber security systems, 95% of companies that reported gaps in their tech specialists' skills stated that skills gaps existed among staff tasked to work in this area.

Figure 13: Incidence/scale of skills gaps by specific strategic technology

- Incidence (amongst firms reporting gaps that had implemented/were implementing)
- Scale (difference between level of skill held/needed)

Source: The Tech Partnership, Employer Insights research

Of the four strategic technologies, data analytics was least often associated with skills gaps among tech specialists. However, when gaps were apparent, the extent of the mismatch between skills held and the skills needed was considered to be the largest at 39% (i.e. the tech specialists being only 61% proficient in their job).
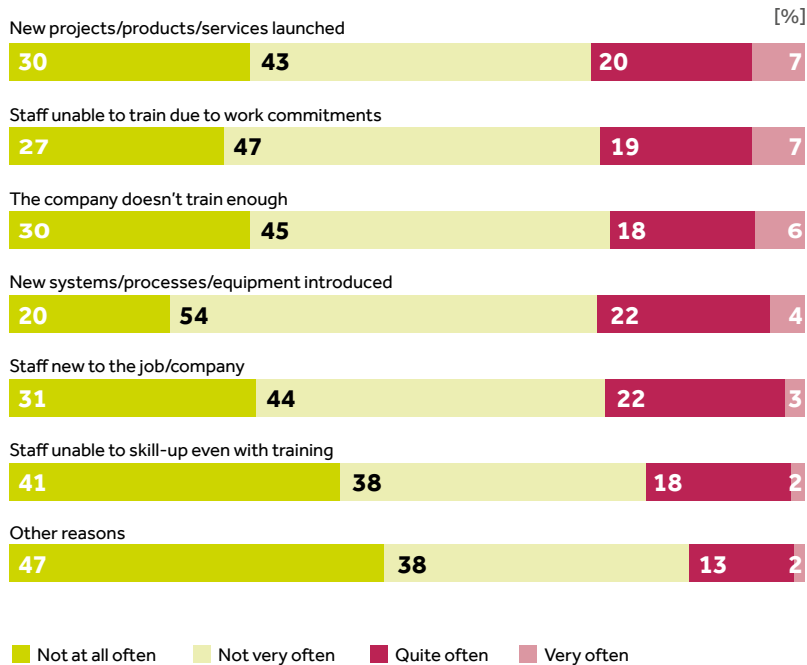
REASONS FOR SKILLS GAPS

The survey asked employers about frequency of skills gaps among tech specialists in relation to different factors. The launch of new projects, products or services is the reason most commonly associated with skills gaps, with 27% of companies reporting it was often a factor.

26% of firms said that staff were often unable to train due to work commitments, and 24% said skills gaps were often due to the company not training enough.

Figure 14: Frequency of skills gaps arising due to different factors

New projects/products/services launched [%]

30	43	20	7

Staff unable to train due to work commitments

27	47	19	7

The company doesn't train enough

30	45	18	6

New systems/processes/equipment introduced

20	54	22	4

Staff new to the job/company

31	44	22	3

Staff unable to skill-up even with training

41	38	18	2

Other reasons

47	38	13	2

■ Not at all often ■ Not very often ■ Quite often ■ Very often

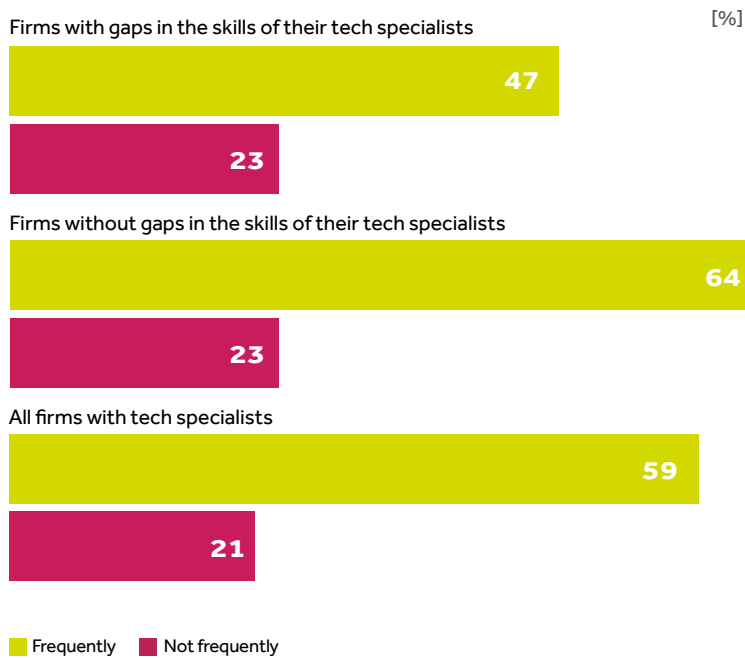Source: The Tech Partnership, Employer Insights research

One fifth of firms employing tech specialists believe that skills gaps among such staff 'often' arise as a result of staff being unable to attain the required level of skills needed even when appropriate training is given.

