

Digital Skills Evidence Base for South Yorkshire

June 2023

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1. EXECUTIVE SUMMARY

1.1 PURPOSE AND METHODOLOGY

Following the publication of South Yorkshire's broad-based Local Skills Improvement Plan (LSIP) Trailblazer of 2021/22, the 2023 LSIP focuses on the priority area of 'digital skills'. This 'Digital Skills Evidence Base for South Yorkshire' has been produced to inform the development of South Yorkshire's LSIP, examining a range of evidence to:

- Provide an understanding of the drivers of employer demand for digital skills: what these are, how they are changing, and how they are likely to find expression in demand for labour and training
- Provide an understanding of the digital skills that will make a difference to business and organisational performance in the region, now and in the future
- Inform and improve digital skills training provision and education curriculums across the region – and signposting to this provision – so that they better meet the needs of employers
- Ultimately ensure that businesses in the region have the skills they need to take full advantage of digital technology.

The evidence base draws together a range of data and research on the demand for and supply of digital skills in South Yorkshire, including:

- **Desk Research:** Key insights from national and regional research reports and datasets on digital skills. A full list of sources can be found in Chapter 8.
- **Primary Research:** A Digital Skills Survey of almost 600 businesses and organisations in South Yorkshire – and 116 in-depth one-to-one interviews, conducted between February and April 2023, to gain views on the digital skills that are important now, the digital skills that will grow in importance in two-to-five years' time, workforce digital skills gaps and shortages, digital skills training needs, gaps in provision, and modal preferences for training. Unless otherwise stated, the data presented throughout this evidence base are the unweighted results, i.e. the percentages of all respondents to the survey questions. The impact of weighting the results so that they are representative of South Yorkshire's business population is explored at the end of this chapter, in section 1.9.
- **Focus Groups:** Discussions with groups of businesses and organisations in February and March 2023 to gain views and experiences of digital skills needs and provision in the South Yorkshire.

The remainder of this chapter provides a summary of key findings from this review of evidence.

1.2 WHY FOCUS ON DIGITAL SKILLS? THE IMPORTANCE OF DIGITAL SKILLS TO SOUTH YORKSHIRE'S ECONOMY

Digital skills development is at the heart of regional skills priorities: The most recent plans that articulate South Yorkshire's skills priorities include the South Yorkshire Mayoral Combined Authority's Strategic Economic Plan (2022), South Yorkshire's Local Skills Improvement Plan Trailblazer (2022) and South Yorkshire People and Skills Manifesto (2022). All highlight the importance of improving digital skills development in the region, along with ensuring that education and training is responsive to employer needs and the rapidly changing needs of the economy, is easy for employers and learners to navigate, and promotes inclusivity for those underrepresented in the labour market.

Digital skills have a number of benefits for businesses and the workforce: For workers, evidence shows that digital skills carry a wage differential, promote career progression and may help workers avoid the risk of automation. For businesses, digital skills are responsible for a

minimum of 2.4% of a firm's bottom line and can help improve efficiency, reduce costs, enhance communication, and generate additional revenue streams. Adopting new tech tools and digitalising processes could also save businesses an average of 150 hours each year – worth the equivalent of £3,400 in wages.

Demand for digital skills has grown considerably and digital skills are now viewed as a top workplace skill in South Yorkshire: With a clear acceleration in the adoption of new technologies over the past few years, digital skills are seen as one of the top six workplace skills among South Yorkshire employers, with three quarters of employers viewing these skills as important.

Digital skills are becoming near-universal requirements for employment at all skill levels: Digital skills are now essential entry requirements for two-thirds of occupations, with these occupations accounting for 81% of job openings across Yorkshire and the Humber. Job seekers that do not possess in-demand digital skills risk consigning themselves to a narrow segment of the job market.

Specialist digital occupations now account for the second highest proportion of job openings in South Yorkshire: At the end of 2022, ICT professionals accounted for the second highest share of job openings in South Yorkshire after Healthcare. Demand for ICT professionals increased strongly throughout the COVID-19 pandemic, as the pace of digitisation, automation and AI accelerated due to the need to reduce human contact, digitise on-site customer experience and to enable home working.¹⁰⁰

The COVID-19 pandemic accelerated the pace of digitisation within business' internal operations and customer interactions by up to four years in 2020 as many businesses and organisations turned to technology to overcome the physical challenges of social distancing. Commentators expect some changes to be long-lasting, including remote working/virtual meetings, faster adoption of automation and AI, and the continuing growth of e-commerce.

Research on future skills demand is closely linked to discussions about technological change and its effects on employment and labour markets: The key megatrends that will shape the world of work in 2035 include technological advancement (digitisation, automation, artificial intelligence), ongoing shifts from manufacturing to service sectors, changing business models (e.g. shifts to digital/online services), changing working practices (e.g. flexible working and self-employment), demographic shifts, growing inequalities in the labour market, and environmental change. As a result of the evolving digital landscape, employers expect two-fifths of the roles in their workplace to alter significantly within the next five years.

The introduction of new technologies is the top reason for expected need for new skills among South Yorkshire employers: According to the 2019 Employer Skills Survey, 40% of South Yorkshire employers expected the introduction of new technologies or equipment to create new skills needs within their organisation – the top reason for expected need for new skills within their workforces. Survey evidence also shows that around one-half of South Yorkshire employers believe that the digital skills of their workforce will need to improve over the next few years to meet future needs.

Technological change will be a strong driver of demand for new high-skilled jobs in South Yorkshire. Between now and 2035, Science, Engineering and Technology Professionals are projected to account for the highest share of new job opportunities in South Yorkshire, representing 44% of all net employment growth across the region. Conversely, technological change will be a key driver of reduced demand for secretarial and low-skilled administrative workers, with overall employment declining most sharply for elementary administration and service occupations and secretarial and related occupations.

Within 20 years, 90% of all jobs will require some element of digital skills, with technological change tending to raise demand for higher-level skills while displacing lower skilled jobs.

Between now and 2035, almost two-thirds of demand for workers in South Yorkshire will be at degree level and above, and there will be a reduction in demand for those with no or low qualifications. Workers in low-skilled routine tasks or with low education levels are at the greatest risk of being displaced by technology whilst also lacking the skills to transfer into newly emerging opportunities.

