WINNING MOVES®

Worcestershire Digital Skills Research Report

Prepared for Worcestershire LEP and SERCO

09/11/20 | Version 1.0

serco | Education & Skills Funding Agency | European Union European Social Fund | Worcestershire Local Enterprise Partnership

Copyright

This document, and its contents, remain at all times the property of Winning Moves it is not to be disclosed, referred to, copied or transmitted, in whole or in part, without the prior consent of Winning Moves.

Intellectual property

All concepts, ideas, creatives, animations, software, graphics, etc. produced or suggested by Winning Moves as part of this document, will remain the copyright or property of Winning Moves, unless there is express agreement to the contrary.

# Contents

Executive Summary

Background

Skills Support for the Workforce (SSW) is a programme developed to upskill employees within small and medium-sized employers. The programme provides recognised accredited qualifications and bespoke training courses to enhance employees' skills, increase competitiveness and boost the local economy. Skills Support for the Workforce is co-financed by the Education and Skills Funding Agency and European Social Fund.

Serco's Employment, Skills and Enterprise business (Serco Ltd) is the Prime Contractor of the SSW programme in Worcestershire Local Enterprise Partnership geographical region. The Education and Skills Funding Agency commissioned Serco to conduct research to understand employers' skills needs in Worcestershire as part of the Local Enterprise Partnership's (LEP) skills planning, which in turn forms part of their wider strategic agenda. Serco commissioned Winning Moves to deliver this piece of research.

Objectives

The objective of this research was to understand the skills impact of digitalisation on the workforce of WLEP businesses across all sectors.

Method
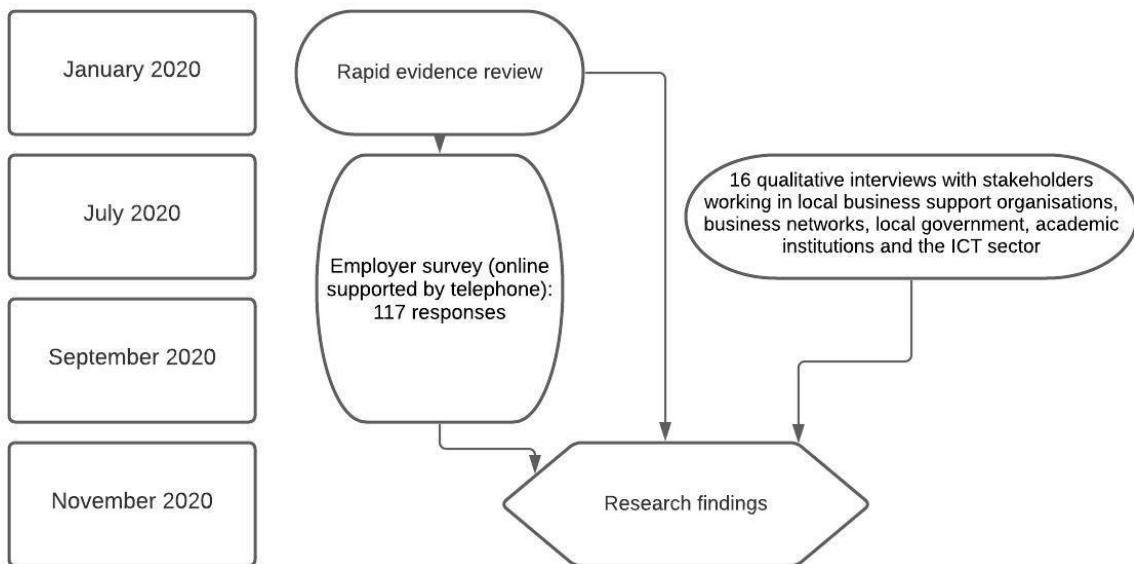
Key findings

Incidence of digitalisation

- The impact of the pandemic has accelerated digitalisation in the workplace, particularly remote working and e-commerce, and in sectors where it was previously less common e.g. construction and education (through virtual learning environments). Digital technologies have sometimes been adopted quickly due to the pandemic. This means there are opportunities to improve their use and maximise their value; for example, through greater use of analytics in social media activity.

- Digital marketing and cloud-based computing are seen as relevant by nearly all employers and are the technologies with the greatest current and predicted future use amongst Worcestershire employers. A lower proportion of the smallest businesses responding to the survey (those with 0-4 employees) were using cloud-based computing.

- There is also widespread use of e-commerce and expected growth in this. There was a specific call from one stakeholder for greater support with the use of online sales platforms.

- About half of employers were using or expecting to extend use of CRM. There appears to be higher levels of use amongst businesses in the professional, scientific and technical activities sector.

- The evidence review noted that digitalisation has productivity benefits. In particular, digitalisation has a greater impact upon productivity in manufacturing than service firms. Adoption of digital technologies also leads to a greater improvement in productivity in industries with a high share of routine tasks, potentially through streamlining production processes.

Business preparedness on cyber security

- About four in ten employers surveyed said that they outsourced cyber security, with this appearing most common amongst manufacturers.

- Almost all survey respondents were confident about their ability to create back-ups of files and data and to control which users have IT or admin rights. There was a more mixed picture for the other cyber security tasks explored in the survey (setting up software to update automatically where possible, choosing secure settings for devices or software, restricting what software can run on the organisation's devices, storing or transferring personal data securely, using encryption where appropriate). Employers reported the least confidence in: setting up firewalls with appropriate configurations and detecting and removing malware on the organisation's devices.

- Amongst survey respondents, the smallest businesses tended to be least confident in their ability to perform cyber security tasks. National evidence shows that cyber security skills gaps are greatest amongst construction, retail and wholesale businesses.

- The majority of employers had not undertaken any analysis of cyber security training needs or any actual cyber security training in the past twelve months.

Digital skills gaps

- The research suggests there may be a fundamental issue whereby some employers may not actually have a good understanding of their digital skills gaps. Stakeholders highlighted the need for better understanding of the opportunities of digitalisation for businesses at the leadership level in many businesses. This would then support understanding of digital skills needs. A CBI report found that digital skills are needed across organisations i.e. at senior level, not just in specialist roles.

- A third of employers had reviewed their digital skills needs as a result of the pandemic.

- Only a quarter of employers reported having no current nor expected digital skills gaps. About half of employers had - or expected to have within the next five years - four or more distinct digital skills gaps.

- In terms of the nature of digital skills gaps, cyber security was the most commonly reported digital skills gap amongst Worcestershire employers. There was also a widespread skills gap in digital marketing and sales. However, there were skills gaps for at least three in ten employers in *all* the areas explored by the survey, including: ICT operations and user support; software and applications development; advanced technology maintenance; and data analytics. The evidence review identified a large and growing demand for data analytics and software development.

- There was variation in the incidence of digital skills gaps by size and sector. In the employer survey, the smallest employers were more likely than others to report at least one digital skills gap. More manufacturers reported a skills gap in software and applications development than other employers. Employers in the professional, scientific and technical activities sector were also more likely to report at least one digital skills gap than those in other sectors, particularly in cyber security and advanced technology maintenance. There was some stakeholder concern at the potentially limited pool of recruits for the ICT sector in the local area. More widely, the evidence review identified a higher incidence of digital skills gaps in: agriculture, accommodation, catering and food services, social and personal services, arts, entertainment and recreation, construction, and professional, scientific and technical services.

- Evidence from stakeholder interviews and the secondary research indicates that it is important that digital skills are developed alongside good soft skills. This is required in leadership positions and sales and marketing. Soft skills are also required to support the effective use of digital technology.

- Not unexpectedly, the research suggests that older workers are likely to have greater digital skills gaps than younger employees.

Digital skills training

- Recruitment difficulties were identified by about three in ten Worcestershire employers as the reason for digital skills gaps. Secondary evidence indicates that recruitment alone is unlikely to be sufficient to secure digital skills due to the limited existing pool of digital talent in the UK. Stakeholders also reflected this view in relation to Worcestershire.

- The evidence review noted that UK businesses were undertaking a variety of actions to meet digital skills needs. About three in ten businesses were taking on apprentices and a similar proportion of businesses were organising external short courses. About a third were collaborating with small business, suppliers or contractors to bring in skills through on the job training or placements. About a quarter of businesses were engaging with education providers to develop courses that suit their digital skills needs.

- Responses to the employer survey suggest that the most common reason for digital skills gaps is the low priority some organisations attach to it. Beyond – or perhaps linked to - this, about a fifth of employers reported facing time and cost barriers to upskilling. However, stakeholders felt that employers could take greater advantage of digital opportunities with greater investment in digital skills, for example, social media analytics.

- Employers in the ICT sector were the most likely to cite insufficient availability of suitable training as a barrier, and to rate local digital skills training provision as poor, suggesting better quality skills provision at higher levels is needed.

- Stakeholders identified various sources of local digital skills provision, highlighting sessions available on social media/digital marketing from multiple providers, and more digital courses being made available at further and higher education institutions. There are some local opportunities for informal peer learning and networking. Some local initiatives to support interest in IT in schools were also mentioned.

- However, there were some general stakeholder comments that there is insufficient digital skills training provision. Stakeholders said they would like to see training specifically in online sales development, particularly for retail and hospitality. They also suggested digital skills training provision for employers in professional services. There was also a proposal for the use of digital technology to support access to new export markets.

Recommendations

The following recommendations are made based upon the responses of employers and stakeholders and secondary research findings identified in the evidence review. These recommendations cover three aspects of the design of digital skills training programmes: content; format; and promotion.

The design of digital skills training programmes should consider the following.
In terms of content:

- Training for business leaders would be helpful to enable them to understand digital opportunities, create digital strategies, conduct digital skills audits and develop cross-organisational digital programmes.

- The full range of digital skills gaps needs to be addressed: basic digital skills; digital marketing and sales skills; ICT operations and user support skills; software and applications development skills; advanced technology maintenance skills; data analytics skills; and cyber security skills.

- Cyber security skills should be a priority (particularly given the rapid adoption of some digital technologies by some employers during the pandemic). This is most likely to be needed amongst construction, retail, wholesale, hospitality, health and professional services businesses. It is also most likely to be beneficial for the smallest businesses but these are likely to be challenging to engage.