24%

A quarter of companies believe that skills gaps result from *not providing enough training*

IDENTIFICATION AND MONITORING OF SKILLS/GAPS

Most companies with tech specialists monitor skills requirements and gaps arising, although just under six in ten (59%) do so on a 'frequent' basis. Firms with tech skills gaps are less likely to monitor skills regularly, and 25% of firms with tech skills gaps do not have any monitoring in place, compared with just 7% of those without.

Figure 15: Frequency of monitoring skills requirements and gaps

Firms with gaps in the skills of their tech specialists [%]

47

23

Firms without gaps in the skills of their tech specialists

64

23

All firms with tech specialists

59

21

■ Frequently   ■ Not frequently

Source: The Tech Partnership, Employer Insights research

Though firms that did not report gaps in the skills of their tech specialists were more likely to have some form of skills monitoring process in place, they were not as likely to have formalised these activities as those that did have gaps (comparison figures of 24% and 46% respectively).
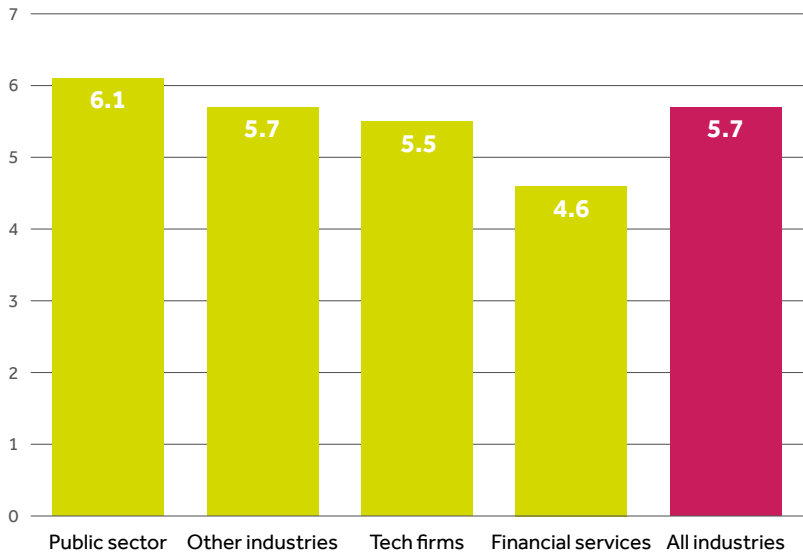
ADDRESSING SKILLS GAPS

Employers estimated that, once identified, it takes them an average of nearly 6 weeks to address gaps in the skills of tech specialists by way of training, recruitment or other means. Among firms that stated they do not monitor tech skills gaps the time period was slightly longer at almost 7 weeks.

6 weeks

It takes an average of 6 weeks to address skills gaps among tech specialist staff once identified

Figure 16: Weeks taken to address tech specialist skills gaps once identified

Source: The Tech Partnership, Employer Insights research

Comparing by industry, it can be seen that public sector firms take on average slightly longer than others to address skills gaps, while the time required by financial services firms was considerably less.

4 Training tech specialists

One of the key methods for addressing skills gaps is the provision of appropriate training courses, and the latest estimates from ONS suggest that around 24% of tech specialists had received some form of job related education or training.
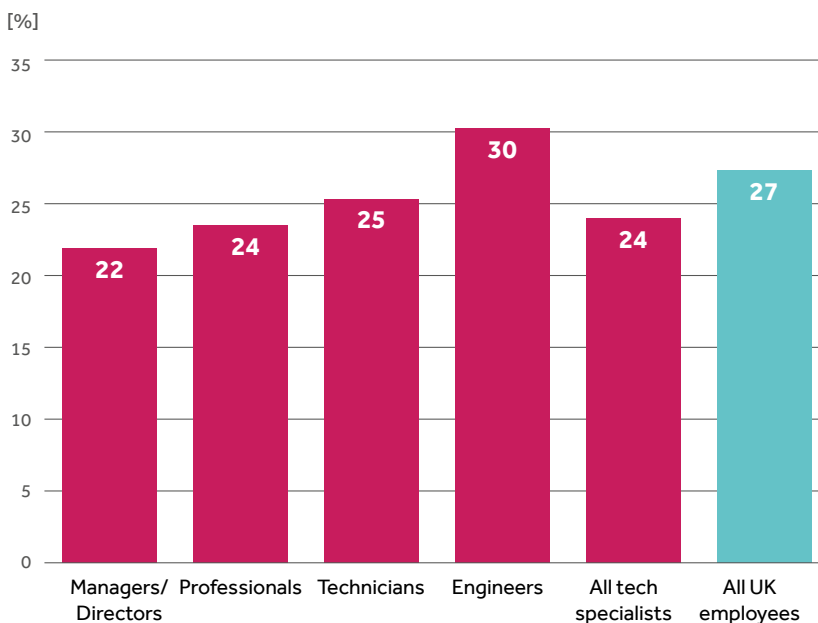
TECH SPECIALIST TRAINING