Almost 43,000 jobs in South Yorkshire are at high risk of automation: 14,300 in Sheffield (6.9% of all jobs), 13,400 in Doncaster (13.0%), 8,100 in Barnsley (9.3%) and 6,900 in Rotherham (7.6%). Doncaster has the 19th highest share of jobs at high risk of 319 local authority areas in England for which data were available. Jobs at high-risk are most likely to be held by women, the youngest and oldest age groups, and people in part-time positions.

As well as improving business productivity and career outcomes for individuals, digital technology also has a key role in helping to achieve net zero greenhouse gas emissions by 2050 by enabling a shift towards zero-carbon solutions. The degree to which digital technologies will provide valuable tools in achieving net zero aims will depend on the ability of many segments of the population to interact with and use these technologies and to analyse the data that they generate. With many businesses not currently having the appropriate digital skills base, building digital skills and net zero knowledge at all levels must be a priority.

1.3 SUPPLY OF DIGITAL SKILLS

Yorkshire and the Humber has one of the highest percentages of adults lacking basic digital skills of all UK regions: In 2022, almost one-quarter of adults living in Yorkshire and the Humber lacked basic digital skills. The share of adults possessing the full set of basic digital skills in Yorkshire and the Humber was the third lowest of all UK regions. Of all basic digital skills, adults were least able to set up a connection to a Wi-Fi network on their devices and adjust settings on their devices to make them easier to use.

One-in-ten adults living in Yorkshire and the Humber lack essential digital skills for life: Life tasks that adults are least likely to be able to do include using the cloud to access content from different devices, setting privacy and marketing settings for websites and their accounts, posting on social media platforms, storing and backing up documents and other information, and using software to create, write or edit documents. Boosting skills and confidence in these activities are key to helping individuals become more digitally capable.

Almost one-quarter of adults lack essential digital skills for work. Across Yorkshire and the Humber, 23% of adults do not possess the essential digital skills for work – the joint third highest rate of all UK regions. Work tasks that people are least likely to be able to do include improving their own and/or the organisation's productivity using digital tools, setting privacy and marketing settings for websites and their accounts, accessing salary and tax information digitally, and setting up and managing an account on a professional online network/community/job site.

Working from home is the biggest incentive for improving digital skills for work: Across the UK, 91% of people are looking to improve their digital skills for personal use and 64% are upskilling for work use. Of those looking to improve skills for work use, the biggest drivers are 'needing to work at home' (63%) and 'wanting to improve their performance and productivity at work' (29%).

Some areas of South Yorkshire exhibit very high levels of digital poverty: The most digitally poor areas within South Yorkshire include those within the Mosborough, Darnall, Burngreave and Firth Park wards in Sheffield, the Adwick le Street & Carcroft and Conisbrough wards in Doncaster, Central ward in Barnsley and the Rotherham East ward.

Digital skills/new technologies are a key cause of skills gaps among South Yorkshire employers: The 2019 Employer Skills Survey showed that two-fifths of employers with skills gaps (i.e., workforce deficiencies) reported that digital skills needed to be improved among their workforces. The survey also found that the introduction of new technology was one of the top factors causing skills gaps in South Yorkshire, with one-third of employers with skills gaps reporting that these were due fully or in part to the introduction of new technology – well above the England average and the seventh highest rate of all 38 Local Enterprise Partnership areas.

Advanced digital skills gaps have increased over the past three years, suggesting that the pace of skills development is not matching the speed of technological adoption: Comparing data from the 2022 LSIP Trailblazer Employer Survey with those from the 2019 Employer Skills Survey show that basic IT skills gaps have reduced since 2019 but advanced IT skills gaps have increased: in 2022, 31% of employers said that their workforces did not have the advanced digital skills required, up from 22% in 2019.

The biggest workplace digital skills gaps in South Yorkshire relate to social media/digital marketing skills, web content management skills and data skills: Results from the South Yorkshire Digital Skills Survey show that the highest shares of organisations strongly disagreeing/disagreeing that their workforce currently meets the needs of the business relate to social media/digital marketing skills (27.6%), web content management skills (25.1%) and data skills (24.7%). These were the biggest digital skills gaps within micro, small and medium-sized businesses. For large businesses, their workforces were most deficient in data skills, social media/digital marketing skills, and computer programming and software development skills.

A lack of advanced digital skills in job applicants is a bigger cause of recruitment difficulties in South Yorkshire than many other areas of England and has increased sharply over time, highlighting that demand is increasing faster than supply: At the time of the 2019 Employer Skills Survey, South Yorkshire had one of the highest rates of skills shortage vacancies (SSVs) caused by a lack of advanced IT skills (25.4% of all SSVs) of all LEP areas (eighth highest of 38) and above the England average (20.8%). Recruitment difficulties caused by a lack of digital skills have also increased sharply: between 2013 and 2019, the percentage of recruiting establishments reporting that basic digital skills were lacking in applicants increased from 8.5% to 19.1% while the percentage reporting that advanced digital skills were lacking increased more sharply, from 10.1% to 25.4%.

South Yorkshire employers find it most difficult to recruit people with good data skills: The South Yorkshire Digital Skills Survey shows that employers experience most difficulty recruiting people with good data skills (50.1% strongly agree/agree that it is difficult to recruit people with these skills), followed by security, privacy and GDPR skills (40.2%), social media/digital marketing skills (38.7%) and project management skills (38.6%). Data skills are the biggest digital skills recruitment difficulty among all sizes of business, apart from sole traders, whose biggest digital skills recruitment difficulty is security/privacy/GDPR skills.

South Yorkshire employers also struggle to retain workers with good data skills: Employers in South Yorkshire find it most difficult to retain workers with good data skills (35.4% strongly agree/agree that it is difficult to retain people with these skills), followed by security, privacy and GDPR skills and (32.0%) and project management skills (31.9%).

1.4 DEMAND FOR DIGITAL SKILLS

The majority of organisations in South Yorkshire view technology as central to their business strategy or as being important but not key to their business strategy. Few regard technology as not relevant to their business (6.0%). Across different sizes of business, tech

adoption is highest among large businesses, with sole traders/micro businesses most likely to require help to apply technology within their business.

Organisations in South Yorkshire are most likely to use technology for customer relationships/marketing, managing finances and internal processes. Across different sizes of business, customer relationships/marketing, managing finances and internal processes are the top three drivers of technology use for all sizes apart from large businesses, where collecting and analysing data is a bigger driver than managing finances.

