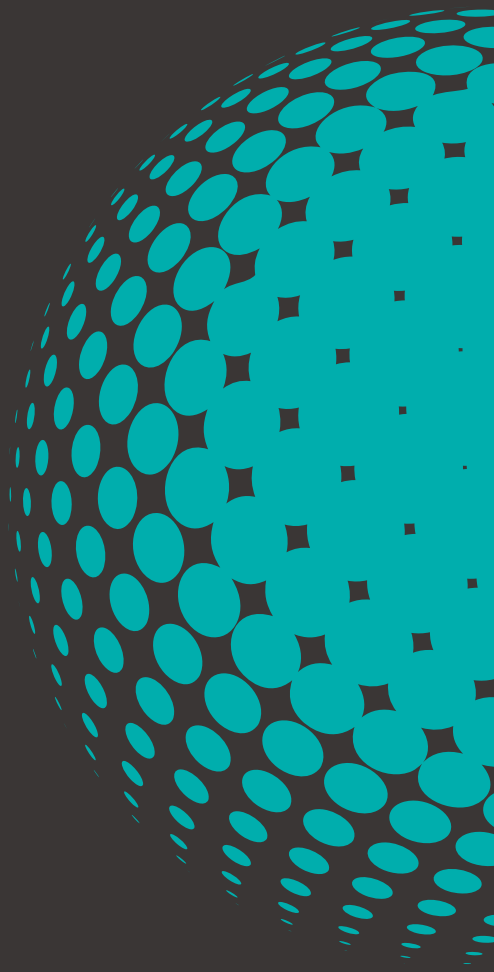
The Open University

The Open University Bridging the Digital Divide

June 2019



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Introduction

With the pace of digital development rapidly accelerating, many organisations are currently considering how they can address digital skills shortages.

The Open University is currently working with organisations and the government to support them in overcoming skills gaps in the workforce and wider labour market, from developing high quality apprenticeships and flexible degree programmes that meet their needs, to our work with the Institute of Coding.

We've produced this report to highlight the extent of digital skills gaps and the impact they are having on organisations and their employees. But more importantly, we sought to identify some solutions that can help organisations to build strategies for coping with the unpredictable and shifting needs of the digital economy.

Now in its 50th year, The Open University is a strong advocate of lifelong learning and widening participation - and we believe that is what is needed here. As the UK accelerates the adoption of digital technologies, all employees will require continuous training and retraining in order to build the skills needed by their organisations and apply them effectively."

Arosha Bandara
Head of School. Computing & Communications
Faculty of Science, Technology, Engineering and Mathematics

Foreword

Digital technologies have disrupted entire industries. They power new products and services, have revolutionised customer relationships and drive a hyper-competitive business environment where innovation is prized and tech-powered start-ups can displace even the most entrenched incumbents.

However, digital changes affect more than productivity, employment, and corporate success. They also create opportunities to change the nature of work itself. Numerous studies show that a range of new technologies have already altered the way work is undertaken, the roles that workers play in a company's division of labour, and the overall structure of organisations.

Not only are businesses re-evaluating how they structure relationships with employees, but employees are also changing their relationships with their employers as they consider the future of their careers in the face of such substantial change.

One view is that individuals will increasingly provide their services in some form of independent contractor relationship with firms. The 'gig economy', a labour market characterised by the prevalence of short-term contracts or freelance work as opposed to permanent jobs, is already growing rapidly. Also prevalent is the idea that employees may work across several fields during their working life, perhaps having multiple careers, and needing to train or retrain according to where business needs lie.

Of course, such emerging circumstances for employers and employees present significant challenges in the provision of training and development. In order to retain staff and help them thrive in an unpredictable and rapidly shifting employment landscape, a new approach to employee development is required.

Organisations must now lay the groundwork to encourage the development of a different mindset. Through higher-level training delivered throughout employees' careers, the workforce will become adaptable, flexible and multi-skilled, and more able to embrace the digital technologies that will ultimately transform entire industries.

The truth is that much of this shift remains unknown, thanks in part to the sheer pace of digital change. Employers must act now to establish a strong foundation of the technical digital skills required in order to create and maintain success. However, the most successful disruptors, such as Airbnb and Uber are those who understand how to apply technology for maximum impact – and organisations that do not also foster these higher-level problem solving and creative skills may find that their organisation is unable to adapt and evolve as new opportunities and challenges emerge.

By taking the time to identify knowledge gaps and invest in educational solutions, an organisation will be better able to develop and grow over time. Embedding a learning mindset into a company's core values means the importance of relevant skills will be woven into the make-up of every employee. Above all, digital education must be continuous, as well as consistent.

This report highlights particular skills gaps at a mid and higher-level, and it is crucial that organisations focus on building up these skills so that they can become more agile and adaptable to future challenges. With a solid understanding of IT, employees will be able to think more critically about what is needed, update their skills accordingly and apply their knowledge effectively.

However, it is crucial that all employees are engaged with the idea of digital training, and have opportunities to develop those skills. Organisations must nurture a culture where employees can collaborate, communicate and, most importantly, share information. This is crucial if they are to become stronger and better equipped to manage the seismic shift that is already underway.