One of the key methods for addressing skills gaps is the provision of appropriate training courses, and the latest estimates from ONS suggest that around 24% of tech specialists had received some form of job related education or training in the 13 weeks running up to the third quarter of 2014.

58%

More than half of companies deliver training to tech specialist staff in house

Figure 17: Proportion of employees trained in the previous 13 weeks

Source: The Tech Partnership analysis of data from the ONS Labour Force Survey Q3, 2014

The Tech Partnership employer research considered types of training used by employers of different sizes.

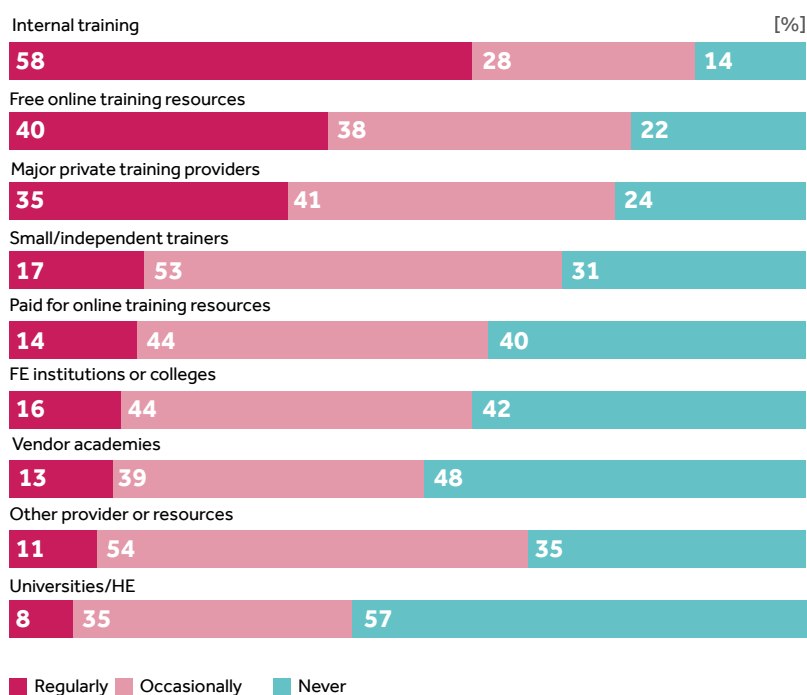## TRAINING DELIVERY FOR TECH SPECIALISTS

Overall, the most common means of providing job specific training for tech specialists is via the use of internal resources. This includes the use of a dedicated internal training function, mentoring and self-learning. These delivery methods are regularly employed by more than half (58%) of organisations with tech specialists.

The next most commonly used method of training is free online training, regularly used by 40% of organisations – followed by outsourcing to major private training providers (34% of businesses).

Other methods of delivery each have less than 17% of businesses using them frequently as a means of providing training to their tech specialist workforce. This includes Further Education Colleges at 14% and universities / Higher Education Institutions at 8%.

Figure 18: Usage of different training delivery methods for tech specialist development