Nationally, baseline digital skills are most in demand among UK businesses: Baseline digital skills include the skills to use productivity software, such as the Microsoft Office Suite and Enterprise Resource Software Systems. These skills are requested in 80% of job openings for all digital occupations and are now seen as a 'ticket to entry' in the labour market.

South Yorkshire businesses have growing demand for digital skills across a range of job roles and functions, the most prominent of which being administration, followed by apprentices, comms/marketing, accounts, and business development. Businesses are also looking for digital skills to maximise value from a range of tech tools and platforms, particularly social media, using Customer Relationship Management systems (CRM), online marketing and sales, and website Content Management Systems (CMS).

In line with national findings, general office software skills are the most in-demand digital skill in South Yorkshire: When asked which digital skills were most important to South Yorkshire organisations now, the highest shares strongly agreed/agreed that general office software skills (94.9%) were important, followed by security, privacy and GDPR skills (87.8%), data skills (84.6%) and social media/digital marketing skills (80.5%).

Social media/digital marketing skills are seen as the biggest digital skills growth area among organisations in South Yorkshire: When asked which digital skills would be more important to their organisations in two-to-five years' time, the highest share strongly agreed/agreed that social media/digital marketing skills would be more important (77.1%), followed by security/privacy/GDPR skills (73.7%), general office software skills (73.4%), data skills (71.7%) and other software tools skills (69.7%). Across different business sizes, social media/digital marketing skills, security/privacy/GDPR skills, and general office software skills featured within the top three digital skills growth areas for most sizes of business.

There is strong correlation between the digital skills that are most important now and those that businesses believe will be more important in two-to-five years' time: The five most important digital skills now (social media/digital marketing skills, security/privacy/GDPR skills, general office software skills, data skills, and other software tools skills) are also those that employers believe will grow most in importance in two-to-five years' time.

Comparing digital skills that will grow in importance with current digital skills gaps highlights the importance of addressing workforce deficiencies in social media/digital marketing skills, data skills and web content management skills. These are the three biggest workforce digital skills gaps in South Yorkshire as well as some of the skills most important now and most likely to grow in importance over the next few years. Conversely, workforces are generally much more competent in other important digital skills growth areas, such as general office software skills and security/privacy/GDPR skills.

1.5. MARKET DEMAND FOR DIGITAL SKILLS TRAINING

Workplace training is becoming an increasingly important source of digital skills training: Because a large proportion of the 2030 workforce have already left compulsory education and

because the current pace of technological development is rapidly changing the digital skillsets required for work, employers cannot rely on the education system alone to satisfy industry's demand for digital skills in the short- to medium-term. Employers are therefore increasingly recognising their responsibility in bridging the digital skills gap, with nine-in-ten believing that they have a responsibility to boost the skills of existing staff and four-in-five believing that developing skills through workplace training is a more sustainable long-term strategy than hiring in new workers.

Data skills and social media/digital marketing skills training is in demand by more than two-thirds of South Yorkshire businesses: The South Yorkshire Digital Skills Survey asked businesses if their employees were likely to benefit from external digital skills training over the next two years. More than two-thirds indicated that their employees were likely to benefit from external data skills training (70.2%) and social media/digital marketing skills training (70.2%).

- ***Applying these rates to South Yorkshire's business population indicates that 29,000 businesses are likely to demand external data skills and social media/digital marketing skills training over the next two years***
- ***More than 25,000 businesses are also likely to demand external training in other software tools, security/privacy/GDPR, general office software, project management and web content management***

The majority of businesses anticipate training one-to-five employees for each type of digital skill. Businesses were most likely to train six or more employees in general office software skills (20.1%), other software tools (17.5%), security/privacy/GDPR (16.4%) and data skills (16.0%).

Key training requirements differ across business sizes: Micro and small businesses are most likely to benefit from external training in social media/digital marketing skills, data skills and security/privacy/GDPR skills, while medium and large businesses are most likely to benefit from external training in data skills, general office software skills and other software skills.

Blended learning is the preferred training method for South Yorkshire businesses: Overall, South Yorkshire employers prefer blended learning approaches for digital skills training, followed by in-house and online training. A low share of businesses prefer classroom-based training. Interviews with local businesses also highlight that businesses value short courses, in-house and online learning, along with software-provider training, flexible/tailored approaches to training, and blended learning. Demand is lowest for long courses and classroom-based training at an external venue.

Online sources of training are becoming increasingly popular among learners: Research by the World Economic Forum found that there has been a four-fold increase in the numbers of individuals seeking out opportunities for learning online through their own initiative, a five-fold increase in employer provision of online learning opportunities to their workers, and a nine-fold enrolment increase for learners accessing online learning through government programmes. In line with these findings, the latest Lloyds Consumer Digital Index found that more than four-in-five individuals identified online information as the easiest way to learn new digital skills, followed by self-teaching at their own pace with the flexibility to pick and choose materials that suit their needs.

1.6 GAPS IN LOCAL DIGITAL SKILLS PROVISION

The pace of technological change is a key driver of digital skills gaps, with more than half of employers stating that technology evolves too quickly for them to keep up with the skills required. Other factors contributing to a mismatch between the digital skills that employers demand and those that individuals possess include the agility of the education sector to meet rapidly-changing digital skills needs, inconsistent school provision of digital skills, insufficient provision of business support services linked to digital skills, and a lack of awareness of digital career opportunities.

South Yorkshire employers face several barriers to investing in digital skills. These include difficulties keeping pace with trends and changes in technology and, therefore, in creating long-term skills plans, the high cost of technology and related training, lack of understanding of the paths to tech adoption and consequent difficulties in setting out a digital roadmap, difficulties navigating digital skills provision and business support, and ageing workforces, with older workers more likely to lack digital skills but less receptive to digital training and tech adoption.

Where employers are seeking digital skills development opportunities for their employees, training in data skills, social media/digital marketing skills and web content management skills is hardest to find in South Yorkshire. These skills are, perhaps not coincidentally, the biggest digital skills workforce deficiencies in South Yorkshire, as described above.

Mapping likely future training needs against training that is hard to find indicates that there could be particularly large shortfalls in data skills and social media/digital marketing skills provision: These are the two digital skills types with the highest shares of businesses stating that employees are likely to benefit from external training as well as the top two digital skills types where training is hardest to find.