- Digital marketing and sales should be a priority across businesses of all sizes and sectors, including support with development of online sales platforms, particularly for retail and hospitality. This could also include use of digital technology to support access to new export markets.

- There is an opportunity to support businesses to make more effective use of the digital tools they may already be using at a basic level, particularly data analytics.

- Professional services would like support specifically focusing upon online platforms and web portals for client interactions.

- Advanced level skills development in software and applications development is needed to support particularly the ICT sector and manufacturers, and in advanced technology maintenance skills to meet the needs of those in professional, scientific and technical activities and others.

- There is an opportunity for greater engagement between local businesses and local education providers to better coordinate local skills supply.

In terms of the format of digital skills provision, stakeholders suggested that the following could be helpful:

- Workforce training should be funded and consider wage subsidies for time spent out of work.

- Flexibility for employers can be useful in terms of the training providers used, the type and timing of training provision and eligibility criteria for courses.

- Online courses can avoid the time spent travelling to training provision and recordings can also be watched at times that suit participants.

- For short courses, breakfast and end of day sessions may work well as they avoid the need for employees to take chunks out of the main working day.

- Use of case studies and peer to peer learning can help to showcase the business benefits and practical application of digital skills.

- Accreditation of courses may appeal to some employers and employees.

- Linking the training to relevant grants, where available, may help employers to see how they can access and utilise digital technologies more widely.

In terms of promotion to encourage uptake of digital skills provision, stakeholders suggested that the following could be helpful:

- Use messages relating to current digital opportunities in the context of the pandemic, for example, to conduct e-commerce where physical interaction is limited.

- Highlight the practical benefits of training using real life examples of how businesses have benefited.

- The terminology of 'skills' may be offputting to some employers. Skills development may be more appealing to some businesses where it is a part of wider business support.

- Encourage employers to use times and periods when employees are less busy to take time for training.

Specifically, in relation to cyber security skills training promotion, stakeholders suggested the following:

- Use of cyber security essential checklists to engage businesses.

- Raising awareness of attacks and their impacts.

- Framing this in terms of business protection rather than the technical details involved.

- Connect improvements in cyber security to an incentive (e.g. discounted insurance).

1. Introduction

1.1. Background

Skills Support for the Workforce (SSW) is a programme developed to upskill employees within small and medium-sized employers. The programme provides recognised accredited qualifications and bespoke training courses to enhance employees' skills, increase competitiveness and boost the local economy. Skills Support for the Workforce is co-financed by the Education and Skills Funding Agency and European Social Fund.

Serco's Employment, Skills and Enterprise business (Serco Ltd) is the Prime Contractor of the SSW programme in Worcestershire Local Enterprise Partnership geographical region. The Education and Skills Funding Agency commissioned Serco to conduct research to understand employers' skills needs in Worcestershire as part of the Local Enterprise Partnership's (LEP) skills planning, which in turn forms part of their wider strategic agenda. Serco commissioned Winning Moves to deliver this piece of research.

1.2. Research objectives

The focus of this research was to understand the skills impact of digitalisation on the workforce of WLEP businesses across all sectors. It has gathered information to help understand what the future digital skills needs are for employers, staff and customers as new technologies emerge. The results of the research will be used to update the areas of focus within the Worcestershire priorities for workforce development by highlighting where employers have digital skills gaps/barriers. For the purposes of this research, digitalisation is defined as the adoption of digital technologies in any form and for any purpose.

The objectives of this research overall were to understand the skills impact of digitalisation on the workforce of WLEP businesses across all sectors. The following questions were posed in the original brief:

1. How do employers see digital impacting their businesses moving forward?
2. What is the future skills impact of digitalisation for employers, employees, customers, as technologies emerge?
3. What training needs are employers envisaging in the future to address this impact? – how can they be met?
4. What training needs do employers currently have? What training is currently available and could be funded through the SSW programme that can meet these training needs?
5. What current training/recruitment needs cannot be met in WLEP? Are they struggling to find training in the locality to recruit around digital?
6. Overview of digital training gaps in Worcestershire - is it available in county, being bought in, or doesn't exist?

7. Are they considering the impact of cyber in their business, how are they planning for cyber security?
8. What sectors have more risk in terms of productivity around digital skills and the challenges/barriers faced?
9. What awareness raising or incentives could be applied to increase digital skills training uptake.

During the course of the research, it was also decided to gather additional data upon the impacts of the pandemic and any skills needs arising from this.

This report begins with a summary of the methodology and then details the findings of the research in sections corresponding to the main research themes: skills impact of the pandemic; use of digital technology; implementation of cyber security; digital skills gaps; digital training provision; and other skills gaps and training provision.

2. Methodology

2.1. Overview of study method
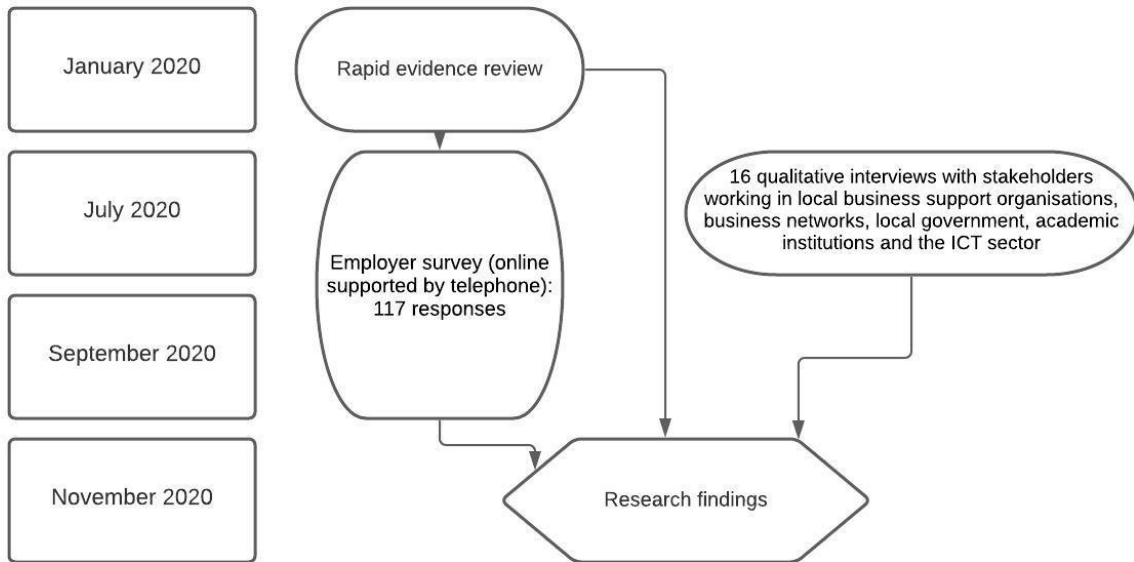
2.2 Employer survey response

The employer survey was extensively promoted by intermediaries including the Growth Hub, the Chambers of Commerce, and local councils, via emails, newsletters and social media. Invitations to participate were also sent directly to approximately 1,200 contacts on a commercial business database. However, due to the impact of the pandemic, it has been challenging to obtain responses. Many businesses have either not been fully in operation (with staff on furlough) or they are focusing on adapting and surviving in a changed environment. HR staff, in particular, who would often be the natural respondent to a skills survey, have been very busy at this time.

A total sample of 117 responses was achieved. 36 of these were provided in the early stages of the pandemic (up to the beginning of April) and the remainder from July onwards[1]. The majority of the sample were private sector businesses but there was some representation of the public and third sectors (see Table 2 in the report appendices). There was representation of all industrial sectors in the sample except for the mining, quarrying and utilities sector (a relatively small sector in the Worcestershire area). Some sectors were represented by 5 or

---

[1] With the exception of 3 responses given in May and June.

fewer responses (see Table 2). There was representation of businesses across size categories (see Table 1).

Responses were collected from all six local authority areas within Worcestershire, but predominantly from employers based in the Wychavon, Worcester and Malvern Hills council areas (see Table 5). There were disproportionately high numbers of responses from: manufacturing businesses in Malvern Hills, ICT businesses in Worcester; and businesses in the professional, scientific and technical services sector in Wychavon.

The majority of respondents were Chief Executives or Senior Managers; about a tenth were sole trader business owners (see Table 4 for the full breakdown). Not all respondents answered all questions, thus the base numbers vary by question. The unweighted (n) and weighted (N) base numbers are given in each chart title.

2.3   Survey analysis

In analysis, to account for over/under representation of particular employer profiles, responses were weighted[2] by business size and sector using official population statistics[3]. However, due to the small overall sample, analysis by sub-samples is limited. Commentary has been provided where indicative differences have been noted by size or sector, but figures are not provided, as these may give a false sense of statistical significance.

Size-based comparisons have primarily identified differences in responses relating to the smallest organisations (those with 0-4 employees) compared to larger organisations. Sector comparisons have principally concentrated upon information and communications (referred to as ICT), manufacturing, and professional, scientific and technical activities, as these all had larger sub-samples of respondents (19, 19 and 22 respondents respectively). However, it should be noted that these sector sub-samples had particular size profiles as well: respondents from manufacturing and ICT employers were predominantly in businesses with 10-49 employees; businesses providing professional, scientific and technical activities predominantly had 1-4 employees.

2.4   Limitations of the report

The following limitations should be kept in mind whilst reading this report:
- The total sample was relatively small and thus may not be entirely representative even after weighting. Low response numbers increase the risks of non-response bias. It is

---

[2] A non-scaled method of weighting was used which accounts for under and over representation by sector and size but does not scale up base counts.
[3] UK Business Counts from the Inter Departmental Business Register downloaded from www.nomisweb.co.uk

possible that the survey was of more interest to employers who are more likely to engage in the training and development of their staff.

• Around half of the employer survey responses were provided through the online surveys; whilst this included prompts and instructions to assist the respondent, ultimately this mode limits control over the depth and quality of open ended responses in particular.

• Some responses may have been strongly influenced by the particular and unusual circumstances of the pandemic.

3. Findings

3.1. Skills needs arising from the pandemic

When employers were asked which of the impacts shown in Figure 1 had occurred as a result of the pandemic[4], the most frequently cited response, by about four in ten businesses, was that there were no significant impacts.