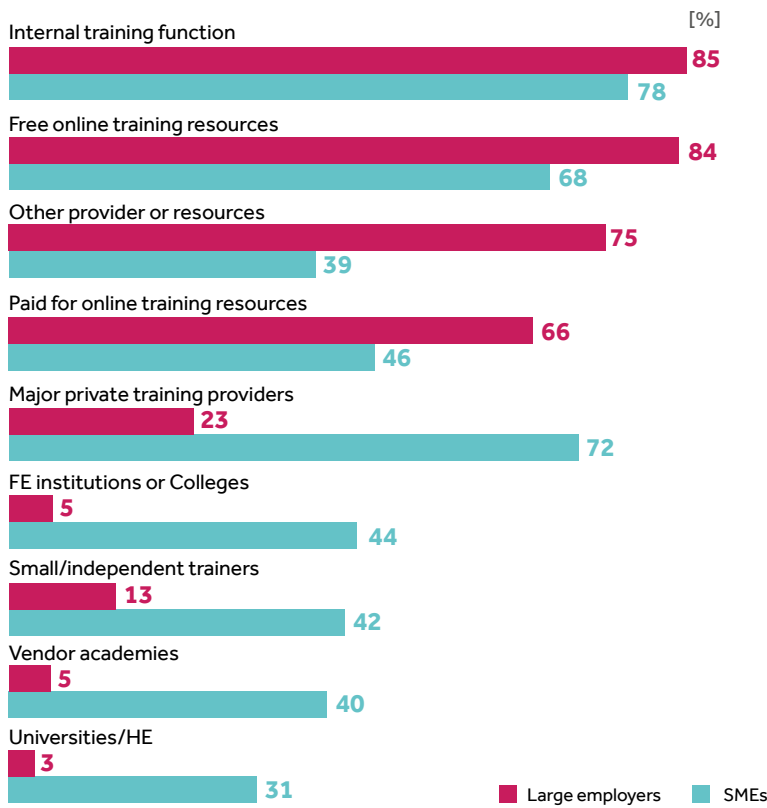|	Regularly	Occasionally	Never
Internal training	58	28	14
Free online training resources	40	38	22
Major private training providers	35	41	24
Small/independent trainers	17	53	31
Paid for online training resources	14	44	40
FE institutions or colleges	16	44	42
Vendor academies	13	39	48
Other provider or resources	11	54	35
Universities/HE	8	35	57

[%]

■ Regularly ■ Occasionally ■ Never

Source: The Tech Partnership, Employer Insights research

As would be expected the means of providing training varies according to the nature of business in question, and substantial differences were observed in the responses of SMEs and large organisations. The following figure shows this difference by type of training used always, often or occasionally. SMEs are more likely than large companies to use internal training and free online resources, and much less likely

to use major private training providers or public provision (Further Education Colleges and Higher Education Institutions).

Figure 19: Breakdown by company size of those using different training delivery methods for tech specialist development

[%]

Internal training function
Large employers: 85
SMEs: 78

Free online training resources
Large employers: 84
SMEs: 68

Other provider or resources
Large employers: 75
SMEs: 39

Paid for online training resources
Large employers: 66
SMEs: 46

Major private training providers
Large employers: 23
SMEs: 72

FE institutions or Colleges
Large employers: 5
SMEs: 44

Small/independent trainers
Large employers: 13
SMEs: 42

Vendor academies
Large employers: 5
SMEs: 40

Universities/HE
Large employers: 3
SMEs: 31

■ Large employers   ■ SMEs

Source: The Tech Partnership, Employer Insights research

5 Recruitment of tech specialists

An alternative key method for addressing skills gaps within the workplace is to recruit new staff. However, employers of tech specialists are reporting an inadequate supply of appropriate candidates within the labour market.

TECH SPECIALIST RECRUITMENT

An alternative key method for addressing skills gaps within the workplace is to recruit new staff. However, employers of tech specialists are reporting an inadequate supply of appropriate candidates within the labour market. This section looks in more detail at the level of tech recruitment across the UK and the associated incidence of hard-to-fill and skills shortage vacancies.
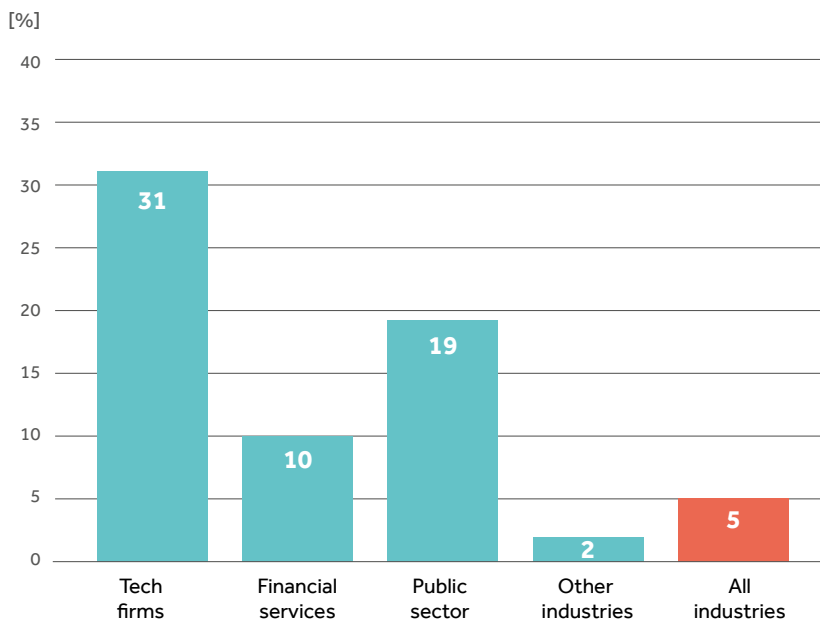
Overall, the survey shows that 38% of large companies had recruited new tech specialists in the last year, compared with just over 5% of SMEs. This averaged 5% of companies overall due to the preponderance of SMEs across the economy.