Interviews with training providers highlighted several constraints on the supply of digital skills training in South Yorkshire. In particular, there is difficulty recruiting quality trainers who can adjust their sessions to individual business needs, as well as a lack of suitable training facilities, coupled with challenges for the training sector itself in keeping pace with digital training needs and developing timely training provision.

In terms of digital skills education, the pipeline of digital skills through the education and skills system is not providing the skills at the scale needed, with Computing/ICT education forming a low percentage of education at all levels. In both schools and further education, the number of people taking ICT courses has also declined in recent years. Teacher shortages is a key driver of digital education deficiencies in schools, with recruitment and retention issues common in secondary STEM education.

There are large gender gaps in digital education with females much less likely than males to study IT subjects: Males are more than three times more likely than females to enter an ICT/Computer Science GCSE (UK, 2022), more than five times more likely to enter an ICT/Computer Science A Level (UK, 2022), 2.5 times more likely to complete an ICT apprenticeship (South Yorkshire, 2021/22) and three times more likely to start a Computing degree (UK, 2021/22). Poorer students are also less likely to take a Computer Science GCSE, which correlates with a higher proportion of disadvantaged students lacking access to a computer at home.

A large proportion of employers do not believe that the education system equips young people with the advanced digital skills that they need: National surveys have shown that two-in-five employers disagree that young people leaving full time education have the advanced digital skills that they need, while little over a quarter of businesses believe that the education system offers adequate digital training for pupils. Interviews with South Yorkshire businesses have also highlighted frustration with the lack of emphasis on IT skills within schools.

1.7 CONCLUSIONS

The Importance of Digital Skills to South Yorkshire's Economy: The demand for digital skills in South Yorkshire has grown significantly over the years, and this trend is likely to continue in the future. The COVID-19 pandemic accelerated this trend, with digitisation becoming more critical to business operations and customer interactions. Digital skills are already an essential entry requirement for two-thirds of occupations today; this is projected to rise to 90% within a generation. To meet the needs of employers and job-seekers, colleges, schools, and training providers in the

region will need to provide relevant and high-quality digital skills education and training. This means provision that caters to the needs of different skill levels and occupations, considering the growing near-universal requirements for digital skills. They will also need to ensure that provision keeps pace with the evolving technological landscape.

Digital Skills Supply and Demand: The evidence points to a need for South Yorkshire to increase the availability and accessibility of digital skills training, with a focus on data skills, social media/digital marketing skills and website management. These are in high demand but employers point to workforce deficiencies and a lack of training provision. Training providers should prioritise developing comprehensive and up-to-date training programmes in these areas to meet the needs of the large number of businesses seeking this type of training. This could involve partnering with industry experts and technology providers to ensure that training is relevant, current, and meets the needs of employers in South Yorkshire.

Modes of Training: The evidence suggests that to meet employer needs, education and training providers should offer a range of blended learning options for digital skills training, which is the preferred training method for businesses in South Yorkshire. This could involve developing flexible training programmes that combine online learning modules with in-person or on-the-job training, as well as offering bespoke training solutions to meet the specific needs of individual businesses.

Training Gaps and Barriers: Barriers to digital skills training include difficulty keeping pace with technological change, the cost of technology and training, and difficulty navigating provision. While some of the policy levers are outside the scope of the LSIP, the region's skills system role-players could explore alternative funding models and provide more guidance on digital adoption and road-mapping. The evidence also suggests there is an opportunity for the education system to provide more comprehensive and inclusive digital skills education, particularly for underrepresented groups, to ensure a sustainable pipeline of digital talent for the future workforce.

1.8 SUMMARY OF HEADLINE RESULTS FROM THE SOUTH YORKSHIRE DIGITAL SKILLS SURVEY 2023

Table 1.1: Headline Skills Results from the South Yorkshire Digital Skills Survey 2023

Indicative priorities: data skills and social media/digital marketing skills

■ Skills ranked 1-3 out of 11 ■ Skills ranked 4-6 out of 11

Digital Skill Area	Important to Business Now	More Important to Business in 2-5 Years' Time	Skills Gap (The Workforce Doesn't Meet Business Needs)	Hard to Recruit	Hard to Retain	Hard to Find Training	Businesses Likely to Benefit from Training in the Next Two Years
Data skills	84.6%	71.7%	24.7%	50.1%	35.4%	41.0%	70.2%
General office software skills	94.9%	73.4%	14.3%	29.8%	23.3%	29.9%	67.1%
Other software tools skills	77.9%	69.7%	18.6%	37.9%	30.9%	34.5%	68.2%
Social media/digital marketing skills	80.5%	77.1%	27.6%	38.7%	30.3%	38.4%	70.2%
Web content management skills	74.1%	66.3%	25.1%	37.0%	28.4%	37.2%	63.0%
Security, privacy, GDPR skills	87.8%	73.7%	13.5%	40.2%	32.0%	36.2%	67.8%
Computer programming and software development skills	35.9%	37.2%	18.7%	26.4%	22.0%	24.7%	39.2%
Specialist computer-controlled equipment skills	29.0%	27.4%	10.6%	23.2%	18.4%	20.9%	39.0%
Digital design skills	51.9%	47.4%	16.4%	29.3%	25.9%	28.3%	52.2%
Business process automation skills	50.3%	46.4%	17.6%	32.1%	28.0%	30.6%	53.2%
Project management skills	74.1%	63.3%	17.6%	38.6%	31.9%	34.4%	63.2%

Source: South Yorkshire Digital Skills Survey, February to April 2023

Table 1.2: Headline Skills Results from the South Yorkshire Digital Skills Survey 2023 Applied to Numbers of Businesses in South Yorkshire

Indicative priorities: data skills and social media/digital marketing skills

■ Skills ranked 1-3 out of 11 ■ Skills ranked 4-6 out of 11

Digital Skill Area	Important to Business Now	More Important to Business in 2-5 Years' Time	Skills Gap (The Workforce Doesn't Meet Business Needs)	Hard to Recruit	Hard to Retain	Hard to Find Training	Businesses Likely to Benefit from Training in the Next Two Years
Data skills	35,000	29,600	10,200	20,700	14,600	17,000	29,000
General office software skills	39,200	30,400	5,900	12,300	9,700	12,400	27,800
Other software tools skills	32,200	28,800	7,700	15,700	12,800	14,200	28,200
Social media/digital marketing skills	33,300	31,900	11,400	16,000	12,500	15,900	29,000
Web content management skills	30,600	27,400	10,400	15,300	11,700	15,400	26,100
Security, privacy, GDPR skills	36,300	30,500	5,600	16,600	13,200	14,900	28,000
Computer programming and software development skills	14,800	15,400	7,700	10,900	9,100	10,200	16,200
Specialist computer-controlled equipment skills	12,000	11,300	4,400	9,600	7,600	8,600	16,100
Digital design skills	21,500	19,600	6,800	12,100	10,700	11,700	21,600
Business process automation skills	20,800	19,200	7,300	13,300	11,600	12,700	22,000
Project management skills	30,600	26,200	7,300	16,000	13,200	14,200	26,100