Figure 1: Employer reported impacts of the pandemic (n=81; N=71)
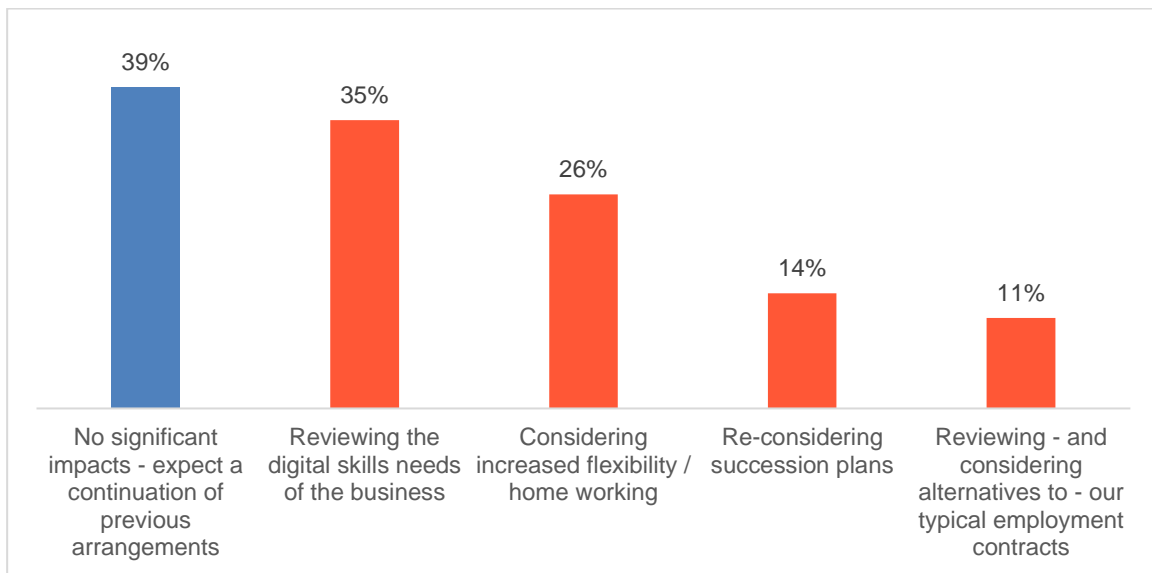
About a third of employers said they had or were reviewing the digital skills needs of the business in response to COVID measures. This was less common amongst ICT businesses, which might reasonably be expected as they were likely to have good digital skills already. This was also less common amongst manufacturing businesses. This was also more

---

[4] Questions about the impact of the pandemic were added to the survey in July.

commonly reported by businesses (from various sectors) in Worcester than those in other areas. Possibly relatedly, one stakeholder commented on the need for city centre businesses such as retailers to develop online sales.

Stakeholders emphasised the increased importance of digital technologies and skills in light of the pandemic. *"Businesses are concerned with surviving, but going online and using electronic formats have become really important."* Digital skills have entered sectors where these were not previously widely used; for example, construction workers have had to do some remote administrative working and teachers have been providing online sessions.

Stakeholders reported that businesses have varied in their ability to adapt and take a more digital approach quickly. *"Businesses have had to go on a steep learning curve. Those that are more digitally adept have been the winners."* Stakeholders think that adoption can be quicker amongst businesses with younger employees and those that are more agile generally. Another stakeholder noted that the agri-tech industry was innovative and quite advanced in digital adoption. A couple of stakeholders reported that broadband connections were still an issue for some businesses.

Stakeholders also pointed out that increased use of remote working requires improvements in digital skills. About a quarter of employer survey respondents said they had, or were considering, increased flexibility or home working as a result of the pandemic. The data suggest this is more common amongst larger businesses than smaller businesses. It was also more commonly reported by businesses in the professional, scientific and technical activities sector than others. It was less commonly reported by ICT businesses than other sectors which may be because there may have been greater flexibility and home working within this sector prior to the pandemic than in other sectors.

Some stakeholders commented that whilst many businesses had adopted digital technologies at a basic level (and sometimes quickly due to the pandemic), there was still considerable learning required to maximise the use and value of these, particularly in social media activity and data analytics: *"Businesses make a lot of noise on social media rather than being specific and knowing how to maximise and target, so a deeper level of skill is needed. There is also a gap on utilising and understanding the data, CRM, data cleansing, using the information you have to make the biggest impact."*

A small proportion of employers said they had produced, or were reconsidering, succession plans as a result of the pandemic. As part of this, some said they might consider the following in the future: reskilling of existing staff; apprenticeships to support young people entering the business; and working with schools and colleges to promote their company or industry.

A small proportion of employers said they had or were reviewing and considering alternatives to their typical employment contracts. The majority of this sub-sample said they might consider part-time working; and about half might consider increased use of flexible hours, increased incidence of home working / working in different locations, and increased use of reduced hours contracts.

Stakeholders suggested that the pandemic could be leading to caution about investment in skills amongst employers. A number of stakeholders specifically mentioned there being fewer new apprenticeships or delays to the start of apprenticeships, although one suggested the new Kickstart programme may help mitigate this. Amongst the relatively small sub-sample of employers who said they employ apprenticeships (n=12), nearly all said they intended to maintain their current and future plans around apprenticeships.

Individual stakeholders made some specific comments about potential skills needs arising from the pandemic. Some businesses have sought support on how to reassure customers about health and safety during the pandemic. In the previous economic downturn, people made redundant often set up their own small business; if this is repeated there could be future skills needs arisings. For example, new business leaders may need to develop skills in functions such as IT, marketing, HR which they would not have previously covered as an employee in a larger organisation.

3.2. Use of digital technologies

3.2.1 Use of digital technologies

Figure 2 provides an overview of the reported current use of a range of digital technologies by employers. The content of this is discussed in combination with that of the next two charts.

Figure 2: Employer reported use of digital technologies (n=117, N=117)

Technology	Fully used currently	Partially used currently	Not used currently	This is not relevant to our organisation
Digital marketing	51%	37%	11%	
Cloud-based computing	45%	29%	22%	4%
E-commerce through own or other website	36%	20%	33%	10%
CRM system	21%	31%	23%	24%
Computer Aided Design	16%	5%	28%	51%
Artifical Intelligence	5%		56%	39%
Machine learning technology			45%	51%

■ Fully used currently ■ Partially used currently ■ Not used currently ■ This is not relevant to our organisation
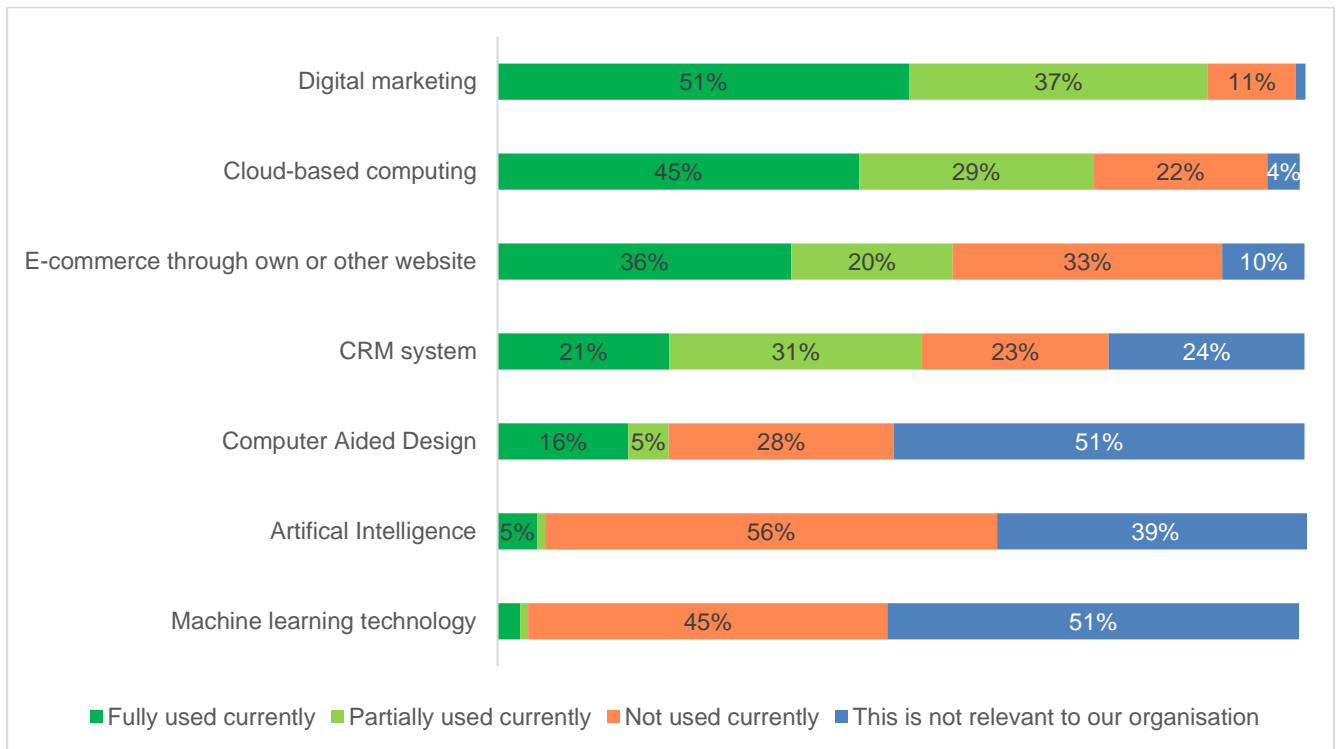
Figure 3 then breaks these figures down further to look at expectations to extend use of each digital technology amongst current partial users. Overall the majority of those who were partially using individual digital technologies expected to extend use of these in the next five years.