The incidence of recruitment also varied considerably by industry, with 31% of tech firms having recruited tech specialist staff during the year.

31%

Almost a third of all tech businesses recruited new tech specialist staff in 2014

Figure 20: Incidence of tech specialist recruitment by industry in the previous year

Source: The Tech Partnership, Employer Insights research

RECRUITMENT DIFFICULTIES

Of those firms seeking to recruit tech specialists in the previous year, 42% stated that some or all of these positions had been hard-to-fill. Among these companies, some 85% stated that skills shortages (a lack of candidates with the required skills, qualifications or experience) had been the cause of some or all of these recruitment difficulties. In total, 25% of all vacancies for tech specialists in the past year were difficult to fill for this reason.
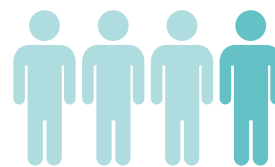
By industry, tech specialist skills shortages were most prevalent in financial services: among these companies, more than one third (37%) of all tech specialist openings were classed as skills shortage vacancies.

In the tech industry itself, 30% of tech specialist openings were classed as hard-to-fill, just below the 'other industries' average (31%). The problem was reported as being substantially less common for public sector organisations, where hard-to-fill positions account for just 16% of tech specialist jobs advertised during the year.

TIME TAKEN TO FILL TECH VACANCIES

On average it takes just over one month (33 days) to fill a vacancy for a tech specialist. However, among firms that experienced difficulties recruiting tech staff that timeframe was around one third longer (an average of 44 days).
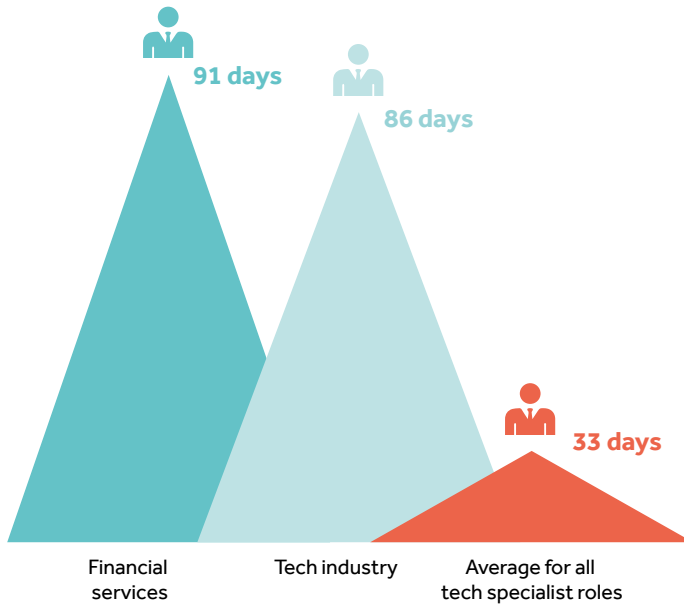
Employers reported that hard-to-fill positions required an average of 17 additional days to find an appropriate candidate. To fill one of those positions when compared with other vacancies. That figure varied dramatically between industries, with tech firms reporting an average of 41 additional days.

A quarter of all tech specialist vacancies are hard to fill

Figure 21: Estimated time to recruit
to hard-to-fill tech specialist positions

91 days Financial services

86 days Tech industry

33 days Average for all tech specialist roles

Source: The Tech Partnership, Employer Insights research

NATURE OF TECH VACANCIES

Complementing the employer research, the following tables provide
an analysis of information sourced from ITJobswatch. This shows that,
of public advertisements for tech specialists:

Developers were the tech specialists most sought after during each of
the past five years and in 2014 accounted for just under one in three
(36%) adverts for tech specialists in total.

