2020

Digital Skills in Cheshire and Warrington

FINAL REPORT (JUNE 2020)

BRENNAN WILSON LTD

Table of Contents

1. Introduction

This report has been produced as one of several commissioned by Cheshire and Warrington in phase 2 of its Labour Market Intelligence programme. These reports will cover the following themes:

- Adults
- Digital Skills
- Employer Demand for Skills - a) the immediate impact of Covid-19; and b) the future demand for skills
- Young People
- The supply of training and education
- The alignment of skills supply with employer demand

This report covers the second of the topics listed above and, amongst other issues, seeks to address the following questions:

- What are the digital skills required by employers in Cheshire and Warrington and how does this vary across sectors and occupations? How has Covid-19 impacted on these requirements?
- What is the baseline digital skills profile of the population?
- What is the spatial distribution (ward level) and the characteristics profile of learners aged 16 and above participation in learning digital skills in our colleges and in apprenticeships linked to digital skills?

The report has 6 sections. The remaining sections are:

- Executive Summary and Recommendations
- Why Digital?
- The Digital Sector in Cheshire and Warrington
- Employer Demand for Digital Skills in Cheshire and Warrington
- Learner Demand for Digital Skills in Cheshire and Warrington and Learning Supply

The report is designed either to be read through or for readers to dip in and out according to their particular interest.

2. Executive Summary and Recommendations

Employers are Demanding Digital Skills

There is a large body of national and international evidence that the world of work is being transformed. Big data analytics, high speed mobile internet, cloud technology and artificial intelligence are driving changes in employment and job roles and creating what the World Economic Forum describes as 'a new human-machine frontier within existing tasks'.

If anything, these changes seem to be being accelerated by the current Covid-19 crisis. There is now a consensus emerging that Covid-19 will not only accelerate several previously observed societal and technological trends such as increased on-line shopping and the use of contactless technologies, but will also accelerate digitisation and automation across the economy, and across sectors as diverse as logistics, insurance and agriculture. These changes will have significant implications for the need for workers to upskill and reskill and will place new demands on employers and the skills system to respond to this.

In the UK, the Confederation of British Industry (CBI) has reported that: two thirds of businesses already have unfilled digital skills vacancies; 95% of business expect their digital skills needs to grow; and, almost half of businesses are fishing in the same pool for talent. The CBI believes that 'The UK is at a tipping point on digital skills. Demand already outstrips supply and is set to skyrocket'.

This puts a premium on workers with digital skills. Burning Glass have reported that roles requiring digital skills pay 29% (£8,300 per annum) over those roles that do not (£37,000 p.a. vs £28,700 p.a.). Furthermore, by entering a role that requires specific digital skills, workers can reduce their risk of automation by a dramatic 59%.

Digital Exclusion is Creating a Digital Divide

There is a digital divide between those who have access to information and communications technology and those who do not, giving rise to inequalities in access to opportunities, knowledge, services, and goods. The number of adults that have not used the internet in the last three months is estimated by the Lloyds Consumer Digital Index to be 8%. This study also estimates that there are approximately 3.6 million people that are completely offline.

Nationally, 58% of internet non-users are women, a proportion that has remained broadly consistent over time. So far as young people are concerned, national research suggests that 12% of those aged between 11 and 18 years have no internet access from a computer or tablet, and this has been confirmed by Cheshire and Warrington LEP research this year. This is a particular concern when children are expected to learn online as a consequence of the Covid-19 crisis.

The Office of National Statistics (ONS) report that since 2011, adults over the age of 65 years have consistently made up the largest proportion of the adult internet non-users, and over half of all adult internet non-users were over the age of 75 years in 2018. The Lloyds Consumer Digital Index 2020 has similar findings.

Among those of working age, the economically inactive are the most likely to be internet non-users, particularly those adults on long-term sick leave or disabled. Action to tackle digital exclusion should target the neighbourhoods with the highest levels of employment deprivation in Cheshire and

Warrington, which are in Warrington, Ellesmere Port, Crewe and Chester with clusters also evident in Winsford, Northwich and Macclesfield.

The Lloyds Consumer Digital Index 2020 reports that motivation is one of the key barriers to doing more online – over one-third of those offline say the Internet 'doesn't interest me' and 48% of the digitally excluded state that 'nothing' could motivate them to get online. The ONS report that 20% of those that do not access the internet don't do so because they lack the skills.

The Digital Industries and Occupations in Cheshire and Warrington

78% of the Digital Sector in Cheshire and Warrington is made up of companies with between 1 and 4 employees (87% in England), 99.8% of companies employ fewer than 250 people (99.8% England). The highest volume of Digital Sector establishments in Cheshire and Warrington are in in 'Computer Consultancy Activities', 'Computer Programming Activities, and 'Other Information Technology and Computer Service Activities'.

In 2019 the Digital Sector employed 21,334 people in Cheshire and Warrington. This number is 13% lower than it would be if Cheshire and Warrington employed the same proportion of its workforce in the Digital Sector as is the case for the UK. By contrast, the number employed in Digital Occupations across all industry sectors (20,685) is only 1% below what would be expected from national figures.

Between 2017 and 2020, the Digital Sector grew in Cheshire and Warrington by 750 jobs - 3.7%. This compares to a national growth of 3.9%. This employment growth rate was unevenly distributed across Cheshire and Warrington, with a growth rate of 4% in Cheshire East, 8% in Cheshire West and Chester over these three years but a decline of 1% in Warrington.

The largest subsectors, in employment terms, are 'Computer Consultancy Activities' (30% of all employment in the Cheshire and Warrington Digital Sector), Computer Programming Activities (19% of all employment) and 'Other Telecommunications Activities (12% of all employment).

In 2019, the average wage per job in the Cheshire and Warrington Digital Sector was £37,165. This is £11,565 more than the median advertised wage for all roles in Cheshire and Warrington of £25,600. Digital Occupations that are employed across all industry sectors also showed a wage premium, with a median advertised salary of £37,600.

The occupational areas with the highest proportion of job roles in the Cheshire and Warrington Digital sector were: Programmers and Software Development Professionals; Information Technology and Telecommunications Professionals; IT Specialist Managers; Sales Accounts and Business Development Managers; and, IT Business Analysts, Architects and Systems Designers.

38% of Digital Occupations are employed in the 'Computer Programming, Consultancy and Related Activities' sector. In addition, however, there is a broad spread of these occupations across a wide range of 2-digit SIC codes including: Activities of head offices - management consultancy activities; Financial service activities- except insurance and pension funding; Architectural and engineering activities- technical testing and analysis; and, Telecommunications

Nationally, over 70% of the employees in Digital industries are male and the national sector has a young workforce with 39.4% of employees being aged below 34 years old. Nationally the age profile of workers in Digital Occupations is also young and 83% of them are male.

Employer Demand for 'Digital Skills' in Cheshire and Warrington

This report has used job postings data to give an insight into levels of employer demand for skills. The extent to which employers are taking action to upskill existing staff will be reviewed in a future report on Employer Demand for skills which will review relevant data including from the national Employer Skills Survey (if available) which is due to report in August 2020.

7.5% of job postings in Cheshire and Warrington explicitly sought what Burning Glass describe as 'Baseline Digital Skills' – these encompass the ability to use productivity software such as Word and Excel, Enterprise Resource Planning (ERP), Project Management Software, and SAP. The ubiquity of these skills means that they will not always be explicitly sought in a job postings, so this percentage will understate the level of employer demand.

The median advertised salary for roles explicitly requiring 'Baseline Digital Skills' was £23,000. This is slightly lower than the median advertised salary for all roles in Cheshire and Warrington which stood at £25,600. The number of job postings in April 2020 for jobs requiring 'Baseline Digital Skills' was the lowest volume over the three years since April 2017. This probably reflects the broader downturn in the labour market as a result of the Covid-19 pandemic.

Job postings seeking what Burning Glass describe as 'Specific Digital Skills' accounted for between 1% and 4% of all job postings April 2017-April 2020, depending on the category of skills sought. 'Specific Digital Skills' are not required across the majority of jobs but define or even dominate specific roles or sectors. Examples are software programs such as Adobe Photoshop for designers; AutoCAD for engineers and manufacturing workers; Salesforce for sales and marketing professionals; and computer programming and networking for IT professionals.

Most (but not all) of the Specific Digital skillsets come with a wage premium compared to the average advertised salary in Cheshire and Warrington. There is only one month of job postings data to consider post-lockdown so evidence of the impact of the Covid-19 crisis is still unclear. This limited evidence suggests that demand for the job roles requiring the Specific Digital skillsets that carry the highest wage premium is more resilient than for other types of roles.

Learner Demand for Digital Skills and Learning Supply

From an examination of geographic participation data for digital skills learning aims, alongside the areas of highest income deprivation, it is clear that there are areas of Cheshire and Warrington, particularly in Cheshire West and Chester and Cheshire East, that should be targeted in order to support and encourage residents to access digital skills provision.

In Further Education, digital skills learning below Level 2 (which delivers what Lloyds classify as 'Foundation' or 'Essential' Digital Skills) mirrors the Cheshire and Warrington population, with a 51% female/49% male split in delivery. Nationally, those excluded from the internet are 58% female so levels of female participation in Cheshire and Warrington might be expected to be higher for this level of provision. Female participation falls to 29% of the total at Level 2 (largely 'Essential' or 'Baseline' Digital Skills), 29% at Level 3 and 25% at Level 4+ (a mix of what what Burning Glass describes as 'Specific Digital Skills' and 'Baseline Digital Skills').

Historically the proportion of digital learning aims funded by ESF has been quite low (3%). Cheshire and Warrington should consider whether action needs to be taken to increase the delivery of digital skills on current ESF programmes (eg Accelerate).

Whilst the need for Digital Skills is increasing in the economy, the delivery of digital skills learning aims at all levels in FE has decreased by 19% from 2016/17 to 2018/19 (22% decrease for Level 3). Occupations defined as 'Digital' by DCMS require a minimum of a Level 3 qualification and the numbers for all these occupations have grown in the Cheshire and Warrington labour market. To see a concurrent decline in digital skills learning, particularly at Level 3, is a concern. This is a clear market failure which needs to be addressed.

At Level 3 and Level 4 the qualifications followed in FE that deliver digital skills are quite substantial such as Diplomas and A Levels. Conversely, below Level 2 the qualifications delivered tend to be short qualifications such as QCF units and Awards.

The delivery of Baseline Digital Skills in Apprenticeships is quite widely distributed across a diverse range of occupational areas at all Levels. There has been over 500 such Apprenticeship starts in the following Tier 2 SSAs: Administration; Business Management, Child Development and Wellbeing; Engineering; Manufacturing Technologies; and Transport Operations and Maintenance.

Between 2016/17 and 2018/19, starts on Apprenticeships delivering Baseline Digital Skills declined by 36%. Starts for 16-18 year olds declined by 39%; starts for 19-24 year olds declined by 43%; and starts by those aged over 25 declined by 31%. Declines have been particularly sharp in the high-volume Sector Subject Areas of 'Administration' and 'Manufacturing Technologies'.

By contrast, starts on Apprenticeships that deliver 'Specific Digital Skills' saw a growth of 65% between 2016/17 and 2018/19. This is in the context of an overall decline in Apprenticeship starts in this period of 28% in Cheshire and Warrington. 64% of Specific Digital Skills Apprenticeships were at Level 3, 36% at Level 4.

Starts on qualifications in FE that deliver Specific Digital Skills declined by 21% between 2016/17 and 2018/19. This was led by a decline of starts by young people aged 16-18. This suggests that there is an information market failure for young people entering FE.

Recommendations

As noted in the Introduction, this report is one of several due to be produced investigating specific skills issues in Cheshire and Warrington. A report on skills in the Adult Workforce[1] has already been produced, and the recommendations made in that report, which focus on participation and progression by adults, particularly at Level 3 and 4, apply equally to the Digital Skills agenda.

It is important to recognise that if employers and individuals do not seek to improve their skills, that improvement will not happen. This applies specifically to Digital Skills and, also, more generally. If there are insufficient numbers of people wanting to pursue a course of study in FE, the course will not run. If employers do not want to employ a particular type of apprentice, that apprenticeship will not happen. Demand for skills from employers and individuals is the primary driver of activity in the skills system. This is particularly true when training is free and when providers are not constrained by their capacity or capability.

This is why the recommendations below focus heavily on stimulating demand.

1. Stimulate demand for digital skills from individuals by:

[1] The Adult Workforce and Skills Delivery in Cheshire and Warrington, Brennan Wilson Ltd, 2020

- Promoting the benefits of digital skills to adults, particularly in those parts of Cheshire West and Chester and in Cheshire East which have been identified in the report (page 51).
- Participation by women is too low at every level of digital skills training. Guidance and information promoting the value of digital skills should be delivered, targeting women in particular.
- The Pledge should work with employers to ensure that young people receive good quality information on digital careers in Cheshire and Warrington (eg including information on the wage premium associated with digital occupations). As part of this, inspiring young women to acquire digital skills should be a key objective.

2. The percentage of companies in the Digital Sector in Cheshire and Warrington employing 1-4 employees is 78%, compared to 87% nationally. This suggests that there may be an opportunity for encouraging more digital business start-ups by aligning business start-up support and skills, with digital skills training. This strategy might help to close the 13% employment shortfall in the digital sector in Cheshire and Warrington compared to nationally.

3. 12% of secondary school students do not have access to a device to go online. Urgent action is required to address this.

4. In the working age population, those who are economically inactive due to disability are most likely to be digitally excluded. These people are most concentrated in the neighbourhoods that score as deprived using the Employment Domain of the Index of Multiple Deprivation (2019). Action to tackle digital exclusion should target these neighbourhoods. They are concentrated in Warrington, Ellesmere Port, Crewe and Chester with clusters also evident in Winsford, Northwich and Macclesfield.

5. Historically the proportion of digital learning aims funded by ESF has been quite low (3%). Partners should consider whether action needs to be taken to increase the delivery of digital skills on current ESF programmes (eg Accelerate).

3. Why Digital?

This section provides a broad context for the remainder of the report, reviewing national and international studies, reports and evidence. It pulls together some of the key things that are known about employer's demand for digital skills, it discusses what we mean when we use the term 'digital skills' and it summarises some of the issues around 'digital exclusion'.

3.1 Employers' demand for skills

In 2018, the World Economic Forum (WEF) published a report, The Future of Jobs[2]. This report described how the world of work was likely to change over the next few years. In common with several other reports[3] around the same time and preceding and following this, four key drivers of change were identified

- Adoption of big data analytics
- High speed mobile internet
- Cloud technology
- Artificial Intelligence

The authors found an increasing tendency for companies to adopt these technologies which, in turn, leads to changes in employment and job roles and 'a new human-machine frontier within existing tasks'. The report identified a growth in demand for existing and new roles:

> *"Among the range of established roles that are set to experience increasing demand in the period up to 2022 are Data Analysts and Scientists, Software and Applications Developers, and Ecommerce and Social Media Specialists, roles that are significantly based on and enhanced by the use of technology. Also expected to grow are roles that leverage distinctively 'human' skills, such as Customer Service Workers, Sales and Marketing Professionals, Training and Development, People and Culture, and Organizational Development Specialists as well as Innovation Managers. Moreover, our analysis finds extensive evidence of accelerating demand for a variety of wholly new specialist roles related to understanding and leveraging the latest emerging technologies: AI and Machine Learning Specialists, Big Data Specialists, Process Automation Experts, Information Security Analysts, User Experience and Human-Machine Interaction Designers, Robotics Engineers, and Blockchain Specialists."*

The context for the WEF report and ones like it was one of global economic growth and increasing globalisation. Clearly, the Covid-19 pandemic means that global growth prospects are now very different and there are some indications of a turn away from globalisation. However, there is now a consensus emerging that Covid-19 will not only accelerate several previously observed societal and

[2] https://www.weforum.org/reports/the-future-of-jobs-report-2018
[3] For example https://www.mckinsey.com/featured-insights/future-of-work/skill-shift-automation-and-the-future-of-the-workforce

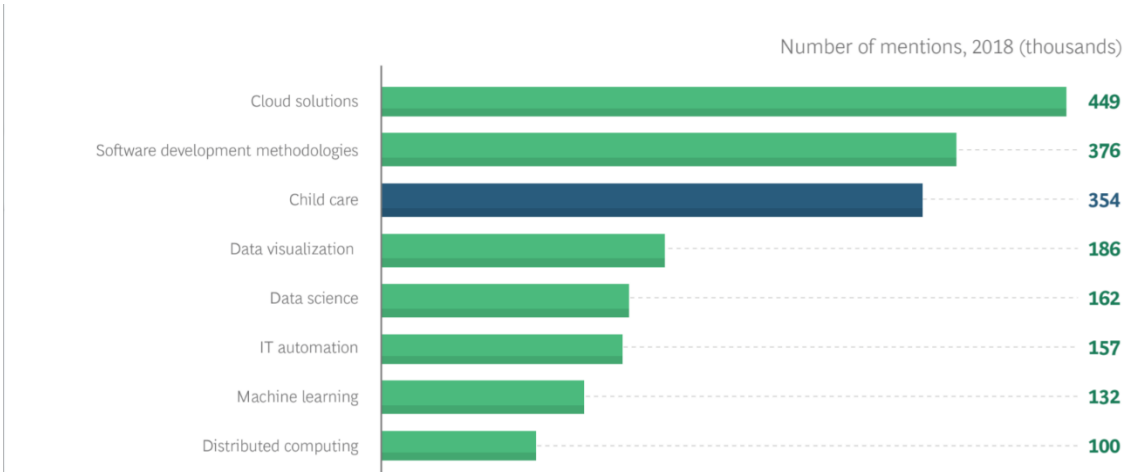
technological trends such as increased on-line shopping and the use of contactless technologies[4], but will also accelerate digitisation and automation across the economy[5], within particular countries[6], and across sectors as diverse as logistics[7], insurance[8] and agriculture[9].

These changes will have significant implications for the need for workers to upskill and reskill and will place new demands on employers and the skills system to respond to this.

To support this, there is good evidence of how employers' requirements of workplace skills are changing and, in particular, how employers are increasingly seeking workers with digital skills. In September 2019, Boston Consulting Group (BCG) and Burning Glass published a report entitled "What's Trending in Jobs and Skills"[10]. This examined job market trends as reflected in millions of online job postings in the US between 2015 and 2018. Although the data covers the US market only, the authors believe that size and diversity of the US population and economy are a reasonable proxy for global trends. The report analyses the number and growth rate of these listings year on year, to establish a picture of the trends in job postings across broad sectors and within specific job areas. Its key findings are discussed below.

Digital skills made up about 70% of what the authors describe as '*fast growing skills'*. The graph below illustrates the top eight such skills by the number of times they were mentioned in postings. The report authors argue that demand for expertise in fields like artificial intelligence, the Internet of Things, cloud solutions, machine learning, and fintech shows the extent to which new technologies are being adopted across industries. At the same time, they find that demand for more "*traditional*" digital skills is high and continues to grow rapidly; these include handling document management systems, IT automation, and application programming interface.

The Top Fast-Growing Skills Ranked by Mentions in On-line Postings



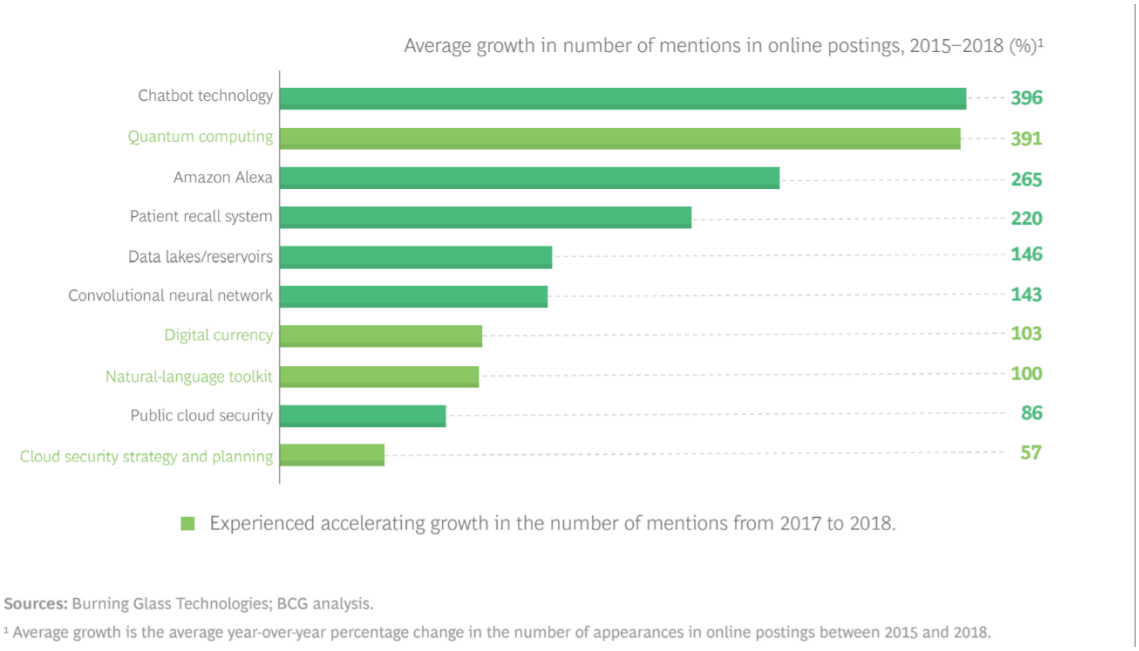
Source: BCG/Burning Glass 'What's Trending in Jobs and Skills'

[4] https://www.weforum.org/agenda/2020/04/10-technology-trends-coronavirus-covid19-pandemic-robotics-telehealth/
[5] https://eiuperspectives.economist.com/technology-innovation/will-covid-19-pandemic-accelerate-automation
[6] https://www.mckinsey.com/featured-insights/asia-pacific/fast-forward-china-how-covid-19-is-accelerating-five-key-trends-shaping-the-chinese-economy
[7] https://www.joc.com/maritime-news/covid-19-accelerate-logistics-industry-toward-digital-lower-growth-reality_20200430.html
[8] https://www.verdict.co.uk/life-insurance-international/comment/covid-19-ai-claims-processing/
[9] https://www.strategyand.pwc.com/de/de/implications-of-covid-19/the-agri-industry-after-covid-19.html
[10] https://www.bcg.com/publications/2019/what-is-trending-jobs-skills.aspx

The skills with the fastest growing demand from employers, what the authors describe as *'High Growth Skills'* are often linked to the latest technologies, which are at the beginning of their life cycle. These skills were relatively low demand, with fewer than 10,000 individual mentions in 2018 job postings. But demand for them is growing significantly, averaging more than 40% year-over-year increases in mentions in online postings during the period 2015 through 2018.

High-growth skills include those in chatbot technology, Amazon Alexa (the voice-control digital assistant), data lakes, and cloud security. The fastest-growing high-growth skills for 2017 to 2018 included quantum computing, digital currency, natural-language toolkit, and cloud security strategy and planning. While some of the underlying technologies that these skills support may remain niche technologies, others could quickly become mainstream. And as they are more widely adopted, the skills associated with them will be the fast-growing skills of the future.

High Growth Skills are Associated with the Latest Technologies



In the UK, the Confederation of British Industry (CBI) has reported[11] that:

- Two thirds of businesses already have unfilled digital skills vacancies
- 95% of business expect their digital skills needs to grow
- 58% of firms say they'll need significantly more digital skills in the next five years
- Less than one third of businesses are confident that the UK business community will be able to access the digital skills they need in the next 3-5 years
- 93% of firms are taking action to address their digital skills needs
- But almost half of businesses are fishing in the same pool for talent, by hiring external UK talent as their primary action to get the digital skills they need

[11] Delivering Skills for the New Economy CBI/Tata Consulting June 2019, https://www.cbi.org.uk/articles/delivering-skills-for-the-new-economy/

The CBI believe that 'The UK is at a tipping point on digital skills. Demand already outstrips supply and is set to skyrocket'. This plays into key risks that have been identified by Ecorys in 2016 in a report commissioned by the BEIS/DCMS[12]:

1. *"A shortage in suitable digital skills for digital jobs persists in the UK labour market. This is a major risk to business growth, innovation and broader societal development.*
2. *By not effectively linking supply of digital skills to immediate, medium, and long-term demand, the relative ranking of the UK, in terms of investment in IT and utilisation compared to other major countries, is slipping. This may make the UK a less attractive investment location and place to do business.*
3. *While there are digital skills needs within sectors that are primarily 'digital' in their operations, there are wider challenges within the economy as a whole. Digital skills need to improve continuously across the whole UK population so that all sectors and organisations can maximise their competitive potential offered by the rapidly developing applications of digital technologies.*
4. *There is a need for action to be taken to re-skill the workforce continuously to ensure that new market segments that require digital skills can be exploited.*
5. *The widespread acquisition of digital skills offers particular growth opportunities for the UK economy but opportunities are often constrained by a lack of relevant digital skills within the labour force. As demand for digital skills outstrips supply, employers across a wider range of sectors are experiencing digital skill gaps within their workforce, and encountering difficulties in filling advertised vacancies (particularly in high level roles such as developers)."*

The same study reports that the contribution of digital skills to the performance of the economy is substantial, with the 'tech sector' alone representing 6% of the UK economy with an estimated GVA per person well above the UK average. The authors argue that, given the large number of opportunities that are likely to be available, strong investment in digital skills would likely bring about a very good return on investment to the UK economy.

In a report for DCMS published in 2019, Burning Glass[13] conclude that:

- *Digital skills are near-universal requirements*: 'Baseline' digital skills such as Microsoft Office and other productivity software tools are commonly required in jobs across all skills levels and have become a ticket to entry in the labour market.
- *Digital skills carry a wage differential*: Overall, roles requiring digital skills pay 29% (£8,300 per annum) over those roles that do not (£37,000 p.a. vs £28,700 p.a.).
- *Digital skills are in demand everywhere*: Digital skills are required in at least 82% of online advertised openings across the UK but the precise skills demanded are not uniform across the country.
- *Specific digital skills may help workers avoid the risk of automation*: By entering a role that requires specific digital skills, workers can reduce their risk of automation by a dramatic 59%.

[12] Digital Skills for the UK Economy https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/492889/DCMSDigitalSkillsReportJan2016.pdf

[13] https://www.burning-glass.com/research-project/uk-demand-digital-skills/

- *Specific digital skills promote career progression*: To maximise chances of success in the digital economy, job seekers must go beyond baseline digital skills and develop more specific skills.

In a report published in June 2019 called 'Bridging the Digital Divide', the Open University reported[14] that:

- 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 report skills shortages have already negatively impacted productivity
- Almost half say a lack of digital skills is impacting their organisation's ability to implement new time or cost saving technologies
- Half expect profitability to be negatively affected in the next five years

3.2 What are 'Digital Skills'?

In the report mentioned above commissioned by DCMS in June 2019[15] it is noted that the term 'digital skills' covers a wide array of competencies, knowledge, and skills, making it difficult to design interventions to meet digital skills needs. To address this, the authors identified two broad categories: *baseline digital skills* that open doors to digitally intensive jobs, and *specific digital skills* that allow people to advance along a digital career pathway.

Baseline Digital Skills –These are productivity software tools such as spreadsheets and word processing programs. In addition, they often serve as the foundation for more advanced digital positions and so are requested for jobs at all skill levels. The most common productivity software skills requested by UK employers are the Microsoft Office suite including Word, Excel, and PowerPoint.

Specific Digital Skills – These are other digital skills not found in the baseline category. They are not required across the majority of jobs but define or even dominate specific roles or sectors. Examples are software programs such as Adobe Photoshop for designers; AutoCAD for engineers and manufacturing workers; Salesforce for sales and marketing professionals; and computer programming and networking for IT professionals. In the Burning Glass report, this category is then broken down into seven clusters of related digital skills. This is illustrated in the Table below which is taken from the report.

[14] Bridging the Digital Divide June 2019 http://www.open.ac.uk/business/bridging-the-digital-divide
[15] https://www.burning-glass.com/research-project/uk-demand-digital-skills/

Burning Glass Skills Type Classification			
Digital Skill Type	**Digital Skill Cluster**	**Description**	**Common Occupation**
Baseline	**Productivity Software**	Productivity software skills such as Word and Excel, Enterprise Resource Planning (ERP), Project Management Software, SAP	Administrative Occupations, Customer Service
Specific	**Software & Programming**	Programming languages such as Java, SQL, and Python	Programmers, Software Developers, Database Administrators
	Computer & Networking Support	Set up, support and manage computer systems and networks	Network Administrators, Software Developers , IT User Support Technicians
	Data Analysis	Data analysis tools like R or Stata, Big Data, Data Science	Management Consultants, Economists, Statisticians, Business Analysts
	Digital Design	Digital production, graphic design, online advertising skills	Marketing Associate Professionals, Graphic Designers
	CRM	CRM software, such as Salesforce or Microsoft Dynamics	Sales Professionals, Marketing Associate Professionals, Customer Services Managers
	Digital Marketing	Digital marketing technologies, such as social media platforms and analytics tools, such as Google Analytics	Sales & Marketing Professionals, Marketing Associate Professionals, HR Officers
	Machining & Manufacturing Technology	Machining and engineering software and tools such as CNC machining and computer-aided design	Machine Operators, Civil Engineers, Quality Control and Planning Engineers
Source: Burning Glass			

The Burning Glass report discussed above considered the digital skills required for work. In 2018, the Government published what it calls the 'Essential Digital Skills Framework'[16]. The essential digital skills framework defines the digital skills adults need to safely benefit from, participate in and contribute to the digital world. It is illustrated in the graphic below.