Figure 3: Current partial users of each digital technology - expectations to extend use in the next five years
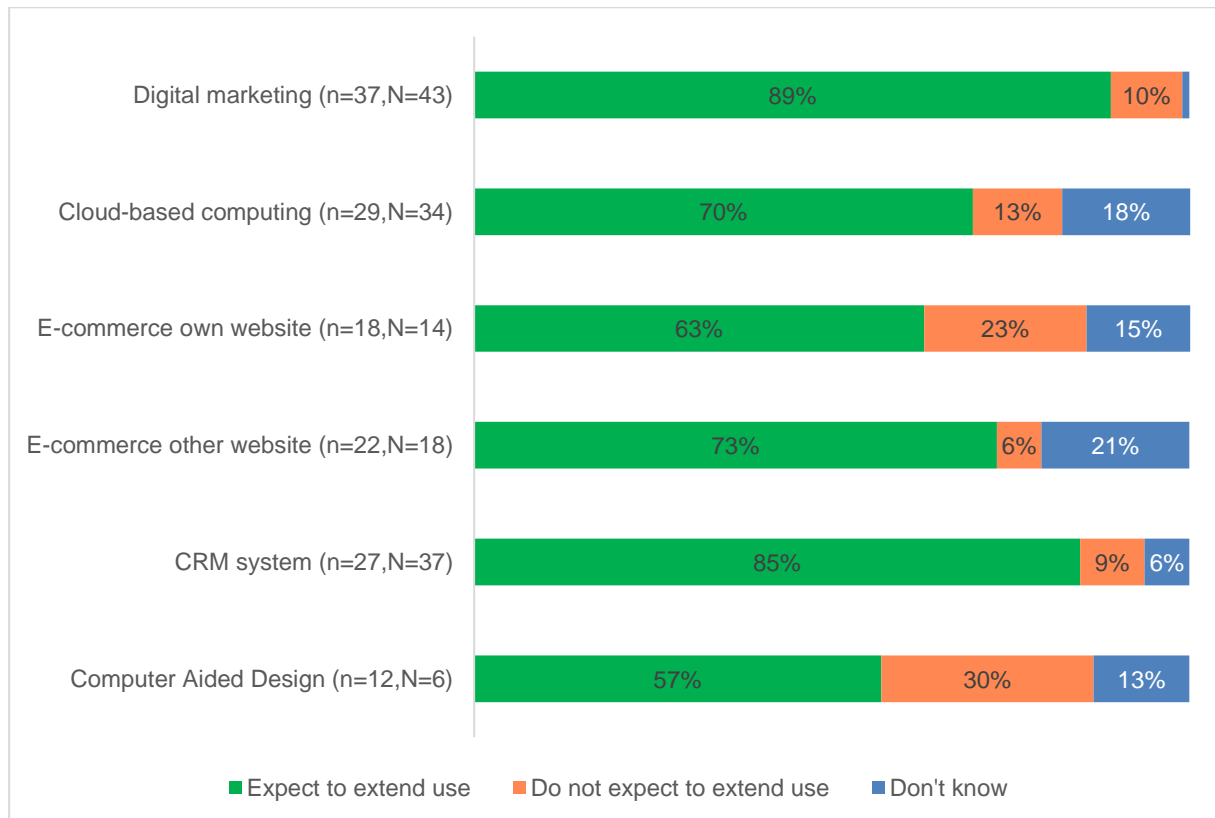
Amongst current non-users of each digital technology, Figure 4 presents expectations to begin use of each digital technology in the next five years.

Figure 4: Current non-users of each digital technology - expectations to start to use in the next five years
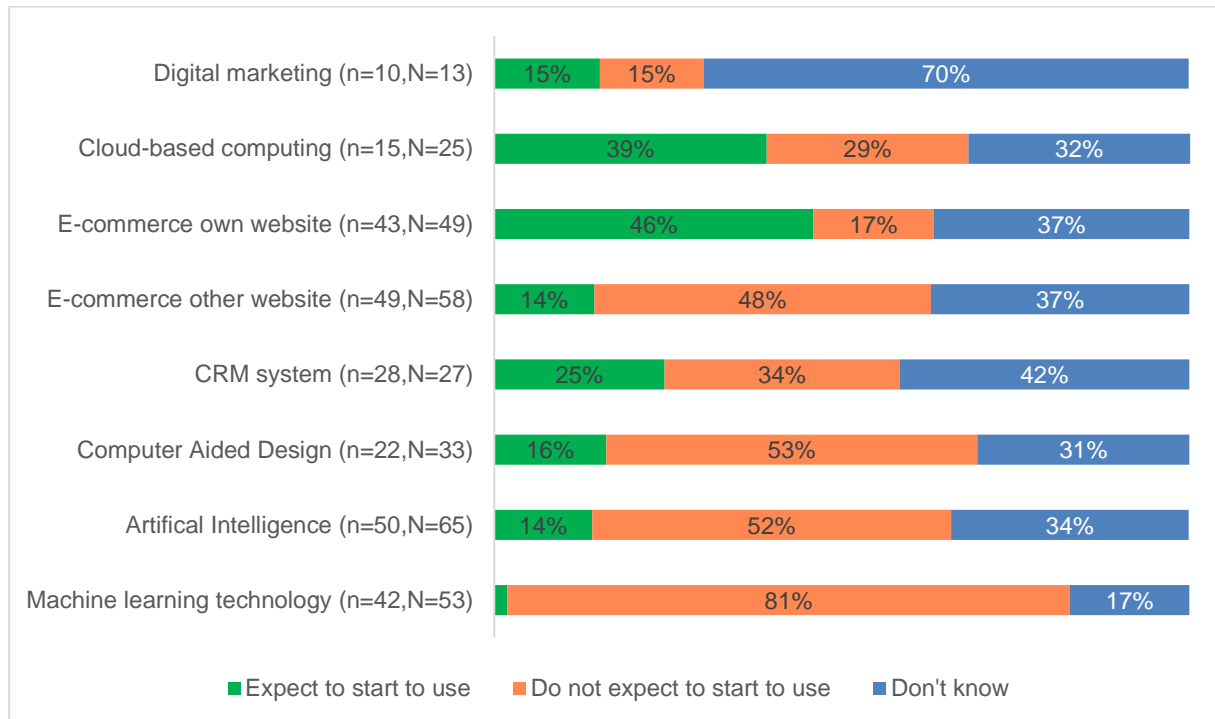
Variation in use of these digital technologies by business size and sector is considered in the next section.

Digital marketing and cloud-based computing were seen as relevant to nearly all organisations and the majority of responding employers said they were already fully or partially using these. Most of those who were partially using these expected to extend their use in the next five years. About four in ten of those not currently using cloud-based computing expected to start using this technology within the next five years. Stakeholders noted that basic social media courses are very popular.

E-commerce. Just over half of employers were conducting e-commerce currently, with about 10% saying this was not relevant to their organisation. There was some overlap between organisations who conducted e-commerce through their own website and organisations who did so through other websites. About half of all employers not currently offering e-commerce through their own website expected to start doing so in the next five years.

CRM. Approximately half of employers were using CRM fully or partially, with about a quarter saying this was not relevant to their organisation. Overall, there is an expectation of growth in the use of CRM. Nearly all of those partially using CRM expected to extend their use of this in the next five years. About a quarter of those not using CRM expected to start to use it within the next five years.

CAD, AI and machine learning. About half of employers did not think that Computer Aided Design and machine learning technology were relevant to their organisation, and about four in ten did not think that Artificial Intelligence was relevant to their organisation. Few employers were currently fully or partially using any of these technologies. Few of those who were not using these technologies expected to start using them in the next five years.

The employer survey prompted respondents on their use of the listed digital technologies, but respondents were also asked if they used, or planned to use, any other digital technologies. About three in ten employers said they were *already* using other digital technologies. A small proportion (16%) of employers said they planned to use other digital technologies *in the next five years*. Specific digital technologies cited – each by small numbers of respondents - included: accounts systems; digital stock management; remote working tools including video conferencing; project management tools; email marketing tools; webinars; virtual learning environments; digital design; app hosting; CNC machines; online expenses; barcode scanners for shopfloor data collection; 3D printing; automated customer interaction; patient care technologies; and digital operations tools e.g. for HR.

3.2.2   Variation in use of digital technologies

Review of the employer survey findings on digital technology use by business size suggested that fewer smaller businesses (those with 0-4 employees) compared to larger businesses used the following digital technologies: cloud-based computing, AI and machine learning technology.

Analysis of use of digital technologies within the sectors of ICT, professional, scientific and technical activities and manufacturing[5] suggested findings that might reasonably be expected given the nature of these sectors.

- Usage of some digital technologies (CRM, e-commerce, AI and machine learning technology) appear slightly higher amongst businesses in the ICT sector than overall.

- Businesses in the professional, scientific and technical activities sector also seemed to have higher usage of CRM, CAD and machine learning technology than overall. Research identified in the evidence review also found that professional services

---

[5] As noted in the method, responses for these three specific sectors have been analysed individually because there were large enough sub-samples to generate indicative findings. Other sector sub-samples were not sufficiently large to do so.

businesses were interested in using online platforms and web portals for client interactions and cloud based systems.

- The profile of digital technology usage in manufacturing suggested lower levels of use of CRM and e-commerce but greater use of CAD, AI and machine learning technology. The evidence review also identified that the use of technology and innovation in the manufacturing sector is largely focused on the introduction of Industry 4.0; robotics, automation and 5G were some of the most commonly cited examples of technology that manufacturing businesses are interested in.

Other sector specific findings from the evidence review included:

- Agri-tech businesses are particularly interested in cloud-based systems, CAD, and 3D printing to test designs.

- Businesses in the health and social care sector had plans to introduce assistive technology into the elderly care sector e.g. through the use of alarms, sensors, apps and smart based tech.

3.2.3   Use of digital technologies and productivity

There is evidence that use of digital technologies improves productivity (OECD, 2019[6], SQW 2016[7]). The OECD report provides insight into the relationship between the use of digital technologies and business productivity. Some key findings were:

- Cloud computing was more beneficial in terms of productivity for smaller firms. This is consistent with the idea that smaller firms benefit because they can avoid investing in large scale IT infrastructure.

- Digitalisation has a greater impact upon productivity in manufacturing than service firms.

- Adoption of digital technologies also leads to a greater improvement in productivity in industries with a high share of routine tasks, potentially through streamlining production processes.

- Firms that are already highly productive reap the greatest productivity improvements from the adoption of digital technologies.

- The productivity benefits of digital adoption are limited where businesses have digital skills shortages.