Jane Dickinson
Digital Skills Lead
The Open University

Executive summary

Nine in 10 organisations across Great Britain currently lack digital skills

- The skills most lacking relate to cyber security, cloud-based development and management, and emerging technologies
- Mid-level and advanced digital skills are in shortest supply across all digital disciplines
- Organisations' skills gaps are having a severe impact on performance:
    - More than half (56%) report skills shortages have already negatively impacted productivity
    - 47 per cent say a lack of digital skills is impacting their organisation's ability to implement new time or cost saving technologies
    - Half (50%) expect profitability to be negatively affected in the next five years

37 per cent of workplace roles are expected to alter significantly in the next five years

- 12 million employees in the UK could be affected by changing roles and redundancies
- One in six (18%) of the current workforce believe they will have to change jobs at some point because of new technology and automation
- Only half (48%) of employees say they want digital training, but this figure increases to two thirds (67%) of 18-34 year olds
- Less than one in five (16%) think that receiving digital skills training could open up new opportunities in their career, so it's crucial that employers set out clear routes for progression

Three in 10 (28%) employers are looking to hire in digitally-skilled talent

- However, half (50%) of employers believe that the pipeline of talent from abroad could dry up post-Brexit
- While 78 per cent agree that it would be more sustainable to develop skills through training, concerns about cost see them opt for the short-term solution of hiring new employees.
- 55 per cent believe that hiring in new workers is cheaper than investing in digital skills training
- Nearly two-thirds (64%) don't believe that their organisation has plans to up-skill or retrain existing staff to resolve digital shortages
- 85 per cent of senior leaders agree that it will become necessary to move to a model of lifelong learning in future, where employees are constantly learning and developing new skills

Organisations have increased their training budgets by 13 per cent to increase digital skills

- Across all organisations, the average budget has increased from £52,150 to £58,750 over the past 12 months
- 10 per cent of employers don't know where to start when it comes to developing a training strategy, while 14 per cent don't know who should receive training
- More than half (52%) say that technology evolves too quickly for organisations to keep up with the skills required, as skills become out-of-date
- Those investing in training report increased productivity, engagement and loyalty

The digital skills landscape

Today, with a concerted effort from investors, entrepreneurs, government, industry groups and large corporations, the UK has become a hotbed of start-ups and a home for big tech businesses, talent and digital innovation. There are now more tech "unicorns" - that is start-up businesses valued at $1 billion or more - in the UK than any other European country, and, according to reports, London is set to take over from San Francisco as the next tech behemoth[1].

While the digital sector has achieved great success, in order for the UK to realise the opportunity to be a global leader in decades to come, the country's significant digital potential must be matched with a robust and growing talent pipeline. And, of course, digital skills are not just about the needs of tech companies - today, digital technology touches nearly every industry, and nearly every job function uses it to some extent.

> *"Digital skills are not just about the needs of tech companies - today, digital technology touches nearly every industry, and nearly every job function uses it to some extent."*

Many experts believe the UK currently faces a digital skills gap - where workers simply don't have the skills to meet the demands of a digitally powered economy. For example, as IBM highlighted[2], companies are now able to harvest enormous volumes of 'big data', but unless employees have the ability to analyse this information and turn it into actionable insight, organisations simply won't be able to reap the benefits of the technology.

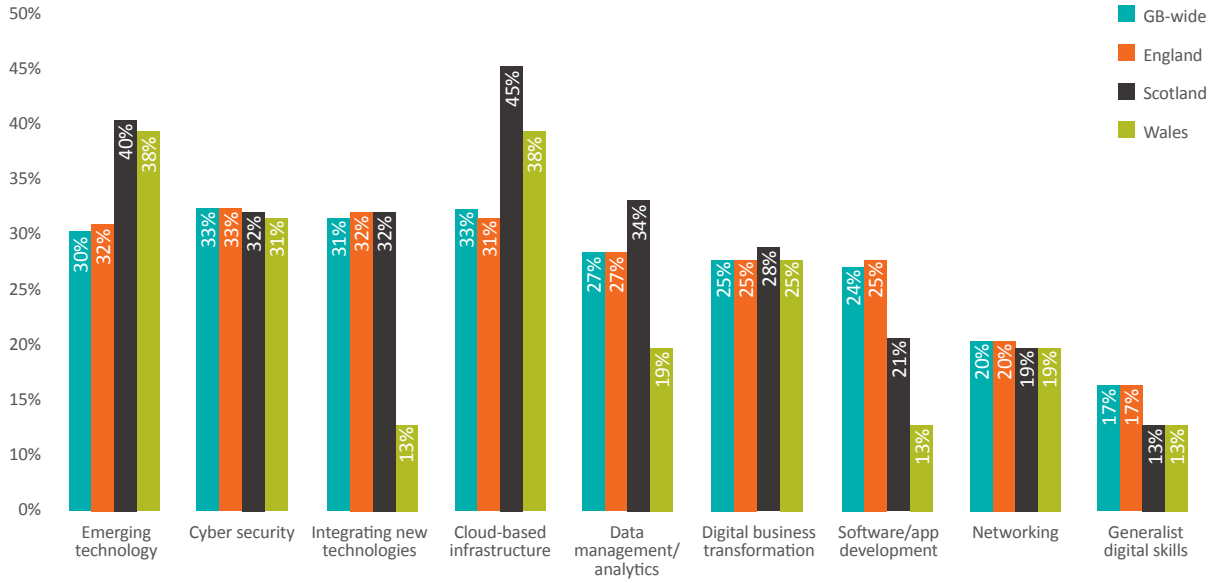
Assessing the skills gap

To gauge the extent of the current digital skills gap, The Open University analysed not only the number of organisations affected by the digital skills shortage, but also which specific skills are most lacking today. Overall, the study found that nearly nine in 10 (88%) organisations across Great Britain - over 244,000[3] - are currently lacking in digital skills, with many expecting these shortages to increase in the next five years.

One in three (33%) business leaders report that they do not have adequate cyber security capabilities within their organisation, a similar proportion (31%) report that they are lacking the capability to successfully integrate new technologies or data sources.

As more organisations look to move to a cloud-based digital infrastructure, many (33%) find that they are lacking in the development and management skills required to do this, while others (30%) are struggling to find workers with the skills to manage emerging technologies such as automation and artificial intelligence (AI).

Which of the following skills are currently lacking in your organisation?



[1]Robert Walters and VacancySoft (2019) The UK Fintech Revolution

[2]City AM (3 May 2016) "IBM warns of looming skills gap due to big data and analytics"

[3]Calculations based on ONS data. For further details see full methodology.