[16] https://www.gov.uk/government/publications/essential-digital-skills-framework

Essential Digital Skills - Framework Diagram

The framework describes 'Digital Foundation Skills' as being able to:

- turn on a device
- use the available controls on a device
- make use of accessibility tools on a device to make it easier to use
- interact with the home screen on a device
- understand that the internet allows access to information and content and that it can be connected through Wi-Fi
- connect a device to a safe and secure Wi-Fi network
- connect to the internet and open a browser to find and use websites
- understand that passwords and personal information need to be kept safely as they have value to others
- update and change a password when prompted to do so

These Foundation Skills underpin 'Essential Digital Skills' which encompass:

- Communicating - the skills required to communicate, collaborate, and share information
- Handling Information and Content - the skills required to find, manage and store digital information and content securely.
- Transacting - the skills required to register and apply for services, buy and sell goods and services, and administer and manage transactions online.
- Problem solving - the skills required to find solutions to problems using digital tools and online services.
- Being safe and legal online - the skills required to stay safe, legal and confident online.

3.3 Digital Exclusion

Technological change means that digital access and digital skills are increasingly important for connecting with others, accessing information and services, and meeting the changing demands of the workplace and economy. However, there is a digital divide between those who have access to information and communications technology and those who do not, giving rise to inequalities in access to opportunities, knowledge, services, and goods.

The Centre for Economics and Business Research (CEBR)[17] has identified five areas in which individuals who use basic digital skills are able to benefit:

- ***Earnings benefits***: these relate to increased earnings of between 3% and 10% through acquiring digital skills.
- ***Employability benefits***: this reflects the improved chances of finding work for someone who is unemployed and an increased likelihood that someone who is inactive will look for work.
- ***Retail transaction benefits***: shopping online has been found to be 13% cheaper on average than shopping in-store.
- ***Communication benefits***: basic digital skills can enable people to connect and communicate with family, friends and the community 14% more frequently.
- ***Time savings***: these relate to the time saved by accessing government services and banking online rather than in person, estimated to be about 30 minutes per transaction.

However, a prerequisite for these benefits is that individuals have access to the internet and the skills to exploit that access.

The Office for National Statistics reports[18] that the number of adults who have either never used the internet or have not used it in the last three months, described as “internet non-users”, has been declining over recent years. Since 2011, this number has almost halved, but in 2018 there were still 5.3 million adults in the UK, or 10.0% of the adult UK population, in this situation. The trend is shown in the graph below.

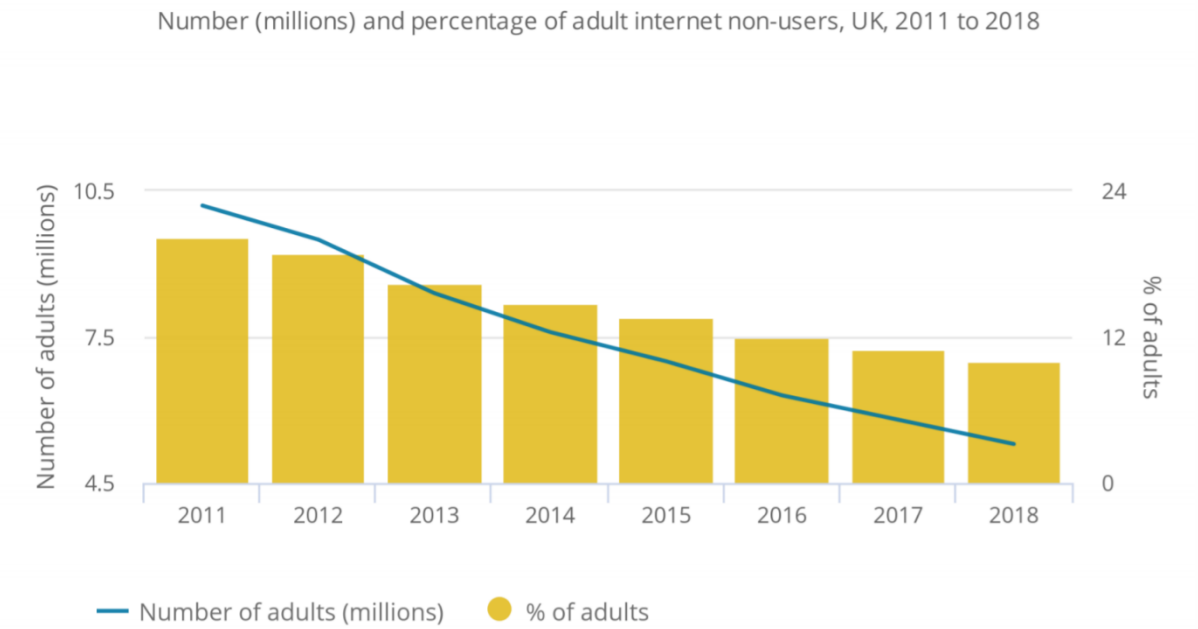
In the recently published Lloyds Consumer Digital Index 2020[19] it is reported that the estimated number of adults that have not used the internet in the last three months has now declined to 8%. Lloyds estimate that there are approximately 3.6 million people that are completely offline.

[17] https://cebr.com/wp/wp-content/uploads/2015/11/The-economic-impact-of-digital-skills-and-inclusion-in-the-UK_Final.pdf

[18] https://www.ons.gov.uk/peoplepopulationandcommunity/householdcharacteristics/homeinternetandsocialmediausage/articles/exploringtheuksdigitaldivide/2019-03-04

[19] https://www.lloydsbank.com/banking-with-us/whats-happening/consumer-digital-index.html

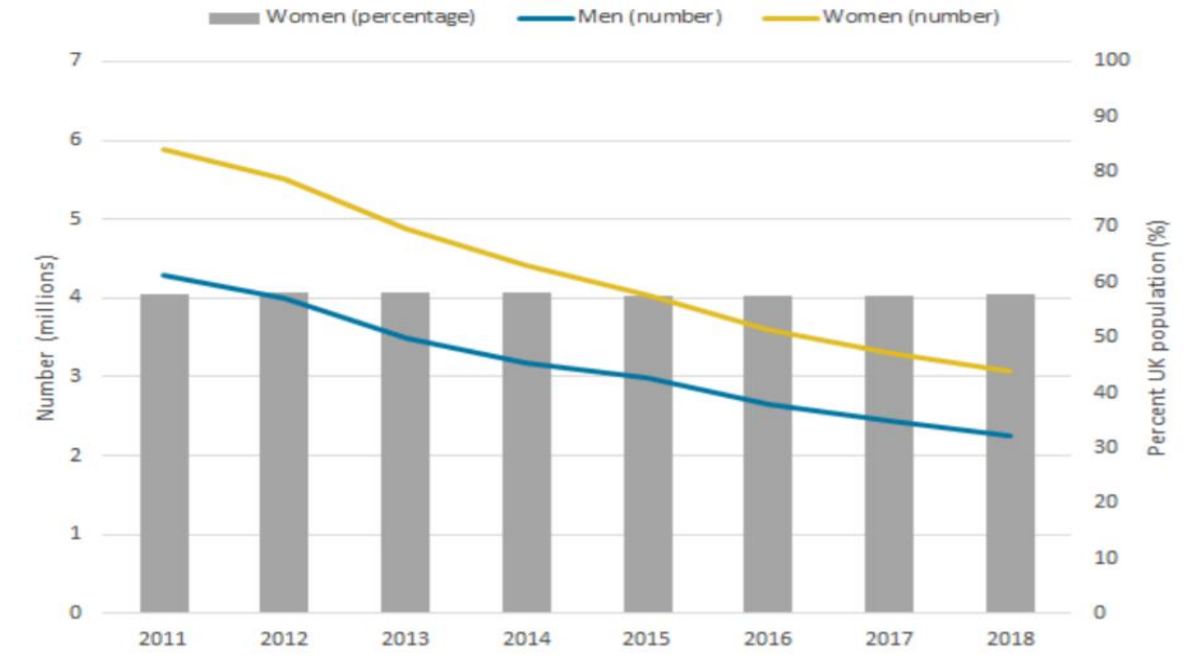
Number (millions) and percentage of adult internet non-users, UK, 2011 to 2018



Source: Office for National Statistics - Internet Users, Labour Force Survey (LFS)

Although the number of internet non-users has been declining, in 2018, 58% (3.1 million) of these were women, a proportion that has remained broadly consistent over time (see graph below).

Number in millions by sex and percentage of women adult internet non-users, UK, 2011 to 2018



Source: Office for National Statistics - Internet Users, Labour Force Survey (LFS)

In the Lloyds Consumer Digital Index 2018, it is reported that 12% of those aged between 11 and 18 years have no internet access from a computer or tablet. Of those in this age group, 68% who did

have home internet access reported that they would find it difficult to complete schoolwork without it, suggesting that there are educational implications for those without internet access.

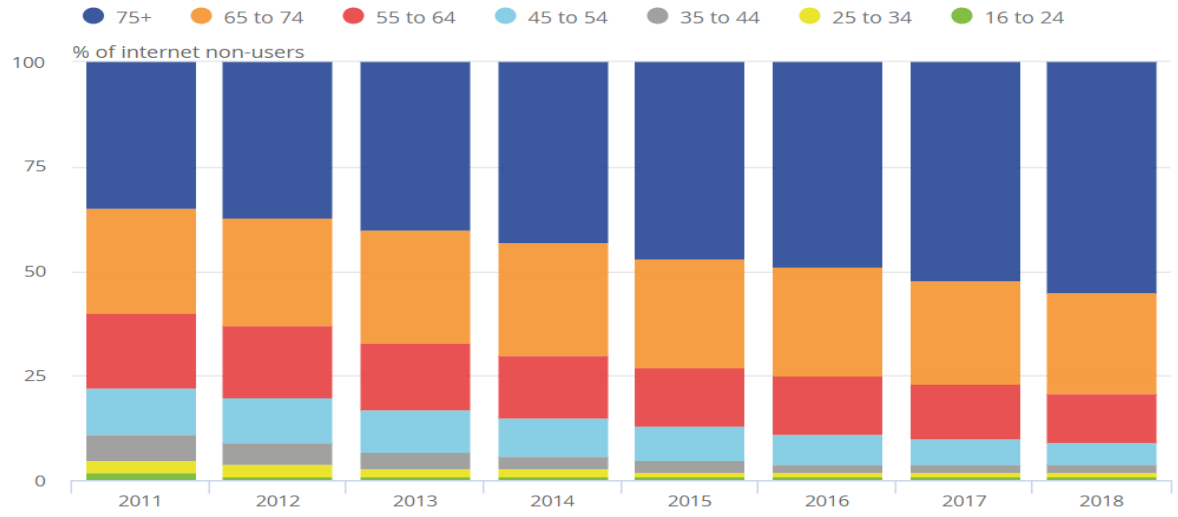
This national finding is supported by the results of a more recent survey that was sent to all secondary school heads in Cheshire and Warrington. The 26 schools that responded identified about 2,400 children without access to a computer in the home and about 1,000 without access to the internet (see the Table below). It is not known how many of these students are eligible for free school meals, but it will be a significant proportion.

School students without access to the internet in Cheshire and Warrington			
	Number of students in School / College	**Number of students who do not have access to a PC / laptop**	**Number of students who do not have access to suitable Wi-Fi**
Number of students in Cheshire and Warrington for providers who have answered the survey	19,646	2,398	1,030
% of students in Cheshire and Warrington for providers who have answered the survey		12.21%	5.24%
Source: Cheshire and Warrington LEP			

Whilst the numbers of school age children without access to the internet is a concern, the age profile of those not using the internet is heavily skewed to the older age groups. The Lloyds Consumer Digital Index 2020 reports that those aged over 70, in particular, are a group at risk, as 77% have "Very Low" engagement. This is supported by data from the Office of National Statistics (see graph below) which shows that since 2011, adults over the age of 65 years have consistently made up the largest proportion of the adult internet non-users, and over half of all adult internet non-users were over the age of 75 years in 2018 . This reflects the pattern of the younger generations becoming more likely to be frequent internet users.

Figure 8: An increasing proportion of internet non-users are over the age of 65 years

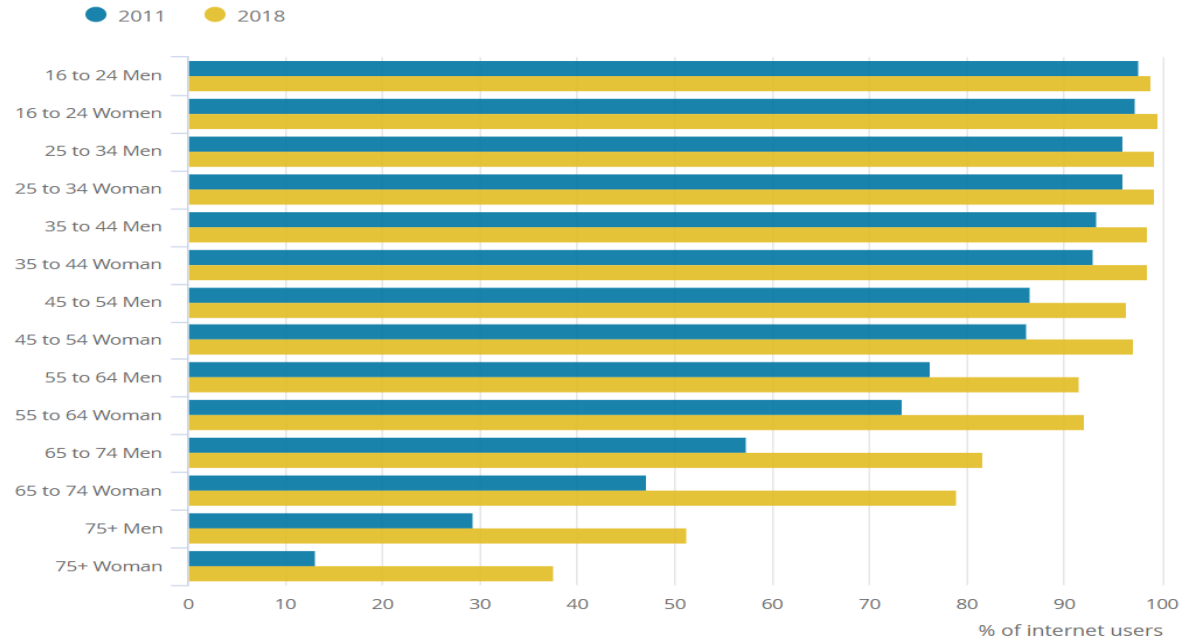
Age composition of internet non-users, UK, 2011 to 2018



Source: Office for National Statistics - Internet Users, Labour Force Survey (LFS)

However, as can be seen below, the generational divide in those using the internet regularly is narrowing, although women in the older age groups continue to lag men.

% of adults who have used the internet in the last 3 months, by age and sex, 2011 and 2018

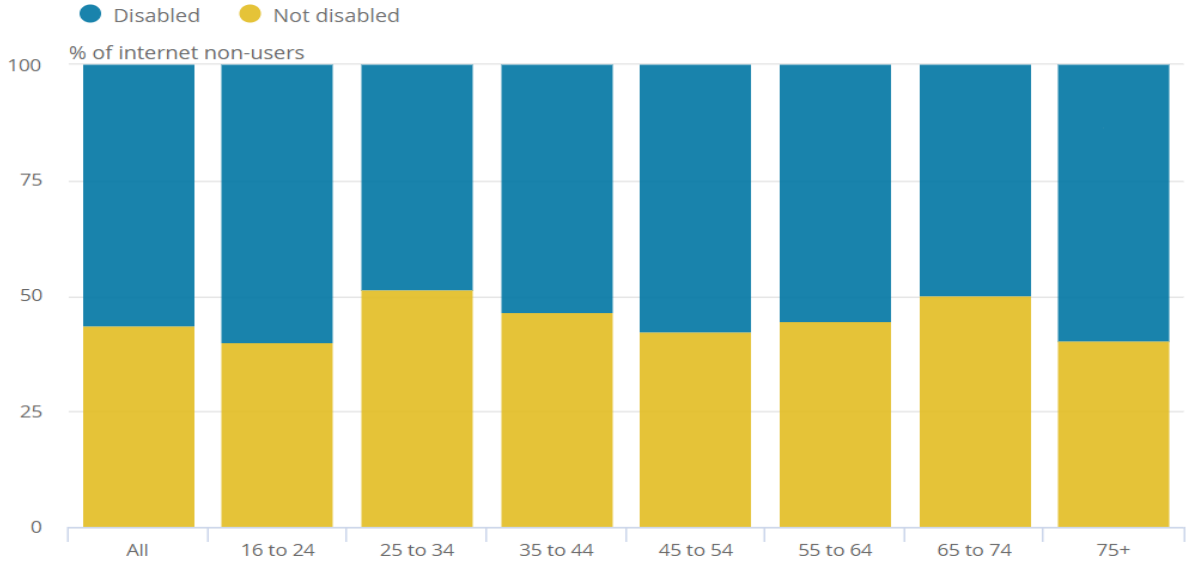


Source: Office for National Statistics - Internet Users, Labour Force Survey (LFS)

Across all age groups, disabled adults make up a large proportion of adult internet non-users. In 2017, 56% of adult internet non-users were disabled, much higher than the proportion of disabled adults in the UK population, which in 2016 to 2017 was estimated to be 22%[20]. For internet non-users aged between 16 and 24 years, 60% were disabled in 2017, a proportion that is the same as for those aged 75 years and older.

[20] Family Resources Survey 2016/17

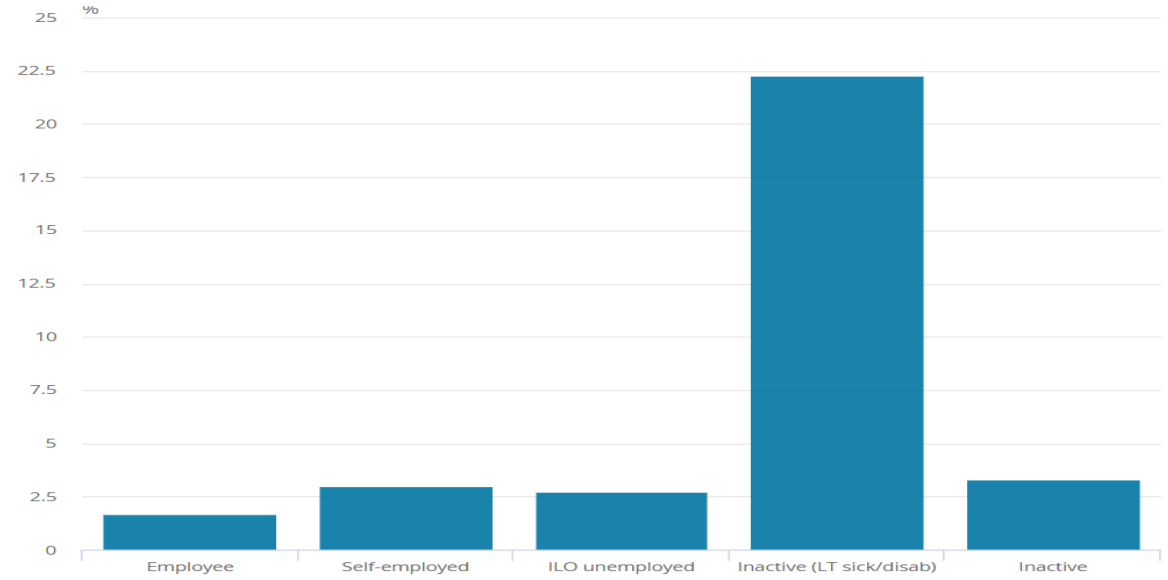
Composition of adult internet non-users by disability and age group, UK, 2017



Source: Office for National Statistics - Internet Users, Labour Force Survey (LFS)

Among those of working age, the economically inactive are the most likely to be internet non-users, particularly those adults on long-term sick leave or disabled (the second bar from the right in the bar chart below), as might be expected given the patterns among disabled people.

Percentage of working age adults who are internet non-users by economic activity status, UK 2018



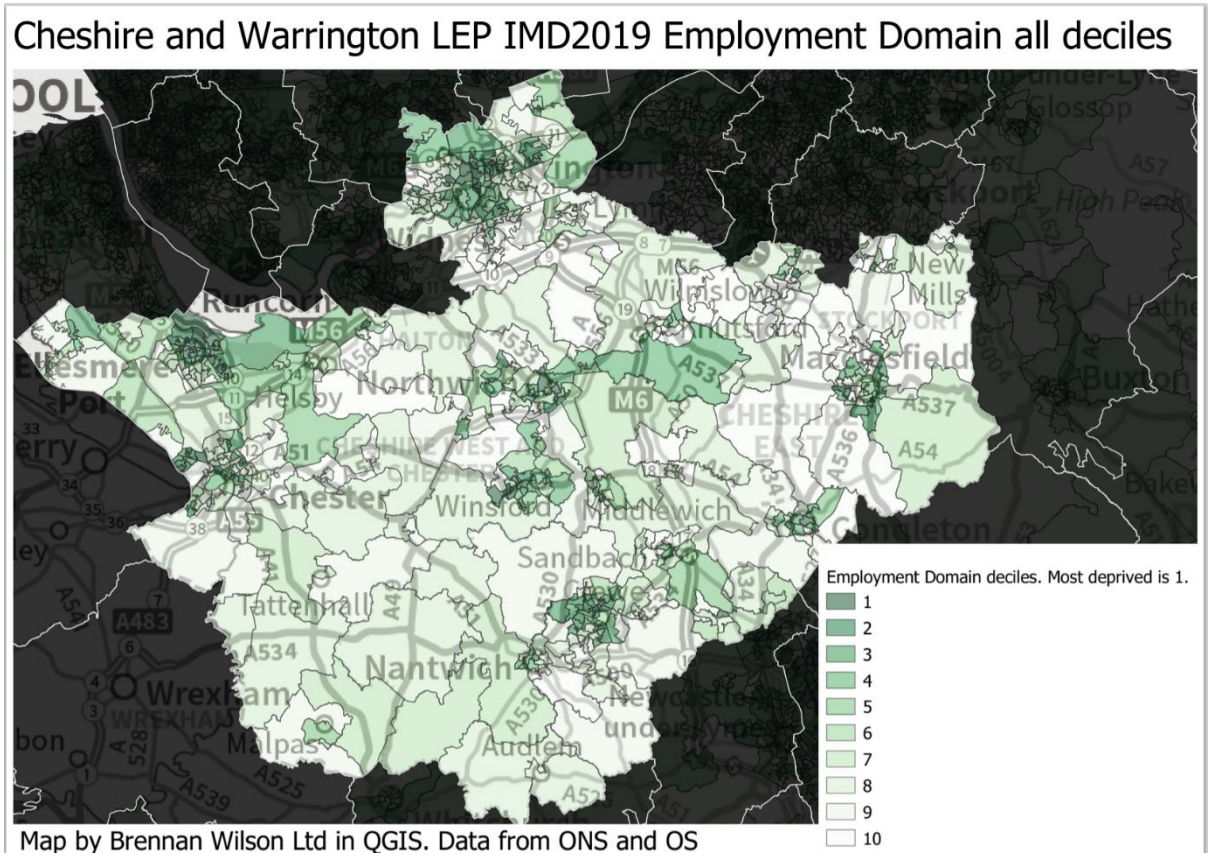
Source: Office for National Statistics

Periodically the Government publishes an Index of Multiple Deprivation. The most recent of these was published in 2019 (IMD 2019). The IMD 2019 provides data on the overall level of deprivation in Lower Super Output Areas (LSOAs). This is built up from analysis of a number of 'Domains' that focus on a particular characteristic of deprivation. One of these domains is the 'Employment Deprivation Domain'.

The Employment Deprivation Domain of IMD 2019 measures the proportion of the working-age population in an area involuntarily excluded from the labour market. This includes people who would like to work but are unable to do so due to unemployment, sickness or disability, or caring

responsibilities. It therefore provides a good indication of where digitally excluded economically inactive people are most likely to live.

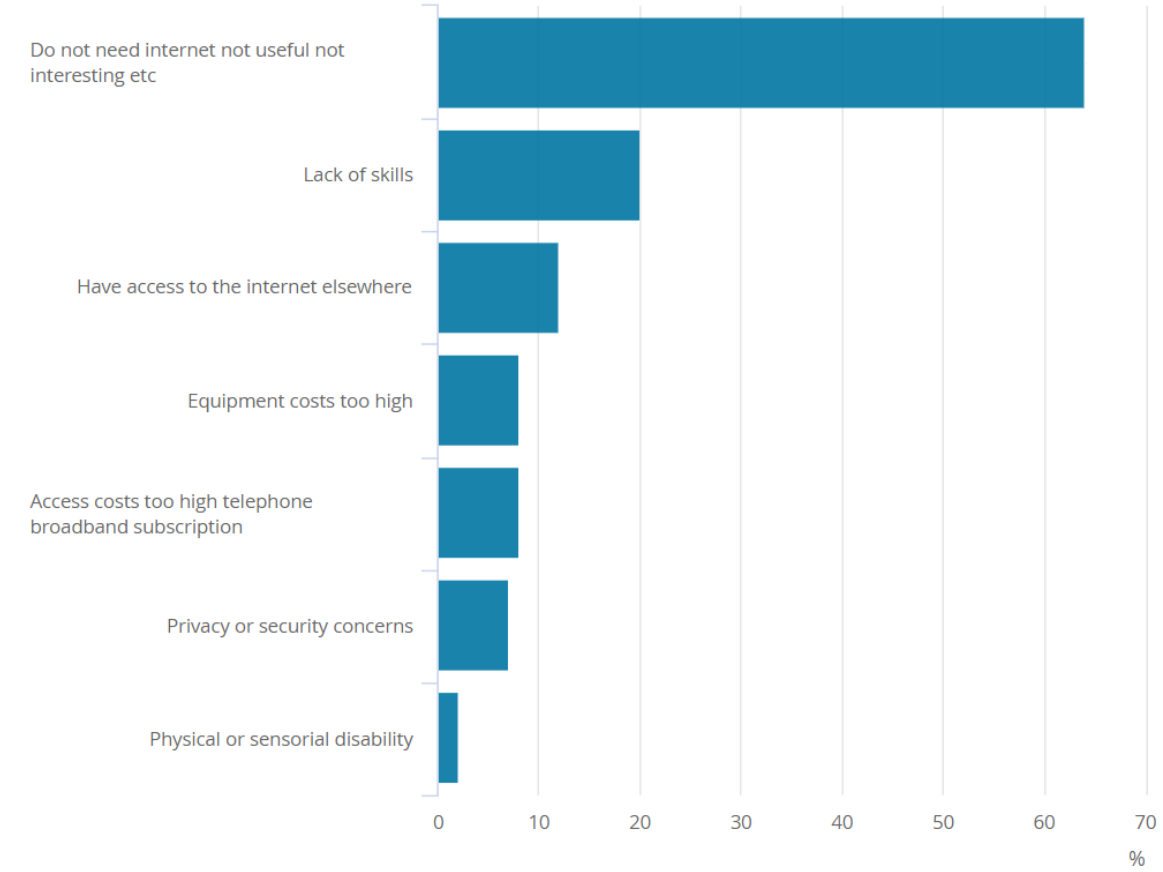
Data for Cheshire and Warrington for the Employment Deprivation Domain of the 2019 Index of Deprivation is illustrated in the map below.



It is clear from the map above that the highest levels of employment deprivation are in Warrington, Ellesmere Port, Crewe and Chester with clusters also evident in Winsford, Northwich and Macclesfield.

The graph below shows the reasons given for not having internet access in the household in 2017. The most common reason given was that they didn't need it (64%), followed by a lack of skills (20%), 2% also identified a physical or sensorial disability as a reason.