---

[6] *Digitalisation and productivity: In search of the holy grail – Firm-level empirical evidence from EU countries* 2019 https://www.oecd-ilibrary.org/economics/digitalisation-and-productivity-in-search-of-the-holy-grail-firm-level-empirical-evidence-from-eu-countries_5080f4b6-en;jsessionid=jRWZPJdwtdElj0Ezt3Qbf-dU.ip-10-240-5-51
[7] SQW State of Digitisation in UK Business
http://www.sqw.co.uk/files/3714/7282/6880/SQW_2016_Digitisation_productivity_report.pdf

3.3. Implementation of cyber security

3.3.1 Outsourcing of cyber security

About four in ten (42%) Worcestershire employers surveyed said that they outsourced cyber security. This is very similar to a figure reported in a 2020 national study[8] on the UK cyber security skills labour market. Also reflecting this national study, the Worcestershire data suggests that a lower proportion of smaller organisations than other organisations outsourced cyber security.

This survey of Worcestershire employers also found that outsourcing was less common amongst businesses in the ICT sector (again reflecting the national study). This might be expected as they are more likely to have such expertise in house. More manufacturing businesses than other businesses in Worcestershire outsourced cyber security, though this may reflect the larger size of manufacturing respondents (all the manufacturing respondents to our survey had 10 or more employees). Although stakeholders did note that some manufacturers are particularly concerned with this where cyber security standards need to be satisfied for companies to be included within certain supply chains.

3.3.2 Confidence in basic cyber security tasks

Almost six in ten employers (59%) identified a skills gap in cyber security, making these the most commonly identified of the digital skills gaps discussed in the next section (see Figure 7).

---

[8] *Cyber Security Skills in the UK Labour Market 2020*
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/869506/Cyber_security_skills_report_in_the_UK_labour_market_2020.pdf
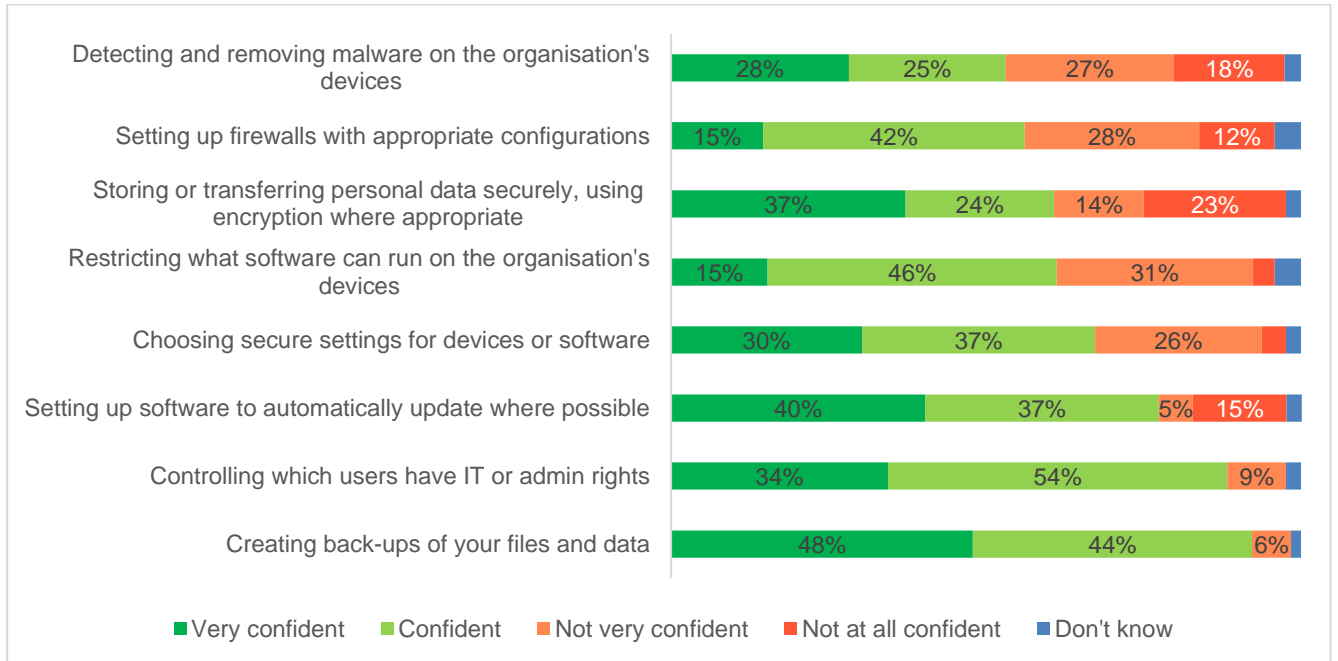
Figure 5 shows the confidence ratings given by employers who did not outsource cyber security (or who didn't know if they outsourced this) to their ability to do a list of basic technical cyber security tasks.

Figure 5: Employer reported confidence in undertaking cyber security tasks (n=58, N=61)

Almost all respondents were confident in their ability to create back-ups of files and data and to control which users have IT or admin rights. There was a more mixed picture for the other tasks, with least confidence reported in (a) setting up firewalls with appropriate configurations; (b) detecting and removing malware on the organisation's devices.

A comparison of these findings with the national cyber security skills study[9] suggests that our sample of Worcestershire employers are slightly more confident than the national sample in their ability to create back-ups of files and data and to control which users have IT or admin rights. Conversely our sample of Worcestershire employers seems to be less confident than the national sample on all the other cyber security tasks listed.

Reviewing the Worcestershire employer findings by business size indicates that smaller businesses (those with 0-4 employees) are less likely to be confident about doing these tasks compared to larger businesses. The national study provides some UK based sectoral insight. Those in the ICT and finance and insurance sectors were least likely to report basic skills gaps (i.e. low confidence in one or more of these tasks). Basic technical skills gaps were most likely to be prevalent amongst construction, retail and wholesale businesses.

[9] There was a slight difference in the options given in the Worcestershire survey where option 2 was 'confident' compared to the UK survey where this was 'fairly confident'. The rest of the options were the same and it is not expected that this would affect the findings significantly.

Amongst stakeholders, it was widely agreed that cyber security is increasingly essential for many organisations, but many are underprepared, and addressing cyber security skills is one aspect of addressing this. The only exceptions noted were the tech sector, the defence sector (given the high security required) and some manufacturers (where cyber security standards need to be satisfied for companies to be included within supply chains). Some stakeholders noted that the issue was likely to be particularly important in:

- the service industries, for example, consultants who are now offering more services online;

- the health sector where online consultation is now being used more widely;

- any businesses who hold a lot of customer data;

- small businesses (potentially using old systems) and independents;

- those who have moved online quickly due to the pandemic (for example retailers and hospitality businesses).

3.3.3   Uptake of cyber security training

Small proportions of Worcestershire employers said they had undertaken:
- a formal analysis of the cyber security training needs of their organisation (10%).

- cyber security training for staff *in cyber security roles* in the past twelve months (10%).

- cyber security training for wider, non-specialist staff (8%).

The proportions of businesses undertaking each of these in Worcestershire was lower than the national figures reported in the national cyber security skills survey. The national study also reported some differences in cyber security training by size and sector:

- Cyber security training for staff in cyber security roles was more common in finance and insurance particularly, but also in health, social care and social work, ICT and education. This type of training is less common amongst smaller businesses than medium and larger businesses. It was also less common in the private sector compared to the public sector.

- Cyber security training for wider, non-specialist staff was more common in the finance and insurance sector and the ICT sector, with very low take up in construction. This type of training was less common amongst smaller businesses and amongst the private sector compared to the public sector.

3.4. Digital skills gaps

3.4.1 Incidence of digital skills gaps

Recent research indicates that two thirds of businesses have unfilled digital skills vacancies (CBI 2019[10]). Needs are expected to intensify in the coming years. Digital skills are needed across organisations including at senior level and not just in specialist roles. Digital skills were noted by stakeholders to be a principal skills gap amongst Worcestershire employers across sectors, particularly in light of the increased use of home working and e-commerce as a result of the pandemic. Some stakeholders noted that digital upskilling was particularly an issue for older workers who have not grown up using these technologies as commonly as younger people, often referred to as 'digital natives'. Figure 6 presents the proportion of Worcestershire employers reporting different numbers of digital skills gaps either currently and / or anticipated to occur in the next five years[11].

Figure 6: Proportion of employers reporting digital skills gaps currently and/or anticipated in the next five years (n=117, N=117)
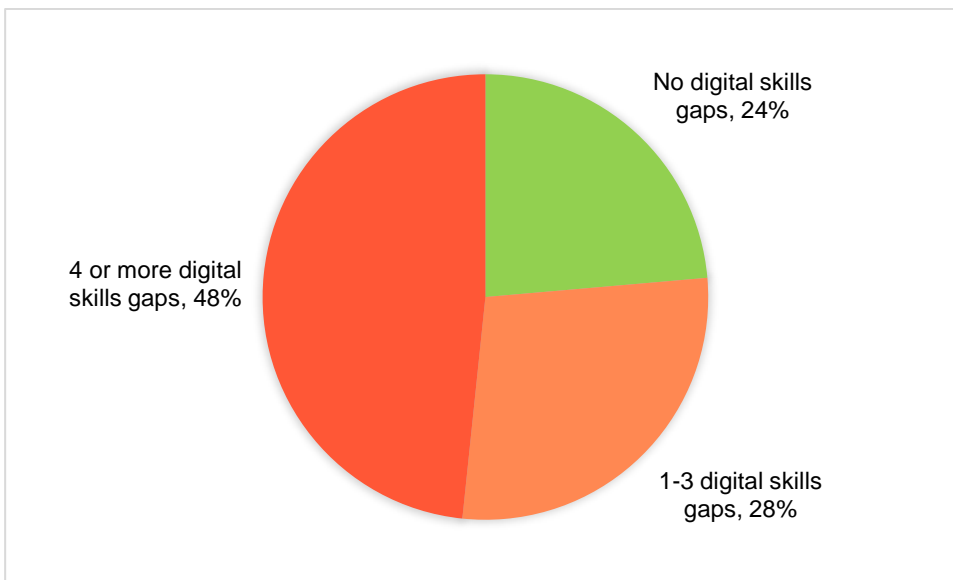
Only a quarter of employers reported having (or expecting to have within the next five years) no digital skills gaps. About half of employers reported four or more distinct digital skills gaps. More of the smallest employers had at least one digital skills gap compared to other

---

10 Delivering Skills for the New Economy https://www.cbi.org.uk/media/2836/final_digital-skills_june.pdf
11 Respondents were given a list of eight digital skills (as listed in Figure X) and were also asked if they had any other digital skills gaps.

employers. More employers in the professional, scientific and technical activities sector had at least one digital skills gap compared to other employers.