Table 1: Average proportion of tech vacancies by role per quarter 2009–14 by generic role

	2009	2010	2011	2012	2013	2014
Developer	26%	28%	28%	28%	29%	36%
Analyst	17%	18%	18%	17%	16%	21%
Consultant	8%	8%	9%	8%	8%	9%
Project Manager	6%	6%	6%	6%	6%	8%
Architect	5%	5%	5%	6%	5%	7%
Administrator	3%	2%	3%	3%	3%	3%
Designer	2%	2%	2%	2%	2%	2%
All tech vacancies	100%	100%	100%	100%	100%	100%

Source: The Tech Partnership analysis of bespoke data provided by ITJobswatch

The tech skills most often needed by applicants for tech positions in the UK during 2014 were SQL, .NET, SQL Server, C# and HTML and together with Java these have been the top tech skills demanded by employers during each of the past five years.

Table 2: Top ten tech skills for tech specialist positions: citations in job vacancies per quarter 2009–14

	2009	2010	2011	2012	2013	2014
SQL	20,000	31,000	37,000	34,000	32,000	33,000
.NET	17,000	25,000	30,000	29,000	25,000	24,000
SQL Server	16,000	23,000	27,000	27,000	24,000	23,000
C#	14,000	22,000	27,000	26,000	23,000	23,000
HTML	10,000	14,000	18,000	21,000	21,000	22,000
Java	13,000	22,000	26,000	23,000	20,000	21,000
CSS	8,000	11,000	15,000	17,000	17,000	18,000
Linux	8,000	12,000	15,000	16,000	14,000	15,000
All tech vacancies	114,000	159,000	184,000	173,000	158,000	130,000

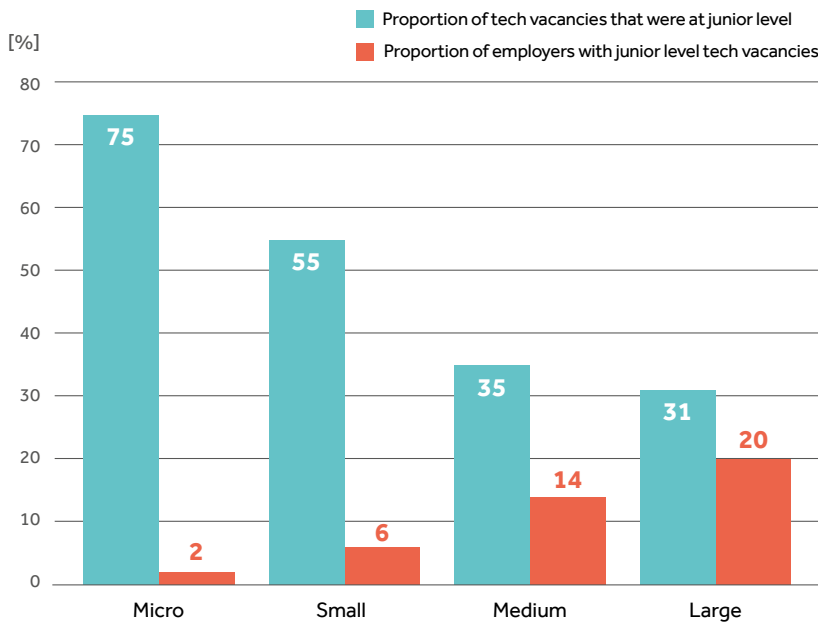Source: The Tech Partnership analysis of bespoke data provided by ITJobswatch

JUNIOR RECRUITS

Openings for junior staff

The Tech Partnership employer survey showed that, overall, 3.5% of organisations had openings for junior tech specialist roles during the previous year.

The proportion of businesses offering junior vacancies was greatest amongst the largest organisations. However, for any individual company, the proportion of tech specialist vacancies that were at a junior level was greatest amongst the smallest organisations.