Percentage of households by reason for not having household internet access, Great Britain, 2017



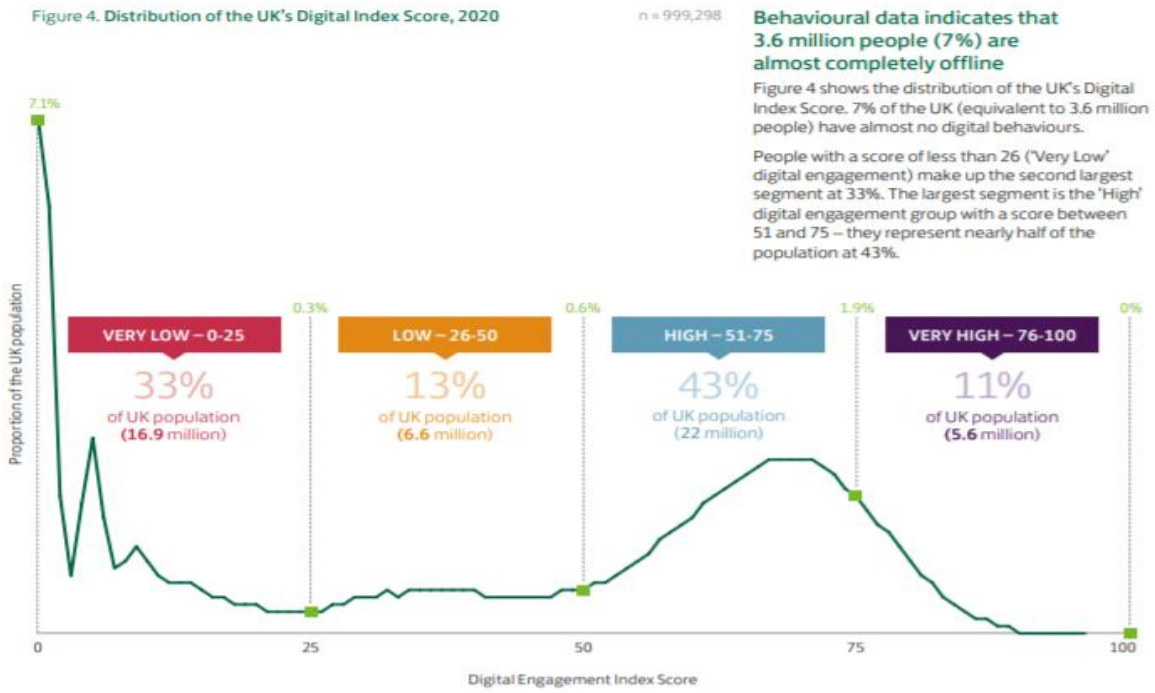
Source: Office for National Statistics - Internet Access, Opinions and Lifestlye Survey (OPN)

The Lloyds Consumer Digital Index 2020 reports that motivation is one of the key barriers to doing more online – over one-third of those offline say the Internet 'doesn't interest me' and 48% of the digitally excluded state that 'nothing' could motivate them to get online. The report finds that the least digitally engaged are at a real disadvantage. They are more likely to be paying higher household bills irrespective of income, household, or age; for utilities alone, they are spending an average of over £348 more per year. They are also less likely to earn as much – the Index transactional and job role data indicates that, for example, digitally enabled manual workers are earning an average of £2,160 extra per annum.

It is clear from the above graph that digital exclusion is driven by a range of factors with access to the internet being only one of those. Having the skills to operate in the digital world – what are called 'Foundation Digital Skills' and 'Essential Digital Skills' in the 'Essential Digital Skills Framework'[21] published by Government – is a key issue.

The Lloyds Consumer Digital Index uses the Essential Digital Skills Framework to create an index of digital skills which is quantified using survey data alongside a 'behavioural dataset' of over one million people. The quartiles of the Index are then labelled 'Very Low', 'Low', 'High', 'Very High' to designate different levels of engagement in digital. The main findings of the report are illustrated in the screenshot from the report below.

[21] https://www.gov.uk/government/publications/essential-digital-skills-framework



More information on the Essential Digital Skills Framework Can be found at Annex 5.

4. Digital Industries and Digital Occupations in Cheshire and Warrington

This section discusses the Digital Sector in Cheshire and Warrington. Section 4.1 discusses what ONS define as 'Digital Industries', Section 4.2 discusses what ONS describes as Digital Occupations. The latter are concentrated in Digital Industries but can also be found across the economy as well. Section 5 considers the demand for digital skills across all sectors of the economy.

4.1 Digital Industries

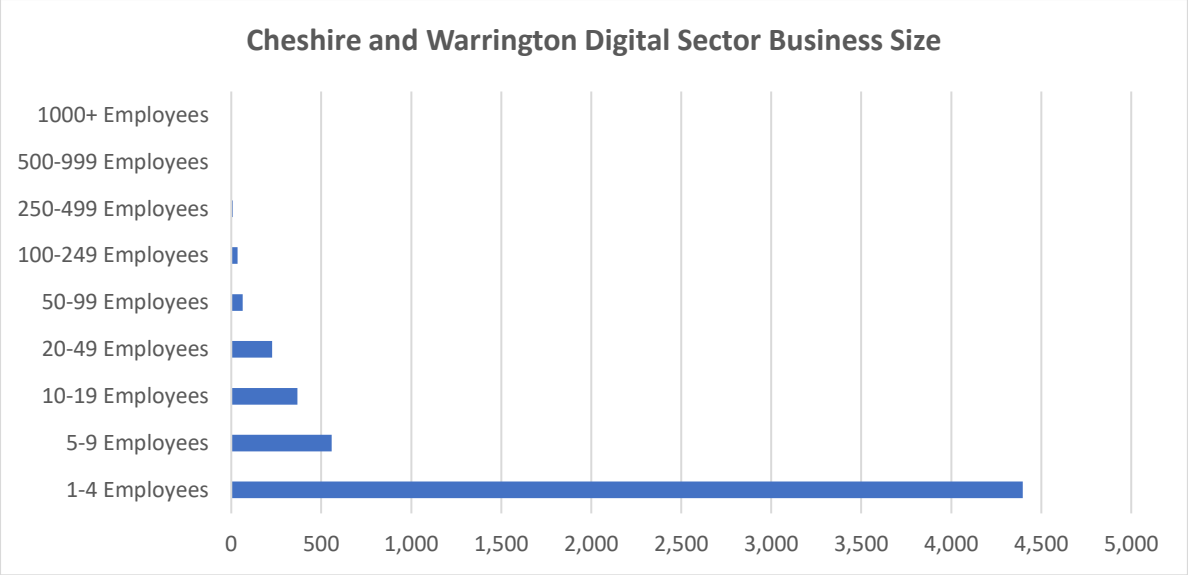
The Organisation for Economic Co-operation and Development (OECD) defines the ICT sector as "a combination of manufacturing and service industries that capture, transmit and display data and information electronically". The UK government, in an effort to better define the Digital Sector, has expanded on the OECD definition to also include:

- Motion picture, video and television programme production, sound recording and music publishing activities
- Radio broadcasting
- Television programming and broadcasting activities

This Office for National Statistics definition of the Digital Sector takes the form of a list of 4-digit Standard Industrial Classification (SIC) Codes[22]. The full list is set out at Annex 2. This is the definition of the Digital Sector that will be used for the remainder of this section.

The Digital Sector in Cheshire and Warrington is dominated by companies with between 1 and 4 employees, accounting for 78% of all businesses in the sector. However, this size band constitutes 87% of the Digital Sector in England[23]. There are 4,398 companies employing 1-4, compared to 558 with 5-9 employees; 368 with 10-19 employees; 227 with 20-49 employees; 63 with 50-99 employees; 35 with 100-249 employees; 8 with 250-499 employees; 2 with 500-999 employees and 2 with over 1,000 employees.

[22] https://backup.ons.gov.uk/wp-content/uploads/sites/3/2015/10/What-defines-the-Digital-Sector.pdf p10
[23] EMSI Analyst data (2018-19)



Source: EMSI Analyst

In 2020, there were 3,637 business establishments in the Digital Sector in Cheshire and Warrington, with the highest volume being in 'Computer Consultancy Activities', 'Computer Programming Activities, and 'Other Information Technology and Computer Service Activities'.

Number of Business Establishments in the Digital Sector, Total and Main Sub-sectors, Cheshire and Warrington and Local Authority 2020				
Description	**Warrington**	**Cheshire East**	**Cheshire West and Chester**	**C&W**
Computer consultancy activities	431	835	592	1857
Computer programming activities	106	226	162	494
Other information technology and computer service activities	83	178	119	380
Other telecommunications activities	44	57	32	133
Motion picture, video and television programme production activities	25	72	36	132
Data processing, hosting and related activities	15	25	20	60
Repair of computers and peripheral equipment	15	30	14	58
Wholesale of electronic and telecommunications equipment and parts	10	29	17	56
Other publishing activities	0	28	24	52
Wholesale of computers, computer peripheral equipment and software	22	20	8	50
Total in all sub-sectors	836	1669	1132	3637
Source: EMSI Analyst				

In 2019 the Digital Sector employed 21,334 people in Cheshire and Warrington. This number is 13% lower than it would be if Cheshire and Warrington employed the same proportion of its workforce in the Digital Sector as is the case for the UK.[24]

Between 2017 and 2020, the Digital Sector grew in Cheshire and Warrington by 750 jobs 3.7%. This compares to a national growth of 3.9%.

Employment Change in the Digital Sector 2017-20, UK and Cheshire and Warrington				
	2017 Jobs	**2020 Jobs**	**Change**	**% Change**
Cheshire and Warrington	20,490	21,240	750	3.7%
United Kingdom	1,474,216	1,532,067	57,851	3.9%
Source: EMSI Analyst				

This employment growth rate was unevenly distributed across Cheshire and Warrington, with a growth rate of 4% in Cheshire East, 8% in Cheshire West and Chester over these three years but a decline of 1% in Warrington.[25] The sub-sectors with the largest percentage decline in Warrington were Computer Programming Activities (20%), Other information technology and computer service activities (29%) and Wired telecommunications activities (46%). By contrast, Manufacture of communication equipment saw a growth of 80% in Cheshire East and 81% in Cheshire West; and, 'Other publishing activities' saw a growth of 431% in Cheshire East and a 261% growth in Cheshire West.

The Table below sets out information on the employment levels in the sub-sectors that comprise the Digital Sector in Cheshire and Warrington. The largest subsectors, in employment terms, are 'Computer Consultancy Activities' (30% of all employment in the Cheshire and Warrington Digital Sector), Computer Programming Activities (19% of all employment) and 'Other Telecommunications Activities (12% of all employment.

[24] EMSI Analyst
[25] EMSI Analyst

Cheshire and Warrington Digital Sector – Employment in Sub-sectors 2020				
Description	**Warrington**	**Cheshire East**	**Cheshire West and Chester**	**Cheshire and Warrington**
Computer consultancy	1770	2657	1867	6295
Computer programming	403	2504	1156	4063
Other telecommunications	1168	847	552	2567
Repair of computers and peripheral equipment	224	191	459	874
Other information technology and computer service	440	769	392	1602
Manufacture of computers and peripheral equipment	117	37	166	320
Wholesale of electronic and telecommunications equipment and parts	573	887	140	1600
Wholesale of computers, computer peripheral equipment and software	773	109	127	1009
Motion picture projection	67	41	113	221
Motion picture, video and TV programme production	103	298	86	487
Manufacture of communication equipment	17	79	47	143
Publishing of newspapers	83	10	39	132
Wired telecommunications	44	116	33	194
Motion picture, video and TV programme post-production	18	17	21	56
Data processing and hosting	92	31	15	137
Wireless telecommunications	82	57	11	150
Computer facilities management	40	22	10	72
Manufacture of consumer electronics	29	28	0	57
Total	**6144**	**9429**	**5667**	**21240**
Source: EMSI Analyst				

A 'Location Quotient' (LQ) measures the extent to which a sub-sector is over or under-represented in an area. An LQ of 1 means that a sub-sector has the same proportion employed locally as nationally, whereas an LQ of 2 means that the local area employs double the proportion of people in that sub-sector compared to nationally. The three tables below set out the Sub-sectors of Cheshire and Warrington's Digital Sector that have high LQs in each of Cheshire and Warrington's Local Authorities. These are areas of potential competitive advantage for each local authority.

Digital Sub-sectors with High LQs in Warrington		
	LQ	**2020 Jobs**
Wholesale of computers, computer peripheral equipment and software	4.4	773
Manufacture of computers and peripheral equipment	3.8	117
Wholesale of electronic and telecommunications equipment and parts	3.4	573
Computer facilities management activities	3.3	40
Other telecommunications activities	1.8	1,168
Repair of computers and peripheral equipment	1.6	224
Source: EMSI Analyst		

Digital Sub-sectors with High LQs in Cheshire East		
	LQ	**2020 Jobs**
Manufacture of magnetic and optical media	76.1	47
Motion picture, video and television programme distribution activities	3.9	212
Wholesale of electronic and telecommunications equipment and parts	3.7	887
Computer programming activities	1.9	2,504
Wired telecommunications activities	1.4	116
Computer facilities management activities	1.3	28
Source: EMSI Analyst		

Digital Sub-sectors with High LQs in Cheshire West and Chester		
	LQ	**2020 Jobs**
Manufacture of computers and peripheral equipment	4.3	166
Repair of computers and peripheral equipment	2.6	1,156
Manufacture of electronic components	1.3	106
Source: EMSI Analyst		

In 2019, the average wage per job in the Cheshire and Warrington Digital sector was £37,165. This is £11,565 more than the median advertised wage for all roles in Cheshire and Warrington of £25,600[26].

[26] EMSI Analyst

The occupational areas with the highest proportion of job roles in the Cheshire and Warrington Digital sector were:

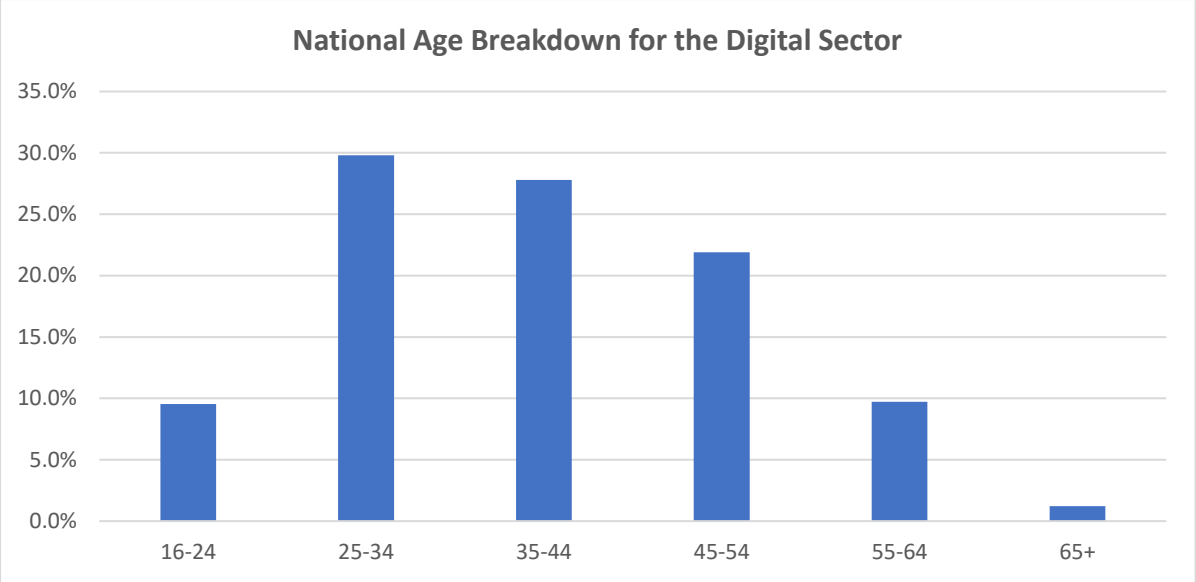
- Programmers and Software Development Professionals
- Information Technology and Telecommunications Professionals n.e.c.
- IT Specialist Managers
- Sales Accounts and Business Development Managers
- IT Business Analysts, Architects and Systems Designers

Occupations Employed in the Digital Sector in Cheshire and Warrington		
Description	**Employed (2019)**	**% of Total (2019)**
Programmers and software development professionals	2,578	12.1%
Information technology and telecommunications professionals n.e.c.	2,123	9.9%
IT specialist managers	1,246	5.8%
Sales accounts and business development managers	1,129	5.3%
IT business analysts, architects and systems designers	839	3.9%
Source: EMSI Analyst		

Nationally, 0ver 70% of the employees are male[27].

The age breakdown for the national Digital Sector is shown in the Chart below. The profile of the workforce is young with 39.4% of employees being aged below 34 years old.

[27] EMSI Analyst



Source: EMSI Analyst

4.2 Digital Occupations

The definition of 'Digital Occupations' that is used in this section of the report is that used by DCMS[28]. DCMS have derived their definitions of Digital Occupations from work undertaken by NESTA and techUK[29]. The occupations used are set out in the table below.

'Digital Occupations' as Defined by DCMS	
SOC	**Description**
1136	IT and telecommunications directors
2133	IT specialist managers
2134	IT project and programme managers
2135	IT business analysts, architects & systems designers
2136	Programmers and software development professionals
2137	Web design & development professionals
2139	IT & telecommunications professionals not elsewhere classified
3131	IT operations technicians
3132	IT user support technicians
5242	Telecommunications engineers
5245	IT Engineers

Source: DCMS, Digital Sector Economic Estimates

28 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/503666/Digital_Sector_Economic_Estimates_-_January_2016_Revised.pdf P17

29 https://media.nesta.org.uk/documents/dynamic_mapping_of_the_information_economy_industries.pdf

Overall, for Digital Occupations, there were 20,830 jobs in 2017 which is broadly what might be expected as CWLEP's national share of Digital Occupations employment. Employment in this group of occupations is dominated by males. Nationally 83% of people employed in Digital Occupations are male. The age profile is also quite young. Nationally, two thirds (67.1%) are aged 44 or below. This compares to less than 60% being aged under 44 in all occupations (59.4%).[30]

When considering the industries in Cheshire and Warrington that the 'Digital Occupations' are employed in it is clear that whilst there is, unsurprisingly, a concentration of employment in the 'Computer Programming, Consultancy and Related Activities' industry, with 38% of people in these occupations being employed in this industry; there is a broad spread of people in these occupations across a wide range of 2-digit SIC codes as can be seen from the table below.

Distribution of Digital Occupations Across Industries in 2019 (2 digit SIC)		
Industry	**Occupation Group Jobs in Industry (2019)**	**% of Occupation Group in Industry (2019)**
Computer programming, consultancy and related activities	8022	38%
Activities of head offices; management consultancy activities	1415	7%
Financial service activities, except insurance and pension funding	1151	5%
Architectural and engineering activities; technical testing and analysis	814	4%
Retail trade, except of motor vehicles and motorcycles	784	4%
Telecommunications	768	4%
Specialised construction activities	674	3%
Wholesale trade, except of motor vehicles and motorcycles	666	3%
Legal and accounting activities	613	3%
Repair of computers and personal and household goods	610	3%
Education	524	2%
Public administration and defence; compulsory social security	441	2%
Source: EMSI Analyst		

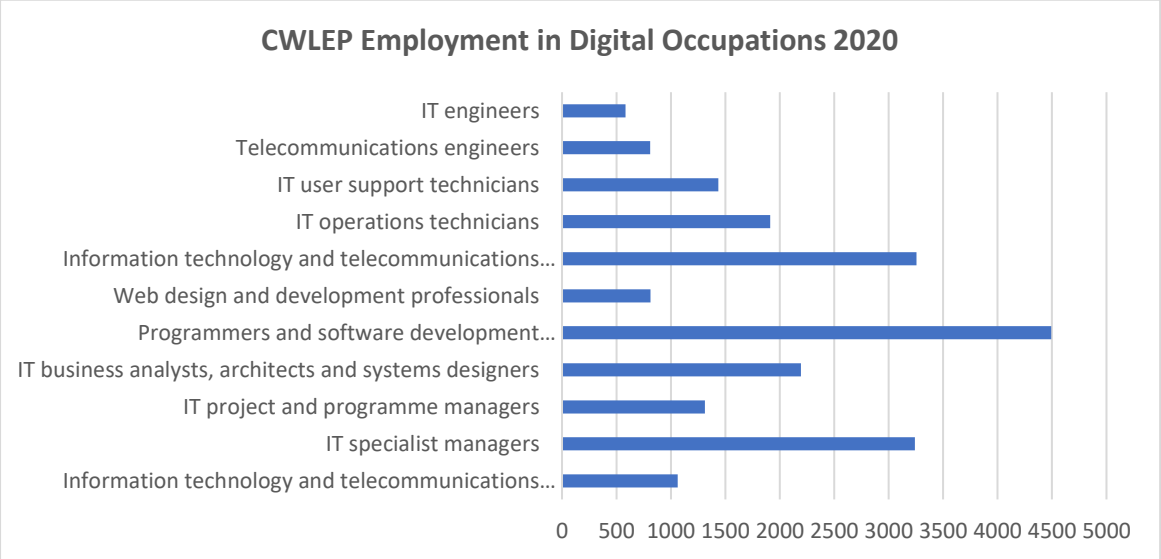
Overall employment growth in these Digital Occupations in Cheshire and Warrington over recent years presents a mixed picture, as can be seen from the Table below, with a slight decline of 2% in

[30] Age and gender data both from EMSI Analyst.

both Warrington and Cheshire East, but a growth of 9% in Cheshire West and Chester. Across the LEP as a whole there was a growth of 1.3% compared to a national growth of 3.7%.

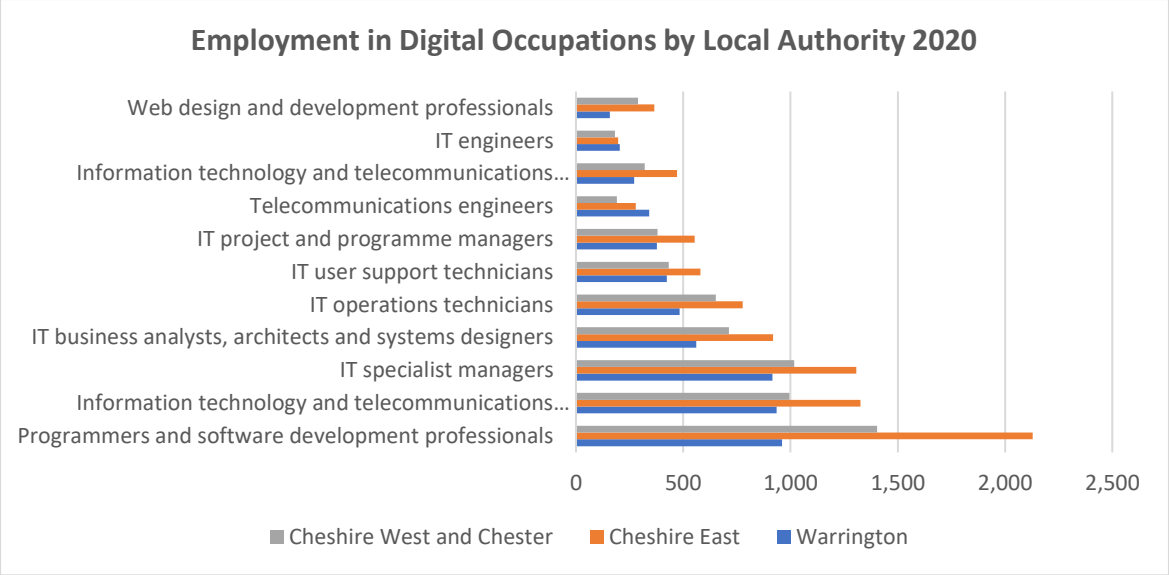
Occupation Change Summary			
Region	**2017 Jobs**	**2020 Jobs**	**% Change**
Warrington	5,736	5,628	(2%)
Cheshire East	9,052	8,902	(2%)
Cheshire West and Chester	6,043	6,573	9%
United Kingdom	1,278,311	1,325,872	4%
Source: EMSI Analyst			

The chart below presents the volume employed in each of these occupations in CWLEP in 2020. The occupation that employed the highest number is Programmers and Software Development Professionals with 4492 people employed. Other occupations employing over 2,000 people are 'Information Technology and Telecommunications Professionals' (3,255);'Information Technology Specialist Managers' (3,241); and, 'IT Business Analysts, Architects and Systems Designers' (2,193).



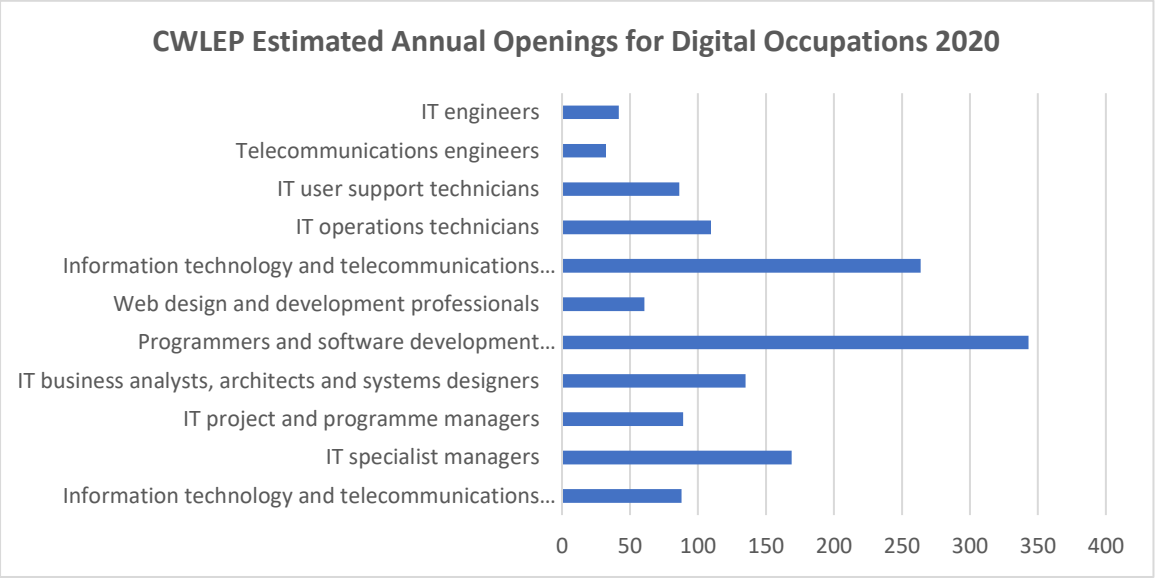
Source: EMSI Analyst

The volume of Digital Occupations across Cheshire and Warrington's three Local Authorities can be seen in the Chart below. As would be expected from the authority's population size, Cheshire East has the highest volume of workers in most occupational categories, although Warrington has higher volumes of IT Engineers and Telecommunications Engineers.



Source: EMSI Analyst

The same four occupations with the highest number of workers - Programmers and Software Development Professionals; Information Technology and Telecommunications Professionals; Information Technology Specialist Managers; and, IT business analysts, architects and systems designers - also have the highest volumes of estimated annual opening in 2020, as illustrated in the chart below.



Source: EMSI Analyst

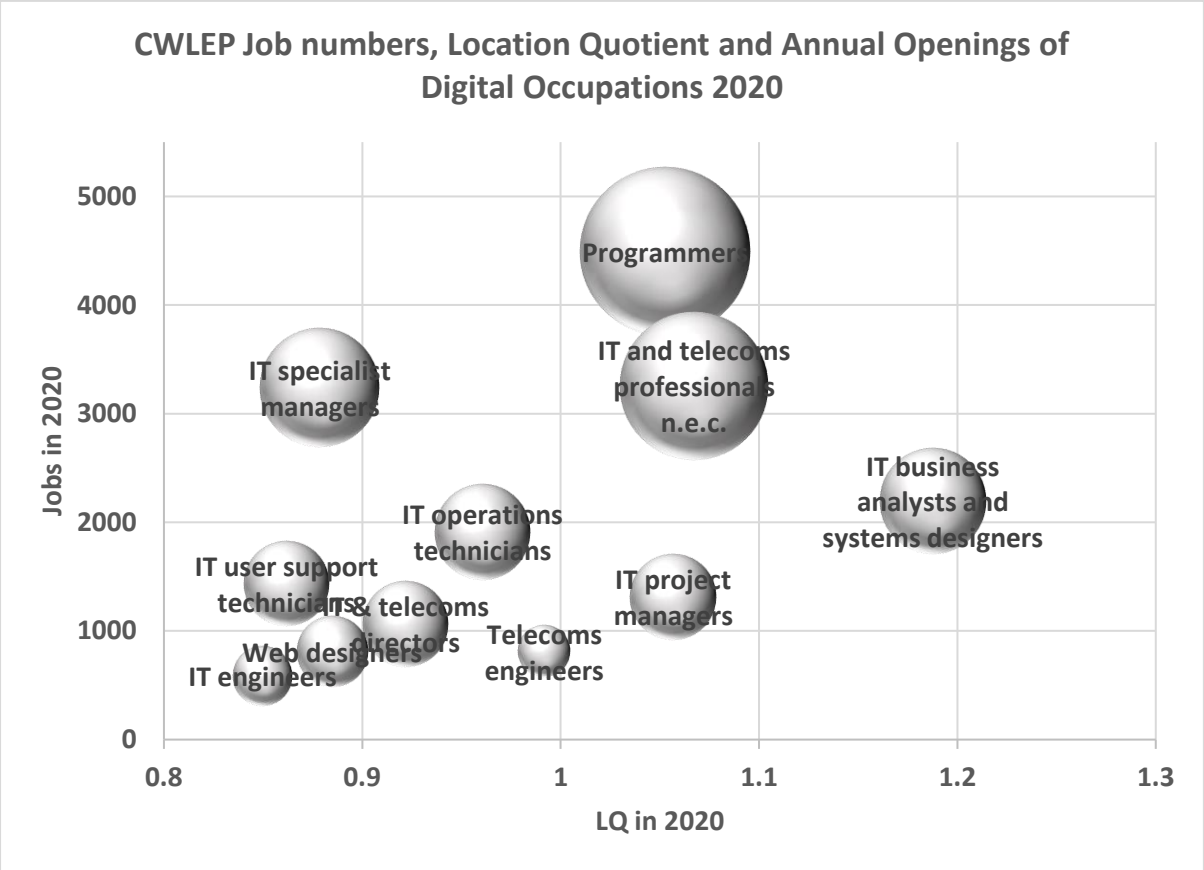
A Location Quotient is a tool that allows evaluation of the strength and size of a particular industry or occupation in a region. It is a way of quantifying how concentrated an industry or occupation within an area compared to the country as a whole. Utilising the location quotient can be a way to identify growth opportunities and comparative regional advantages. An LQ of 0.5 means that the

local level of an indicator is half what might be expected from the national data. Conversely, an LQ of 2 means that the local level is twice what might be expected from the national data.