Source: South Yorkshire Digital Skills Survey, February to April 2023. Numbers generated by applying survey rates to South Yorkshire's business population (UK Business Counts 2022, Office for National Statistics) – rounded to the nearest 100

1.9 NOTE ON SURVEY REPRESENTATIVENESS

Survey representativeness refers to how well the sample of survey respondents represents the business population in South Yorkshire. Using official data from the Office for National Statistics' 'UK Business Counts 2022', it is possible to compare the survey sample to the size and sectoral profile of South Yorkshire's business population.

With regard to business size, micro businesses were under-represented among survey respondents (52.2% of respondents vs 88.1% of the business population), while small, medium and large businesses were over-represented.

Table 1.3: Share of South Yorkshire Skills Survey 2023 Respondents by Size Compared to the Size Profile of South Yorkshire Businesses 2022

	Business Population 2022	Survey Responses
Micro (0 to 9 employees)	88.1%	52.2%
Small (10 to 49 employees)	9.8%	25.6%
Medium (50 to 249 employees)	1.7%	13.1%
Large (250+ employees)	0.4%	8.8%

Source: UK Business Counts, Office for National Statistics and South Yorkshire Digital Skills Survey, February to April 2023

With regard to business sectors, Wholesale and Retail Trade was the most under-represented sector among survey respondents (5.4% of respondents vs 16.8% of the business population), while the Other Service Activities and Manufacturing sectors were over-represented. Businesses were asked to self-select their business sector within the survey so it is possible that many misclassified themselves as 'Other Service Activities'.

Table 1.4: Share of South Yorkshire Skills Survey 2023 Respondents by Sector Compared to the Sector Profile of South Yorkshire Businesses 2022

	Business Population 2022	Survey Responses
Agriculture, forestry and fishing	2.1%	1.4%
Mining and quarrying	0.0%	0.2%
Manufacturing	6.7%	13.8%
Energy	0.1%	1.8%
Water Supply	0.5%	0.5%
Construction	14.9%	8.2%
Wholesale and retail trade	16.8%	5.4%
Transportation and storage	9.8%	2.9%
Accommodation and food service activities	7.7%	2.0%
Information and communication	4.8%	5.7%
Financial and insurance activities	1.7%	3.8%
Real estate activities	3.4%	1.6%
Professional, scientific and technical activities	11.7%	5.7%
Administrative and support service activities	7.1%	2.3%
Public administration and defence	0.2%	1.1%
Education	1.9%	6.3%
Human health and social work activities	4.2%	6.6%
Arts, entertainment and recreation	2.2%	4.8%
Other service activities	4.3%	25.9%

Source: UK Business Counts, Office for National Statistics and South Yorkshire Digital Skills Survey, February to April 2023

By weighting the survey results by business size or business sector, it is possible to determine how the under- and over-representation of different business sizes and sectors has affected the survey's headline results. It is not possible to weight the results by both business size and sector due to insufficient sample size.

The following tables compare the unweighted headline indicators with weighted averages for business size and sector – calculated by multiplying each data point by its weight and then summing the results. For business size, weighted averages have been calculated as follows:

$$\begin{aligned}
 & ((\% \text{ micro businesses}^1 \text{ strongly/(dis)agreeing/(dis)agreeing} \times \text{number of micro businesses in South} \\
 & \qquad \qquad \qquad \text{Yorkshire}) \\
 & \qquad \qquad \qquad + \\
 & (\% \text{ small businesses strongly/(dis)agreeing/(dis)agreeing} \times \text{number of small businesses in South} \\
 & \qquad \qquad \qquad \text{Yorkshire}) \\
 & \qquad \qquad \qquad + \\
 & (\% \text{ medium businesses strongly/(dis)agreeing/(dis)agreeing} \times \text{number of medium businesses in} \\
 & \qquad \qquad \qquad \text{South Yorkshire}) \\
 & \qquad \qquad \qquad + \\
 & (\% \text{ large businesses strongly/(dis)agreeing/(dis)agreeing} \times \text{number of large businesses in South} \\
 & \qquad \qquad \qquad \text{Yorkshire})) \\
 & \qquad \qquad \qquad / \\
 & \qquad \qquad \qquad \text{Total number of businesses in South Yorkshire} \times 100
 \end{aligned}$$

The same principle has been applied to creating weighted averages for business sectors. Weighting by business size generates the biggest differences to the unweighted results, with regard to slightly reducing the scale of overall digital skills demand and supply issues, by increasing the weight given to responses from micro businesses. However, the profile of the most important digital skills needs and supply problems in South Yorkshire is similar for each set of results.

¹ Sole traders and businesses with 2-9 employees. While the South Yorkshire Digital Skills Survey 2023 provides results for both sole traders and businesses with 2-9 employees, official data from the Office for National Statistics on South Yorkshire's business profile by employment size provides information on the numbers of businesses with 0-9 employees only. To calculate weighted averages by business size, it has therefore been necessary to aggregate the survey results for sole traders and businesses with 2-9 employees.