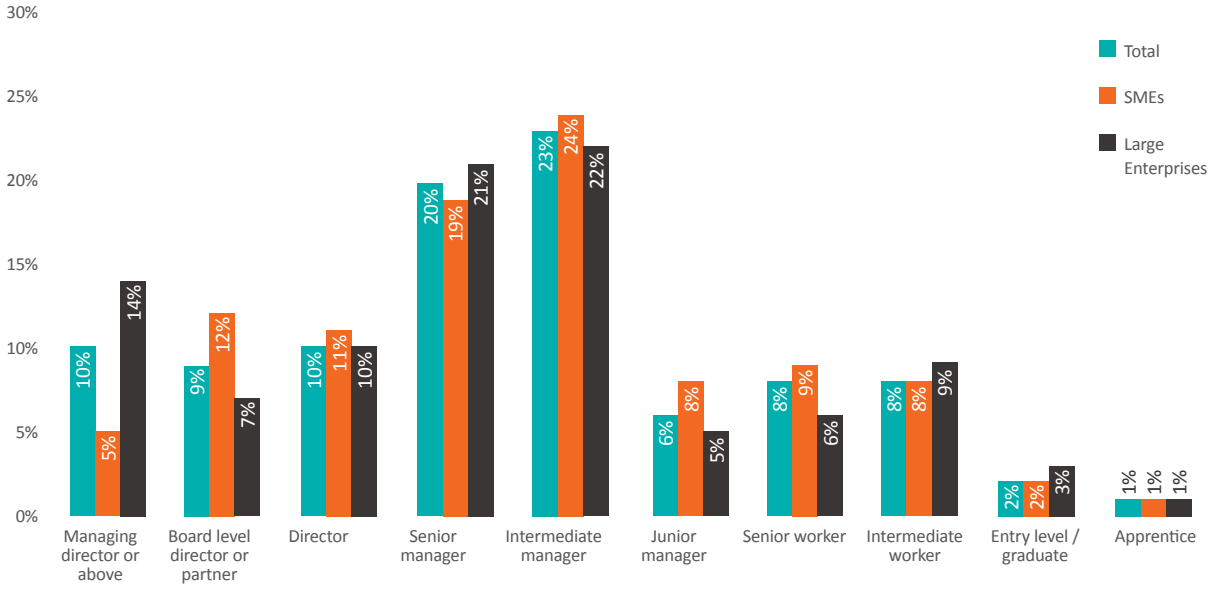
At which levels are digital skills most lacking?

While most industry reports focus on the idea that it will be low-skilled, low-paid jobs that are most affected by automation, this study reveals that entry-level employees actually have a high level of digital literacy, which can be harnessed by forward looking employers.

Organisations reported that the lack of appropriate digital skills at intermediate and senior management levels are having the most significant negative impact. While there is still a need to increase basic or foundation level digital skills, most employers report that higher and degree level digital skills are currently more of a priority.

This suggests that in order to ensure that their organisation is able to embrace the opportunities that will arise from further technological developments, employers should focus on building higher-level skills at management level, and even consider postgraduate qualifications where employees already have a degree.

At which level of your organisation are digital skills shortages most problematic?



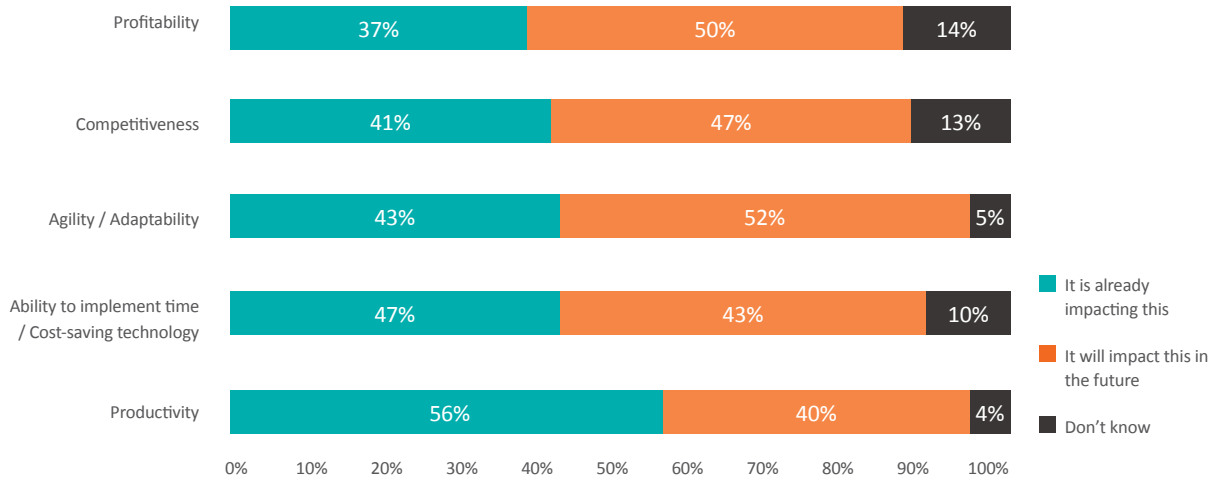
The impact of the digital skills shortage

While the digital skills shortage is already having an impact on many organisations at present, others believe that it could start to take its toll in future if current issues are not addressed.

The most pressing concern amongst business leaders relates to productivity, with more than half (56%) believing that the digital skills shortage has already had a negative effect on the productivity of their workforce, and a further 40 per cent expecting this to happen in future. Close to half (47%) of business leaders think that the skills shortage is affecting ability to implement new time or cost saving technologies, and four in ten (41%) say that a lack of digital skills impacts on their competitive edge.

The continued development of new technologies could widen the gap between the skills in the workforce and those required even further, leaving employers concerned about their organisation's future capabilities. Half (50%) of business leaders surveyed say that their profitability will be negatively impacted by the digital skills shortage and a similar proportion (52%) think that a lack of digital skills will affect their agility and ability to adapt going forward, which the majority (72%) believe is essential if their organisation is to survive.

How is the digital skills shortage impacting organisations?