The Bubble Chart below plots the volume of Digital Occupations in CWLEP against the Location Quotient for those occupations. The size of the bubble represents the volume of estimated annual openings in Cheshire and Warrington in 2020. It can be seen from this that four of the eleven Digital Occupational areas have an LQ of over 1 in Cheshire and Warrington. These are:

- Programmers and Software Development Professionals
- IT and Telecommunications Professionals n.e.c
- IT Business Analysts, Architects and Business Designers
- IT Project and Programme Managers

These occupations provide Cheshire and Warrington with a good pool of skilled labour which gives a potential competitive advantage to the area in attracting those digital employers that rely on this type of worker.



The same LQ data is presented in the Table below, for those that prefer tables to bubble charts. There are five occupational areas where expected annual openings exceed 100. These are:

- IT Specialist Managers
- IT Business Analysts and Systems Designers
- Programmers and Software Development Professionals
- IT and Telecommunications Professionals n.e.c
- IT Operations Technicians

CWLEP Job numbers, Location Quotient and Annual Openings of Digital Occupations 2020			
Occupation	**2020 LQ**	**2020 Jobs**	**Annual Openings**
IT and telecommunications directors	0.92	1062	88
IT specialist managers	0.88	3240	169
IT project managers	1.06	1311	89
IT business analysts and systems designers	1.19	2193	135
Programmers and software development professionals	1.05	4492	343
Web designers	0.88	812	61
IT and telecoms professionals n.e.c.	1.07	3255	264
IT operations technicians	0.96	1911	110
IT user support technicians	0.86	1434	86
Telecoms engineers	0.99	810	32
IT engineers	0.85	583	42
Source: EMSI Analyst			

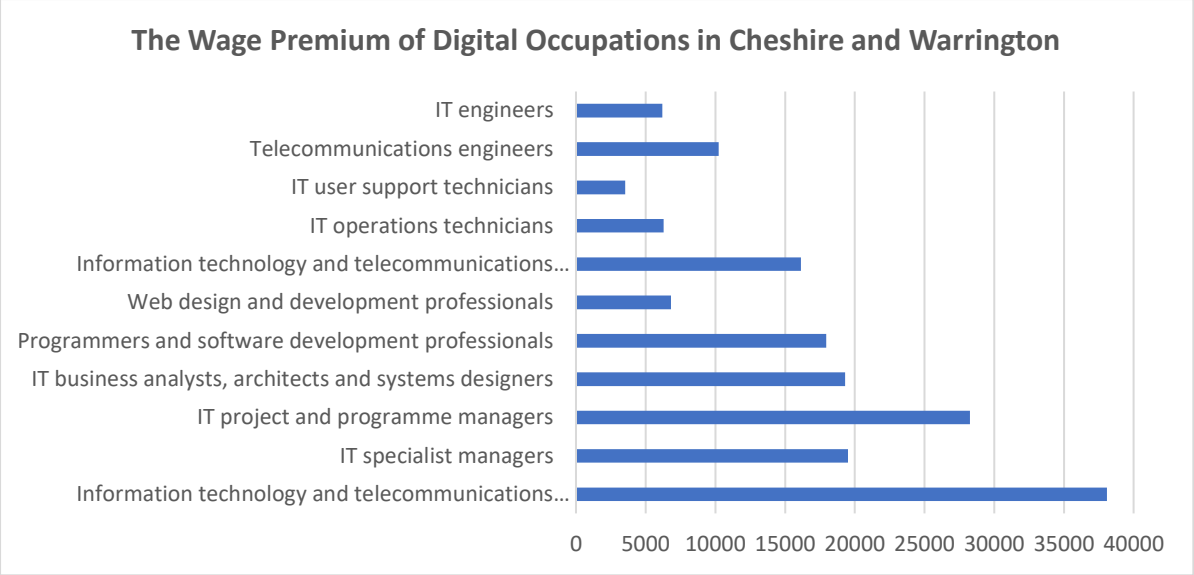
The eleven Digital Occupations all have a requirement for higher skills, as can be seen from the Table below. Eight of the eleven areas are at degree level or above. The remaining three are at level 3 or above.

The Table below also presents data on the median wage for each of the Digital Occupations in Cheshire and Warrington. This has been calculated by EMSI from analysis of 21,344 job posting with advertised salaries between 2017 and 2020. The median advertised salary for Digital Occupations in Cheshire and Warrington is £37,600 which is £12,000 higher than the median for all job roles in the Cheshire and Warrington labour market which stands at £25,600.

CWLEP 2020 Median Wages and Expected Educational Attainment for Digital Occupations		
Occupation	**Median Wages (£)**	**Education Level**
Information technology and telecommunications directors	63690	Honours, Bachelor's degree
IT specialist managers	45115	Honours, Bachelor's degree
IT project and programme managers	53851	Honours, Bachelor's degree
IT business analysts, architects and systems designers	44907	Honours, Bachelor's degree
Programmers and software development professionals	43555	Honours, Bachelor's degree
Web design and development professionals	32406	Honours, Bachelor's degree
Information technology and telecommunications professionals n.e.c.	41746	Honours, Bachelor's degree
IT operations technicians	31886	Level 3 NVQ; A Levels
IT user support technicians	29120	Level 3 NVQ; A Levels
Telecommunications engineers	35838	Level 3 NVQ; A Levels
IT engineers	31782	Honours, Bachelor's degree
Source: EMSI Analyst		

Not only is there a wage premium for the Digital Occupations in Cheshire and Warrington overall, each one of the occupational areas has a higher median salary than the CWLEP median for all roles. This is illustrated in the Chart below. Six of these occupations deliver a wage premium of over £15,000. These are:

- Information technology and telecommunications directors
- IT specialist managers
- IT project and programme managers
- IT business analysts, architects and systems designers
- Programmers and software development professionals
- Information technology and telecommunications professionals n.e.c.



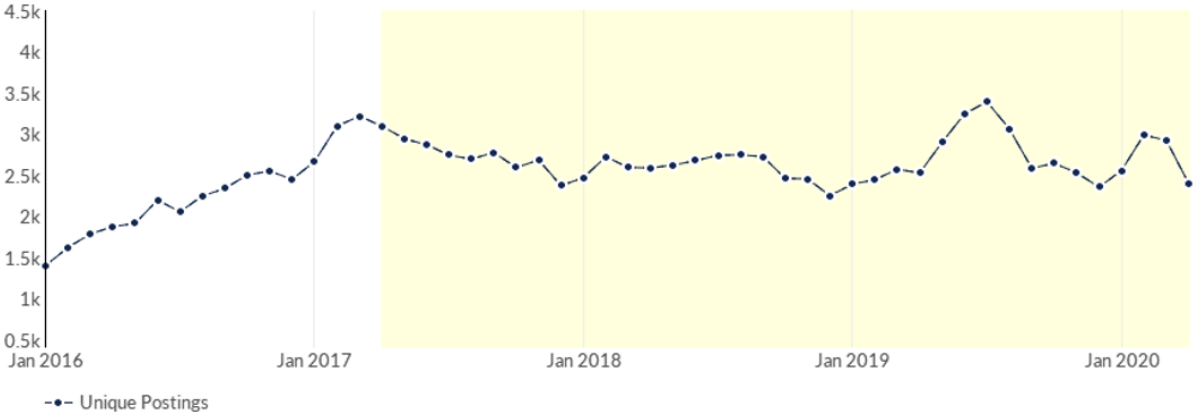
Source: EMSI Analyst

There were 184,467 total job postings for Digital Occupations in Cheshire and Warrington from April 2017 to April 2020, of which 35,693 were unique. These numbers give us a Posting Intensity of 5-to-1, meaning that for every 5 postings there is 1 unique job posting. This is higher than the Posting Intensity for all other occupations and companies in the region (4-to-1), indicating that employers may be trying slightly harder to hire for these types of position. The volume of job postings for Digital Occupations by Local Authority was broadly in line with Local Authority population share. This is shown in the Table below.

Local Authority postings for 'Digital Occupations' compared to LEP working age population share			
Local Authority	**Unique Postings (Apr 17 – Apr 20)**	**% of LEP Total Postings**	**% of LEP 16-24 Popn.**
Cheshire West and Chester	13,221	37%	40%
Cheshire East	13,094	37%	37%
Warrington	9,378	26%	23%
CWLEP	35,693	100%	100%
Sources: EMSI Analyst and NOMIS			

Using the most recent job postings data from EMSI, it is unclear as to whether the Covid-19 will have a significant impact on employer's recruitment activity for these occupations.

Unique Job Postings for Digital Occupations in Cheshire and Warrington 2016-2020



Source: EMSI Analyst

Whilst there was quite a sharp decline between March and April 2020 in unique job postings for Digital Occupations, the overall volume for postings in April 2020 was still in the usual monthly range and approximately 100 lower than the preceding two Aprils.

Analysis of job postings for Digital Occupations in CWLEP over the last three years reveal the top 'hard skills' in demand from employers in these occupational areas. This is illustrated in the Chart below. Programming languages and software development feature heavily.

Top Hard Skills sought by Cheshire and Warrington Employers recruiting to Digital Occupations 2017-2020

Skill	Postings with Skill
SQL (Programming Language)	8,039
JavaScript (Programming Language)	6,634
Agile Software Development	6,587
C# (Programming Language)	6,216
Cascading Style Sheets (CSS)	4,899
.NET Framework	4,831
HyperText Markup Language (HTML)	4,068
Java (Programming Language)	3,598
Software Development	3,577
Angular (Web Framework)	2,616

Source: EMSI Analyst

Analysis of the same job postings also reveals that employers are seeking skills that are also commonly sought across a broader range of occupations including communications, management, problem solving, and innovation.

5. Employer Demand for 'Digital Skills' in Cheshire and Warrington

In Section 3 above, the report by Burning Glass 'No Longer Optional' is discussed. In this report, published by Government in 2019[31], a typology for Digital Skills is introduced:

Baseline Digital Skills –These are productivity software tools such as spreadsheets and word processing programs. In addition, they often serve as the foundation for more advanced digital positions and so are requested for jobs at all skill levels. The most common productivity software skills requested by UK employers are the Microsoft Office suite including Word, Excel, and PowerPoint.

Specific Digital Skills – These are other digital skills not found in the baseline category. They are not required across the majority of jobs but define or even dominate specific roles or sectors. Examples are software programs such as Adobe Photoshop for designers; AutoCAD for engineers and manufacturing workers; Salesforce for sales and marketing professionals; and computer programming and networking for IT professionals. In the Burning Glass report, this category is then broken down into seven clusters of related digital skills.

EMSI provides data and analysis of online job postings in Cheshire and Warrington. This includes classification of the skills sought by employers in these job postings. It is possible to use the EMSI 'Analyst' tool to analyse the job postings that are seeking specific types of skills. In the remainder of this section the level of employer demand for digital skills as measured through EMSI Job Postings data published between April 2017 and April 2020 is considered for each of the skills types identified by Burning Glass:

- Baseline Skills
  - Productivity Software
- Specific Skills
  - Software & Programming
  - Computer & Networking Support
  - Data Analysis
  - Digital Design
  - CRM
  - Digital Marketing
  - Machining & Manufacturing Technology

5.1 Employer Demand for Baseline Digital Skills

Baseline Digital Skills encompass the ability to use productivity software such as Word and Excel, Enterprise Resource Planning (ERP), Project Management Software, and SAP. Typically, these skills will be required in administrative occupations and customer service. The ubiquity of these skills in this type of occupation means that they will not always be explicitly sought in a job posting as employers will often regard the requirement for these type of skills in these occupations as a given.

31 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/807830/No_Longer_Optional_Employer_Demand_for_Digital_Skills.pdf

This means that the EMSI job postings data is likely to understate the scale of employer demand for these skills.

The EMSI skill types used in this report to define Baseline Digital skills can be found at Annex 1.

There were 143,587 total job postings in Cheshire and Warrington for these types of skills from April 2017 to April 2020, of which 33,225 were unique. This equates to 7.5% of all unique job posting in this period (443k total unique postings for all job types in Cheshire and Warrington). These numbers give a 'Posting Intensity' of 4-to-1 for these type of jobs, meaning that for every 4 postings there is 1 unique job posting. This is close to the Posting Intensity for all other occupations and companies in the region (4-to-1), indicating that employers are putting average effort toward hiring for positions with this skill set. In 2020 however, the posting intensity for this type of job has increased to 6:1. This mirrors an increase in the posting intensity for all roles in 2020 in Cheshire and Warrington which also stands at 6:1.

The median advertised salary for roles explicitly requiring 'Baseline Digital Skills' was £23,000. This is slightly lower than the median advertised salary for all roles in Cheshire and Warrington which stood at £25,600. It is important to note that not all postings advertise a salary.

The Table below compares the local authority data for job postings of jobs seeking Baseline Digital Skills with the overall share of Cheshire and Warrington working age population by Local Authority. Compared with Cheshire and Warrington as a whole, employer demand for roles with these skills was slightly higher in Warrington and slightly lower in Cheshire East.

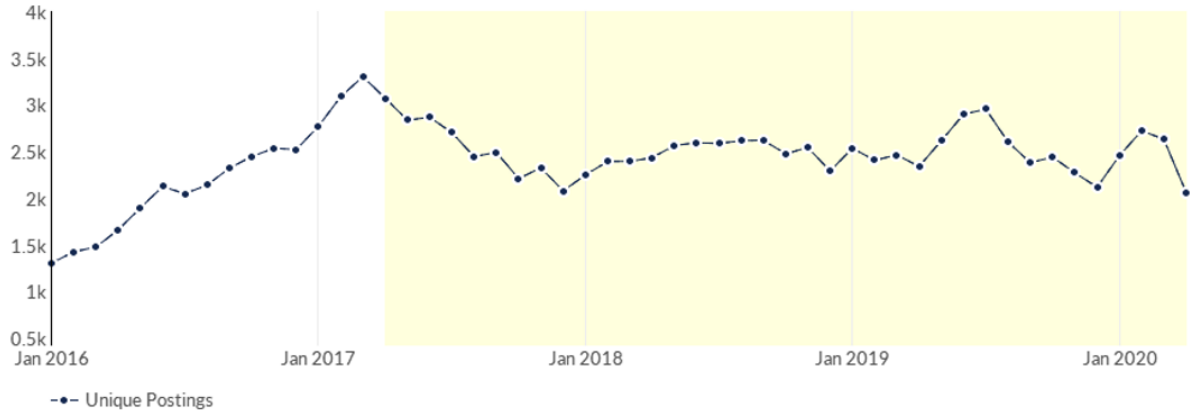
Local Authority postings for jobs with 'Baseline Digital Skills' compared to Cheshire and Warrington working age population share

Local Authority	Unique Postings (Apr 17 – Apr 20)	% of C&W Total Postings	% of C&W 16-24 Popn.
Cheshire West and Chester	13,310	40%	40%
Cheshire East	10,848	33%	37%
Warrington	9,067	27%	23%
Cheshire and Warrington	33,225	100%	100%

Sources: EMSI Analyst and NOMIS

The graph below shows the trend for unique postings for jobs requiring Baseline Digital Skills. The figure for April 2020 was the lowest volume in the three years under consideration (shaded yellow area). This probably reflects the broader downturn in the labour market as a result of the Covid-19 pandemic and it is very likely that the volume of unique postings will continue to decline in the short term.

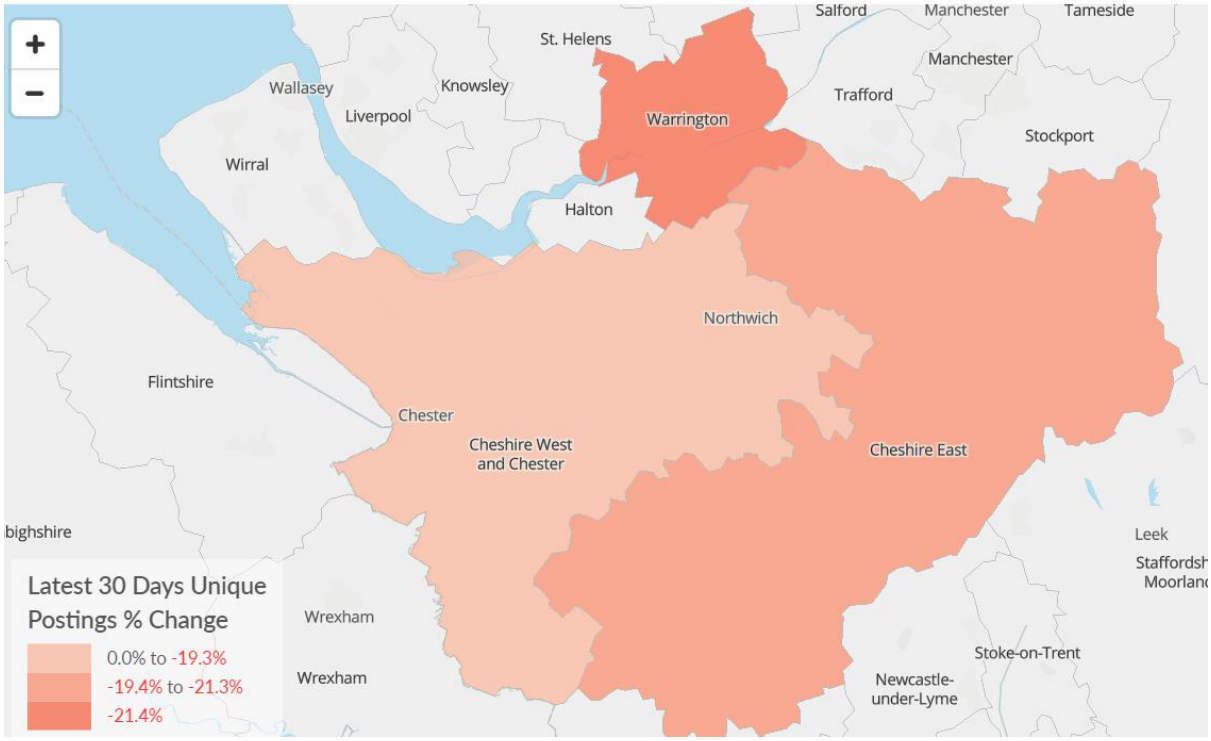
Baseline Digital Skills in Cheshire and Warrington: Unique Postings Trend



Source: EMSI Analyst

The decline in postings for roles with Baseline Digital Skills in April 2020 can be seen by Local Authority in the map below. This shows that all three Local Authorities saw a decline of approximately 20%, with very little difference in the percentage reduction between the three.

% Change in Unique Posting for Jobs Seeking Baseline Digital Skills – Last 30 Days (April 2020)



Source: EMSI Analyst

As can be seen from the graphic below, Baseline Digital Skills are being sought in a wide range of occupations which feature across all industrial sectors.

Top posted occupations seeking Baseline Digital Skills 2017-2020

Occupation (SOC)	Total/Unique (Apr 2017 - Apr 2020)	Posting Intensity	Median Posting Duration
Book-keepers, payroll managers and wages clerks	18,603 / 2,986	6 : 1	37 days
Other administrative occupations n.e.c.	8,484 / 2,550	3 : 1	31 days
Sales accounts and business development managers	5,028 / 1,397	4 : 1	33 days
Financial administrative occupations n.e.c.	6,078 / 1,235	5 : 1	32 days
Business and related associate professionals n.e.c.	5,337 / 1,226	4 : 1	32 days
Finance and investment analysts and advisers	6,216 / 1,154	5 : 1	35 days
IT user support technicians	5,528 / 1,148	5 : 1	32 days
Programmers and software development professionals	5,511 / 962	6 : 1	35 days
Customer service occupations n.e.c.	3,552 / 805	4 : 1	35 days
Marketing associate professionals	3,565 / 784	5 : 1	35 days

Source: EMSI Analyst

This is confirmed when the top job titles seeking Baseline Digital Skills are reviewed (see graphic below)

Top Job Titles for Roles where Baseline Digital Skills are explicitly required in Job Postings 2017-20

Job Title	Total/Unique (Apr 2017 - Apr 2020)	Posting Intensity	Median Posting Duration
Accounting Assistants	5,142 / 819	6 : 1	37 days
Training Administrators	2,092 / 620	3 : 1	30 days
Accountants	3,116 / 439	7 : 1	44 days
Account Managers (Management)	1,632 / 387	4 : 1	35 days
Office Administrators	956 / 291	3 : 1	30 days
Credit Managers	1,977 / 289	7 : 1	33 days
Business Administrators	694 / 285	2 : 1	34 days
Project Managers (Management)	993 / 281	4 : 1	31 days
Receptionists	694 / 247	3 : 1	29 days
Sales Executives (Management)	924 / 244	4 : 1	43 days

Source: EMSI Analyst

5.2 Employer Demand for Specific Digital Skills: Software and Programming

As part of the Burning Glass methodology, the area of Software and Programming has been identified as being a discrete set of Specific Digital skills that some employers require. This encompasses programming languages such as Java, SQL, and Python and typically these skills are required by occupations such as Programmers, Software Developers and Database Administrators.

The EMSI skill types used to define 'Specific Digital Skills: Software and Programming' can be found at Annex 1.

In Cheshire and Warrington there were 105,947 total job postings for these types of skills from April 2017 to April 2020, of which 18,678 were unique. This equates to 4% of all unique job posting in this period (443k total unique postings for all job types in Cheshire and Warrington). These numbers give a 'Posting Intensity' of 6-to-1 for these types of jobs, meaning that for every 6 postings there is 1 unique job posting. This is higher than the overall Posting Intensity for all occupations and companies in the region (4-to-1), indicating that employers are putting more effort toward hiring for positions with this skill set. In 2020 however, the posting intensity for this type of job has increased to 8:1; higher than the in the overall posting intensity for all roles in 2020 in Cheshire and Warrington which stands at 6:1.

The median advertised salary for roles explicitly requiring 'Software and Programming Skills' was £40,100. This means that these skills deliver almost a £15,000 premium over the median advertised salary for all roles in Cheshire and Warrington which stood at £25,600. It is important to note that not all postings advertise a salary.

The Table below compares the local authority data for job postings of jobs seeking Software and Programming Skills with the overall share of Cheshire and Warrington working age population by Local Authority. Compared with Cheshire and Warrington as a whole, employer demand for roles with these skills in different Local Authorities is broadly in line with the percentage share of Cheshire and Warrington's working age population.

Local Authority postings for jobs with 'Software and Programming Skills' compared to Cheshire and Warrington working age population share

Local Authority	Unique Postings (Apr 17 – Apr 20)	% of C&W Total Postings	% of C&W 16-24 Popn.
Cheshire West and Chester	7,189	38%	40%
Cheshire East	6,774	36%	37%
Warrington	4,715	25%	23%
Cheshire and Warrington	18, 678		100%

Sources: EMSI Analyst and NOMIS

The graph below shows the trend for unique postings for jobs requiring Software and Programming Skills. The figure for April 2020 was slightly down on the previous month and the second lowest volume in the three years under consideration (the shaded yellow area), although the April 2020 figure was still higher than that for December 2019. Early indications are that employer demand for roles with these skills may have been more resilient than the broader labour market in the current crisis.

Software and Programming Skills in Cheshire and Warrington: Unique Postings Trend

Source: EMSI Analyst

As can be seen from the graphic below, Programming and Software Skills are being sought in a narrow range of occupations with over half (53%) of the total job postings for roles with these skills being in the 'Programmers and Software Development Professionals' category.

Top posted occupations seeking Programming and Software Skills 2017-2020

Occupation (SOC)	Total/Unique (Apr 2017 - Apr 2020)	Posting Intensity	Median Posting Duration
Programmers and software development professionals	56,218 / 8,986	6 : 1	34 days
Web design and development professionals	8,315 / 1,415	6 : 1	35 days
Information technology and telecommunications professionals n.e.c.	6,491 / 1,272	5 : 1	32 days
IT specialist managers	3,891 / 771	5 : 1	32 days
IT business analysts, architects and systems designers	5,055 / 746	7 : 1	34 days
Management consultants and business analysts	2,681 / 597	4 : 1	34 days
Business and related associate professionals n.e.c.	2,854 / 539	5 : 1	34 days
IT user support technicians	3,029 / 522	6 : 1	34 days
IT operations technicians	2,346 / 485	5 : 1	34 days
Finance and investment analysts and advisers	1,927 / 358	5 : 1	32 days

Source: EMSI Analyst

This is confirmed when the top job titles seeking Programming and Software Skills are reviewed (see graphic below)

Top Job Titles for Roles where Programming and Software Skills are sought in Job Postings 2017-20

Job Title	Total/Unique (Apr 2017 - Apr 2020)	Posting Intensity	Median Posting Duration
C/C++ Developers	8,846 / 1,302	7 : 1	35 days
.Net Developers	10,914 / 1,049	10 : 1	42 days
Software Engineers	3,285 / 712	5 : 1	32 days
Java Developers	4,070 / 692	6 : 1	32 days
SQL Developers	3,047 / 463	7 : 1	32 days
Staff Software Developers	2,944 / 456	6 : 1	35 days
Web Developers	1,889 / 352	5 : 1	37 days
PHP Developers	2,761 / 352	8 : 1	36 days
Multimedia Developers	2,057 / 306	7 : 1	33 days
Database Administrators	1,749 / 276	6 : 1	34 days

Source: EMSI Analyst

5.3 Employer Demand for Specific Digital Skills: Computer and Networking Support

'Computing Networking and Support' is another discrete set of specific digital skills that have been identified by Burning Glass as being required by employers. These are the skills required to set up, support and manage computer systems and networks. The job roles that would typically require these sort of skills would include Network Administrators, Software Developers , and IT User Support Technicians The EMSI skill types used to define 'Specific Digital Skills: Computer and Networking Support' can be found at Annex 1.

In Cheshire and Warrington there were 26,098 total job postings for these types of skills from April 2017 to April 2020, of which 5,410 were unique. This equates to 1% of all unique job posting in this period (443k total unique postings for all job types in Cheshire and Warrington). These numbers give a 'Posting Intensity' of 5-to-1 for these types of jobs, meaning that for every 5 postings there is 1 unique job posting. This is slightly higher than the overall Posting Intensity for all occupations and companies in the region (4-to-1), indicating that employers are putting slightly more effort toward hiring for positions with this skill set. In 2020 however, the posting intensity for this type of job has increased to 7:1; again, slightly higher than the in the posting intensity for all roles in 2020 in Cheshire and Warrington which stands at 6:1 in 2020.

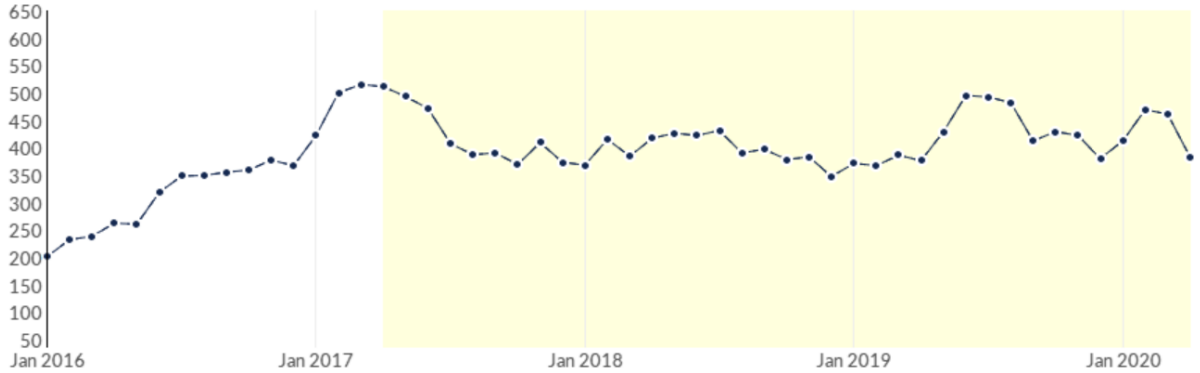
The median advertised salary for roles explicitly requiring 'Computing Networking and Support' skills was £31,100. This means that these skills deliver a £5,500 premium over the median advertised salary for all roles in Cheshire and Warrington which stood at £25,600. It is important to note that not all postings advertise a salary.