Table 1.5: These Digital Skills are Important to My Business Now – Unweighted vs Weighted Results

Skills ranked 1-3 out of 11
 Skills ranked 4-6 out of 11

Important to Business Now	unweighted	weighted by size	weighted by sector
Data skills	84.6%	79.0%	84.2%
General office software skills	94.9%	92.6%	93.2%
Other software tools skills	77.9%	71.6%	78.8%
Social media / digital marketing skills	80.5%	75.8%	80.5%
Web content management skills	74.1%	70.3%	73.1%
Security, privacy, and GDPR skills	87.8%	84.1%	84.4%
Computer programming / software development skills	35.9%	29.2%	34.2%
Specialist computer-controlled equipment skills	29.0%	22.5%	28.0%
Digital design skills	51.9%	47.8%	47.1%
Business process automation skills	50.3%	41.6%	48.4%
Project management skills	74.1%	67.2%	72.5%

Source: South Yorkshire Digital Skills Survey, February to April 2023

Table 1.6: These Digital Skills Will Be More Important to My Business In 2-5 Years – Unweighted vs Weighted Results

Skills ranked 1-3 out of 11
 Skills ranked 4-6 out of 11

Important to Business Now	unweighted	weighted by size	weighted by sector
Data skills	71.7%	66.9%	73.1%
General office software skills	73.4%	72.5%	71.9%
Other software tools skills	69.7%	67.4%	70.2%
Social media / digital marketing skills	77.1%	75.7%	79.5%
Web content management skills	66.3%	64.9%	64.7%
Security, privacy, and GDPR skills	73.7%	71.3%	71.0%
Computer programming / software development skills	37.2%	32.3%	35.3%
Specialist computer-controlled equipment skills	27.4%	23.1%	26.1%
Digital design skills	47.4%	44.2%	44.1%
Business process automation skills	46.4%	40.5%	46.7%
Project management skills	63.3%	58.5%	62.0%

Source: South Yorkshire Digital Skills Survey, February to April 2023

Table 1.7: Skills Gaps – The Workforce Doesn’t Meet the Needs of the Business – Unweighted vs Weighted Results

Skills ranked 1-3 out of 11
 Skills ranked 4-6 out of 11

Important to Business Now	unweighted	weighted by size	weighted by sector
Data skills	24.7%	21.9%	25.2%
General office software skills	14.3%	11.8%	16.9%
Other software tools skills	18.6%	16.4%	17.2%
Social media / digital marketing skills	27.6%	21.9%	26.8%
Web content management skills	25.1%	22.6%	23.5%
Security, privacy, and GDPR skills	13.5%	9.7%	13.7%
Computer programming / software development skills	18.7%	15.5%	19.0%
Specialist computer-controlled equipment skills	10.6%	9.5%	9.9%
Digital design skills	16.4%	15.9%	14.2%
Business process automation skills	17.6%	13.4%	18.1%
Project management skills	17.6%	12.9%	17.1%

Source: South Yorkshire Digital Skills Survey, February to April 2023

Table 1.8: These Digital Skills are Hard to Recruit – Unweighted vs Weighted Results

Skills ranked 1-3 out of 11
 Skills ranked 4-6 out of 11

Important to Business Now	unweighted	weighted by size	weighted by sector
Data skills	50.1%	40.9%	49.2%
General office software skills	29.8%	26.3%	30.0%
Other software tools skills	37.9%	32.2%	38.9%
Social media / digital marketing skills	38.7%	30.8%	37.2%
Web content management skills	37.0%	30.5%	34.6%
Security, privacy, and GDPR skills	40.2%	34.2%	35.6%
Computer programming / software development skills	26.4%	20.9%	24.5%
Specialist computer-controlled equipment skills	23.2%	16.9%	21.4%
Digital design skills	29.3%	23.0%	24.9%
Business process automation skills	32.1%	24.3%	32.4%
Project management skills	38.6%	29.7%	40.3%

Source: South Yorkshire Digital Skills Survey, February to April 2023

Table 1.9: These Digital Skills are Hard to Retain – Unweighted vs Weighted Results

Skills ranked 1-3 out of 11
 Skills ranked 4-6 out of 11

Important to Business Now	unweighted	weighted by size	weighted by sector
Data skills	35.4%	26.5%	36.1%
General office software skills	23.3%	19.3%	18.2%
Other software tools skills	30.9%	25.8%	29.0%
Social media / digital marketing skills	30.3%	22.8%	29.3%
Web content management skills	28.4%	22.3%	26.5%
Security, privacy, and GDPR skills	32.0%	27.1%	31.2%
Computer programming / software development skills	22.0%	16.4%	26.2%
Specialist computer-controlled equipment skills	18.4%	12.5%	20.4%
Digital design skills	25.9%	18.4%	26.3%
Business process automation skills	28.0%	21.0%	24.9%
Project management skills	31.9%	23.6%	29.5%

Source: South Yorkshire Digital Skills Survey, February to April 2023

Table 1.9: It is Hard to Find Training for these Digital Skills – Unweighted vs Weighted Results

Skills ranked 1-3 out of 11
 Skills ranked 4-6 out of 11

Important to Business Now	unweighted	weighted by size	weighted by sector
Data skills	41.0%	35.8%	42.4%
General office software skills	29.9%	27.7%	28.5%
Other software tools skills	34.5%	31.3%	36.3%
Social media / digital marketing skills	38.4%	33.8%	37.3%
Web content management skills	37.2%	34.2%	37.8%
Security, privacy, and GDPR skills	36.2%	33.1%	34.8%
Computer programming / software development skills	24.7%	21.0%	21.6%
Specialist computer-controlled equipment skills	20.9%	17.3%	18.8%
Digital design skills	28.3%	25.1%	24.6%
Business process automation skills	30.6%	25.7%	29.1%
Project management skills	34.4%	30.5%	35.4%

Source: South Yorkshire Digital Skills Survey, February to April 2023

Table 1.10: Percentage of Businesses Likely to Benefit from External Training Over the Next Two Years – Unweighted vs Weighted Results