Changing careers

As a result of the evolving digital landscape, a number of job roles are likely to change or disappear. On average, employers expect that 37 per cent of the roles in their workplace are likely to alter significantly within the next five years as a result of digital disruption, which means as many as twelve million employees across Great Britain could be affected[4].

Aside from those working in the information and communications departments, who will invariably witness the developing digital environment, the employees most likely to be affected by these changes in the next five years are those working in administration, operations, HR and training, and customer services.

What are employers doing to address changing roles?

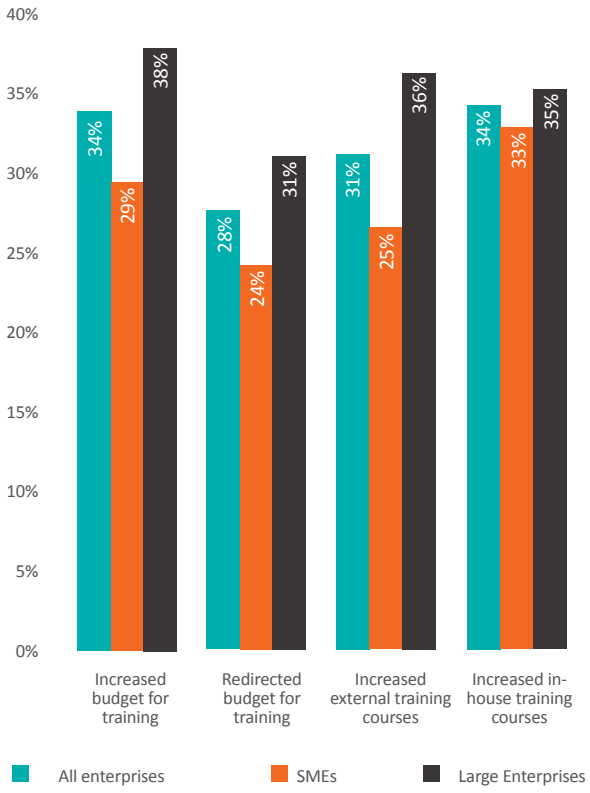
With roles likely to require a greater level of technological know-how, employers need to consider how they can address the gaps between competencies in existing roles with those that will be required in the future.

Most employers are likely to make as few redundancies as possible, and will therefore look to keep employees in their amended roles or move them into new roles where possible. However, in order for organisations to remain productive it is essential that those employees have the right digital skills, which means they are likely to need additional training.

Nearly all (91%) senior leaders believe that their organisation has a responsibility to boost the skills of existing staff, and many are making changes to ensure that their workers are able to adapt and be competent in a new, more digital role.

More than a quarter (28%) report redirecting their training budget to focus on building digital skills within their organisation, while a further 41 per cent are considering doing this. In addition, three in 10 (31%) employers report sending staff members on more external training courses.

What changes are organisations making?



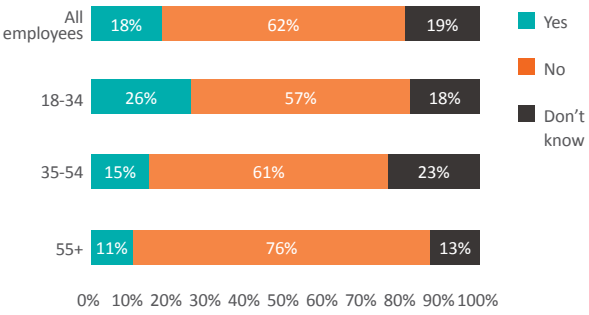
In addition to making changes to ensure that employees have the digital skills that will be required in the future, 16 per cent are encouraging workers to develop their digital skills themselves. However, 6 per cent say their organisation is doing nothing at all to help employees prepare for changing job roles.

[4]Calculations based on ONS data. For further details see full methodology.

What will this mean for employees themselves?

New technology and automation loom large in employees' minds - particularly among younger workers. While one in six (18%) of the workforce believe they will have to change jobs at some point because of new technology or automation, this figure rises to a quarter (26%) among those aged 18-34.

Will your job role change as a result of automation and digital advancement?



Despite concerns about future job roles, not all employees would be interested in learning new digital skills. Overall, just half (48%) of employees say they want digital training. This level increases amongst younger workers, with two thirds (67%) of 18-34 year olds saying that they would be receptive to digital training from their employers, and a fifth (22%) of younger employees are even funding their own training in this area. In contrast, just one in four (26%) over 55s say that they would like digital skills training.

The task for employers is to encourage staff to engage with increasing their skills by demonstrating both the benefits this can bring to their own careers and the wider organisation. Currently less than one in five (16%) think that receiving digital skills training could open up new opportunities in their career, so setting out clear pathways for progression will be crucial for employers to increase engagement.

The way in which training is delivered could also have a significant impact on employees' appetite for learning. One way that employees report that their workplaces can effectively deliver digital training is through a convenient and flexible learning provision that fits around both work and home commitments. Learning remotely, for example - either through online or home study - appeals to many employees, as it allows workers to learn when, where and how it suits them.

Investing in education could also provide significant benefits in terms of employee productivity, as many say they would feel more valued (19%) and more secure (15%) in their roles, which in turn can help to improve focus and morale. Amongst 18-34 year olds, those who are most keen to receive digital skills training, this increases to 36 per cent and 26 per cent respectively.

Bridging the divide

So how do organisations ensure that they have the digital skills they require both now and in the future that will allow them to embrace new opportunities and remain profitable and competitive?