3.4.2   Types of digital skills gaps

A recent study (DCMS, 2019[12]) reported the following findings on the demand for digital skills:

- Digital skills are required in at least 82% of online advertised openings across the UK.

- Baseline digital skills (e.g. use of MS office, project management software etc.) are most in demand.

- Digital marketing and data analysis are projected to be the skills for which demand is likely to grow most quickly in the next five years.

- Demand for a specific digital skill set is largest for programming and software development.

The 2019 CBI study found that software engineering and data analytics are the most in-demand advanced digital skills, and the gaps are greatest amongst larger businesses.

Figure 7 shows the proportion of Worcestershire employers confirming they have specific digital skills gaps from a prompted list. For each skill, at least three in ten employers confirmed they had a skills gaps. Over half of employers confirmed they had a skills gaps specifically in relation to digital marketing and sales skills and cyber security skills.

Figure 7: Proportion of employers reporting specific digital skills gaps (n=117, N=117)

[12] *No Longer Optional: Employer Demand for Digital Skills*
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/807830/No_Longer_Optional_Employer_Demand_for_Digital_Skills.pdf
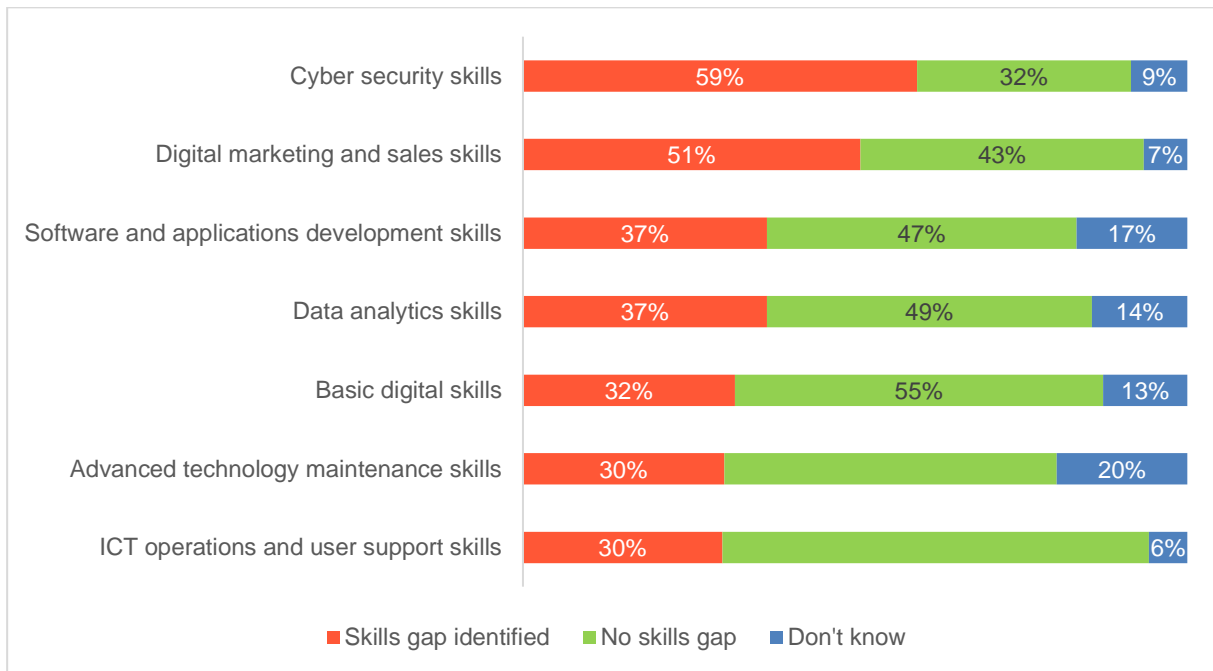
The data suggested that each of these digital skills gaps was more commonly found amongst the smallest employers.

Some stakeholders noted that more advanced digital skills gaps were an issue for the tech sector locally and expected this problem to grow given plans for the expansion of this sector. Digital skills gaps were less common amongst ICT respondents to the employer survey, with around half reporting no such gaps. As might be expected, there was a lesss of a skills gap for basic digital skills, ICT operations and user support skills and digital marketing and sales skills in this sector compared to others.

In our sub-sample of manufacturers, the data suggest that compared to other sectors there is less of a skills gap for basic digital skills and advanced technology maintenance skills, but that there is a greater skills gap for software and applications development skills. Respondents in the professional, scientific and technical sector were those most likely to select at least one digital skills gap. These businesses seem to have less of a skills gap for basic digital skills but a greater skills gap for advanced technology maintenance skills and cyber security skills.

The evidence review provided findings on some other sectors. Across Europe, greater digital skills gaps were identified in agriculture, accommodation, catering and food services and social and personal services (Cedefop, 2018[13]). Fewer skills gaps were found in the ICT,

[13] *Insights into skill shortages and skill mismatches.*
https://www.cedefop.europa.eu/files/3075_en.pdf

financial, insurance and real estate services sectors (Cedefop, 2018). Particular digital skills gaps were also identified in: arts, entertainment and recreation; construction; and professional, scientific and technical services (CBI 2019).

3.4.3 Understanding of digital skills gaps

Some stakeholders felt that employers do not necessarily understand where their digital skills gaps are, thus there is a need to support businesses in understanding what is possible and where they need to improve skills: *"Employers are missing the digital skills they need, but they don't necessarily know what those skills are."* Small proportions of survey respondents said they did not know if they had a skills gap for each of the prompted digital skills listed in Figure 7. About half of Worcestershire employers said they did not know if they had other digital skills gaps[14].

Stakeholders also commented that there needs to be better understanding of digital opportunities at a senior level in businesses. In response to a question about how to focus resources for digital skills training provision, one stakeholder commented: "*There should be a focus on the business leaders or owners so they truly understand what digital skills are. So maybe engagement events with business leaders explaining this is what it means and this is what we could offer your staff."* The CBI report noted that crafting a long-term digital vision was one of the core characteristics of businesses taking action to strengthen their digital skills eco-system. This needs to involve representatives from across the business to make it a company-wide programme.

3.4.4 Supporting skills for digitalisation

The evidence review noted that soft skills (e.g. creativity, agility) are required for the successful use of advanced digital skills. A Construction Industry Training Board report (2018[15]) on digitalisation emphasised the importance of transferable skills such as flexibility and problem solving to support the use of digital technologies. Some stakeholders commented that there is an issue in finding people with the technical digital skills who also have the soft skills required in leadership positions. Stakeholders argued that existing staff who have other valuable skills, for example, sales and marketing, should be supported to improve their digital skills so that employees have both skill sets.

---

[14] Where 'other digital skills' gaps were identified, twelve respondents specified the nature of these but no clear themes could be identified as quite specific, disparate answers were given. Responses included skills in: Captivate, Photoshop, animation, digital pedagogy, digital project management, website development, social media, accounting, internet of things and cloud development.

[15] *Unlocking Construction's Digital Future.*

https://www.citb.co.uk/documents/research/unlocking_constructions_digital_future_full_report_1_oct2018.pdf

3.5. Training provision in digital skills

3.5.1 Reasons for digital skills gaps

The evidence review suggests that recruitment alone will not be sufficient to meet employers' digital skills needs. Training will also be required to meet digital skills needs. The 2019 CBI report found that businesses were reasonably confident about recruiting staff with the digital skills required. However, employers were essentially fishing in the same limited UK talent pool of digital talent. This echoes a stakeholder comment that local tech companies are competing for a relatively small group of skilled individuals: *"Local tech companies are essentially fighting over the same talent, which potentially means they don't want to cooperate too much to stop people transferring."* The CBI report also notes that the ICT sector relies most heavily on recruiting from outside the UK for digital skills, and, as a stakeholder noted, this may become more difficult due to Brexit. A stakeholder also provided a recent example of a local tech company recruiting staff from outside the UK to meet a skills gap which they could not fill locally.

The CBI report found that most businesses were expecting to invest more in training in digital technologies than previously. About a third of businesses were taking each of the following actions to address digital skills needs: taking on apprentices; organising external short courses; and collaborating with small business, suppliers or contractors to bring in skills through on the job training or placements. About a quarter of businesses were engaging with education providers to develop courses that suit their digital skills needs, and the CBI report suggests that more of this type of activity could contribute significantly to meeting digital skills needs. An opportunity was identified for construction businesses to make more use of apprenticeships to support digital skills needs; this route was already being undertaken by about three in ten manufacturers. Stakeholders noted examples where younger apprentices bring pre-existing digital skills with them and help embed these in an organisation.

However, the CBI report notes that smaller businesses were less likely to be expecting to invest in training despite facing the most acute need for advanced digital skills. The CBI report identifies a number of barriers underlying why some firms (of any size) are not taking action to address their digital skills needs. These include a lack of capacity and cost. In addition, there may be a lack of a strategic digital vision or uncertainty about future needs arising from digitalisation. The 2016 SQW report also reports low business prioritisation of digitisation. Our survey of Worcestershire employers reflects this. Figure 8 shows the reasons selected by all employers for the digital skills gaps they have - or expect to have - within the next five years.

Figure 8: Reasons for digital skills gaps (n=71, N=81)

The most common reason, selected by over a third of respondents, was that it had not been a priority. This is also reflected in the comments of a stakeholder that local employers take up digital skills apprenticeship opportunities where these are marketed to them rather than proactively looking for these opportunities themselves. About three in ten selected difficulties in recruitment (both of staff with the required digital skills, and of staff with these skills in combination with soft skills). Smaller proportions of employers selected training barriers. Nearly all those who said they had difficulties accessing training went on to explain this by saying they found it difficult to pay the cost of training and had insufficient time available for staff to undertake training. A small proportion said that suitable training was not available.