■ Skills ranked 1-3 out of 11 ■ Skills ranked 4-6 out of 11

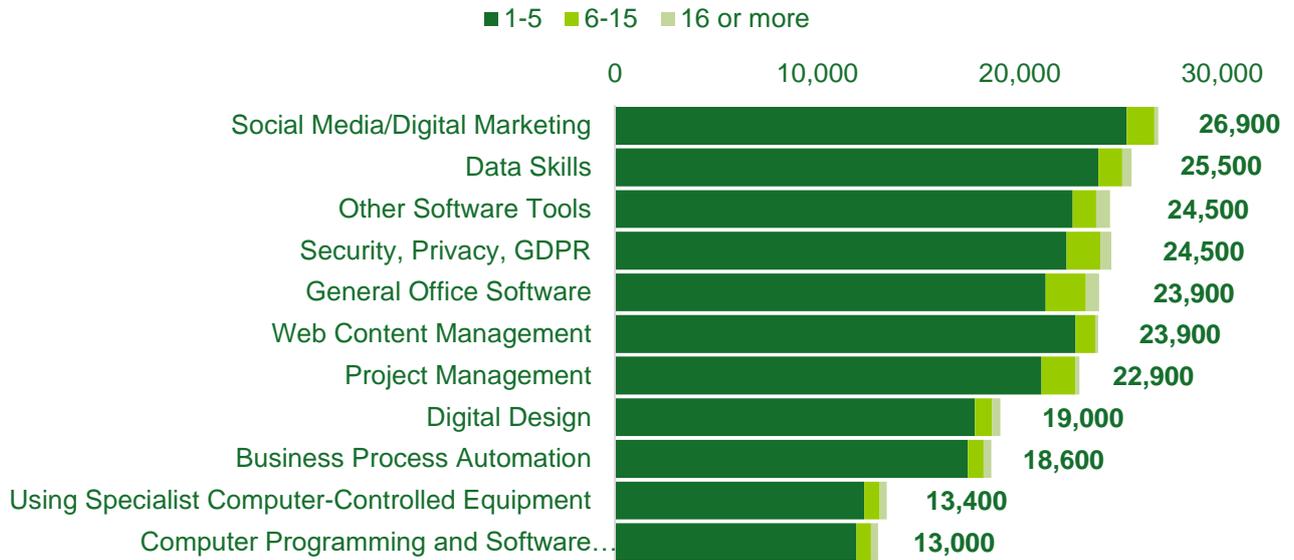
Important to Business Now	unweighted	weighted by size	weighted by sector
Data skills	70.2%	61.7%	70.6%
General office software skills	67.1%	57.9%	68.8%
Other software tools skills	68.2%	59.2%	69.6%
Social media / digital marketing skills	70.2%	65.0%	71.4%
Web content management skills	63.0%	57.7%	60.5%
Security, privacy, and GDPR skills	67.8%	59.3%	66.6%
Computer programming / software development skills	39.2%	31.4%	37.6%
Specialist computer-controlled equipment skills	39.0%	32.5%	37.8%
Digital design skills	52.2%	46.0%	49.1%
Business process automation skills	53.2%	45.0%	53.9%
Project management skills	63.2%	55.5%	63.5%

Source: South Yorkshire Digital Skills Survey, February to April 2023

Given that micro businesses were significantly under-represented in the survey sample and that weighting the results by business size has the effect of reducing the overall forecast demand for digital skills training, it would be sensible for the LSIP to plan digital skills provision on the basis of the headline results weighted by business size. The following chart and table converts the business-size-weighted headline indicator rates to numbers of businesses in South Yorkshire to provide an idea of the scale of demand for digital skills training. This shows that:

- **Almost 27,000 businesses are likely to demand social media/marketing skills training over the next two years.**
- **Around 25,000 businesses are likely to demand training in data skills, other software tools skills, security/privacy/GDPR skills**
- **Almost 24,000 businesses are likely to demand training in general office software skills and web content management skills**
- **Almost 23,000 businesses are likely to demand project management skills training**

Chart 1.1: Number of South Yorkshire Businesses Likely to Benefit from External Digital Skills Training Over the Next Two Years, by Types of Digital Skill and Numbers of Employees to be Trained, 2023 – results weighted by business size



Source: South Yorkshire Digital Skills Survey, February to April 2023, Weighted by Business Size

Table 1.11: Headline Skills Results from the South Yorkshire Digital Skills Survey 2023 Weighted by Business Size and Applied to Numbers of Businesses in South Yorkshire

Indicative priorities: data skills, security/privacy/GDPR skills and social media/digital marketing skills

■ Skills ranked 1-3 out of 11 ■ Skills ranked 4-6 out of 11

Digital Skill Area	Important to Business Now	More Important to Business in 2-5 Years' Time	Skills Gap (The Workforce Doesn't Meet Business Needs)	Hard to Recruit	Hard to Retain	Hard to Find Training	Businesses Likely to Benefit from Training in the Next Two Years
Data skills	32,700	27,700	9,100	16,900	10,900	14,800	25,500
General office software skills	38,300	30,000	4,900	10,900	8,000	11,500	23,900
Other software tools skills	29,600	27,900	6,800	13,300	10,700	12,900	24,500
Social media/digital marketing skills	31,300	31,300	9,000	12,700	9,400	14,000	26,900
Web content management skills	29,100	26,800	9,400	12,600	9,200	14,100	23,900
Security, privacy, GDPR skills	34,800	29,500	4,000	14,100	11,200	13,700	24,500
Computer programming and software development skills	12,100	13,400	6,400	8,600	6,800	8,700	13,000
Specialist computer-controlled equipment skills	9,300	9,600	3,900	7,000	5,100	7,200	13,400
Digital design skills	19,700	18,300	6,600	9,500	7,600	10,400	19,000
Business process automation skills	17,200	16,800	5,500	10,000	8,700	10,600	18,600
Project management skills	27,800	24,200	5,300	12,300	9,800	12,600	22,900

Source: South Yorkshire Digital Skills Survey, February to April 2023. Business-size-weighted numbers generated as follows: (% micro businesses strongly/(dis)agreeing/(dis)agreeing x number of micro businesses in South Yorkshire) + (% small businesses strongly/(dis)agreeing/(dis)agreeing x number of small businesses in South Yorkshire) + (% medium businesses strongly/(dis)agreeing/(dis)agreeing x number of medium businesses in South Yorkshire) + (% large businesses strongly/(dis)agreeing/(dis)agreeing x number of large businesses in South Yorkshire)

2. WHY FOCUS ON DIGITAL SKILLS?: THE IMPORTANCE OF DIGITAL SKILLS TO SOUTH YORKSHIRE'S ECONOMY

2.1 SKILLS PRIORITIES IN SOUTH YORKSHIRE

The most recent plans that articulate South Yorkshire's skills priorities include the South Yorkshire Mayoral Combined Authority's Strategic Economic Plan (2022), South Yorkshire's Local Skills Improvement Plan Trailblazer (2022) and South Yorkshire People and Skills Manifesto (2022). All highlight the importance of improving digital skills development in the region, along with ensuring that education and training is responsive to employer needs and the rapidly changing needs of the economy, is easy for employers and learners to navigate, and promotes inclusivity for those underrepresented in the labour market.