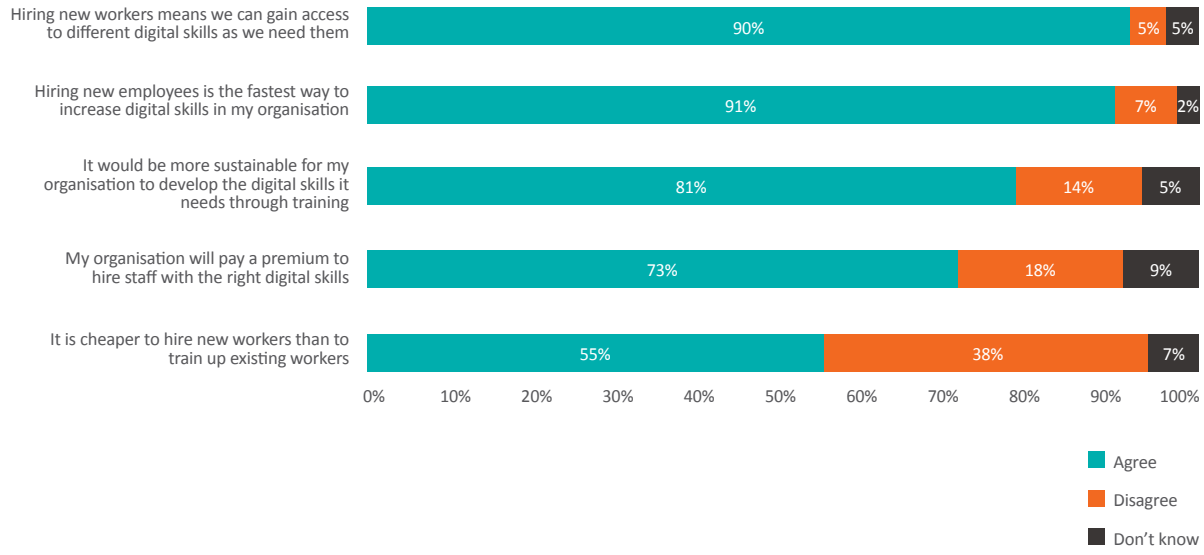
Hire in digitally-skilled talent

One obvious solution would be for companies to pay a premium to acquire employees with the skills in demand. Organisations across Great Britain are already adopting this approach with nine in 10 (90%) saying that hiring in new workers means they can get access to disparate digital skills as and when they need them – with 91 per cent agreeing this is the fastest possible way to get digital skills into their respective organisations.

For many (73%), the option of paying a premium – on associated expenses such as higher salaries and recruitment fees – to bring in the right digital skills is a reality that cannot be avoided.

This is despite there being serious doubts over the sustainability and long-term affordability of this strategy. Four in five (81%) employers admitted that they felt developing skills through workplace training and development opportunities was a more sustainable strategy to bolster the digital skillsets of their employees in the long-term.

Two in five (38%) also believe that training up existing workers would be an immediately cheaper and more cost-effective means of plugging digital skills gaps. Perhaps this suggests that the UK's organisations are lacking in a coherent long-term approach to addressing the digital skill shortage.



Introduce opportunities for skills exchange

Around half (49%) of organisations believe that the digital skills shortage will be resolved as young workers who are digitally native enter the workforce. While this will help to some extent, as young people are increasingly being taught digital skills at school, the digital skills of those entering the workforce must be topped up with ongoing training to prevent them from becoming outdated. This approach will not resolve skills gaps at a managerial level, where detailed knowledge and experience of the organisation and sector is required.

Nearly three in 10 (28%) employers agree that younger workers have the digital skills required but not the experience, while over one in five (23%) think that more senior workers have the knowledge and experience required, but not the digital skills.

With this in mind, employers could significantly increase the breadth of skills available across their organisation by introducing internal mentoring programmes that facilitate skills exchange. 17 per cent of business leaders agree that organisations should look to develop processes for this, increasing to 23 per cent amongst those who work for large enterprises.

Embrace lifelong learning

To really tackle the digital skills gap, not just now, but for the years ahead, organisations, educators and government need to look at existing teaching strategies, and move to a model of lifelong learning, where education doesn't stop after school or a first degree, but continues into the workplace. Indeed, 85 per cent of senior leaders agree that this will become necessary in future.

At the current pace of technological development it is unrealistic to expect digital skills to remain relevant throughout a career, which is why employers, and wider industry partners, must now commit to challenging employees and peers to learn new skills, or to update their current skillset.

The Open University has long believed that companies must invest more in enabling their workforce to re-skill in the wake of digital disruption. Ultimately, we require a holistic solution that prioritises new approaches to skills development within the existing workforce in tandem with looking towards previously untapped talent pools.

As technology advances, there is likely to be a heightened demand for higher skills – some of which could be filled by those currently in the low skilled jobs that are most at risk of automation[5]. This presents a compelling and urgent need to engage new audiences with the idea that digital careers offer great career progression, pay and variety, as well as making sure that there are appropriate pathways available. Finally, the training offered must actively help and support those looking to take the next step towards a career in technology, through flexible, part-time options, which will ensure those looking to retrain are able to fit learning around busy working and personal lives.

[5]Office for National Statistics (2019) Which occupations are at highest risk of being automated?

The learning solution

At The Open University, we believe, as four in five (79%) employers do, that organisations will have to change the way they think about training and skills development. Some organisations are already taking a more strategic long-term approach to addressing their skills shortages, making good progress towards building the digital skills the UK needs to remain competitive and productive, but many are overwhelmed about what is needed and where to begin.

Development intentions

Organisations are planning to spend 13 per cent more on digital training this year than they did in the last, with the average budget increasing from £52,150 to £58,750 across all organisations. But three in five (58%) business leaders believe that their organisation should be investing even more to ensure that it has the skills it will need both in the upcoming year and in the future.

SMEs:
£46,200

13 per cent
£52,850

Large enterprises
£227,350

7 per cent
£242,500

In the next 12 months, the amount of in-house training and further education being delivered is expected to decrease, as organisations increase their spend on external training courses and higher education. This shift perhaps reflects the need for more specific, mid-high level skills identified earlier in the report.

But not all organisations are increasing their spend. One in four (26%) are currently focused on issues in other areas of the business, while some are struggling to know where to start both in terms of assessing the training required (10%), and who should receive it (14%).