It was more common for smaller businesses than other businesses to agree that there are difficulties recruiting staff with the digital skills required in combination with good soft skills. This seems plausible as staff within very small businesses may need to use a greater variety of skills within a role. In larger organisations, roles are more likely to be more specialised.

Employers in the ICT sector were more likely than other employers to select all barriers in recruitment and training explored by the survey. They were less likely to say that digital skills had not been a priority for their organisation.

The small proportion of employers who said there was not any suitable digital skills training available reported all the different types of digital skills gaps explored by the survey.

3.5.2 Local digital skills training provision

Figure 9 presents employer ratings of local digital skills training provision. The large proportion (42%) of those who said local digital skills training provision was neither good nor poor may include those who have not accessed this provision.

Figure 9: Employer rating of local digital skills training provision (n=65, N=65)
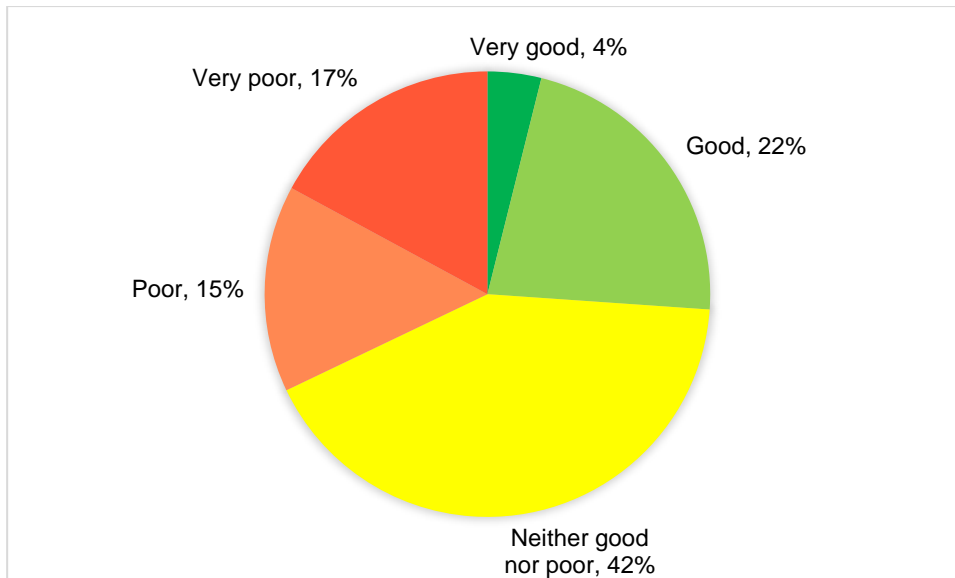
There were mixed employer ratings of local digital skills training provision. A higher proportion of the smallest businesses rated current digital training provision as poor or very poor. A higher proportion of businesses in the ICT sector also rated current digital training provision as poor or very poor.

Stakeholders identified various sources of local digital skills provision, highlighting sessions available on social media/digital marketing from multiple providers, and more digital courses being made available at Heart of Worcestershire College and the University of Worcester. The Federation of Small Businesses also offers online resources to support with digital skills. There are some local opportunities for informal peer learning and networking via, for example, Beta-den, WINN and the Kiln. Some initiatives to support interest in IT in schools were also mentioned e.g. visits and interaction with local tech companies and digital skills training for teachers.

However, there were some general stakeholder comments that there is insufficient digital skills training provision. One stakeholder commented that more digital skills training should be available for the general public not just employees; this would include people who are unemployed but also employees who wish to invest in their own development where their employer is not willing or able.

Individual stakeholders said they would like to see training specifically in the following:

- online sales development, particularly for retail and hospitality.

- use of digital technology to support access to new export markets (a policy focus in Worcestershire as they currently have a lower relative proportion of exports outside the EU compared to elsewhere).

- more in-depth digital skills, for example, social media analytics.

- for professional services.

Some stakeholders commented that it is important that training offers businesses practical solutions. For example, so that businesses leave training sessions with a list of concrete actions to take. One stakeholder suggested it may be better if training is integrated as one aspect of wider business support. It was noted that different businesses would need training at different levels from basic to more advanced. One stakeholder commented that it is very important that course content is up to date for the tech sector. The need for different levels or steps to training was also specifically noted in relation to cyber security. Businesses also need to be encouraged to take up cyber security training across the organisation, reaching all employees, not just IT staff. The next section discusses how to promote training.

Some stakeholders reported that there has been business demand for improving cyber security skills, particularly as businesses increased their digital services during the pandemic. Some noted that training sessions have been available during this period, but one noted that demand for cyber security events had decreased over time. One stakeholder also mentioned the success of the Worcestershire Be Cyber Secure grant fund. However, several stakeholders also reported a lack of interest in improving cyber security skills: *"We're struggling to see how to engage businesses further on this, there is work to be done but it's a tough egg to crack at the moment."* One stakeholder suggested SMEs have limited time and view cyber security as a compliance activity: *"For SMEs, they feel like it's compliance, health and safety, so they put off if they can because they're under pressure with the day to day running."* One stakeholder commented that a lack of awareness at senior level may be limiting investment in cyber security.

3.5.3   Increasing uptake of digital skills training provision

In discussions about increasing the uptake of digital skills training, several stakeholders commented that there is already a good level of interest in improving digital skills. *"I think lockdown is the best incentive! You need to stress to businesses that this is the future and they need to adapt. Businesses now realise they can do more remotely than they thought. So sell training off the back of the current crisis, highlight the benefits."* Putting an emphasis upon the practical benefits and highlighting the relevance of training was also mentioned. *"Businesses have said they have limited time so they want to take away a list of actions,*

some concrete points that they can put into practice." One respondent suggested not talking about 'skills' as this is something that businesses perceive they don't have time for. One commented that linking training to grants available to implement change might be helpful. *"There are a lot of grants available, so maybe it's raising awareness that if you do this training, we can then direct you towards funding opportunities to implement things."*

Several stakeholders commented that training should be free of charge and some talked about consideration of wage subsidy where employees are taking time out for training. A stakeholder commented that businesses should be encouraged to take advantage of upskilling opportunities at times when demand is low and employees are not so busy. One stakeholder commented that there should be limited paperwork involved.

One stakeholder commented that accreditation might help to increase the attractiveness of training. Another stakeholder commented that businesses might need reassurance that training is available at all levels. *"A key message would be: no matter what level they're at, you've got a solution. Some people might feel they're too late. Should I already know this? Can I start with the basics?"*

Several stakeholders argued that businesses need flexibility in training, for example, in what is offered, being able to use more than one provider and not being restricted to term times. *"Every business (like with the apprenticeship levy) should have the ability to spend where they can get most value for their staff."*

Some stakeholders said that online training offers welcome flexibility and there was a comment that the provision of online training during lockdown had reached some participants who did not previously attend face to face events. Recordings of online sessions can also be accessed at convenient times by businesses. However, online training does not currently generally offer networking benefits in the same way as face to face interaction. One stakeholder mentioned that breakfast and end of the day sessions were popular.

A couple of stakeholders suggested using case studies or forms of peer to peer learning whereby businesses can learn from companies who have benefitted from improving their digital skills, although one stakeholder reported that encouraging uptake of training in this form had still been a struggle.
A stakeholder suggested using a marketing strategy focused on the essentials e.g. asking businesses if they do five cyber security essentials, and if the answer is no, telling them they need to access training.

In relation to cyber security, a stakeholder suggested it would be useful to highlight that attacks can happen to anyone: *"Horror stories make people sit up and listen, playing out the worst case scenario."* Some stakeholders also commented that presenting cyber security in a different manner e.g. focusing on business protection rather than making it sound too

technical, could be helpful. An interesting initiative was reported of an insurance company who give discounts for those who have a certain level of cyber security accreditation which provides an incentive to action.

3.6. Other skills gaps and training provision
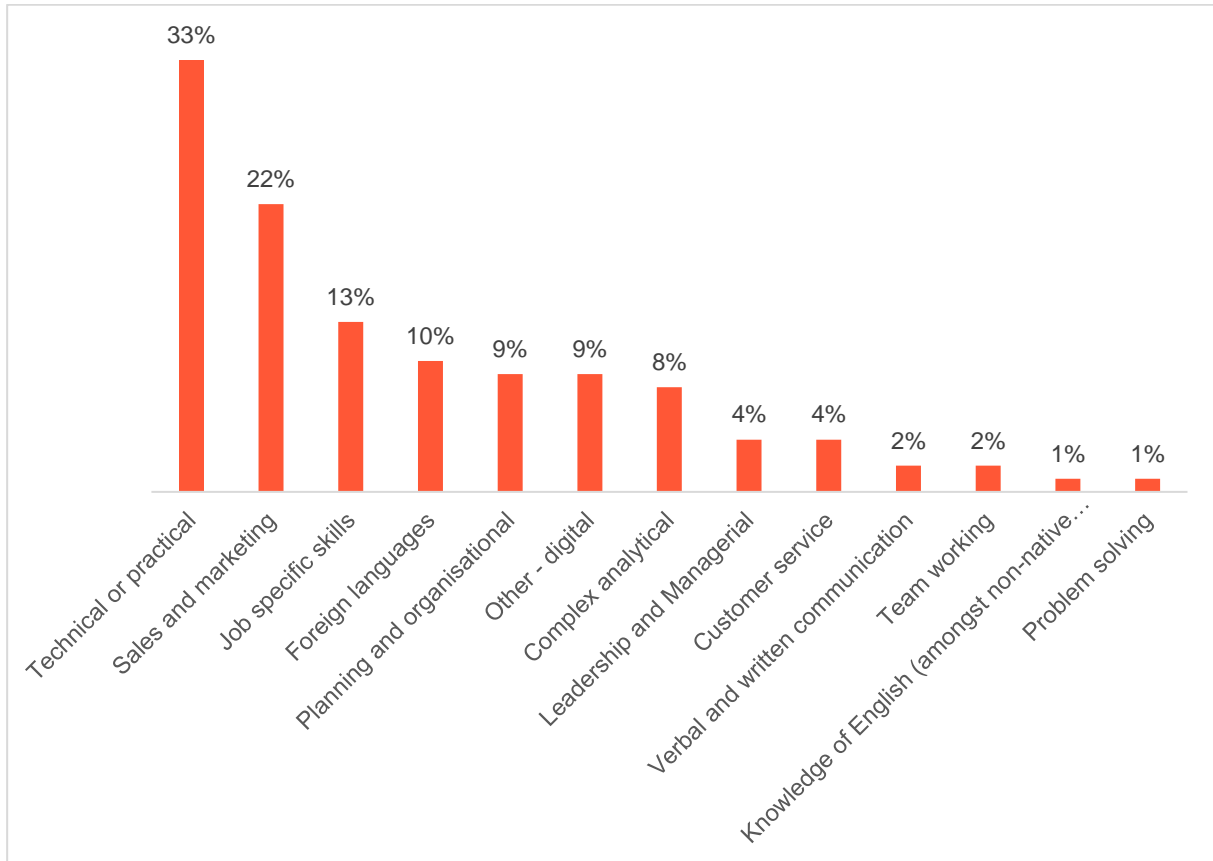
3.6.1 Other skills gaps

As well as exploring digital skills, the survey also asked Worcestershire employers about whether they had any other skills gaps. The survey used a prompted list of skills with the opportunity for respondents to note any other skills gaps not covered in the list. The findings are shown in

Figure 10.