The Table below compares the local authority data for job postings of jobs seeking 'Computing Networking and Support' skills with the overall share of Cheshire and Warrington working age population by Local Authority. Compared with Cheshire and Warrington as a whole, employer demand for roles with these skills in Warrington is higher than might otherwise be expected when compared with the percentage share of Cheshire and Warrington's working age population.

Local Authority postings for jobs with 'Computing Networking and Support Skills' compared to Cheshire and Warrington working age population share			
Local Authority	Unique Postings (Apr 17 – Apr 20)	% of C&W Total Postings	% of C&W 16-24 Popn.
Cheshire West and Chester	1,934	36%	40%
Cheshire East	1,857	34%	37%
Warrington	1,619	30%	23%
Cheshire and Warrington	5,410	100%	100%
Sources: EMSI Analyst and NOMIS			

The graph below shows the trend for unique postings for jobs requiring Computing Networking and Support Skills. The figure for April 2020 was slightly down on the previous month but slightly higher than was the case in April 2019. Early indications are that employer demand for roles with these skills may have been more resilient than the broader labour market in the current crisis.

Computer Networking and Support Skills in Cheshire and Warrington: Unique Postings Trend



Source: EMSI Analyst

As can be seen from the graphic below, Computer Networking and Support skills are being sought in a relatively narrow range of occupations with over half (54%) of the total job postings for roles with these skills being in the 'IT User Support Technicians', 'Information Technology and Telecommunications Professionals' and 'Programmers and Software Development Professionals' occupational categories.

Top posted occupations seeking Computer Networking and Support Skills 2017-2020

Occupation (SOC)	Total/Unique (Apr 2017 - Apr 2020)	Posting Intensity	Median Posting Duration
IT user support technicians	6,361 / 1,082	6 : 1	34 days
Information technology and telecommunications professionals n.e.c.	5,156 / 1,063	5 : 1	33 days
Programmers and software development professionals	2,564 / 501	5 : 1	34 days
IT operations technicians	1,663 / 372	4 : 1	33 days
IT specialist managers	1,561 / 341	5 : 1	32 days
Electrical and electronic trades n.e.c.	1,074 / 267	4 : 1	32 days
IT engineers	1,268 / 215	6 : 1	33 days
IT business analysts, architects and systems designers	818 / 151	5 : 1	34 days
Production managers and directors in manufacturing	624 / 150	4 : 1	29 days
Engineering technicians	393 / 98	4 : 1	30 days

Source: EMSI Analyst

This is confirmed when the top job titles seeking Computer Networking and Support Skills are reviewed (see graphic below)

Top Job Titles for Roles where Computer Networking and Support Skills are sought in Job Postings 2017-20

Job Title	Total/Unique (Apr 2017 - Apr 2020)	Posting Intensity	Median Posting Duration
Network Engineers (Architecture and Engineering)	1,519 / 284	5 : 1	35 days
IT Support Analysts	1,275 / 259	5 : 1	32 days
Support Engineers (Architecture and Engineering)	881 / 176	5 : 1	33 days
IT Support Engineers	690 / 136	5 : 1	32 days
IT Application Specialists	686 / 119	6 : 1	40 days
Service Desk Analysts	666 / 119	6 : 1	33 days
Infrastructure Engineers	482 / 86	6 : 1	30 days
Application Engineers	396 / 80	5 : 1	41 days
IT Help Desk Specialists	260 / 75	3 : 1	45 days
Network Engineers (Computer and Mathematical)	325 / 75	4 : 1	31 days

Source: EMSI Analyst

5.4 Employer Demand for Specific Digital Skills: Data Analysis

Skills associated with 'Data Analysis' is another discrete set of specific digital skills that have been identified by Burning Glass as being required by employers. These skills include the ability to use data analysis tools like R or Stata, the ability to use and analyse Big Data, and data science. These

skills are typically required in occupations like Management Consultants, Economists, Statisticians, and Business Analysts. The EMSI skill types used to define 'Specific Digital Skills: Data Analysis' can be found at Annex 1.

In Cheshire and Warrington there were 26,177 total job postings for this specific digital skill set from April 2017 to April 2020, of which 5,313 were unique. This equates to 1% of all unique job posting in this period (443k total unique postings for all job types in Cheshire and Warrington). These numbers give a 'Posting Intensity' of 5-to-1 for these types of jobs, meaning that for every 5 postings there is 1 unique job posting. This is slightly higher than the Posting Intensity for all occupations and companies in the region (4-to-1), indicating that employers have been putting slightly more effort toward hiring for positions with this skill set. In 2020 however, the posting intensity for this type of job has increased to 6:1; the same as the posting intensity for all roles in 2020 in Cheshire and Warrington which also stands at 6:1.

The median advertised salary for roles explicitly requiring 'Data Analysis' skills was £35,000. This means that these skills deliver a £9,400 premium over the median advertised salary for all roles in Cheshire and Warrington which stood at £25,600. It is important to note that not all postings advertise a salary.

The Table below compares the local authority data for job postings of jobs seeking 'Data Analysis' skills with the overall share of Cheshire and Warrington working age population by Local Authority. Compared with Cheshire and Warrington as a whole, employer demand for roles with these skills is broadly in line with the working age population share for each Local Authority.

Local Authority postings for jobs with 'Data Analysis Skills' compared to Cheshire and Warrington working age population share

Local Authority	Unique Postings (Apr 17 – Apr 20)	% of C&W Total Postings	% of C&W 16-24 Popn.
Cheshire West and Chester	2,090	39%	40%
Cheshire East	1,802	34%	37%
Warrington	1,421	27%	23%
Cheshire and Warrington	5,313	100%	100%

Sources: EMSI Analyst and NOMIS

The graph below shows the trend for unique postings for jobs requiring Data Analysis Skills. The figure for April 2020 was slightly down on the previous month but exactly the same as in April 2019, and higher than for April 2018. Early indications are that employer demand for roles with these skills may have been more resilient than the broader labour market in the current crisis.

Data Analysis Skills in Cheshire and Warrington: Unique Postings Trend

Source: EMSI Analyst

As can be seen from the graphic below, Data Analysis skills are being sought across a range of occupations with 37% of the total job postings for roles with these skills being in the 'Programmers and Software Development Professionals' or 'Business and Related Associate Professionals' occupational categories.

Top posted occupations seeking Data Analysis Skills 2017-2020

Occupation (SOC)	Total/Unique (Apr 2017 - Apr 2020)	Posting Intensity	Median Posting Duration
Programmers and software development professionals	5,266 / 938	6 : 1	33 days
Business and related associate professionals n.e.c.	4,513 / 908	5 : 1	31 days
Management consultants and business analysts	2,072 / 392	5 : 1	34 days
Finance and investment analysts and advisers	1,760 / 326	5 : 1	31 days
IT business analysts, architects and systems designers	1,390 / 227	6 : 1	34 days
Sales accounts and business development managers	748 / 171	4 : 1	34 days
Book-keepers, payroll managers and wages clerks	894 / 141	6 : 1	44 days
Marketing associate professionals	636 / 140	5 : 1	34 days
Business and financial project management professionals	549 / 134	4 : 1	30 days
IT specialist managers	529 / 126	4 : 1	29 days

Source: EMSI Analyst

When the top job titles seeking Data Analysis Skills are reviewed (see graphic below), the job title 'Data Analyst' occurs three times more frequently than any other job title.

Top Job Titles for Roles where Data Analysis Skills are sought in Job Postings 2017-20

Job Title	Total/Unique (Apr 2017 - Apr 2020)	Posting Intensity	Median Posting Duration
Data Analysts	1,784 / 339	5 : 1	30 days
Business Analysts (Computer and Mathematical)	613 / 109	6 : 1	42 days
Business Intelligence Developers	796 / 99	8 : 1	35 days
SQL Developers	619 / 95	7 : 1	37 days
Data Scientists	625 / 95	7 : 1	34 days
Reporting Analysts (Computer and Mathematical)	494 / 74	7 : 1	34 days
Data Engineers	452 / 65	7 : 1	34 days
Maintenance Analysts	233 / 51	5 : 1	30 days
Data Analytics Managers	192 / 48	4 : 1	25 days
Accountants	240 / 44	5 : 1	47 days

Source: EMSI Analyst

5.5 Employer Demand for Specific Digital Skills: Digital Design

Skills associated with 'Digital Design' are another discrete set of specific digital skills that have been identified by Burning Glass as being required by employers. These skills are those associated with digital production, graphic design, and online advertising. Job roles requiring these skills would typically include Marketing Associate Professionals and Graphic Designers. The EMSI skill descriptors used to define 'Specific Digital Skills: Digital Design' can be found at Annex 1.

In Cheshire and Warrington there were 18,055 total job postings for job roles seeking Digital Design skills from April 2017 to April 2020, of which 4,027 were unique. This equates to 1% of all unique job posting in this period (443k total unique postings for all job types in Cheshire and Warrington). These numbers give a 'Posting Intensity' of 4-to-1 for these types of jobs, meaning that for every 4 postings there is 1 unique job posting. This is the same as the Posting Intensity for all occupations and companies in the region (4-to-1), indicating that employers have been putting an equal effort toward hiring for positions with this skill set. In 2020 however, the posting intensity for this type of job has increased to 6:1; the same as the posting intensity for all roles in 2020 in Cheshire and Warrington which also stands at 6:1.

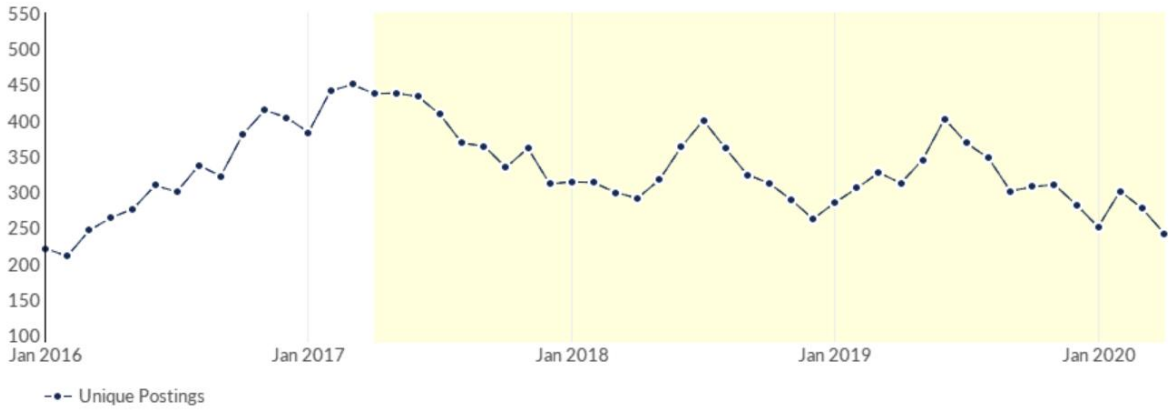
The median advertised salary for roles explicitly requiring 'Digital Design' skills was £27,500. This means that these skills deliver a slight wage premium over the median advertised salary for all roles in Cheshire and Warrington which stood at £25,600. It is important to note that not all postings advertise a salary.

The Table below compares the local authority data for job postings of jobs seeking 'Digital Design' skills with the overall share of Cheshire and Warrington working age population by Local Authority. Compared with Cheshire and Warrington as a whole, employer demand for roles with these skills is broadly in line with the working age population share for each Local Authority.

Local Authority postings for jobs with 'Digital Design Skills' compared to Cheshire and Warrington working age population share			
Local Authority	Unique Postings (Apr 17 – Apr 20)	% of C&W Total Postings	% of C&W 16-24 Popn.
Cheshire West and Chester	1,718	43%	40%
Cheshire East	1,428	35%	37%
Warrington	881	22%	23%
Cheshire and Warrington	4,027	100%	100%
Sources: EMSI Analyst and NOMIS			

The graph below shows the trend for unique postings for jobs requiring Digital Design Skills. The figure for April 2020 is the lowest value for any month in the three years under consideration (the shaded yellow area). Early indications are that employer demand for roles with these skills may have been adversely impacted in the current crisis.

Digital Design Skills in Cheshire and Warrington: Unique Postings Trend



Source: EMSI Analyst

As can be seen from the graphic below, Digital Design skills are being sought across a range of occupations with the top three occupational areas that require this skill set being Web Design and Development Professional, Marketing Associate Professionals and Graphic Designers.

Top posted occupations seeking Digital Design Skills 2017-2020

Occupation (SOC)	Total/Unique (Apr 2017 - Apr 2020)	Posting Intensity	Median Posting Duration
Web design and development professionals	4,780 / 934	5 : 1	36 days
Marketing associate professionals	2,598 / 582	4 : 1	33 days
Graphic designers	1,628 / 468	3 : 1	31 days
Sales accounts and business development managers	1,300 / 316	4 : 1	31 days
Programmers and software development professionals	1,294 / 238	5 : 1	34 days
Product, clothing and related designers	865 / 175	5 : 1	36 days
Sales administrators	422 / 154	3 : 1	31 days
Research and development managers	405 / 88	5 : 1	40 days
Advertising accounts managers and creative directors	191 / 67	3 : 1	31 days
Photographers, audio-visual and broadcasting equipment operators	101 / 62	2 : 1	33 days

Source: EMSI Analyst

5.6 Employer Demand for Specific Digital Skills: Customer Relationship Management (CRM)

Skills associated with CRM is another discrete set of specific digital skills that have been identified by Burning Glass as being required by employers. These skills encompass the ability to use CRM software, such as Salesforce or Microsoft Dynamics. The job roles where the skills might be required would typically include Sales Professionals, Marketing Associate Professionals, and Customer Services Managers. The EMSI skill types used to define 'Specific Digital Skills: CRM' can be found at Annex 1.

In Cheshire and Warrington there were 41,484 total job postings for job roles requiring CRM skills from April 2017 to April 2020, of which 9,771 were unique. This equates to 2% of all unique job posting in this period (443k total unique postings for all job types in Cheshire and Warrington). These numbers give a 'Posting Intensity' of 4-to-1 for these types of jobs, meaning that for every 4 postings there is 1 unique job posting. This is the same as the Posting Intensity for all other occupations and companies in the region (4-to-1), indicating that employers have been putting average effort toward hiring for positions with this skill set. In 2020, the posting intensity for this type of job has increased to 6:1; the same as the posting intensity for all roles in 2020 in Cheshire and Warrington which also stands at 6:1.

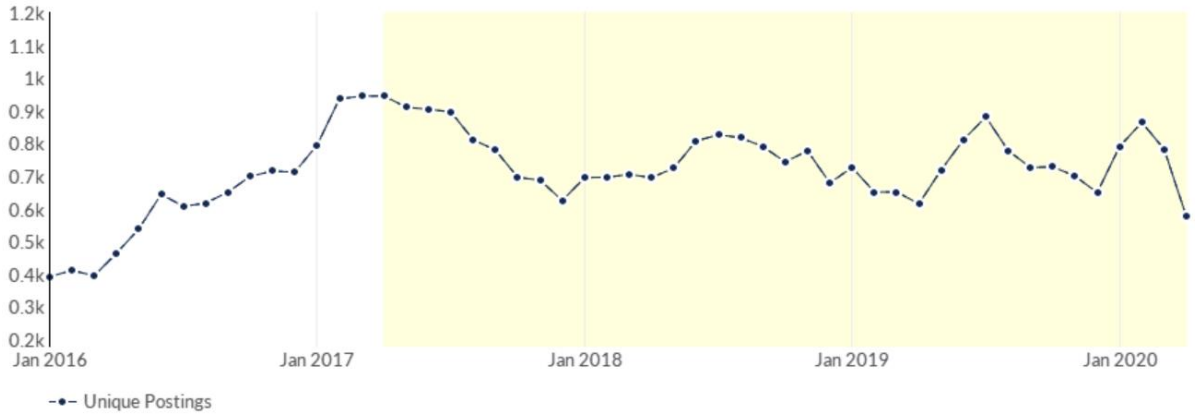
The median advertised salary for roles explicitly requiring 'CRM' skills was £25,100. This means that jobs requiring these skills have a slightly lower median salary than that for all roles in Cheshire and Warrington which stood at £25,600. It is important to note that not all postings advertise a salary.

The Table below compares the local authority data for job postings of jobs seeking 'CRM' skills with the overall share of Cheshire and Warrington working age population by Local Authority. Compared with Cheshire and Warrington as a whole, employer demand for roles with these skills is higher in Cheshire West and Chester and Warrington Local Authorities and lower in Cheshire East compared to the working age population share.

Local Authority postings for jobs with 'CRM' Skills compared to Cheshire and Warrington working age population share			
Local Authority	**Unique Postings (Apr 17 – Apr 20)**	**% of C&W Total Postings**	**% of C&W 16-24 Popn.**
Cheshire West and Chester	4,498	46%	40%
Cheshire East	2,670	27%	37%
Warrington	2,603	27%	23%
Cheshire and Warrington	9,771	100%	100%
Sources: EMSI Analyst and NOMIS			

The graph below shows the trend for unique postings for jobs requiring CRM Skills. The figure for April 2020 saw the sharpest monthly decline (ie March 2020 to April 2020) in the time series and the lowest volume of postings in the three years under consideration (the shaded yellow area). Early indications are that employer demand for roles with CRM skills may have been adversely impacted in the current crisis.

CRM Skills in Cheshire and Warrington: Unique Postings Trend



Source: EMSI Analyst

As can be seen from the graphic below, CRM skills are being sought across a range of occupations, although demand is twice as high in the 'Sales Accounts and Business Development Managers' category than the next most popular area which is 'Business Sales Executives'.

Top posted occupations seeking CRM Skills 2017-2020

Occupation (SOC)	Total/Unique (Apr 2017 - Apr 2020)	Posting Intensity	Median Posting Duration
Sales accounts and business development managers	6,009 / 1,719	3 : 1	34 days
Business sales executives	3,343 / 859	4 : 1	40 days
Marketing associate professionals	3,325 / 698	5 : 1	34 days
Customer service occupations n.e.c.	2,261 / 537	4 : 1	35 days
Programmers and software development professionals	2,452 / 469	5 : 1	34 days
Sales administrators	1,268 / 328	4 : 1	37 days
Other administrative occupations n.e.c.	1,107 / 327	3 : 1	31 days
Telephone salespersons	1,161 / 258	5 : 1	41 days
Business and related associate professionals n.e.c.	1,025 / 242	4 : 1	32 days
Management consultants and business analysts	1,093 / 232	5 : 1	33 days

Source: EMSI Analyst

When the top job titles seeking CRM Skills are reviewed (see graphic below), it can be observed that these skills are required across a range of occupational areas most of which are related to sales and business development.

Top Job Titles for Roles where CRM Skills are sought in Job Postings 2017-20

Job Title	Total/Unique (Apr 2017 - Apr 2020)	Posting Intensity	Median Posting Duration
Account Managers (Management)	1,273 / 360	4 : 1	38 days
Sales Executives (Management)	1,539 / 351	4 : 1	41 days
Business Development Managers (Management)	1,270 / 308	4 : 1	33 days
CRM Developers	1,200 / 291	4 : 1	33 days
Business Development Executives	912 / 198	5 : 1	42 days
Sales Managers (Management)	580 / 169	3 : 1	37 days
Marketing Executives	920 / 169	5 : 1	35 days
Marketing Managers (Management)	681 / 168	4 : 1	32 days
Customer Service Advisors (Office and Administrative Support)	620 / 141	4 : 1	35 days
Telesales Representatives	516 / 122	4 : 1	40 days

Source: EMSI Analyst

5.7 Employer Demand for Specific Digital Skills: Digital Marketing

Skills associated with Digital Marketing are a discrete set of specific digital skills that have been identified by Burning Glass as being required by employers. These skills encompass digital marketing technologies, such as social media platforms and analytics tools, such as Google Analytics. They are typically required in occupational areas such as 'Sales and Marketing Professionals' and 'Marketing Associate Professionals'. The EMSI skill types used to define 'Specific Digital Skills: Digital Marketing' can be found at Annex 1.

In Cheshire and Warrington there were 21,934 total job postings seeking 'Digital Marketing' skills from April 2017 to April 2020, of which 4,910 were unique. This equates to 1% of all unique job posting in this period (443k total unique postings for all job types in Cheshire and Warrington). These numbers give a 'Posting Intensity' of 4-to-1 for these types of jobs, meaning that for every 4 postings there is 1 unique job posting. This is the same as the Posting Intensity for all other occupations and companies in the region (4-to-1), indicating that employers have been putting average effort toward hiring for positions with this skill set. In 2020, the posting intensity for this type of job has increased to 6:1; the same as the posting intensity for all roles in 2020 in Cheshire and Warrington which also stands at 6:1.

The median advertised salary for roles explicitly requiring 'Digital Marketing' skills was £27,500. This means that jobs requiring these skills have a slightly higher median salary than that for all roles in Cheshire and Warrington which stood at £25,600. It is important to note that not all postings advertise a salary.

The Table below compares the local authority data for job postings of jobs seeking 'Digital Marketing' skills with the overall share of Cheshire and Warrington working age population by Local Authority. Compared with Cheshire and Warrington as a whole, employer demand for roles with these skills is higher in Cheshire West and Chester and lower in Warrington and Cheshire East Local Authorities compared to the working age population share.

Local Authority postings for jobs with 'Digital Marketing' Skills compared to Cheshire and Warrington working age population share

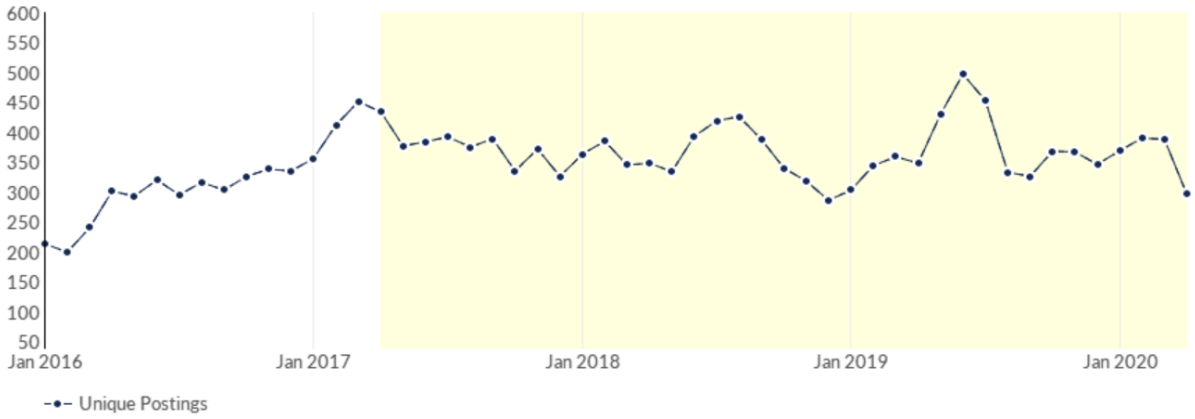
Local Authority	Unique Postings (Apr 17 – Apr 20)	% of C&W Total Postings	% of C&W 16-24 Popn.
Cheshire West and Chester	2,356	48%	40%
Cheshire East	1,577	32%	37%
Warrington	977	20%	23%
Cheshire and Warrington	4,910	100%	100%

Sources: EMSI Analyst and NOMIS

The graph below shows the trend for unique postings for jobs requiring Digital Marketing Skills. The figure for April 2020 saw the second sharpest monthly decline (ie March 2020 to April 2020) in the time series and the second lowest volume of postings in the three years under consideration (the

shaded yellow area). Early indications are that employer demand for roles with Digital Marketing skills may have been adversely impacted in the current crisis, but the data is not yet definitive.

Digital Marketing Skills in Cheshire and Warrington: Unique Postings Trend



Source: EMSI Analyst

As can be seen from the graphic below, Digital Marketing skills are being sought across a range of occupations, although 54% of all demand is in the two occupational areas of 'Marketing Associate Professionals' and 'Sales Accounts and Business Development Managers'

Top posted occupations seeking Digital Marketing Skills 2017-2020

Occupation (SOC)	Total/Unique (Apr 2017 - Apr 2020)	Posting Intensity	Median Posting Duration
Marketing associate professionals	7,709 / 1,639	5 : 1	33 days
Sales accounts and business development managers	4,219 / 1,025	4 : 1	32 days
Web design and development professionals	3,202 / 584	5 : 1	35 days
Sales administrators	732 / 224	3 : 1	31 days
Programmers and software development professionals	811 / 139	6 : 1	38 days
Business sales executives	453 / 117	4 : 1	37 days
Business and related associate professionals n.e.c.	609 / 109	6 : 1	33 days
Authors, writers and translators	435 / 89	5 : 1	38 days
Marketing and sales directors	413 / 84	5 : 1	31 days
Advertising accounts managers and creative directors	285 / 83	3 : 1	34 days

Source: EMSI Analyst

When the top job titles seeking Digital Marketing Skills are reviewed (see graphic below), it can be observed that these skills are required across a range of job titles, most of which are related to marketing.

Top Job Titles for Roles where Digital Marketing Skills are sought in Job Postings 2017-20

Job Title	Total/Unique (Apr 2017 - Apr 2020)	Posting Intensity	Median Posting Duration
Marketing Executives	2,514 / 512	5 : 1	33 days
Marketing Managers (Management)	2,126 / 501	4 : 1	31 days
Apprentices	505 / 170	3 : 1	42 days
Account Managers (Management)	714 / 128	6 : 1	37 days
Media Directors (Management)	499 / 125	4 : 1	35 days
Front-End Developers	777 / 122	6 : 1	41 days
Search Managers	590 / 114	5 : 1	38 days
Marketing Assistants (Arts, Design, Entertainment, Sports, and Media)	440 / 110	4 : 1	24 days
Heads of Marketing	440 / 87	5 : 1	33 days
Web Developers	331 / 80	4 : 1	31 days

Source: EMSI Analyst

5.8 Employer Demand for Specific Digital Skills: Machining and Manufacturing Technology

Skills associated with Machining & Manufacturing Technology are a discrete set of specific digital skills that have been identified by Burning Glass as being required by employers. These skills encompass machining and engineering software and tools such as CNC machining and computer-aided design. These skills are typically required by occupations such as Machine Operators, Civil Engineers, Quality Control and Planning Engineers. The EMSI skill types used to define 'Specific Digital Skills: Machining and Manufacturing Technology' can be found at Annex 1.

In Cheshire and Warrington there were 24,173 total job postings requiring Machining and Manufacturing Technology Digital Skills from April 2017 to April 2020, of which 5,145 were unique. This equates to 1% of all unique job posting in this period (443k total unique postings for all job types in Cheshire and Warrington). These numbers give a 'Posting Intensity' of 5-to-1 for these types of jobs, meaning that for every 5 postings there is 1 unique job posting. This is slightly higher than the Posting Intensity for all other occupations and companies in the region (4-to-1), indicating that employers have been putting slightly more effort towards hiring for positions with this skill set. In 2020, the posting intensity for this type of job has increased to 7:1; which again, is slightly higher than the posting intensity for all roles in 2020 in Cheshire and Warrington which stood at 6:1.

The median advertised salary for roles explicitly requiring 'Machining and Manufacturing Technology' skills was £32,400. This means that jobs requiring these skills have a wage premium of £6,800 compared with the median for all roles in Cheshire and Warrington which stood at £25,600. It is important to note that not all postings advertise a salary.

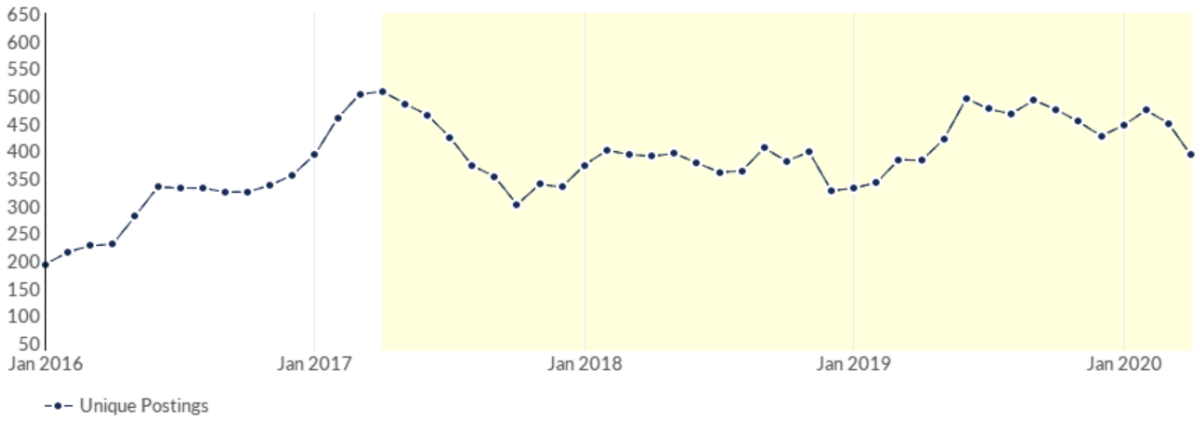
The Table below compares the local authority data for job postings of jobs seeking 'Machining and Manufacturing Technology' skills with the overall share of Cheshire and Warrington working age population by Local Authority. Compared with Cheshire and Warrington as a whole, employer

demand for roles with these skills in each Local Authority is broadly in line with overall working age population share.