Getting started with training

If, as an employer, you are trying to get to grips with the complex world of digital skills - or having difficulty working out training priorities - the first thing to consider is a skills audit. There is guidance and consultancy available to help organisations assess where specific skills shortages lie in their organisation, or alternatively, employers can do this themselves by aligning existing job roles with the capabilities set out in the SFIA Foundation skills and competency framework, which can be found at www.sfia-online.org.

Immediately, there are a number of free digital skills courses available. For example, OpenLearn, The Open University's open educational resources website, hosts hundreds of study units at all levels ranging from introductory to master's level that can help organisations kick-start their learning journeys. Employers can pick and choose from courses such as *Introduction to Cyber Security, Learn to Code with Data and the Internet of Everything*. OpenLearn also offers courses in related subjects, such as Technology, innovation & management and Project Management, which can deliver the broader skillset required for employees to apply digital skills to the workplace effectively.

In the long-term though, employers should consider what types of training are required to build the skills they need. If unsure of how the requirements might translate into qualifications, the best approach is to seek help from either a consultant or an education provider who will be able to advise you on your needs and refer you to the best possible partners.

Keeping up with the pace

One of the main factors holding employers back from investing in digital skills training is the rapid pace of new technological development. Half (52%) of organisations report that technology evolves too quickly for organisations to keep up with the skills required, which makes it difficult to have a long-term plan for training.

The fact of the matter is that the skills required will change and develop over time - and therefore organisations must continually train workers so their skills do not become obsolete or out-of-date in a few years time. If organisations wait for the pace to slow, and do not begin to build up a strong base of mid and higher-level digital skills, they risk falling further behind as new developments emerge.

With many higher-level qualifications, particularly apprenticeships, employees are often able to put what they learn into practice right from the start - so organisations will be investing in training that can have an immediate impact on their organisation.

However, higher-level education also has significant long-term benefits. Employees who receive training will develop core skills, knowledge and behaviours that make them more adaptable in future, essentially facilitating lifelong learning. As new requirements emerge, organisations can focus on delivering top up training that builds on core skills, which ensures that new abilities can be quickly added to the workforce; this will be crucial if the pace of change remains constant.

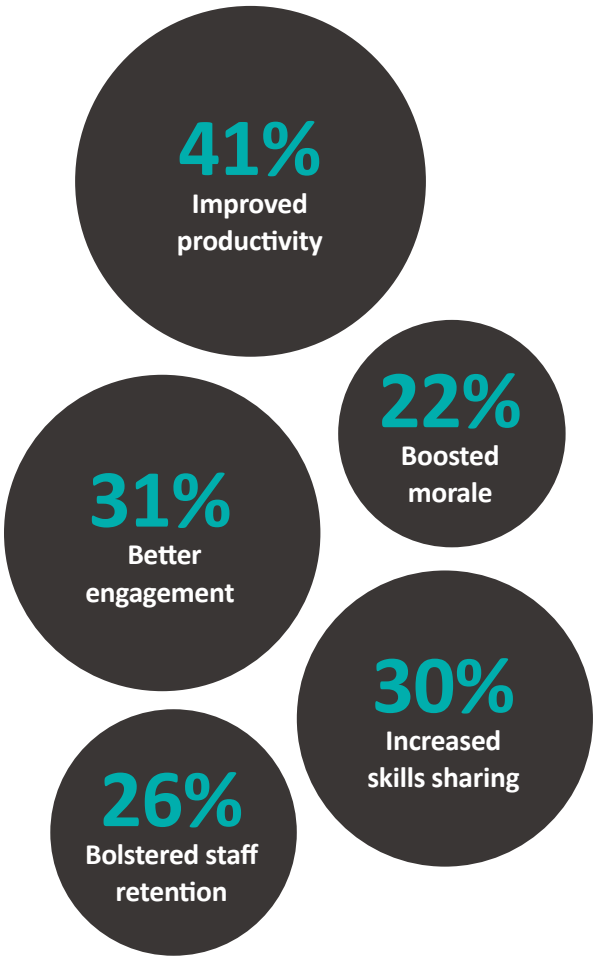
This kind of training also delivers a solid foundation of skills and knowledge across all pillars of IT, providing agility that will be critical as technologies and platforms become increasingly interdependent, and as products and applications change rapidly.

Impact of training

When employers invest in training they expect results - primarily to secure the skills that were lacking in the organisation, and ensure that those skills provide value in some way, such as helping the business to transform or achieve business targets.

However, training also provides a number of other benefits, which may not be so immediately obvious. Of organisations who have offered digital skills training in the past 12 months, two in five (41%) reported increased productivity, while three in 10 (31%) saw better engagement from the workers who received training. In addition, the knock-on impact of training can be significant, with 30 per cent of organisations finding that those who had received training were actively sharing their new skills with other employees.

Employers should also not underestimate the long-term value of investing in workers. One in four (26%) say that staff retention has increased amongst those receiving training, which in turn reduces the need to spend on expensive recruitment fees or temporary staff when unhappy staff leave for better opportunities for continuing professional development.



Whose responsibility?

While many (45%) employers in Great Britain believe it is their responsibility to develop the digital skills required, or those of their employees (16%), many (10%) also look to central government to ensure that there is adequate provision for developing basic skills in school, and appropriate funding to boost investment in formal training, via further and higher education providers.

In the past, The Open University has supported calls for governments to help address the digital skills shortage. As technological advances in robotics, computing and digital communications have the potential to completely transform how people live and work, it is essential that governments ensure that organisations are well prepared to take the opportunities and tackle the challenges it may bring, by providing flexible learning throughout employees' careers.

Building the digital skills the UK needs is one of the main priorities set out by the UK government's industrial strategy, which focuses on helping organisations to achieve their potential. This is manifesting through initiatives such as the Institute of Coding, in which The Open University is heavily involved, and through the apprenticeship levy.