Figure 10: Employer identified skills gaps (n=110, N=107)


As shown in

Figure 10, the most commonly reported other skills gaps were: technical and practical skills; sales and marketing skills; and job specific skills. Where the nature of job specific skills were specified, these included: electronics, screen process printing, pneumatic and hydraulic design, specialist automotive mechanical and bodywork skills, telecommunications, stress management and adapting to change. The same types of skills gaps were also identified as having the biggest impact upon the productivity or performance of the organisation.

Amongst the smallest employers, leadership and management skills were not selected as a skills gap. More of the smallest employers than others reported technical or practical skills gaps. There were also some indicative differences by sector. Compared to other sectors:

- Amongst manufacturers, more skills gaps were reported in: leadership and managerial skills; team working; planning and organisation; and job specific skills.

- In the ICT sector, fewer skills gaps were reported in: leadership and managerial skills; sales and marketing; planning and organisation. More skills gaps were reported in team working. A higher proportion of ICT employers also said they had no skills gaps.

- In the professional, scientific and technical activities sector, fewer skills gaps were reported in leadership and managerial skills and team working. More skills gaps were reported in planning and organisation.

Figure 11 shows the proportion of employers reporting certain numbers of skills gaps.

Figure 11: incidence of other skills gaps (n=110, N=107)
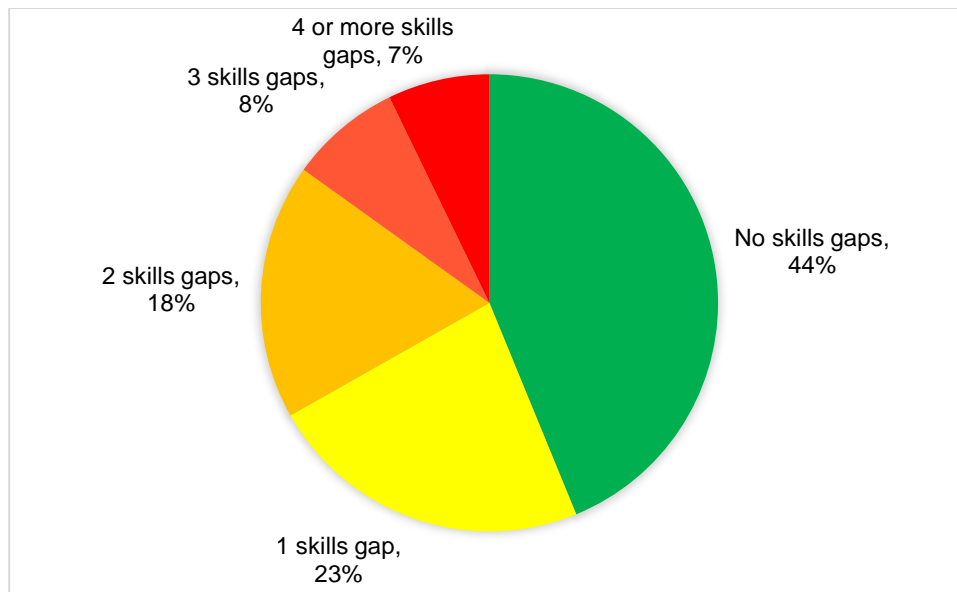
More than half of Worcestershire employers reported at least one other skills gap.

3.6.2   Training available to meet other skills gaps

Only a fifth of those who reported skills gaps said they were aware of training available to meet these needs. About half of the sample of employers said they would like to see improvements with regards to the provision of skills and training locally. Many of the comments about the improvements could not be classified into themes as they were quite disparate. However, small proportions (5-10 respondents) made suggestions for: improved promotion of courses; lower cost or fully funded training; and increased digital skills training provision. Smaller proportions also suggested the following: more choice; more online provision; management/leadership training; more local provision; and more apprenticeships.

Recommendations

The following recommendations are made based upon the responses of employers and stakeholders and secondary research findings identified in the evidence review. The recommendations cover three aspects of the design of digital skills training programmes: content; format; and promotion.

The design of digital skills training programmes should consider the following.
In terms of content:

- Training for business leaders would be helpful to enable them to understand digital opportunities, create digital strategies, conduct digital skills audits and develop cross-organisational digital programmes.

- The full range of digital skills gaps needs to be addressed: basic digital skills; digital marketing and sales skills; ICT operations and user support skills; software and applications development skills; advanced technology maintenance skills; data analytics skills; and cyber security skills.

- Cyber security skills should be a priority (particularly given the rapid adoption of some digital technologies by some employers during the pandemic). This is most likely to be needed amongst construction, retail, wholesale, hospitality, health and professional services businesses. It is also most likely to be beneficial for the smallest businesses but these are likely to be challenging to engage.

- Digital marketing and sales should be a priority across businesses of all sizes and sectors, including support with development of online sales platforms, particularly for retail and hospitality.

- There is an opportunity to support businesses to make more effective use of the digital tools they may already be using at a basic level, particularly data analytics.

- Professional services would like support specifically focusing upon online platforms and web portals for client interactions.

- Advanced level skills development in software and applications development is needed to support particularly the ICT sector and manufacturers, and in advanced technology maintenance skills to meet the needs of those in professional, scientific and technical activities and others.

- There is an opportunity for greater engagement between local businesses and local education providers to better coordinate local skills supply.

In terms of the format of digital skills provision, stakeholders suggested that the following could be helpful:

- Workforce training should be funded and consider wage subsidies for time spent out of work.

- Flexibility for employers can be useful in terms of the training providers used, the type and timing of training provision and eligibility criteria for courses.

- Online courses can avoid the time spent travelling to training provision and recordings can also be watched at times that suit participants.

- For short courses, breakfast and end of day sessions may work well as they avoid the need for employees to take chunks out of the main working day.

- Use of case studies and peer to peer learning can help to showcase the business benefits and practical application of digital skills.

- Accreditation of courses may appeal to some employers and employees.

- Linking the training to relevant grants, where available, may help employers to see how they can access and utilise digital technologies more widely.

In terms of promotion to encourage uptake of digital skills provision, stakeholders suggested that the following could be helpful:

- Use messages relating to current digital opportunities in the context of the pandemic, for example, to conduct e-commerce where physical interaction is limited.

- Highlight the practical benefits of training using real life examples of how businesses have benefited.

- The terminology of 'skills' may be offputting to some employers. Skills development may be more appealing to some businesses where it is a part of wider business support.

- Encourage employers to use times and periods when employees are less busy to take time for training.

Specifically, in relation to cyber security skills training promotion, stakeholders suggested the following:

- Use of cyber security essential checklists to engage businesses.

- Raising awareness of attacks and their impacts.

- Framing this in terms of business protection rather than the technical details involved.

- Connect improvements in cyber security to an incentive (e.g. discounted insurance).

Appendix: Sample details

Table 1: Employer sample by number of employees

Number of employees	Number of respondents	% of total sample
No employees	9	8%
1-4 employees	27	24%
5-9 employees	7	6%
10-24 employees	39	35%
25-49 employees	12	11%
50-99 employees	7	6%
100-249	5	4%
250 or more employees	6	5%
Total	*113*	*100%*

Table 2: Employer sample by sector

Sector	Number of respondents	% of total sample
Private sector	103	91%
Public sector	4	4%
Third sector	6	5%
Agriculture, forestry and fishing	5	4%
Mining, quarrying and utilities	0	0
Manufacturing	19	16%
Construction	7	6%
Motor trades	2	2%
Wholesale	5	4%
Retail	4	3%
Transport and storage	2	2%
Accommodation and food services	1	1%

Information and communication	19	16%
Finance and insurance	2	2%
Property	4	3%
Professional, scientific and technical activities	22	19%
Business administration and support services	5	4%
Public administration and defence	2	2%
Education	4	3%
Health	7	6%
Arts, entertainment, recreation and other services	6	5%
Other	19	16%
Total	*117*	*100%*

Table 3: ICT respondents' areas of work[16]

	Number of respondents
Software publishing	6
Computer programming, consultancy or related activities	6
Cyber security	4
Repair of computers and communication equipment	3
Information service activities	2
Telecommunications	2
Digital marketing and web design/development	1
Publishing	1
Online business games	1
Total respondents	*19*

Table 4: Role of respondent

Job role	Number of respondents	% of total sample
Chief Executive / Managing Director	50	44%
Senior Manager (other responsibility)	31	27%

---

[16] Respondents could select more than one area of work.

Sole trader	12	11%
Senior Manager (HR responsibility)	10	9%
Other HR role	4	4%
Chairperson	2	2%
Other ICT role	2	2%
Other	3	3%
Total	*114*	*100%*

Table 5: Responses by local authority

Subject	Number of respondents	% of total sample
Wychavon	31	31%
Worcester	30	30%
Malvern Hills	27	27%
Bromsgrove	6	6%
Wyre Forest	3	3%
Redditch	2	2%
Total	*99*	*100%*