Local Authority postings for jobs with 'Machining and Manufacturing Technology' Skills compared to Cheshire and Warrington working age population share			
Local Authority	Unique Postings (Apr 17 – Apr 20)	% of C&W Total Postings	% of C&W 16-24 Popn.
Cheshire West and Chester	1,978	38%	40%
Cheshire East	1,872	36%	37%
Warrington	1,295	25%	23%
Cheshire and Warrington	5,145	100%	100%
Sources: EMSI Analyst and NOMIS			

The graph below shows the trend for unique postings for jobs requiring Machining and Manufacturing Technology Skills. The figure for April 2020 saw a decline from the previous month but the volume of postings stood in the middle of the range for the three years under consideration. April 2020 saw 392 postings compared to a three year monthly high of 500 (April 2017) and a three year monthly low of 302 (Oct 2017). Early indications are that employer demand for roles with Machining and Manufacturing Technology skills may be more resilient than demand in the broader labour market in the current crisis.

Machining and Manufacturing Technology Skills in Cheshire and Warrington: Unique Postings Trend



Source: EMSI Analyst

As can be seen from the graphic below, Machining and Manufacturing Technology skills are being sought across a range of occupations related to engineering and manufacturing.

Top posted occupations seeking Machining and Manufacturing Technology Skills 2017-2020

Occupation (SOC)	Total/Unique (Apr 2017 - Apr 2020)	Posting Intensity	Median Posting Duration
Design and development engineers	3,491 / 712	5 : 1	33 days
Civil engineers	2,626 / 455	6 : 1	37 days
Metal working production and maintenance fitters	2,204 / 436	5 : 1	33 days
Draughtspersons	1,717 / 389	4 : 1	33 days
Engineering technicians	1,593 / 324	5 : 1	34 days
Architectural and town planning technicians	1,311 / 316	4 : 1	38 days
Metal machining setters and setter-operators	1,479 / 302	5 : 1	34 days
Science, engineering and production technicians n.e.c.	1,243 / 260	5 : 1	38 days
Electrical engineers	908 / 169	5 : 1	34 days
Research and development managers	752 / 159	5 : 1	35 days

Source: EMSI Analyst

When the top job titles seeking Machining and Manufacturing Technology Skills are reviewed (see graphic below), it can be observed that the job title which most frequently sought these skills was 'Mechanical Engineer'.

Top Job Titles for Roles where Machining and Manufacturing Technology Skills are sought in Job Postings 2017-20

Job Title	Total/Unique (Apr 2017 - Apr 2020)	Posting Intensity	Median Posting Duration
Mechanical Engineers	2,173 / 449	5 : 1	33 days
Computer Aided Design (CAD) Technicians	1,083 / 246	4 : 1	35 days
Architectural Technicians	814 / 178	5 : 1	41 days
Design Engineers (Computer and Mathematical)	826 / 167	5 : 1	33 days
Design Engineers (Architecture and Engineering)	775 / 155	5 : 1	33 days
Structural Engineers	836 / 135	6 : 1	36 days
CNC Machinists	617 / 132	5 : 1	36 days
CNC Programmers	564 / 116	5 : 1	32 days
Civil Engineers	582 / 94	6 : 1	34 days
CAD Engineers	544 / 93	6 : 1	34 days

Source: EMSI Analyst

6. Learner Demand for Digital Skills and Learning Supply

This section of the report will use data about the delivery of Digital Skills learning to provide insights into the demand for digital skills from individuals and employers. It will focus on data for Further Education (FE) and for apprenticeships.

The volume of FE (and 'Community Learning')[32] learning delivery is clearly linked to the demand for such learning from individuals. Simply put, if there are insufficient numbers of people wanting to pursue a course of study in FE, the course will not happen. This is particularly true for young people and for adults qualified below Level 2 where learning is, generally, free to the learner. Sometimes the demand for learning by individuals can be constrained by external factors (eg fees). Information failure can also be a feature of the market for learning. This is where individual demand is fed by imperfect information about the value/labour market relevance of different courses of study. Sometimes there are constraints on the capacity or capability of skills providers to deliver certain types of learning.

The volumes of apprenticeship delivery also provides some insight into the demand for skills from employers and individuals. For apprenticeships to happen, employers need to employ an apprentice, and individuals need to work as apprentices. An apprenticeship start also requires a skills provider with the capacity, capability and resources to deliver the learning.

This section of the report is in three parts:

- An overview of digital skills delivery in FE in Cheshire and Warrington.
- Secondly, there is significant overlap between what Lloyds/TechUK describe as 'Foundation' and 'Essential' Digital Skills and what Burning Glass describes as 'Baseline' Digital Skills (see Section 3 above). The second part of this section of the report considers the FE and apprenticeship activity that has been delivered to support the acquisition of these types of skills.
- Thirdly consideration of the FE and apprenticeship activity that has been delivered to support what Burning Glass would describe a 'Specific' Digital Skills (see Section 3 above).

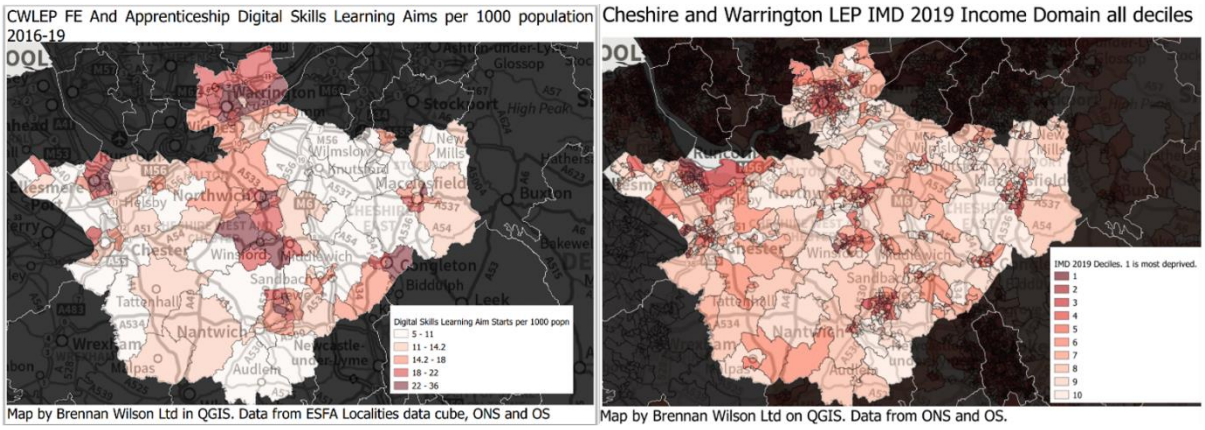
To be able to carry out the analysis presented below, it was necessary to undertake a detailed review of learning aims delivered in FE and Apprenticeships in Cheshire and Warrington across the three academic years starting in 2016/17. This review identified all learning aims that support the acquisition of some form of digital skill that had been delivered by FE, Skills and 'Community Learning' providers. This detailed information is presented for FE/Community Learning at Annex 3 and for Apprenticeships at Annex 4.

Before considering the separate contribution of FE and Apprenticeships to providing Digital Skills for the resident population of Cheshire and Warrington, there is merit in considering the combined impact of both routes across Cheshire and Warrington.

The two maps below show: a) the starts per 1,000 population on Digital Skills learning aims (ie all the aims set out in Annexes 3 and 4) by ward; and b) the Index of Multiple Deprivation 2019 (IMD 2019) scores for its Income Domain for Lower Super Output Areas (LSOAs). It is the case that (see Section 5) Specific Digital skills carry with them a significant wage premium in the labour market. It is

[32] Subsequently referred to as 'FE'.

therefore appropriate to consider whether the areas of high participation in Digital Skills activity (which are shaded dark red on the left hand map) are coincident with areas of high Income Deprivation (which are shaded dark red on the right hand map).



It is clear from an examination of the two maps that there are areas of Cheshire and Warrington, particularly in Cheshire West and Chester and Chester East, that should be targeted in order to support and encourage their residents to access digital skills provision. These include:

- Colshaw Farm, Wilmslow
- North of the High St/Bridge Lane in Frodsham
- Stanlow
- The neighbourhood adjacent to Westlea Primary School in Chester
- The neighbourhood south of Vernons Primary School, bounded by Dickens Lane and London Rd South, Poynton

6.1 Overview of Digital Skills Learning Delivery in FE and Apprenticeships

6.1.1 Digital Skills in Further Education

The Table below presents headline data on the number of Digital Skill learning aims (see Annex 3 for definitions of Digital Skills learning aims) delivered from 2016/17 to 2018/19 in FE and 'Community Learning'. The data are disaggregated by gender and by Level.

Overall, there were 17,882 Digital Skills Learning Aims delivered in this period, with 43% of these being undertaken by females, 57% by males. Earlier in this report (Section 4) it has been reported that nationally, both the 'Digital Industries' Sector and 'Digital Occupations' demonstrate a significant gender disparity with both having over 70% male employment. When considered by level of delivery, learning below Level 2 (which delivers what Lloyds/TechUK classify as 'Foundation' or 'Essential' Digital Skills) mirrors the Cheshire and Warrington population, with a 51% female/49% male split in delivery. However, female participation falls to 29% at Level 2 (largely 'Essential' or 'Baseline' Digital Skills), 29% at Level 3 and 25% at Level 4+ (a mix of what Burning Glass describes as 'Specific Digital Skills' and 'Baseline Digital Skills').

Digital Learning Aim Starts in FE, Gender of learners by Level 2016/17-2018/19						
	Below Level 2	**Level 2**	**Level 3**	**Level 4 Plus**	**Unassigned**	**Grand Total**
Female	3534	1165	1392	58	1498	7647
Male	3436	2128	3376	172	1123	10235
Grand Total	6970	3293	4768	230	2621	17882
Source: ESFA Localities Data Cube (Residency)						

The Table below sets out whether the Digital skills learning aims (all ages) that were delivered between 2016/17 and 2018/19 were funded by ESF. Only 3% of digital skills learning was funded by ESF. This compares with 22% of all learning aims for adults (aged 19+) being funded by ESF in 2018/19[33].

Funding of Digital Learning Aims in FE in Cheshire and Warrington in 2016/17-2018/19						
	Below L2	**L2**	**L3**	**L4 +**	**Unassigned**	**Total**
ESF Funded	287	39	235			561
Not ESF Funded	6683	3254	4533	230	2621	17321
Grand Total	6970	3293	4768	230	2621	17882
Source: ESFA Localities data cube (Residency)						

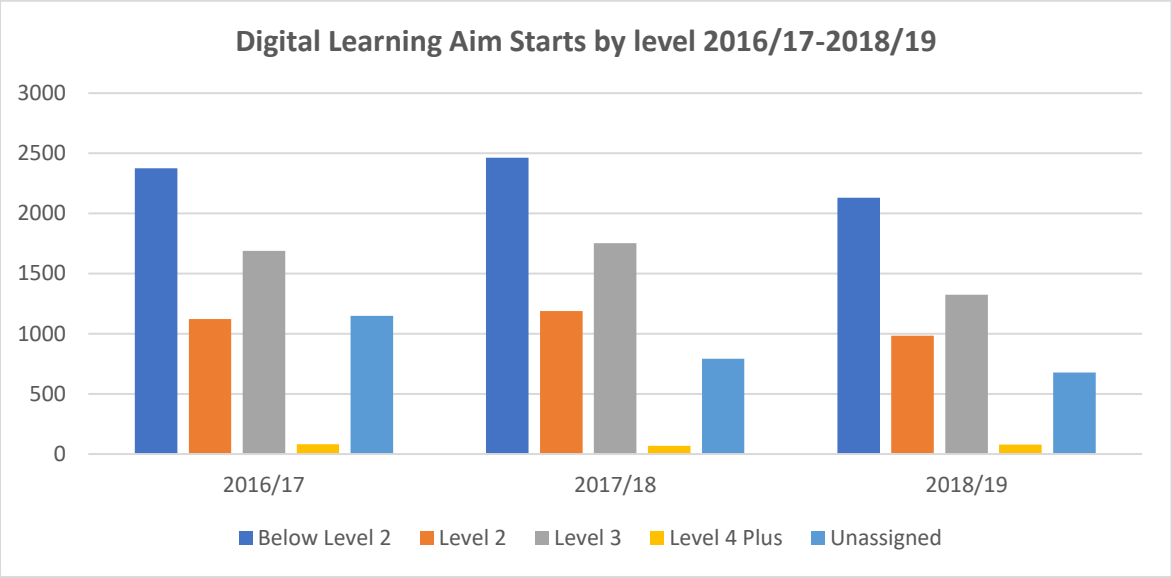
Whilst the need for Digital Skills is increasing in the economy, the delivery of digital skills learning aims has decreased from 2016/17 to 2018/19. There were 6,416 learning aims delivered in 2016/17 falling to 5,198 in 2018/19. This is a decrease of 19%. This is a clear market failure which needs to be addressed.

Total Digital Learning Aim Starts in FE by academic Year 2016/17 to 2018/19				
	2016/17	2017/18	2018/19	Grand Total
Total	6416	6268	5198	17882
Source: ESFA Localities data cube (residency)				

The Chart below considers Digital Learning Aim starts by Level across the three academic years. Delivery at every Level experienced a decline. Learning aims below Level 2 fell from 2,376 to 2,130, a decrease of 10%. Learning aims at Level 2 fell from 1,121 in 2016/17 to 984 in 2018/19, a decrease of 12%. Learning aims at Level 3 fell from 1,689 in 2016/17 to 1,325 in 2017/18, a decrease of 22%. Level 4+ activity was stable, but low across the three years (81 starts in 2016/17, 80 starts in in 2018/19). As noted earlier in this report all those occupations defined as 'Digital' by DCMS require a minimum of a Level 3 qualification and the numbers for all of them have grown in the Cheshire and

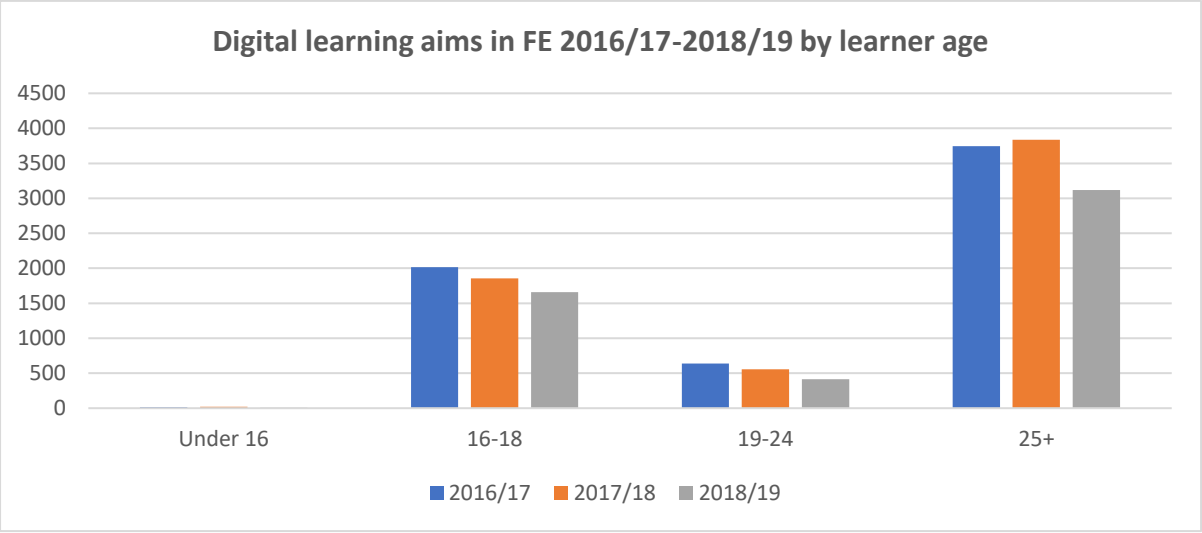
[33] The Adult Workforce and Skills Delivery in Cheshire and Warrington LEP, Brennan Wilson Ltd, 2020

Warrington Labour Market. To see a concurrent decline in digital skills learning, particularly at Level 3, is a concern.



Source: ESFA Localities data cube (residency)

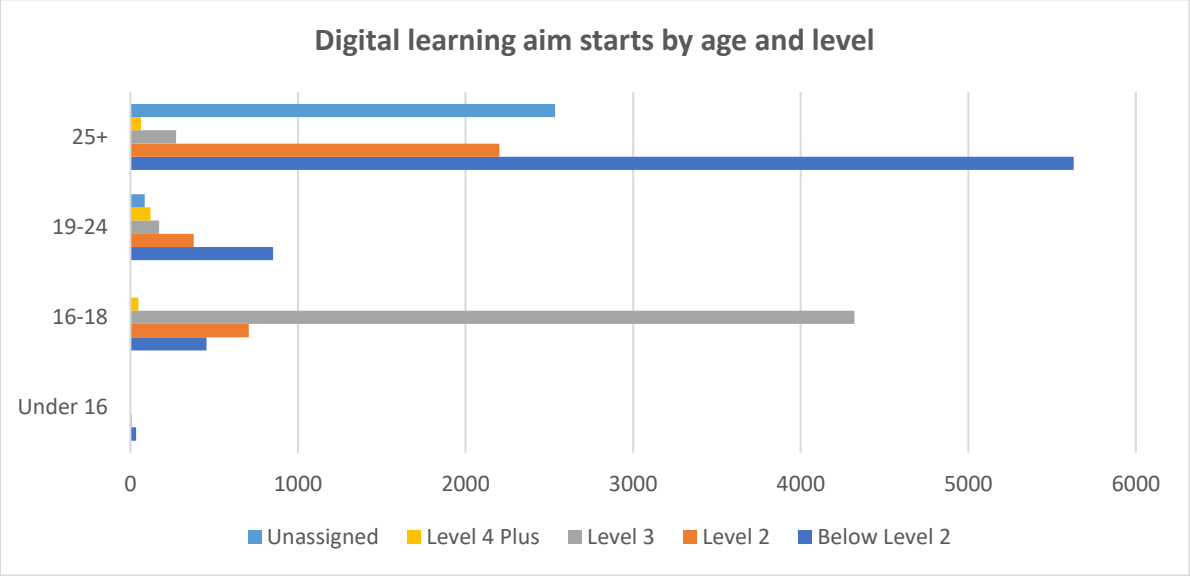
The Chart below considers Digital Skills learning aim starts in 2016/17, 2017/18 and 2018/19 by learner age. Starts in all learner age bands decreased. For 16-18 year olds, starts decreased from 2,016 to 1,659, a decline of 18%. For 19-24 year olds, starts decreased from 637 to 412, a decline of 35%. For learners aged 25+, starts declined from 3,746 in 2016/17 to 3,119 in 2018/19, a decline of 17%.



Source: ESFA Localities data cube (residency)

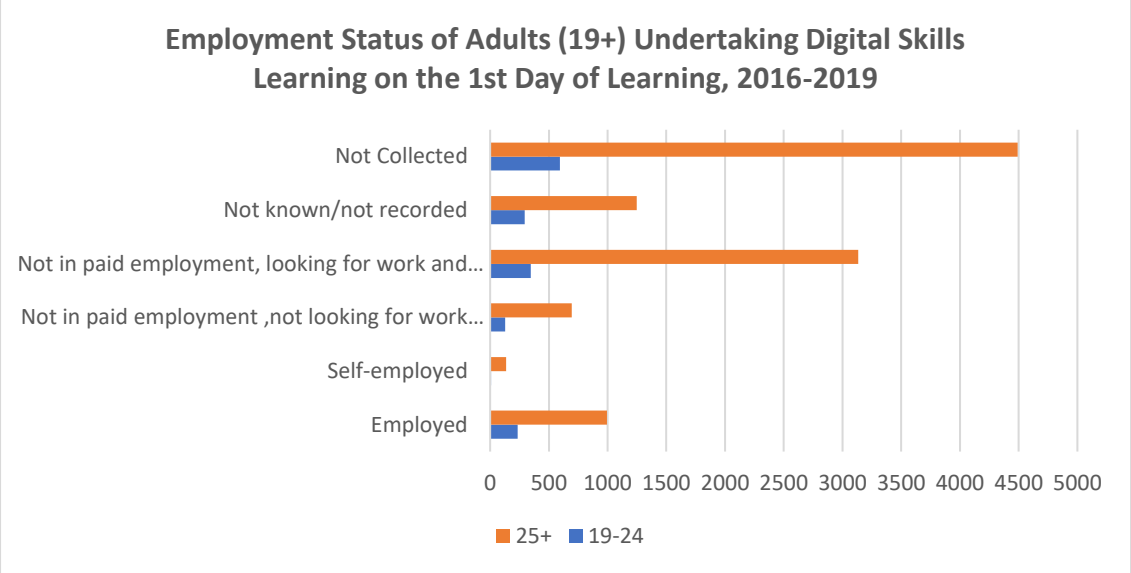
It can be seen from the chart below that the digital skills learning undertaken varies quite significantly depending on the age of the learner. For 16-18 yr olds 4,321 starts of the 5,529 between 2016/17 and 2018/19 were at Level 3. This was 77% of all learning aim starts at this age. On the

other hand, 5,629 of the 10,702 learning aims delivered to those aged 25+ were below Level 2 (53% of all delivery) with only 272 (3%) learning aim starts at Level 3. For 19-24 year olds the percentages were 53% below Level 2 and 11% at Level 3.



Source: ESFA Localities data cube (residency)

Some of the explanation for the significant variance in the level of learning being pursued by different age groups can be gleaned from the Chart below. 29% of all learners aged 19-24 and 36% of all learners aged 25+ are recorded as being not in paid work.



Source: ESFA Localities Data cube

The Table below presents information on Digital Skills learning aim starts in Cheshire and Warrington by Tier 2 Sector Subject Area (SSA). As might be expected, the highest volumes are in the categories 'ICT for Users', 'ICT Practitioners' and 'Media and Communication', but there are a smattering of digital skill learning aim starts in nine other tier 2 SSAs. Details of learning aims can be found at Annex 3.

Digital Skills Learning Aim Starts in FE in Cheshire and Warrington by Tier 2 SSA 2016/17-2018/19				
Tier 2 SSA	**2016/17**	**2017/18**	**2018/19**	**Total**
Accounting and Finance	21	6	1	28
Administration			26	26
Building and Construction			5	5
Business Management	0	1		1
Crafts, Creative Arts and Design	79	69	67	215
Engineering	22	19	44	85
Foundations for Learning and Life	219	117	84	420
ICT for Users	3861	3918	3092	10871
ICT Practitioners	1107	1170	869	3146
Marketing and Sales		8	38	46
Media and Communication	1107	955	964	3026
Preparation for Work		5	8	13
Grand Total	6416	6268	5198	17882
Source ESFA Localities Data Cube (Residency)				

The Table below presents information about the different types of qualifications that are used to deliver Digital Skills. It can be seen from this that at Level 3 and Level 4 the qualifications are quite substantial such as Diplomas and A Levels. Conversely, below Level 2 the qualifications delivered tend to be short qualifications such as QCF units and Awards.

Digital Learning Aims in FE, Qualification Types by Level 2016/17 – 2018/19						
Qualification Type	**Below Level 2**	**Level 2**	**Level 3**	**Level 4 Plus**	**Unassigned**	**Grand Total**
A Level			1149			1149
Access to HE			7			7
AS Level			760			760
Award	1045	132	20	3	2350	3550
Basic Skills Maths and English	2	1				3
Certificate	667	1061	262	41		2031
Diploma	177	229	2264	124		2794
GCSE Other		3				3
Other Non-Regulated	742	30	254	62	271	1359
Other Regulated	282	114	49			445
QCF Unit	4055	1723	3			5781
Grand Total	6970	3293	4768	230	2621	17882
Source: ESFA Localities Data Cube (Residency)						

6.1.2 Digital Skills in Apprenticeships

Apprenticeships are employer-led and designed to deliver a comprehensive range of skills required by an individual to be employed in a particular occupation. Frequently this will require the acquisition of what Burning Glass describe as 'Baseline Digital Skills'. These are productivity software tools such as spreadsheets and word processing programs. In addition, they often serve as the foundation for more advanced digital positions and so are requested for jobs at all skill levels. Similarly, some use the expression 'Essential Digital Skills' meaning those skills that encompass communicating; handling information and content; transacting; problem solving; and being safe and legal online.

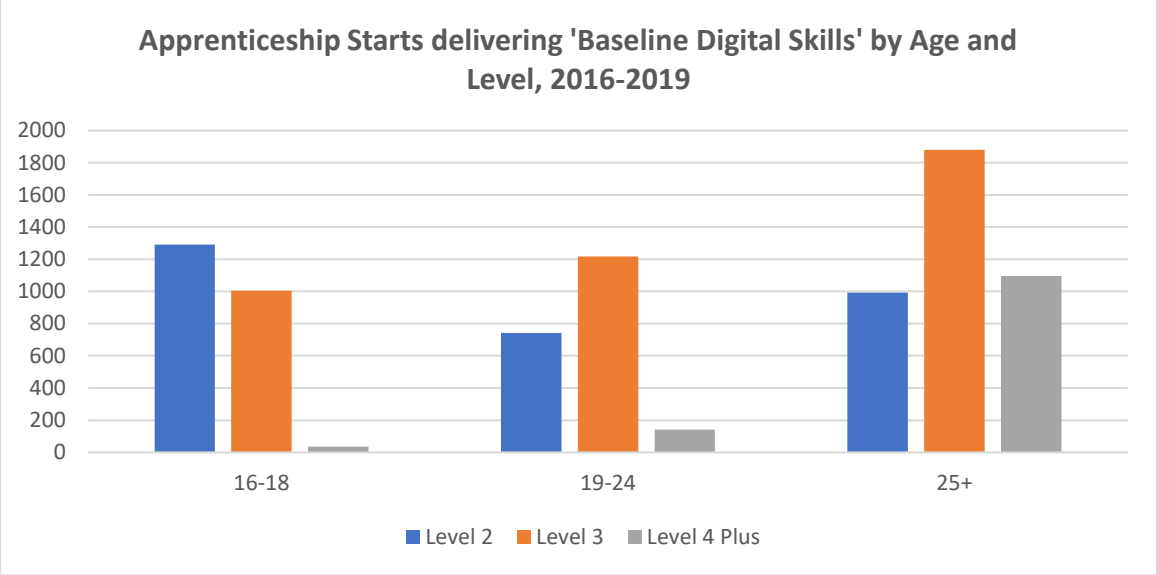
Where an Apprenticeship requires the acquisition of a specific set of digital skills this is sometimes achieved by delivering one or more discrete learning aims to do so. Sometimes these skills are embedded into wider occupational learning aims. Where a discrete digital learning aim has been delivered as part of an Apprenticeship, it is possible to identify that through analysis of the data. Annex 4 sets out all the Apprenticeships which have encompassed the delivery of a digital skills learning aim and specifies what those learning aims were for each Apprenticeship framework or standard. It also identifies where delivery has supported 'Baseline or 'Specific' Digital Skills. Summary data on Apprenticeships that encompass 'Baseline Digital Skills' is presented below. Information on

Apprenticeships that deliver 'Specific Digital Skills' to support entry to, or progression in, a 'Digital Occupation' is presented later in this section.

The Table below presents information on starts on Apprenticeships which have included the delivery of at least one 'digital skills' learning aim. The information covers the three academic years 2016/17-2018/19 and is presented by Level and by Tier 2 Sector Subject Area. It is clear from this that the delivery of Baseline Digital Skills is quite widely distributed across a diverse range of occupational areas at all Levels. There has been over 500 such Apprenticeship starts in the following Tier 2 SSAs: Administration; Business Management, Child Development and Wellbeing; Engineering; Manufacturing Technologies; and Transport Operations and Maintenance.

Starts on Apprenticeships that deliver 'Essential Digital Skills' 2016/17 – 2018/19				
Tier 2 SSA	**Level 2**	**Level 3**	**Level 4 Plus**	**Grand Total**
Administration	984	894	120	1998
Building and Construction	0	64	0	64
Business Management	516	1234	704	2454
Child Development and Well Being	469	963	0	1432
Direct Learning Support	0	19	0	19
Engineering	165	426	24	615
Health and Social Care	0	0	378	378
Law and Legal Services	0	10	1	11
Manufacturing Technologies	505	84	43	632
Marketing and Sales	55	32	0	87
Public Services	19	8	0	27
Science	1	14	0	15
Service Enterprises	54	43	0	97
Transportation Operations and Maintenance	263	292	0	555
Warehousing and Distribution	14	30	3	47
Grand Total	3045	4113	1273	8431
Source: ESFA Localities data cub (residency)				

The Chart below provides information on the same set of Apprenticeship starts by Age and Level. The pattern of delivery changes with age, with the highest volume of Level 2 Apprenticeships being delivered to 16-18 yr olds, and the highest volume of Level 3 and Level 4 Apprenticeship starts being delivered to those aged over 25.