The apprenticeship levy was introduced in 2017 as part of a new government commitment to delivering apprenticeships. The reforms were designed to widen access, encourage economic growth, increase productivity and, notably to fill workforce skills gaps, particularly within higher-level roles.

Organisations across the UK with a wage bill exceeding £3 million a year are required to pay the apprenticeship levy. In England, employers are able to determine how they wish to spend their apprenticeship levy funding, and can target specific skills shortages to address. In Scotland, Wales and Northern Ireland, the government holds the responsibility for spending the funds, but all have made their own commitments to delivering apprenticeships.

Foundation, Modern and Graduate apprenticeships are available to all employers in Scotland, but the Scottish Government's Flexible Workforce Development Fund is also available to all levy paying employers to up-skill and re-skill the existing workforce. And in Wales, the Welsh Government has committed to delivering 100,000 quality all-age apprenticeships through its Skills Policy Plan that will support the needs of employers regardless of their levy status, with the first Digital Degree Apprenticeships being introduced in 2018.

Fundamentally though, training and development needs to implement a shift in learning culture. Senior leadership teams, together with their HR departments, should champion employee development strategies that prioritise ongoing learning and development. What's necessary is a modern, flexible learning environment that will in turn create a more engaged and productive workforce, able to up-skill effectively.

Working with The Open University

The Open University has been working with Milton Keynes University Hospital NHS Foundation Trust to deliver the Digital and Technology Solutions Professional Degree Apprenticeship since 2017.

Joe Harrison, Chief Executive at Milton Keynes University Hospital (MKUH) NHS Foundation Trust, explains how apprentices are already making active and positive contributions towards improving outcomes for patients.

"The NHS recognises that digitisation is critical to get the best out of a limited workforce, and most importantly to get the best outcomes for our patients. We see digital degree apprenticeships as one way of doing this. We want to make sure that we attract and retain the best possible people into our health service and into Milton Keynes University Hospital, and we see the apprenticeship scheme as a way of doing it."

Through the apprenticeship scheme, Joe is seeing increased engagement from apprentices early in their careers and pleased to see them making a strong contribution to the running of the hospital.

Robson Grant, who is focusing on software engineering, was recently named Apprentice of the Year by the Trust. He explains why he has chosen to study for a degree apprenticeship with The Open University:

"I'm doing this apprenticeship because I'll get four years dedicated software engineering work experience and I'll be debt free - I don't have to pay for it. It's 100% increased my confidence. In two and a half years when I finish my apprenticeship I will be in the perfect situation… The reason I chose The Open University apprenticeship over a physical university is you can manage your life around it a lot easier. It's very flexible."

Robson works at MKUH, but as part of his apprenticeship he spends 20 per cent of his time studying. Most of the time this is self-guided, but he has regular tutorials, and his practice tutor visits the workplace regularly to provide support for both employer and employee.

Deputy Head of IT Applications, Ian Fabbro, explains: *"The practice tutor, Mo, engages with the apprentices in context and makes sure that they're getting the right support that they need, not just being dropped into an office environment. We make sure we've got the right balance by providing them with the right opportunities, that they've got the support to learn but also that we're getting value out of them. Mo ensures that the balance is there.*

"We have huge plans for the hospital, including some exciting digital transformation projects. I've started to really understand the benefit of having apprentices as part of the team; we have three in our IT development team at the moment. The scheme allows us to employ someone like Robson who can come in, start providing us value, and get an education from the OU. It's something that previously we would never have been able to do. It's no longer the historical cliché about the apprentice making teas and coffees; Robson's developing front end apps - the stuff that people see on their PCs - and he's providing a real benefit."

The Open University's Digital and Technology Solutions Professional Degree Apprenticeship programme is a work-based programme that integrates academic and work-based learning, delivered flexibly around the demands of your workplace. It helps to develop the skills and behaviours required to create confident and capable digital and technology professionals.

The Open University offering

These qualifications allow employers to develop the skills that are most relevant to their organisation, but all instill knowledge, skills and behaviours that help students to become more adaptable, and develop a wider understanding of how different specialisms fit together. Building a strong foundation of skills, these degrees equip organisations with highly skilled and engaged workers who are able to apply their new skills to future digital developments, as well as providing businesses with the support they need at present.

Apprenticeships

With the introduction of new apprenticeship standards and frameworks, organisations do not have to wait until employees complete their qualifications to see the benefits. The employer-led standards, which combine on and off-the-job learning and development, ensure that apprentices can start applying their new knowledge and skills to their workplace right from the start - so organisations can improve the skills of their workforce, bring in new talent and start to see return on their investment quickly.

The Open University's apprenticeships present a strong solution for employers, as our flexible blend of online and one-to-one support means that workers can fit their training around existing commitments, which means that learning is less disruptive to the organisation. Our blended work-based learning proposition also means that employees can see the relevance of what they are learning, which results in better engagement, retention and performance.

For the many organisations who are facing digital skills shortages, higher-level, degree and graduate apprenticeships are likely to provide the skills that organisations are most lacking. Apprenticeship standards and frameworks vary depending on whether an organisation is based in England, Scotland or Wales.

England

Digital and Technology Solutions Professional Degree Apprenticeship

The Digital and Technology Solutions Professional Degree Apprenticeship covers a broad range of digital and technology disciplines, which ensure that graduates from the programme will be competent to operate in a range of related digital roles, support their organisations to develop new products and services, and increase productivity using digital technologies.

Despite developing a broad base of skills, which means that training can be easily topped up as new needs emerge, the apprenticeship also offers students the opportunity to develop specialist technical skills through one of the following pathways:

- Cyber Security Analyst
- Data Analyst
- Software Engineer
- Network Engineer

The apprenticeship has been awarded Tech Industry Gold Accreditation by the Tech Partnership, a consortium of leading employers collaborating to develop a highly skilled and professional digital workforce throughout the UK.

Levy paying employers can use the funds in the apprenticeship service accounts to support apprenticeship training and assessment, with a 10 per cent top up from the government. Non-levy paying employers can access apprenticeships via co-investment, where the government will pay 95 per cent of the costs of training up to the funding band maximum.