Figure 22: Companies with vacancies for junior tech staff in the previous year

Source: The Tech Partnership, Employer Insights research

By industry, public sector and tech firms are the most likely to have had junior level positions for tech specialists (17% in each case) and public sector organisations were also notable as having the highest proportion of tech specialist vacancies at this level – 71% of all openings were classed as junior positions. It should be noted that, in this section,
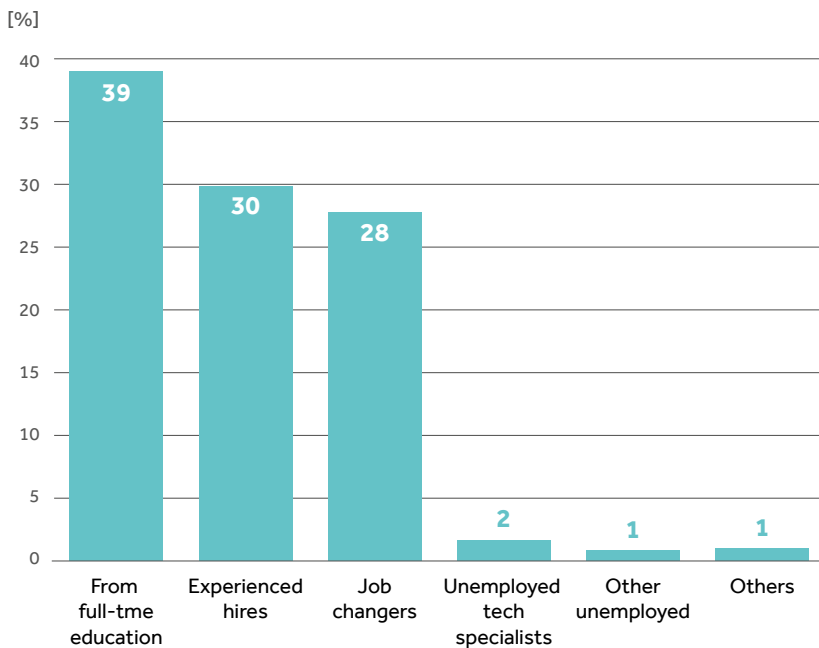
the definition of 'junior' was left to the respondent and as such interpretational differences could exist amongst those working in different organisations/industries.

Typical recruits for junior tech positions
Junior positions for tech specialists are most likely to be filled by individuals leaving full-time education (39%), followed by experienced hires and job changers (30% and 28% respectively).

Those leaving full-time education are much more likely to be recruited to junior tech specialist positions by SMEs than by large employers, filling 40% of junior vacancies among SMEs, compared with 26% of those for large companies. By industry, tech, finance and public sector organisations are most likely to take on individuals of this nature for junior roles.

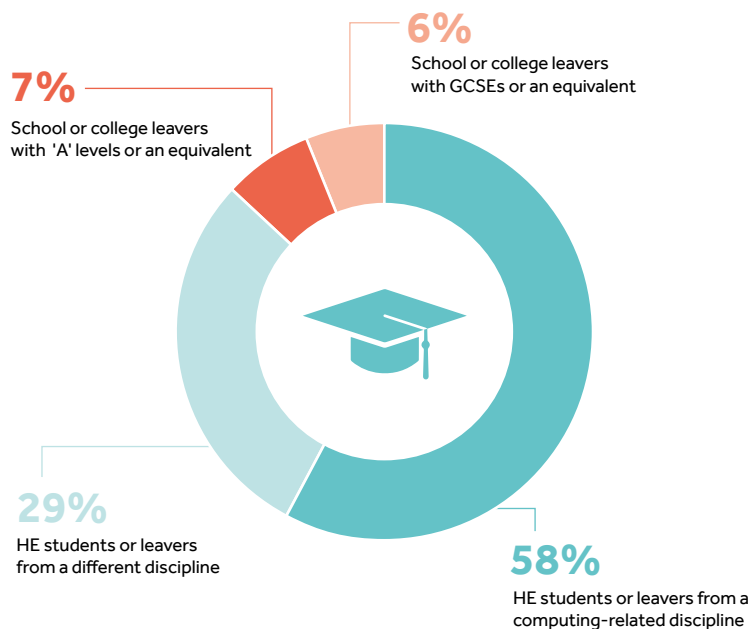## Figure 23: Nature of recruits taken to fill junior tech specialist positions

Source: The Tech Partnership, Employer Insights research

Almost nine out of ten (87%) of those that had been taken on for junior tech specialist positions were from Higher Education Institutions. Overall, 58% of recruits from full-time education had been studying a computing-related discipline at degree level.

Figure 24: Recruits from full-time education taken to fill junior tech specialist positions by level of study

6%
School or college leavers with GCSEs or an equivalent

7%
School or college leavers with 'A' levels or an equivalent

29%
HE students or leavers from a different discipline

58%
HE students or leavers from a computing-related discipline

Source: The Tech Partnership, Employer Insights research

Why firms do not recruit leavers from full-time education

When asked about barriers to recruiting leavers from full-time education, the most common reasons cited are a lack of technical skills, along with a lack of skills in general.

These reasons are also associated with the decision not to take on individuals with a lower level of academic achievement, though a more significant reason in this case is a lack of applications from such individuals.

Recruitment of apprentices

Overall, only 5% of organisations stated that they had ever taken on an apprentice to fill a tech specialist position. This rises to 26% among tech firms and those operating in the public sector.

Among businesses that had not taken on an apprentice for such positions, the main reasons given were that there were no tech positions at that level that needed filling (25%), the level of skills, qualifications and experience of apprenticeship candidates was insufficient or that there had been no applications of this nature (6% in each case), and reservations over the associated resources required (4%).