Source: ESFA Localities data cube

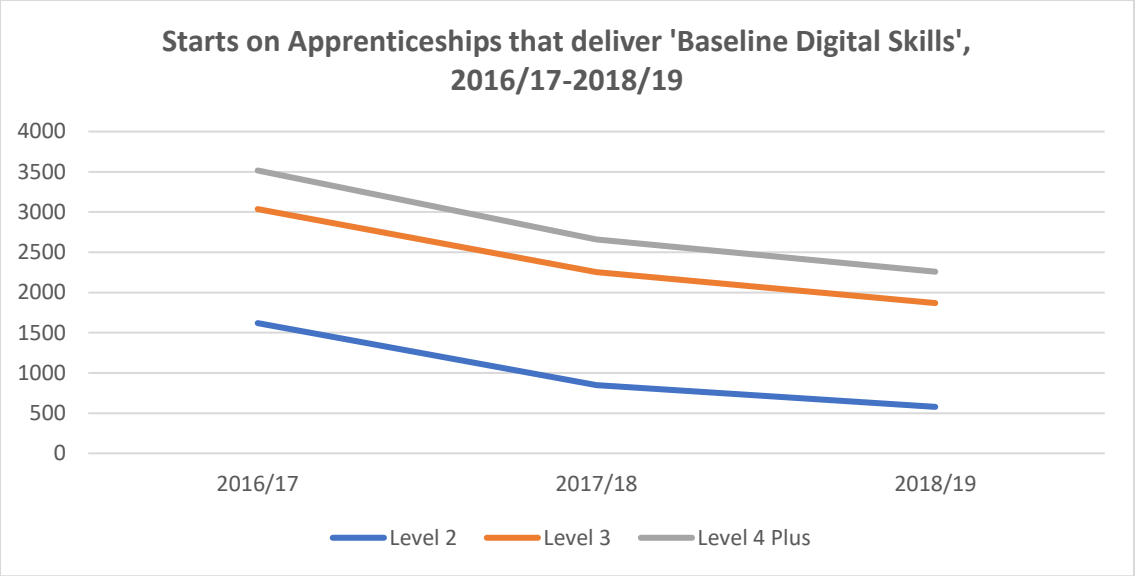
Following the implementation of the Government's 'Apprenticeship Reform' agenda, starts on all Apprenticeships have fallen both nationally and within Cheshire and Warrington. In line with national reductions, there was a decline of 28% in apprenticeship starts by Cheshire and Warrington residents between 2016/17 and 2018/19; with a 31% reduction in starts by 16-18 year olds; a 30% reduction in 19-24 year old apprentices; and a 24% reduction in 25+ apprentices.[34]

The Table below provides information about starts on Apprenticeships that deliver 'Baseline Digital Skills' over the most recent three years for which data is available. Like Apprenticeships more generally, starts on Apprenticeships delivering Baseline Digital Skills have declined by 36% from 3516 to 2258. Starts for 16-18 year olds have declined by 39%; starts for 19-24 year olds have declined by 43%; and starts by those aged over 25 have declined by 31%.

Apprenticeship Starts that have delivered 'Baseline Digital Skills' 20016-2019				
Age	2016/17	2017/18	2018/19	Grand Total
Under 16	8	8	11	27
16-18	946	806	580	2332
19-24	934	631	537	2102
25+	1628	1212	1130	3970
Grand Total	3516	2657	2258	8431
Source: ESFA Localities data cube (residency)				

[34] The Adult Workforce and Skills Delivery in Cheshire and Warrington LEP, Brennan Wilson Ltd, 2020

The Graph below illustrates that the decline in Apprenticeship Starts that deliver 'Baseline Digital Skills' has been reflected in a decline in starts at Levels 2, 3 and 4. The decline at level 4 is at sharp variance with the Cheshire and Warrington position for Level 4 starts on all Apprenticeships which have nearly doubled over the three years.



Source: ESFA Localities data cube (residency)

The decline in starts on Apprenticeships that deliver 'Baseline Digital Skills' has not been uniform across Tier 2 Sector Subject Areas. This is illustrated in the Table below. The high-volume areas of 'Administration' and 'Manufacturing Technologies' have both experienced higher than average declines (47% and 68% respectively).

Starts on Apprenticeship Programmes known to deliver 'Essential Digital Skills' by SSA Tier 2 and year (2016/17-2018/19)				
Tier 2 SSA	**2016/17**	**2017/18**	**2018/19**	**% Change 2016-2019**
Administration	889	641	468	-47%
Building and Construction	12	22	30	150%
Business Management	976	792	686	-30%
Child Development and Well Being	531	449	452	-15%
Engineering	211	216	188	-11%
Health and Social Care	149	100	129	-13%
Law and Legal Services	11	0	0	-100%
Manufacturing Technologies	370	145	117	-68%
Marketing and Sales	62	20	5	-92%
Public Services	23	3	1	-96%
Science	13	2	0	-100%
Service Enterprises	37	41	19	-49%
Transportation Operations and Maintenance	204	215	136	-33%
Warehousing and Distribution	28	11	8	-71%
Grand Total	3516	2657	2258	-36%
Source: ESFA Localities data cube (residency)				

6.2 Specific Digital Skills Delivery in Apprenticeships and FE

Burning Glass define Specific Digital Skills as being other digital skills not found in the 'Baseline' category (which has been discussed above). These skills are not required across the majority of jobs but define or even dominate specific roles or sectors. Examples are software programs such as Adobe Photoshop for designers; AutoCAD for engineers and manufacturing workers; Salesforce for sales and marketing professionals; and computer programming and networking for IT professionals.

The sub-sections below provide an analysis of how the Apprenticeship and FE systems are contributing to delivering Specific Digital Skills (see also Annexes 3 and 4).

6.2.1 Specific Digital Skills Delivery in Apprenticeships

Almost all Apprenticeship Frameworks and Standards that support the acquisition of Specific Digital Skills are at Level 3 and above and to be found in the following Tier 2 SSAs (see Annex 4):

- Crafts, Creative Arts and Design
- ICT for Users
- ICT Practitioners
- Media and Communication

For this reason, the analysis below is confined to these Tier 2 SSAs.

The Table below details the number of Apprenticeship starts on frameworks and standards in the four Tier 2 SSA. As might be expected the volume of starts in the 'ICT Practitioners' Sector Subject Area is overwhelming with 746 starts between 2016 and 2019 (84% of the overall volume of starts in this time period).

What is also evident from the Table is that this type of apprenticeship saw a growth of 65% in starts over the three years. This growth is very different from the overall Cheshire and Warrington decline in Apprenticeship starts in this period of 28% and the decline in Apprenticeships delivering Baseline Digital Skills of 36%.

Specific Digital Skills Apprenticeship Starts in C&W by Year and Tier 2 SSA				
	2016/17	**2017/18**	**2018/19**	**Total**
Crafts, Creative Arts and Design	6	3	2	11
ICT for Users	33	26	38	97
ICT Practitioners	181	276	289	746
Media and Communication	6	9	17	32
Grand Total	**226**	**314**	**346**	**886**
Source: ESFA Localities data cube (residency)				

The Table below presents information on all of the Apprenticeship Standards/Frameworks which had more than 30 starts from residents of Cheshire and Warrington between 2016 and 2019. The following standards/frameworks exceeded 100 starts in this 3 year period:

- Digital Marketer
- Digital and Technology Solutions Professional (integrated degree)
- Infrastructure Technician
- IT and Telecoms Professionals

It is not clear why there was such a steep decline in starts for IT and Telecoms professionals.

Specific Digital Skills Apprenticeship Starts over 30 in total 2016-2019 in C&W				
	2016/17	**2017/18**	**2018/19**	**Total**
Digital Marketer	12	72	78	162
Digital and Technology Solutions Professional (integrated degree)	22	76	59	157
Infrastructure Technician	35	54	56	145
IT and Telecoms Professionals	98	27	12	137
Software Developer	6	15	30	51
IT User	27	11	8	46
Software Development Technician	4	21	15	40
Data Analyst	0	5	31	36
Source: ESFA Localities data cube (residency)				

Between 2016 and 2019, 64% of starts on Apprenticeships that deliver Specific Digital Skills were at Level 3, 36% on Level 4. As can be seen from the table below, over the three years, the proportion of Level 3 starts dropped slightly to 58% in 2018/19.

Specific Digital Skills Apprenticeships in C&W by Level and Year 2016-2019				
	2016/17	**2017/18**	**2018/19**	**Total**
Level 3	174	192	202	568
Level 4 Plus	52	122	144	318
Grand Total	**226**	**314**	**346**	**886**
Source: ESFA Localities data cube (residency)				

The Table below set out starts on Digital Skills Apprenticeship by age and Year. Every age band has seen a growth in Apprenticeship start volumes. This is at considerable variance with the picture for all Apprenticeship Starts in Cheshire and Warrington in the same time period which saw declines of 25-30% in all age bands over the same time period.

Specific Digital Skills Apprenticeships in C&W by Age and Year 2016-2019				
	2016/17	**2017/18**	**2018/19**	**Total**
Under 16	1			1
16-18	123	129	142	394
19-24	79	141	136	356
25+	23	44	68	135
Grand Total	**226**	**314**	**346**	**886**
Source: ESFA Localities data cube (residency)				

6.2.2 Specific Digital Skills Delivery in Further Education

Analysis of the ESFA Localities data cube (residency) has allowed for the identification of learning aims that deliver Digital Skills which have been undertaken by residents of Cheshire and Warrington (set out in detail in Annex 3). From this it is clear that the learning aims that have contributed to what Burning Glass describe as 'Specific Digital Skills' are largely concentrated in the following Tier 2 Sector Subject Areas:

- Crafts, Creative Arts and Design
- ICT for Users
- ICT Practitioners
- Media and Communication

The Table below sets out the volume of learning aim starts in FE that help deliver Specific Digital Skills by residents of Cheshire and Warrington, by Level and by year, between 2016/17 and 2018/19. It is clear from this that, over the three years, there has been a decline of 21% in such starts. It is also clear that less than 5% of the starts were at Level 4.

Specific Digital Skills Learning Aims in FE in C&W by Level and Year				
	2016/17	**2017/18**	**2018/19**	**Total**
Level 3	1,682	1,750	1,313	4,745
Level 4 Plus	81	66	79	226
Grand Total	**1,763**	**1,816**	**1,392**	**4,971**
Source: ESFA Localities data cube (residency)				

As can be seen from the Table below the fall in Level 3 starts has been driven by a 22% fall in starts by 16-18 year olds, and that Young People aged 16-18 made up 88% of the starts on this type of learning aim between 2016 and 2019.

Specific Digital Skills Learning Aims in FE in C&W by Age of Learner and Year				
	2016/17	**2017/18**	**2018/19**	**Total**
Under 16		1	2	3
16-18	1,620	1,511	1,229	4,360
19-24	85	107	96	288
25+	58	197	65	320
Grand Total	**1,763**	**1,816**	**1,392**	**4,971**
Source: ESFA Localities data cube (residency)				

The Table below provides information as to how the learning aims that support the acquisition of 'Specific Digital Skills' that have been undertaken by residents of Cheshire and Warrington are distributed across the relevant Tier 2 Sector Subject Areas. 95% of the delivery falls within the two Sector Subject Areas of 'ICT Practitioners' and 'Media and Communication'

Specific Digital Skills Learning Aims in FE in C&W by Tier 2 Sector Subject Area and Year				
	2016/17	**2017/18**	**2018/19**	**Total**
Crafts, Creative Arts and Design	40	45	54	139
ICT for Users	13	55	46	114
ICT Practitioners	878	955	668	2,501
Media and Communication	832	761	624	2,217
Total	**1,763**	**1,816**	**1,392**	**4,971**
Source: ESFA Localities data cube (residency)				

The Table below sets out the type of qualifications associated with these learning aims. From this it can be seen that 47% of learning aims are associated with Diplomas. Diplomas at Level 3 and 4 are substantial vocational qualifications and tend not to be taken concurrent with undertaking other substantial qualifications. A further 45% are 'A levels' or 'AS levels' that will often be taken alongside other A/AS qualifications. For technical reasons, it is not possible to count learner starts rather than learning aim starts in the ESFA data cube, although it seems very probable that a majority of learners are following Diplomas.

Specific Digital Skills Learning Aims in FE in C&W by Qualification Type 2016-2019	
	Starts
A Level	2,540
Access to HE	18
AS Level	1,539
Award	26
Certificate	355
Diploma	4,277
Other Non-Regulated	330
Other Regulated	49
QCF Unit	1
Grand Total	**9,135**
Source: ESFA Localities data cube (residency)	

Annex 1 – EMSI Skill Descriptors Used to Define 'Baseline Digital Skills' & 'Specific Digital Skills'

This Annex sets out the EMSI skill descriptors that have been used to define the Burning Glass skills types in this report.

BASELINE DIGITAL SKILLS

Productivity Software

Productivity Software, Microsoft Office, Microsoft Word, Spreadsheets, Microsoft PowerPoint, Microsoft Windows, Enterprise Resource Planning, SAP Project Management, Project Management Software, SAP ERP, Microsoft Excel

SPECIFIC DIGITAL SKILLS

Software and Programming

Software Architecture, C++ (Programming Language), Software Engineering, C (Programming Language), Software Design, Operators In C And C++, Software Validation, C++/CLI, Software Factory, C++ Concepts, Software Manufacturing, C Compilers, Software Modernization, Software Development, Educational Software, Software Project Management, Software Modules, Flight Software, Software Configuration Management, DIVA Software, Macintosh Software, Software Coding, Banking Software, MRO Software, Software Adapters, HP Software, Watcom C/C++ Compilers, Turbo C++ (C++ Compilers), Java (Programming Language), Java Applet, Java Package, SQL (Programming Language), SQL And Java (SQLJ), SQL Injection, SQL Azure, Python (Programming Language), Python Tools For Visual Studio, Python Imaging Libraries, Python Server Pages, Software Features, Luigi (Python Package), Programming Concepts, Pandas (Python Package), Programming (Music), Scientific Python, Programming Environments, Active Python, Game Programming, VPython, Programming Tools, Twisted (Software), Procedural Programming, NumPy

Computer and Networking Support

Technical Support, Computer Maintenance, Computer Engineering, Computer Performance, Network Computer, Computer Systems, Network Adapters, Network Booting, Network Model, Network Forensics, Network Provisioning, Network Architecture, Computer Hardware, Computer Networks, Network Access Control, Network Access Servers, Network-To-Network Interface, Network Administration, Network Enumeration, Network Processor, Network Monitoring, Network Diagnostics, Network Control, Network Virtualization, Network Engineering, Network Utilities, Network Simulation, Network Connections, CompTIA Network+, Network Troubleshooting, Network Communications, Network Management, Network Infrastructure, Network Protocols

Data Analysis

Data Analysis, Data Analysis and Display (DADiSP), Exploratory Data Analysis, Financial Data Analysis, Data-Flow Analysis, Qualitative Data Analysis, Spend Analysis, Mathematical Analysis, Ratios

Analysis, Aggregation Analysis, R (Programming Language), Stata, Guerrilla Data Analysis Techniques, Qualitative Data Analysis Software, Climate Data Analysis Tool (CDAT), Multivariate Analysis, Cluster Analysis, Content Analysis, R Base, Big Data, MapR (Big Data), Data Modeling, Data Visualization, Data Science

Digital Design

Digital Design, Digital Photography, Digital Arts, Digital Sculpting, Digital Productions, Digital Video Production, Graphic Arts, Graphic Communication, Graphic Animation, Web Design, Xara Photo and Graphic Designer, User Interface Design, Graphic Design, Environmental Graphic Design, 3D Graphic Design, Motion Graphic Design, Arc Digitized Raster Graphic, Design Methods, Online Advertising, Adobe Photoshop

Customer Relationship Management (CRM)

CRM WebClient UI, SAP CRM, Epiphany CRM, Pivotal CRM, Oracle CRM, Rightnow CRM, Act! CRM, PeopleSoft Customer Relationship Management (CRM), Customer Relationship Management, Pardot (CRM Software), Salesforce Communities, Salesforce.Com, Hubspot CRM, Microsoft Dynamics CRM, Vtiger CRM, Workbooks CRM, Siebel CRM, Salesforce Object Query Language (SOQL), Salesforce Social Studio, Salesforce Object Search Language (SOSL), Microsoft Dynamics

Digital Marketing

Digital Marketing, Mobile Marketing, Search Engine Optimization, Moz (SEO Software), Social Media Advertising, Social Media Campaigns, Social Media Marketing, Social Networks, Google Analytics, Marketing Analytics, Facebook Analytics, Web Analytics, Social Media Analytics, Google AdWords

Machining and Manufacturing Technology

Machining, Computer-Aided Manufacturing, Computer-Aided Engineering, CircuitCAM (Computer Aided Manufacturing), Computer Numerical Control (CNC), Computer-Aided Design, Computer-Aided Technologies, AutoCAD

Annex 2 – ONS Definition of the Digital Sector

The ONS definition of the 'Digital Sector' is set out in the Table below.

Standard Industrial Classification (Revised 2007)	Description
26.11	Manufacture of electronic components
26.12	Manufacture of loaded electronic boards
26.2	Manufacture of computers and peripheral equipment
26.3	Manufacture of communication equipment
26.4	Manufacture of consumer electronics
26.8	Manufacture of magnetic and optical media
46.51	Wholesale of computers, computer peripheral equipment and software
46.52	Wholesale of electronic and telecommunications equipment and parts
58.11	Book Publishing
58.12	Publishing of directories and mailing lists
58.13	Publishing of newspapers
58.14	Publishing of journals and periodicals
58.19	Other publishing activities
58.21	Publishing of computer games
58.29	Other software publishing
59.11	Motion picture production activities
59.12	Video production activities
59.13	Television programme production activities
59.14	Motion picture projection activities
59.2	Sound recording and music publishing activities
60.1	Radio broadcasting
60.2	Television programming and broadcasting activities
61.1	Wired telecommunications activities
61.2	Wireless telecommunications activities
61.3	Satellite telecommunications activities
61.9	Other telecommunications activities
62.01	Software development
62.02	Information technology consultancy activities
62.03	Computer facilities management activities
62.09	Other information technology service activities
63.11	Data processing, hosting and related activities
63.12	Web portals
63.91	News agency activities
63.99	Other information service activities n.e.c.
95.11	Repair of computers and peripheral equipment
95.12	Repair of communication equipment

Annex 3- Digital Skills Learning Aims in FE and 'Community Learning'

The ESFA Localities data cube (residency) has been analysed to identify learning aims that deliver Digital Skills. The details of the analysis are set out in the table below. It adopts the following format:

TIER 2 SECTOR SUBJECT AREA
Level
Learning Aim

Learning Aims deemed to deliver 'Specific Digital Skills' have been highlighted in Orange.

ACCOUNTING AND FINANCE	
Below Level 2	
Access Award in Accounting Software	5
Award in Computerised Accounting (QCF)	17
Award in Computerised Accounting for Business (QCF)	1
Prepare and record sales and purchase documents using a computerised system	1
Record routine bookkeeping transactions using a computerised system	1
Level 2	
Foundation Award In Accounting Software - Level 2	2
Using Accounting Software	1
ADMINISTRATION	
Level 2	
Certificate in Understanding Data Protection and Data Security	26
Building and Construction	
Level 2	
Produce wood and wood based products using computer numerically controlled CNC machinery	2
Level 3	
Certificate in Design Engineer Construct! The Digital Built Environment (RQF)	3
BUSINESS MANAGEMENT	
Level 3	
Diploma in Social Media for Business	0
Diploma in Social Media for Business (QCF)	0
Principles of Social Media within a Business	1
CRAFTS, CREATIVE ARTS AND DESIGN	
Below Level 2	
Assemble interactive media products to produce final work	4
Award in Art, Design and Media	3
BTEC Diploma in Exploring the Creative Arts and Media Sectors (QCF)	16
Certificate in Interactive Media (QCF)	1
Digital media skills for asset production	7
Diploma in Art, Design and Media	11
Diploma in Art, Design and Media (QCF)	1
Explore ideas and create interactive media content	6
Explore Interactive Media Products and Processes	10
Interactive multimedia presentations	2

Understand and use computer systems in an interactive media design environment	3
Level 2	
Creating a digital animation	10
Digital graphics editing	1
Extended Certificate in Skills for Professions in the Creative and Digital Industries	1
Level 3	
Access to Higher Education Diploma: Music Technology	1
BTEC National Diploma in Music Technology	1
BTEC National Extended Certificate in Digital Music Production	2
BTEC National Extended Diploma in Music Technology	3
Foundation Diploma in Art, Design and Media	18
Foundation Diploma in Art, Design and Media (QCF)	38
Technical Level Entertainment Technology: Video Games Art and Animation	35
Technical Level Entertainment Technology: Video Games Art and Design Production	14
Level 4 Plus	
BA (Hons) in Digital Imaging and Photography	2
BA (Hons) in Fashion Media and Promotion	0
BA (Hons) in Photography	1
BA Hons in Graphic Arts and Design - (Stockport College)	0
BA Hons in Graphic Design - (St Helens College)	0
BA Hons in Photography - (St Helens College)	0
BA in Illustration with Animation	1
BTEC HNC Diploma in Graphic Design (QCF)	4
BTEC HNC Diploma in Photography (QCF)	1
BTEC HND Diploma in Photography (QCF)	1
Foundation Degree in 3D Modelling and Animation for Games and Media - (The Manchester College)	1
Foundation Degree in Contemporary Photographic Practices - (The Manchester College)	2
Foundation Degree in Digital Imaging and Photography	1
Foundation Degree in Graphic design	11
Foundation Degree in Graphic Design - (Mid Cheshire College)	0
Foundation Degree in Graphic Design and Advertising - (The Manchester College)	1
Foundation Degree in Photography	0
HNC to HND Conversion Code - Graphic Design	1
ENGINEERING	
Below Level 2	
Award in Parametric Modelling	1
Award in Parametric Modelling (QCF)	0
Certificate in Engineering Technologies	2
Certificate in Engineering Technologies (QCF)	1
Level 2	
Award in 2D Computer Aided Design	38
Award in 2D Computer Aided Design (QCF)	14
Award in Parametric Modelling	1
Award in Parametric Modelling (QCF)	0

Certificate in Computer Aided Design	8
Level 3	
Award in 2D Computer Aided Design	3
Award in 2D Computer Aided Design (QCF)	2
Award in 3D Computer Aided Design	1
Award in 3D Computer Aided Design (QCF)	2
Award in Parametric Modelling	2
Award in Parametric Modelling (QCF)	2
BTEC Diploma in Advanced Manufacturing Engineering (Development Technical Knowledge)	5
Certificate in Engineering Technology (QCF)	1
Computer Aided Drafting in Engineering	1
Level 4 Plus	
Foundation Degree in Engineering (Advanced Manufacturing) -Hugh Baird College	1
FOUNDATIONS FOR LEARNING AND LIFE	
Below Level 2	
Award in Functional Skills Information and Communication Technology (ICT) (Entry 3)	27
Award in Handling Data - Extract and Sort Data (Entry 3)	1
Award in Internet Safety	4
Award in Mathematics Skills - Handling Data (Entry 3)	1
Data Handling: Extracting and Sorting Data	1
Functional Skills qualification in Information and Communication Technology (ICT)	100
Functional Skills qualification in Information and Communication Technology (ICT) at Entry 1	13
Functional Skills qualification in Information and Communication Technology (ICT) at Entry 2	58
Functional Skills qualification in Information and Communication Technology (ICT) at Entry 3	84
Handling data - extract and interpret data	2
Handling data - extract and use data	1
Handling Data - mean and range	2
Handling data - represent information	1
Interpret data and the outcomes of events	3
Level 2	
Award in Mathematical Skills - Data Calculations	1
Compare and interpret data and record probability	3
Functional Skills qualification in Information and Communication Technology (ICT)	114
Handling data - extract and interpret data	4
ICT FOR USERS	
Below Level 2	
Award for IT Users (ITQ)	9
Award for IT Users (ITQ) (QCF)	12
Award for IT Users (Start IT - iTQ) (Entry 3)	16
Award for IT Users (Start IT - iTQ) (Entry 3) (QCF)	12
Award in Awareness of Social Media and Online Safety	3
Award in Computer and Online Basics (ITQ) (Entry 3)	9
Award in Computer and Online Basics (ITQ) (Entry 3) (QCF)	17

Award in Digital Skills (ITQ) (Entry 3)	33
Award in Digital Skills (ITQ) (Entry 3) (QCF)	94
Award in Information Technology (Entry 3) (QCF)	2
Award in Internet Safety for IT Users	134
Award in Internet Safety for IT Users (QCF)	1
Award in IT User Skills (ECDL Essentials) (ITQ)	39
Award in IT User Skills (ECDL Essentials) (ITQ) (QCF)	79
Award in IT User Skills (ITQ)	58
Award in IT User Skills (ITQ) (Entry 2)	2
Award in IT User Skills (ITQ) (Entry 2) (QCF)	3
Award in IT User Skills (ITQ) (QCF)	36
Award in IT User Skills (QCF)	10
Award in IT User Skills (RQF)	0
Award in IT User Skills in Open Systems and Enterprise (ITQ) (QCF)	1
Award in Online Basics (Start IT - iTQ) (Entry 3)	20
Award in Using ICT (Entry 3)	200
Award in Using ICT (Entry 3) (QCF)	15
BTEC Award for IT Users (ITQ)	7
BTEC Diploma for IT Users (ITQ)	1
BTEC Diploma for IT Users (ITQ) (QCF)	9
BTEC Introductory Certificate in Information Technology	1
BTEC Introductory Diploma in Information Technology	97
Certificate for IT Users (ITQ)	3
Certificate for IT Users (ITQ) (QCF)	14
Certificate in Digital Skills	49
Certificate in Digital Skills (ITQ) (Entry 3) (QCF)	1
Certificate in IT User Skills	69
Certificate in IT User Skills (ITQ)	107
Certificate in IT User Skills (ITQ) (QCF)	381
Certificate in IT User Skills (RQF)	2
Database software	322
Desktop Publishing Software	288
Diploma for IT Users (ITQ) (QCF)	1
Displaying Information Using ICT	21
ECDL Award in IT User Skills	27
ECDL Award in IT User Skills (QCF)	131
ECDL Certificate in IT User Skills	8
ECDL Certificate in IT User Skills (QCF)	26
Imaging Software	214
Improving Productivity Using IT	128
Internet Safety for IT Users	136
IT Communication Fundamentals	2
IT Security for Users	21
IT Software Fundamentals	2
IT User Fundamentals	37
Non regulated Adult skills formula funded provision, Entry Level, ICT for Users, 5 to 6 hrs, PW A	5

Non regulated Adult skills formula funded provision, Entry Level, ICT for Users, 7 to 12 hrs, PW A	54
Non regulated Adult skills formula funded provision, Level 1, ICT for Users, 3 to 4 hrs, PW A	4
Non regulated Adult skills formula funded provision, Level 1, ICT for Users, 7 to 12 hrs, PW A	370
Non regulated provision, Entry Level, ICT for Users	21
Non regulated provision, Level 1, ICT for Users	22
Non regulated SFA formula funded provision, Entry Level, ICT for Users, 13 to 20 hrs, PW A	0
Non regulated SFA formula funded provision, Entry Level, ICT for Users, 21 to 44 hrs, PW A	17
Non regulated SFA formula funded provision, Level 1, ICT for Users, 13 to 20 hrs, PW A	3
Non regulated SFA formula funded provision, Level 1, ICT for Users, 21 to 44 hrs, PW A	2
Non regulated SFA formula funded provision, Level 1, ICT for Users, 45 to 68 hrs, PW A	5
Online Basics	370
Other provision at Level 1 (ICT for Users)	0
Presentation Software	441
Producing Charts Using ICT	15
Project Management Software	2
Specialist Software	42
Spreadsheet software	579
Using a Computer Keyboard	40
Using Email	149
Using ICT To Find Information	3
Using the Internet	146
Website Software	115
Word Processing	3
Word processing software	889
Level 2	
Award in Cyber Security Awareness for Business	1
Award in IT User Skills (ITQ)	6
Award in IT User Skills (ITQ) (QCF)	1
Certificate for IT Users (ITQ)	1
Certificate for IT Users (ITQ) (QCF)	15
Certificate in Digital Applications	1
Certificate in IT User Skills	2
Certificate in IT User Skills (ECDL Extra) (ITQ)	29
Certificate in IT User Skills (ECDL Extra) (ITQ) (QCF)	88
Certificate in IT User Skills (ITQ)	128
Certificate in IT User Skills (ITQ) (QCF)	125
Certificate in IT User Skills in Open Systems and Enterprise (ITQ)	6
Database software	171
Desktop Publishing Software	191
Diploma for IT Users (ITQ)	1
ECDL Award in IT User Skills	2