Scotland

Graduate Apprenticeships

The Open University's Graduate Apprenticeships are available to new and existing employees 16 years of age and over, who live and work in Scotland. Organisations can use these new programmes to address skills gaps and ensure that they have the talent to manage future technological changes.

Like the programmes in the other nations, Graduate Apprenticeships develop core foundational knowledge and then enable an apprentice to specialise in a particular area of IT that is aligned to their job role.

The Open University's programmes include:

- BSc (Honours) Cyber Security
- BSc (Honours) IT Software Development
- BSc (Honours) IT Management for Business
- MSc in Cyber Security

Graduate Apprenticeships are fully funded by Skills Development Scotland.

Wales

BSc Applied Software Engineering Apprenticeship

The Open University's Applied Software Engineering Degree Apprenticeship programme equips apprentices with the knowledge, skills and behavioural characteristics required to excel as a software engineering professional.

The programme provides a broad foundation in the fundamental technologies and techniques of computing and the issues involved in their application, as well as providing the tools that enable apprentices to consistently keep ahead and stay agile in a rapidly changing subject area.

The Applied Software Engineering Degree Apprenticeship is a work-based higher education programme that provides apprentices with the practical experience and theoretical knowledge of designing, building and evaluating software components and systems.

The apprenticeship is fully funded by The Welsh Government through The Higher Education Funding Council for Wales.

"As a member of their Employers' Apprenticeship Advisory Group, Scottish Ambulance Service has been involved in the development of The Open University's Graduate Apprenticeships programmes in Cyber Security and Software Development. This has given us first-hand experience of the OU's proactive approach to employer engagement in relation to curriculum design and development, and their commitment to creating staff learning and development opportunities that meet the needs of industry, which are also responsive to skills shortages and align with Scottish Government priorities."

John Baker,
ICT General Manager,
Scottish Ambulance Service

Other qualifications

The Open University also offers a range of highly flexible degree programmes, which can be tailored around the employer's or individual's requirements.

Our qualifications include:

- **BSc (Honours) Computing and IT**

This degree helps employees to become confident users and managers of information technologies, to administer and manage network or database systems and to develop software solutions. It offers a choice of four routes, depending on the skills that are needed by the employer: broad, communications and networking, communications and software and software.

- **BSc (Hons) Data Science**

This brand new data science degree has been developed in recognition of the fact that data plays an increasingly important role in informing decision making in a large number of occupations across all organisations. This qualification develops familiarity with mathematical, statistical and computational data modelling techniques, builds expertise in a range of appropriate software – including the widely used R and Python languages – and provides experience in communicating and critically commenting on the results of data analysis.

- **BA or BSc (Hons) Open**

The BA or BSc (Hons) Open is the most flexible degree programme in the UK as it allows a learner or employer to select their own modules and design a unique qualification. For example, an employer may wish to create a cyber security programme by combining modules from computing and IT, psychology and leadership and management. There are many combinations available.

- **MSc in Computing**

This qualification develops a rigorous approach to the study and application of computing, and incorporates transferable skills that are highly applicable to professional development in the field. There are several options, including a flexible route (which offers a wide choice of relevant modules), a software engineering route and an information security and forensics route.

About The Open University

For over 50 years, The Open University has led the way in innovative distance-learning, developing workplace education solutions for employers (across the private, public and voluntary sectors), as well as training individuals.

Specialising in developing high quality learning materials, based on rigorous research and industry insight, The Open University combines academic excellence with digital and technological expertise to deliver flexible, results-driven and truly engaging workplace learning solutions.

Partnership with the Institute of Coding

The Open University is a major partner in the UK's Institute of Coding, a new, exciting national initiative. The Institute brings together a range of universities, industry, training providers and professional bodies to address the UK's digital skills gaps, with a view to enhancing the education and employability of every learner.

The Open University leads on the theme of University Learning, which aims to influence computer science teaching in universities nationwide. The Computing and Communications school is also leading on setting up a new accreditation standard for computing, the development of courses in data sicence and cyber security and widening participation in the computing area.

Our offer

The Open University's flexible and adaptable approach enables consistently excellent learning to be delivered at scale, across geographically dispersed workforces, through having an online delivery model that uses advanced learning analytics to enhance the performance of business professionals, all at the pace desired by the learner

Our well-developed blended learning approach enables us to deliver learning that is responsive to both organisational and staff needs, providing additional return on investment.

This is why more than 2,500 employers, including IBM, BT and the NHS, regularly choose The Open University's learning solutions to develop their workforces and why 78 per cent of FTSE 100 companies sponsor their staff on Open University courses.

Whether you're looking to develop new or current employees, The Open University offers a range of Degree and Higher Apprenticeships in England, Graduate Apprenticeships in Scotland and a BSc Applied Software Engineering Apprenticeship in Wales, to suit your organisation's current and future needs.

For more information, please visit
www.open.ac.uk/business/apprenticeships

Email us at
business@open.ac.uk

Follow us on LinkedIn
Linkedin.com/company/open-to-business

Follow us on Twitter
Twitter.com/OpenforBusiness

Methodology

The Bridging the Digital Divide report was developed by combining the expertise and experience of The Open University in conjunction with quantitative market research amongst a wide range of organisations across Great Britain. A detailed methodology for this report is available on The Open University's business website.

Business survey

The Open University commissioned PCP Market Research Limited to undertake a survey of 500 CTOs, HR Directors and HR Managers across Great Britain between 9 and 21 May 2019, split evenly between SMEs and large enterprises. The data also includes statistically significant samples by English region, Wales and Scotland. Please note, it was not possible to secure data from organisations in Northern Ireland. Where this report refers to the UK, it does so in context only - all data refers to organisations in Great Britain.

A further survey of 2,000 UK adults was commissioned by The Open University and undertaken by Opinium to establish the experiences and attitudes of working adults in the UK.

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