For larger firms, the potential lack of skills, qualifications and experience is more of an issue than among SMEs. By contrast, costs are a greater concern to tech and public sector firms than those in other industries. A lack of knowledge of apprenticeships was more common among tech and finance firms.

More generally, tech and finance firms were much more likely to state that they did not have any appropriate positions on offer.
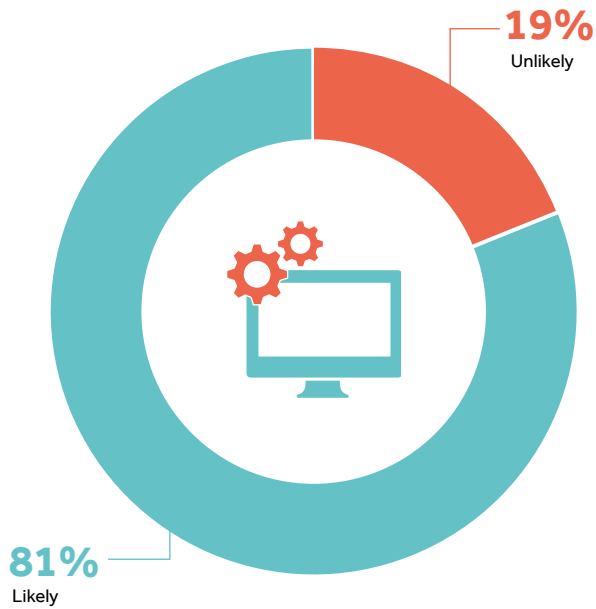
Future recruitment of apprentices

One in ten (10%) of employers surveyed stated that they were either very or fairly likely to take on a tech apprentice over the coming year. This figure rises to 19% for tech firms and 12% for large businesses overall.

5%

Just 5% of all employers have taken on a tech apprentice

Figure 25: Likelihood of a tech company taking on an apprentice in the coming year

19%
Unlikely

81%
Likely

Source: The Tech Partnership, Employer Insights research

When asked what, if anything, would make them more likely to take on an apprenticeship in the coming year, the main factors were the general health of the business and consequent demand for tech specialists.

Annex A: Data presentation

1. Company size bands
Micro Up to nine employees
Small 10–49 employees
Medium 50–249 employees
SME Micro, Small and Medium companies collectively
Large 250 or more employees

2 Referencing
Data sources referred to in this publication are:
- The Tech Partnership, Employer Insights research: the survey and statistical analysis analysis carried out for this publication and described under Survey Methodology at the start of this report.
- ONS e-commerce survey: The Office of National Statistics *Monitoring e-commerce* report, 2014.
- ONS labour force survey: Quarterly release of ONS labour force statistics for quarter 3, 2014.
- IT Jobswatch: Bespoke data provided to the Tech Partnership, 2014.

3 Totals/rounding
Figures may not always comply due to rounding.

4 Survey responses/interpretation
It should be noted that much of the data contained within this report is, by necessity, based on individual interpretation/understanding of different terms/concepts (e.g. vacancies being 'hard-to-fill', vacancies being at 'junior ' level, definitions of strategic technologies such as big data analytics). Where possible, guidelines were provided to aid respondents/promote parity/consistency amongst responses.

5 Enterprises/businesses/companies
Within this report the terms enterprise(s), business(es), company(ies) and firm(s) have been used interchangeably.

6 Industry groupings

Within this report an analysis of survey data is frequently presented according to the following broad industry groups – tech, financial services, public sector and other industries. These broad groups have been defined according to ONS Standard Industry Classification (SIC07) codes (details available on request) and have been used not only as the basis for industry analysis but also when setting survey quotas and weighting survey outputs.

7 Employment

Employment data from the ONS Labour Force Survey relate to the primary occupation of the survey respondent.

8 Tech specialist

An employee in any industry working in an IT or telecoms role in management, professional, technical or skilled occupation. When analysing the data in this report the following four-digit SOC2010 unit codes to define tech specialists.

Managers/Directors/Senior Officials

1136   Information technology and telecommunications directors

Professionals

2133   IT specialist managers

2134   IT project and programme managers

2135   IT business analysts, architects and systems designers

2136   Programmers and software development professionals

2137   Web design and development professionals

2139   Information technology and telecommunications professionals.

Associate professionals/technical

3131   IT operations technicians

3132   IT user support technicians

Skilled trades

5242   Telecommunications engineers

5245   IT engineers

9 Tech industry

All tech enterprises in the UK. The industry can broadly be broken down into companies whose focus is on IT software or services, telecoms services, computer games, or IT or telecoms manufacturing and retail.

10 Tech sector

The tech industry plus tech specialist workers in other industries.

TECH PARTNERSHIP

skills for the digital economy