ECDL Award in IT User Skills (QCF)	3
ECDL Certificate in IT User Skills	24
ECDL Certificate in IT User Skills (QCF)	58
Extended Certificate in IT User Skills (ITQ)	1
Extended Certificate in IT User Skills (ITQ) (QCF)	2
Imaging Software	101
Improving Productivity Using IT	145
IT Security for Users	2
Multimedia Software	1
Non regulated Adult skills formula funded provision, Level 2, ICT for Users, 3 to 4 hrs, PW A	4
Non regulated Adult skills formula funded provision, Level 2, ICT for Users, 7 to 12 hrs, PW A	7
Non regulated provision, Level 2, ICT for Users	4
Non regulated SFA formula funded provision, Level 2, ICT for Users, 13 to 20 hrs, PW B	5
Non regulated SFA formula funded provision, Level 2, ICT for Users, 21 to 44 hrs, PW B	2
Non regulated SFA formula funded provision, Level 2, ICT for Users, 45 to 68 hrs, PW B	1
Non regulated SFA formula funded provision, Level 2, ICT for Users, 69 to 92 hrs, PW B	1
Presentation Software	260
Project Management Software	2
Specialist Software	18
Spreadsheet software	328
Understand the safe use of online and social media platforms	1
Using Email	2
Using the Internet	1
Video Software	1
Website Software	60
Word processing software	417
Level 3	
Certificate in IT User Skills (ECDL Advanced) (ITQ) (QCF)	6
Desktop Publishing Software	0
Imaging Software	0
Non regulated provision, Level 3, ICT for Users	10
Non regulated SFA formula funded provision, Level 3, ICT for Users, 3 to 4 hrs, PW A	4
Non regulated SFA formula funded provision, Level 3, ICT for Users, 5 to 6 hrs, PW A	4
Non regulated SFA formula funded provision, Level 3, ICT for Users, 69 to 92 hrs, PW B	6
Non regulated SFA formula funded provision, Level 3, ICT for Users, 7 to 12 hrs, PW A	82
Presentation Software	0
Spreadsheet software	1
Level 4 Plus	
Non regulated provision, Level 4, ICT for Users	1

Unassigned	
Non regulated Community Learning provision, ICT for Beginners / Basic Online Skills	1,697
Non regulated Community Learning provision, Other ICT Skills	634
ICT PRACTITIONERS	
Below Level 2	
Award in ICT Systems Support - PC Maintenance	1
Award in ICT Systems Support - PC Maintenance (QCF)	8
Non regulated Adult skills formula funded provision, Entry Level, ICT Practitioners, 7 to 12 hrs, PW B	7
Non regulated provision, Entry Level, ICT Practitioners	14
Non regulated provision, Level 1, ICT Practitioners	5
Non regulated SFA formula funded provision, Entry Level, ICT Practitioners, 13 to 20 hrs, PW B	18
Non regulated SFA formula funded provision, Entry Level, ICT Practitioners, 21 to 44 hrs, PW B	107
Non regulated SFA formula funded provision, Level 1, ICT Practitioners, 45 to 68 hrs, PW B	1
Using Email	18
Word processing software	22
Level 2	
BTEC First Award in Information and Creative Technology	6
BTEC First Certificate in Information and Creative Technology	1
BTEC First Diploma in Information and Creative Technology	1
BTEC First Extended Certificate in Information and Creative Technology	280
Certificate in Cyber Security and Digital Forensics	5
Certificate in IT	1
Diploma in IT	34
Diploma in IT (QCF)	23
Diploma in Professional Competence for IT and Telecoms Professionals	31
Extended Certificate in IT	33
Extended Certificate in IT (QCF)	4
GCSE (9-1) in Computer Science	2
Non regulated provision, Level 2, ICT Practitioners	3
Non regulated SFA formula funded provision, Level 2, ICT Practitioners, 101 to 196 hrs, PW C	1
Level 3	
90-credit Diploma in IT (QCF)	362
Access to Higher Education Diploma: Computing	1
Access to Higher Education Diploma: Computing and ICT	4
Award in the Principles of Coding	6
BTEC National Certificate in Information Technology	13
BTEC National Diploma in Information Technology	3
BTEC National Extended Certificate in Information Technology	13
BTEC National Extended Diploma in Computing	2
BTEC National Extended Diploma in Information Technology	77
BTEC National Foundation Diploma in Computing	1
BTEC National Foundation Diploma in Information Technology	2

Certificate in Digital Marketing Business Principles	6
Certificate in IT	4
Certificate in IT (QCF)	183
Certificate in Web Design and Development (RQF)	10
Diploma in ICT Systems and Principles	1
Diploma in IT	4
Diploma in IT (QCF)	45
Extended Diploma in IT	23
Extended Diploma in IT (QCF)	363
GCE A Level in Applied Information and Communication Technology	6
GCE A Level in Computer Science	333
GCE A Level in Information and Communication Technology	182
GCE AS Level in Applied Information and Communication Technology	6
GCE AS Level in Computer Science	172
GCE AS Level in Information and Communication Technology	160
Introductory Diploma in IT (QCF)	3
Non regulated provision, Level 3, ICT Practitioners	10
Non regulated SFA formula funded provision, Level 3, ICT Practitioners, 69 to 92 hrs, PW C	1
Non regulated SFA formula funded provision, Level 3, ICT Practitioners, 7 to 12 hrs, PW B	136
Subsidiary Diploma in IT	42
Subsidiary Diploma in IT (QCF)	217
Level 4 Plus	
BA (Hons) in Games Design	1
BSc (Hons) in Computing	1
BSc (Hons) in Degree In Computing - Hugh Baird College	1
BSc (Hons) in Network Administration with Cloud Computing (Top up) - (The Manchester College)	1
BTEC Higher National Certificate in Computing	28
BTEC Higher National Diploma in Computing	8
BTEC HNC Diploma in Computing and Systems Development (QCF)	35
BTEC HND Diploma in Computing and Systems Development (QCF)	23
Diploma in Network Security	0
Diploma in Network Systems and Architecture	0
Diploma in Professional Competence for IT and Telecoms Professionals	0
Diploma in Professional Competence for IT and Telecoms Professionals (QCF)	0
Diploma in Software Development Methodologies	1
Diploma in Software Language	1
Foundation Degree in Computing	1
Foundation Degree in Enterprise Computing	0
Foundation Degree in Software Development - (The Manchester College)	2
Non regulated provision, Level 4, ICT Practitioners	5
Non regulated provision, Level 5, ICT Practitioners	2
Unassigned	
Non regulated Community Learning provision, ICT for Practitioners	19
MANUFACTURING TECHNOLOGIES	
Level 2	

Fundamentals of Communications and information technology in process industries	0
MARKETING AND SALES	
Below Level 2	
BTEC Award in Social Media	9
Level 2	
Award in the Promotion of Products and Services Through Social Media	34
Level 4 Plus	
Award in Digital Marketing (HL)	2
Award in Digital Strategy (HL)	1
MEDIA AND COMMUNICATION	
Below Level 2	
Award for Creative iMedia (QCF)	3
Award in Creative Media Production	1
Award in Creative Media Production (QCF)	1
Award in Photography	13
Award in Photography (QCF)	1
BTEC Introductory Certificate in Digital Media	1
BTEC Introductory Diploma in Digital Media	27
Certificate for Creative iMedia (QCF)	1
Diploma in Creative Media Production (QCF)	14
Non regulated provision, Entry Level, Media and Communication	1
Non regulated SFA formula funded provision, Level 1, Media and Communication, 13 to 20 hrs, PW B	85
Non regulated SFA formula funded provision, Level 1, Media and Communication, 21 to 44 hrs, PW B	1
Level 2	
Award for Creative iMedia (QCF)	19
Award in Creative Media Production & Technology	2
Award in Creative Media Production & Technology (QCF)	2
BTEC First Award in Creative Digital Media Production	1
BTEC First Certificate in Creative Digital Media Production	2
BTEC First Extended Certificate in Creative Digital Media Production	161
Cambridge Technical Certificate in Media	2
Cambridge Technical Diploma in Media	74
Cambridge Technical Diploma in Media (QCF)	30
Cambridge Technical Extended Certificate in Media	4
Certificate in Photography	36
Certificate in Photography (QCF)	11
Certificate in Preparing to work in the film industry	6
Digital audio in radio production	1
Diploma in Creative Media Production & Technology	27
Diploma in Creative Media Production & Technology (QCF)	8
GCSE in Media Studies	1
Non regulated Adult skills formula funded provision, Level 2, Media and Communication, 7 to 12 hrs, PW B	1
Non regulated SFA formula funded provision, Level 2, Media and Communication, 13 to 20 hrs, PW B	1

Level 3	
Access to Higher Education Diploma: Professions in English; Writing and Media	1
Advanced GCE in Media Studies	5
Award in Photography	2
BTEC 90-credit Diploma in Creative Media Production (QCF)	405
BTEC National Diploma in Digital Games Design and Development	1
BTEC National Diploma in Film and Television Production	2
BTEC National Extended Certificate in Creative Digital Media Production	3
BTEC National Extended Diploma in Creative Digital Media Production	1
BTEC National Foundation Diploma in Creative Digital Media Production	38
Cambridge Technical Diploma in Media	9
Cambridge Technical Diploma in Media (QCF)	5
Cambridge Technical Extended Diploma in Digital Media	1
Cambridge Technical Extended Diploma in Media	12
Cambridge Technical Extended Diploma in Media (QCF)	6
Cambridge Technical Introductory Diploma in Media	28
Cambridge Technical Introductory Diploma in Media (QCF)	11
Cambridge Technical Subsidiary Diploma in Media	18
Cambridge Technical Subsidiary Diploma in Media (QCF)	5
Certificate in Creative Media Production (QCF)	8
Certificate in Photo Image Capture and Manipulation (QCF)	1
Certificate in Photography	9
Diploma in Creative Media Production & Technology	39
Diploma in Creative Media Production & Technology (QCF)	12
Diploma in Creative Media Production (QCF)	8
Extended Diploma in Creative Media Production & Technology	22
Extended Diploma in Creative Media Production & Technology (QCF)	13
Extended Diploma in Creative Media Production (QCF)	383
GCE A Level in Communication and Culture	4
GCE A Level in Film Studies	164
GCE A Level in Media Studies	455
GCE AS Level in Film Studies	142
GCE AS Level in Media Studies	280
Non regulated provision, Level 3, Media and Communication	1
Subsidiary Diploma in Creative Media Production (QCF)	35
Level 4 Plus	
BA (Hons) in Creative Media and Visual Communication (Top up) - (The Manchester College)	3
BA (Hons) in Film and TV Production (Top-up) - The Manchester College	1
BA (Hons) in Photographic Practice (With Moving Image) - Cleveland College of Art and Design	1
BA (Hons) Short Film Making - Hereford College of Arts	1
BA Hons in Motion Design - (Stockport College)	0
BSc (Hons) in Games and Digital Media	0
BTEC Higher National Certificate in Creative Media Production	21
BTEC HNC Diploma in Creative Media Production	16
BTEC HND Diploma in Creative Media Production	16
BTEC HND Diploma in Creative Media Production (QCF)	10

Foundation Degree in Broadcast Production - (The Manchester College)	2
Foundation Degree in Contemporary Photography - (Mid Cheshire College)	0
Foundation Degree in Film and TV Production - (The Manchester College)	2
Foundation Degree in Media Production	1
Foundation Degree in New and Interactive Media	14
Non regulated provision, Level 4, Media and Communication	0
Other provision at Level 4 (Media and Communication)	0
Other provision at Level 6 (Media and Communication)	0
Unassigned	
Non regulated Community Learning provision, Media and Communication	271
PREPARATION FOR WORK	
Below Level 2	
Award in Social Media for Business Use	2
Award in Social Media for Business Use (QCF)	5
Using social media to gain employment	6
Grand Total	**17,882**

Annex 4 – Apprenticeship Standards and Frameworks by SSA2

The ESFA Localities data cube (residency) has been analysed to identify any Apprenticeship Standards or Frameworks that have delivered one or more learning aims that deliver Digital Skills. The details of the analysis are set out in the table below. It adopts the following format:

TIER 2 SECTOR SUBJECT AREA
Framework/Standard
Level of supporting Digital Skills Learning Aim
Learning Aim(s)

Each Framework/Standard is colour coded to indicate whether it delivers 'Specific Digital Skills' as defined by Burning Glass on the one hand or 'Baseline Skills' (Burning Glass)/Essential Skills (Lloyds) on the other.

Specific Digital Skills	Baseline Digital Skills

ACCOUNTING AND FINANCE	
Paraplanner	
Level 4 Plus	
Non regulated provision, Level 4, ICT Practitioners	0
Payroll	
Below Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	1
ADMINISTRATION	
Business Administration	
Below Level 2	
Award in Functional Skills Information and Communication Technology	0
Functional Skills qualification in Information and Communication Technology (ICT)	639
Level 2	
Award in Functional Skills Information and Communication Technology	2
Functional Skills qualification in Information and Communication Technology (ICT)	568
Business Administrator	
Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	7
Customer Service	
Below Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	5
Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	1
Recruitment	
Below Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	6
Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	25

AGRICULTURE	
Land-based Service Engineering	
Below Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	1
BUILDING AND CONSTRUCTION	
Maintenance and Operations Engineering Technician	
Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	1
Level 3	
BTEC Diploma in Advanced Manufacturing Engineering (Development Technical Knowledge)	1
Safety, Health and Environment Technician	
Below Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	4
Science Industry Maintenance Technician	
Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	4
Level 3	
BTEC Diploma in Advanced Manufacturing Engineering (Development Technical Knowledge)	0
BUSINESS MANAGEMENT	
Associate Project Manager	
Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	1
Management	
Below Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	392
Functional Skills Qualification in Information and Communication Technology (ICT) at Level 1	1
Level 2	
Functional Skills qualification in Information and Communication Technology	3
Functional Skills qualification in Information and Communication Technology (ICT)	342
Functional Skills qualification in Information and Communication Technology at Level 2	0
Operations / Departmental Manager	
Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	1
Level 3	
Non regulated provision, Level 3, ICT Practitioners	1
Project Management	
Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	2
Team Leader / Supervisor	
Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	5
CHILD DEVELOPMENT AND WELL BEING	
Children's Care Learning and Development	
Below Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	390

Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	796
CRAFTS, CREATIVE ARTS AND DESIGN	
Creative	
Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	3
Design	
Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	2
DIRECT LEARNING SUPPORT	
Supporting teaching and learning in schools	
Below Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	61
Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	139
Teaching Assistant	
Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	2
ENGINEERING	
Building Services Engineering Technicians	
Level 2	
Functional Skills qualification in Information and Communication Technology	3
Functional Skills qualification in Information and Communication Technology (ICT)	7
Electrical and Electronic Servicing	
Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	0
Electrical, Electronic Product Service and Installation Engineer	
Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	1
Electrotechnical	
Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	101
Key Skills in Information and Communication Technology - Level 2	0
Engineering Construction	
Level 2	
Functional Skills qualification in Information and Communication Technology	0
Functional Skills qualification in Information and Communication Technology (ICT)	3
Engineering Technician	
Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	3
Level 3	
BTEC Diploma in Advanced Manufacturing Engineering (Development Technical Knowledge)	40
Gas Industry	
Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	5
Heating, Ventilation, Air Conditioning and Refrigeration	
Below Level 2	

Functional Skills qualification in Information and Communication Technology (ICT)	15
Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	1
Improvement Practitioner	
Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	1
Installation Electrician / Maintenance Electrician	
Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	9
MES Plumbing	
Below Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	118
Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	5
Power Network Craftsperson	
Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	0
HEALTH AND SOCIAL CARE	
Care Leadership and Management	
Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	2
ICT FOR USERS	
IT User	
Below Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	3
Level 2	
Diploma for IT Users (ITQ) (QCF)	3
Diploma for IT Users (ITQ) (RQF)	0
Diploma in IT User Skills	11
Diploma in IT User Skills (ITQ)	3
Diploma in IT User Skills (ITQ) (QCF)	23
Diploma in IT User Skills (QCF)	13
Functional Skills qualification in Information and Communication Technology (ICT)	65
Level 3	
Diploma for IT Users (ITQ)	1
Diploma for IT Users (ITQ) (RQF)	0
Diploma in IT User Skills	18
Diploma in IT User Skills (ITQ)	1
Diploma in IT User Skills (ITQ) (QCF)	3
Diploma in IT User Skills (QCF)	23
Software Developer	
Level 4 Plus	
Diploma in Software Development Methodologies	16
Diploma in Software Language	4
Diploma in Software Languages	1
Non regulated provision, Level 4, ICT for Users	15
Non regulated provision, Level 4, ICT Practitioners	30
ICT PRACTITIONERS	

Cyber Security Technologist	
Level 4 Plus	
Non regulated provision, Level 4, ICT for Users	1
Non regulated provision, Level 4, ICT Practitioners	9
Data Analyst	
Level 4 Plus	
Certificate in Data Analysis Tools	4
Diploma in Data Analysis Concepts	5
Non regulated provision, Level 4, ICT for Users	4
Non regulated provision, Level 4, ICT Practitioners	27
Digital and Technology Solutions Professional (integrated degree)	
Level 4 Plus	
BSc (Hons) in Apprenticeship Degree in Digital and Technology Solutions (Framework 418)	16
BSc (Hons) in Computer Science (Digital and Technology Solutions) - University of Leeds	1
BSc (Hons) in Digital and Technology Solutions	1
BSc (Hons) in Digital and Technology Solutions - Aston University	4
BSc (Hons) in Digital and Technology Solutions - Liverpool John Moores University	12
BSc (Hons) in Digital and Technology Solutions (Open University)	5
BSc Hons in Digital and Technology Solutions	0
Degree Apprenticeship in Digital and Technology Solutions - (Manchester Metropolitan University)	113
Non regulated provision, Level 6, ICT for Users	2
Non regulated provision, Level 6, ICT Practitioners	4
Digital and Technology Solutions Specialist (integrated degree)	
Level 4 Plus	
MSc in Digital and Technology Solutions - The Manchester Metropolitan University - Digital and Technology Solution Specialist Degree Apprenticeship	1
Digital Marketer	
Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	3
Level 3	
Award in the Principles of Coding	12
Certificate in Digital Marketing Business Principles	34
Certificate in Principles of Coding	20
Non regulated provision, Level 3, ICT for Users	16
Non regulated provision, Level 3, ICT Practitioners	118
Non regulated provision, Level 3, Media and Communication	11
Level 4 Plus	
Award in Digital Marketing (VRQ)	1
Employer Defined Programme	
Level 3	
Non regulated provision, Level 3, ICT Practitioners	0
Information Security	
Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	1
Infrastructure Technician	
Level 3	

(Technical) Diploma in Digital Technologies (VRQ)	1
Award in Coding and Logic	18
Diploma in Professional Competence for IT and Telecoms Professionals (QCF)	0
Extended Diploma in ICT Systems and Principles (QCF)	0
Non regulated provision, Level 3, ICT for Users	8
Non regulated provision, Level 3, ICT Practitioners	113
Level 4 Plus	
Non regulated provision, Level 4, ICT Practitioners	1
IS Business Analyst	
Level 4 Plus	
Non regulated provision, Level 4, ICT Practitioners	11
IT and Telecoms Professionals	
Below Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	5
Level 2	
Award in ICT Systems and Principles	1
Award in ICT Systems and Principles for Apprentices (QCF)	1
Certificate in ICT Systems and Principles	59
Certificate in ICT Systems and Principles (QCF)	11
Diploma in Professional Competence for IT and Telecoms Professionals	55
Diploma in Professional Competence for IT and Telecoms Professionals (QCF)	11
Functional Skills qualification in Information and Communication Technology (ICT)	56
Level 3	
Certificate in ICT Systems and Principles	7
Certificate in ICT Systems and Principles (QCF)	22
Certificate in ICT Systems and Principles for IT Professionals (PROCOM - Technical) (QCF)	0
Certificate in ICT Systems and Principles for Professionals	0
Certificate in ICT Systems and Principles for Professionals (QCF)	0
Certificate in IT	2
Diploma in ICT Systems and Principles	3
Diploma in ICT Systems and Principles (QCF)	12
Diploma in ICT Systems and Principles for IT Professionals	5
Diploma in ICT Systems and Principles for IT Professionals (QCF)	32
Diploma in IT (QCF)	4
Diploma in Professional Competence for IT and Telecoms Professionals	10
Diploma in Professional Competence for IT and Telecoms Professionals (PROCOM)	0
Diploma in Professional Competence for IT and Telecoms Professionals (PROCOM) (QCF)	0
Diploma in Professional Competence for IT and Telecoms Professionals (QCF)	29
Extended Diploma in ICT Systems and Principles	1
Extended Diploma in ICT Systems and Principles (QCF)	3
Extended Diploma in IT (QCF)	0
Subsidiary Diploma in IT (QCF)	2
Level 4 Plus	
BTEC HNC Diploma in Computing and Systems Development (QCF)	4
BTEC HND Diploma in Computing and Systems Development (QCF)	0
Diploma in Professional Competence for IT and Telecoms Professionals	3
Diploma in Professional Competence for IT and Telecoms Professionals (QCF)	3
Foundation Degree in Computing and IT Practice - (Framework 418)	1

Foundation Degree in Information and Communication Technology (Framework 418)	0
IT Technical Salesperson	
Level 3	
Non regulated provision, Level 3, ICT Practitioners	15
Network Engineer	
Level 4 Plus	
Non regulated provision, Level 4, ICT for Users	1
Non regulated provision, Level 4, ICT Practitioners	18
Software Development Technician	
Level 3	
Certificate in Software Development Technician Context and Methodologies	1
Non regulated provision, Level 3, ICT for Users	5
Non regulated provision, Level 3, ICT Practitioners	34
Software Tester	
Level 4 Plus	
Non regulated provision, Level 4, ICT for Users	1
Non regulated provision, Level 4, ICT Practitioners	1
Unified Communications Technician	
Level 3	
Certificate in ICT Systems and Principles	1
Non regulated provision, Level 3, ICT Practitioners	6
LAW AND LEGAL SERVICES	
Legal Services	
Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	6
MANUFACTURING TECHNOLOGIES	
Engineering	
Below Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	36
Level 2	
Functional Skills qualification in Information and Communication Technology	16
Functional Skills qualification in Information and Communication Technology (ICT)	226
Key Skills in Information and Communication Technology - Level 2	0
Level 3	
Certificate in Engineering Technologies	1
Certificate in Engineering Technologies (QCF)	5
Engineering Technology	
Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	0
Industrial Applications	
Below Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	0
Level 2	
Certificate in Engineering Technologies	1
Mechatronics Maintenance Technician	
Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	0
Operations and Quality Improvement	

Level 2	
Functional Skills qualification in Information and Communication Technology	6
Functional Skills qualification in Information and Communication Technology (ICT)	5
Polymer Processing and Signmaking	
Below Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	0
Print and Printed Packaging	
Level 3	
NVQ Diploma in Digital Pre Press for Print	2
NVQ Diploma in Digital Pre Press for Print (QCF)	2
NVQ Diploma in Digital Pre-Press for Print	1
NVQ Diploma in Digital Pre-Press for Print (QCF)	2
Process Technology	
Below Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	0
Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	8
Signmaking	
Below Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	1
MARKETING AND SALES	
Marketing and Communications	
Below Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	10
Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	20
Sales and Telesales	
Below Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	0
Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	0
Social Media and Digital Marketing	
Below Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	1
Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	98
Level 3	
Diploma in Digital Marketing	12
Diploma in Digital Marketing (QCF)	42
Diploma in Social Media for Business	2
Diploma in Social Media for Business (QCF)	64
Diploma in Social Media for Business (RQF)	3
Level 4 Plus	
Diploma in Digital Marketing	12
Diploma in Digital Marketing (QCF)	9
MEDIA AND COMMUNICATION	
Broadcast Production Assistant	
Level 3	

Non regulated provision, Level 3, Media and Communication	6
Creative and Digital Media	
Below Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	1
Level 2	
Award in Functional Skills Information and Communication Technology	0
Functional Skills qualification in Information and Communication Technology (ICT)	7
Level 3	
Certificate for Creative iMedia (QCF)	0
Certificate in Creative and Digital Media	6
Certificate in Creative and Digital Media (QCF)	6
Diploma in Creative and Digital Media	5
Diploma in Creative and Digital Media (QCF)	6
Diploma in Creative and Digital Media Competence (QCF)	0
Junior Content Producer	
Level 3	
Non regulated provision, Level 3, Media and Communication	8
PUBLIC SERVICES	
Community Safety	
Below Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	11
Employment Related Services	
Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	2
Housing	
Below Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	1
Intelligence Analysis	
Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	1
Providing Security Services	
Below Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	3
Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	1
SCIENCE	
Laboratory Technicians	
Below Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	1
Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	7
SERVICE ENTERPRISES	
Facilities Management	
Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	0
Level 4 Plus	
Foundation Degree in Computing and IT Practice - (Framework 418)	0
Property Services	

Below Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	13
Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	8
TEACHING AND LECTURING	
Learning and Development (Direct Training and Support)	
Below Level 2	
Award in Functional Skills Information and Communication Technology (ICT) (Entry 3)	0
Functional Skills qualification in Information and Communication Technology (ICT)	0
Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	17
Youth Work	
Below Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	1
TRANSPORTATION OPERATIONS AND MAINTENANCE	
Bus and Coach Engineering Technician	
Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	2
Marine Industry	
Below Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	1
Motor Vehicle Service and Maintenance Technician (light vehicle)	
Below Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	1
Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	1
Vehicle Body and Paint Operations	
Below Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	24
Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	21
Vehicle Maintenance and Repair	
Below Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	129
Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	129
Vehicle Parts Operations	
Below Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	13
Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	13
Vehicle Sales	
Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	1
WAREHOUSING AND DISTRIBUTION	
International Trade and Logistics Operations	
Below Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	1

Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	2
Logistics Operations Management	
Below Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	6
Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	16
Procurement	
Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	1
Supply Chain Management	
Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	5
Traffic Office	
Level 2	
Functional Skills qualification in Information and Communication Technology (ICT)	3
Grand Total	**6,026**

Annex 5 – Essential Digital Skills Framework

The slides below provide more information on the Essential Digital Skills Framework and the Consumer Digital Skills Index.

Cheshire and Warrington Local Enterprise Partnership

Essential Digital Skills Framework

The new Essential Digital Skills framework now comprises of three tiers and is progressive:

1. Foundation skills
People must be able to do all seven tasks as a prerequisite

2. Essential Digital Skills for life
Individuals must have all Foundation skills to be eligible and be able to do at least one task from all five of the skills

3. Essential Digital Skills for work
Individuals must be able to do at least one task in each of the life skills, be in employment, and be able to do at least one task in each of the work skills

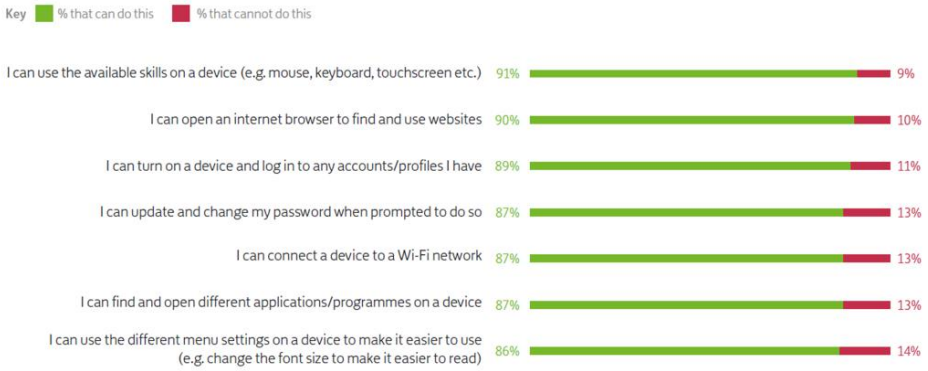
https://www.lloydsbank.com/banking-with-us/whats-happening/consumer-digital-index.html

Also - https://www.gov.uk/government/publications/essential-digital-skills-framework/essential-digital-skills-framework

Cheshire and Warrington Local Enterprise Partnership

Essential Digital Skills Framework – Foundation Skills (7 Tasks)

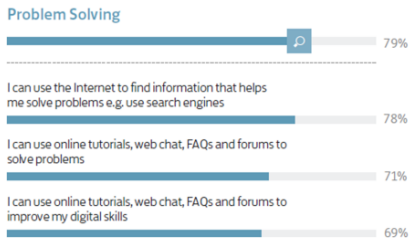
Figure 11. **Proportion of people aged 15+ that can and cannot do the Foundation tasks (prerequisite to Essential Digital Skills), 2019**



https://www.lloydsbank.com/banking-with-us/whats-happening/consumer-digital-index.html

Essential Digital Skills Framework – Essential Skills for Life (29 Tasks)

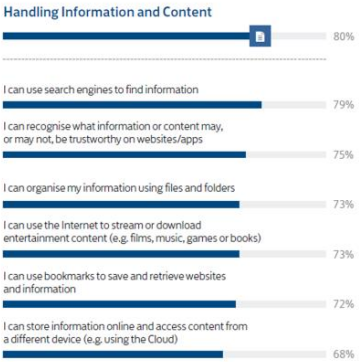
Cheshire and Warrington Local Enterprise Partnership



https://www.lloydsbank.com/banking-with-us/whats-happening/consumer-digital-index.html

Essential Digital Skills Framework – Essential Skills for Life (29 Tasks)

Cheshire and Warrington Local Enterprise Partnership



Essential Digital Skills Framework – Digital Skills for Work (29 Tasks)

Cheshire and Warrington Local Enterprise Partnership

Essential Digital Skills Framework – Digital Skills for Work (17 Tasks)

Cheshire and Warrington Local Enterprise Partnership

Essential Digital Skills Framework – Digital Skills for Work (17 Tasks)

Cheshire and Warrington Local Enterprise Partnership