Our Strategic Economic Plan 2021-2041, South Yorkshire Mayoral Combined Authority, January 2022

SYMCA's Strategic Economic Plan (SEP) 2021-2041 is a 20-year plan for creating inclusive economic growth across South Yorkshire, setting out what needs to be done to grow the economy and transform the lives and wellbeing of people across South Yorkshire. The SEP looked to address a number of skills and employment issues within the region, including below average performance in formal education, a below average qualifications profile among the region's jobs with a lack of progression routes, high rates of poverty and worklessness, diversity challenges within the labour market – particularly for women and certain ethnic groups, mismatches in the employment and skills system with a lack of alignment between business needs and education and training provision, and risk to jobs of automation, particularly in sectors that have created the most jobs in South Yorkshire over the past decade. To address these issues, skills priorities within the SEP included:

- More investment in vocational education infrastructure and apprenticeships
- Targeting adult vocational education skills funding towards provision that explicitly meets the needs of employers & learners and links to areas of employment growth
- Ensuring that employers are better integrated in the skills system, with deep and effective collaborations between businesses, education, and training providers to drive skills development
- Stimulating the development of bespoke training and upskilling packages to employers
- Securing commitment from local businesses to invest in the development of technical skills
- Establishing South Yorkshire as a place for world-class technical education
- Developing a new approach to lifelong learning, ensuring that learners can respond to the changing needs of the economy
- Delivering an all-age careers service that helps people to make informed skills and career choices
- Developing programmes to help those out of work to get into and progress in work - linked to areas of economic opportunity.

The SEP also looked at how greater adoption of digital technology could increase prosperity throughout South Yorkshire, acknowledging that the quality and coverage of the region's digital infrastructure is critical to realising future ambitions. However, the SEP recognised that digital exclusion is high while businesses have expressed frustration at the apparent mismatch between supply and demand in a fast-moving, technology rich environment. The SEP set out the region's digital ambition: for South Yorkshire to *be 'recognised as one of the best-connected regions in the country where coverage, choice, and speed of communication stays ahead of demand and where there is an abundance of multi-skilled, digitally mature individuals to cater for every industry's business needs.'*

To achieve this, the SEP focused on four strategic areas:

- **Secure cutting-edge digital infrastructure** to develop smart communities by extending digital connectivity coverage (full fibre and 5G) across the whole of South Yorkshire
- **Improve digital skills** to increase understanding and take-up of digital technologies by developing, attracting and retaining talent, increasing the supply of digital skills, and ensuring that digital technology and curricula are relevant to rapidly-changing business needs
- **Build inclusivity**, by widening participation and building capacity for all, ensuring that all residents have at least basic access, skills and confidence to harness the benefits of digital in their lives and work
- **Support business innovation and growth**, by supporting SMEs to become full-fibre and 5G connected, providing better links to schools, colleges and universities to access future digital skills, and enable them to exploit the commercial benefits of digital applications and services.

Local Skills Improvement Plan Trailblazer, South Yorkshire Chambers of Commerce, March 2022

The South Yorkshire Local Skills Improvement Plan (LSIP) Trailblazer was led by the three South Yorkshire Chambers of Commerce and published in March 2022. LSIPs were introduced in the Skills for Jobs White Paper in 2021 with eight areas chosen to deliver trailblazer plans – employer-led initiatives that put business engagement at the heart of the sub-regional skills agenda to reshape skills training provision to better meet the needs of local employers. South Yorkshire's LSIP Trailblazer was formed around five key themes and sets of recommendations:

1. **Navigation:** A series of practical but ambitious measures resulting in a skills system that is easier to navigate, with clear points of entry and that delivers high-quality provision led by the needs of business.
2. **Proactive Employer Engagement:** A set of actions to enable employers to actively inform learning design and delivery.
3. **Responsive Provision:** A series of transformative measures to bring curricula and programme design closer to the world of work, ensuring that provision delivers what employers want, when and where they want it.
4. **Celebrating Success:** Promoting South Yorkshire as a place with excellent career opportunities and raising the profile of what local partners do to deliver better outcomes for businesses and communities, ensuring that good practice does not operate in isolated pockets.
5. **Promoting Better Pathways:** Promoting better pathways to skills development and employment resulting in a more inclusive South Yorkshire workforce.

The LSIP Trailblazer highlighted the need for increased levels of digital skills within the South Yorkshire workforce due to many employers lacking a full understanding of digital skills, capabilities and applications and struggling to access and utilise these skills or upskill their workforce.

People and Skills Manifesto, South Yorkshire Chambers of Commerce, April 2022

Following the publication of the LSIP Trailblazer, the three South Yorkshire Chambers jointly produced the 'South Yorkshire Chambers People and Skills Manifesto'. The Manifesto set out 40 actions that businesses, skills providers, regional and national government should take to deliver a skills system that genuinely responds to business needs and to achieve the following five outcomes, strongly linked to the LSIP Trailblazer themes:

1. A modern customer journey, with businesses better able to **navigate** the skills system
2. Co-creation and proactive **engagement** of business in the design of policy, skills and training products
3. Cutting-edge skills delivery that is **responsive** to the changing needs of employers
4. Higher visibility of growth opportunities through skills, with effective **marketing** to business
5. The release of, and better business connections to, the **hidden workforce potential** in our communities.

Again, the People and Skills Manifesto highlighted the increased importance of digital skills to employers over the next five years, the scale of digital skills gaps faced by South Yorkshire businesses, and the need to identify the region's digital skills needs and modes of training delivery.

2.2 WHAT ARE DIGITAL SKILLS?

The ongoing development of information and communication technologies means that digital skills are notoriously difficult to define. In its 'No Longer Optional: Employer Demand for Digital Skills' report (2019), the Department for Digital, Culture, Media and Sport (DCMS) defined digital skills as 'competences in and/or knowledge of IT tools including computer programs and programming languages' and classified the digital skills required by employers into 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** (i.e. productivity software) are the literacy skills that employers ask for in the vast majority of jobs across all sectors in the UK labour market. Microsoft Excel is the most commonly requested productivity software skill, followed by other elements of the Microsoft Office Suite, and Enterprise Resource Planning software, such as SAP and Oracle. In addition, these skills often serve as the foundation for more advanced digital positions and so are requested for jobs at all skill levels. **These proficiencies are increasingly becoming a basic skill requirement for a majority of occupations.** Basic digital skills therefore no longer provide a competitive advantage and it takes more than being proficient in these skills to take full advantage of the digital economy.
- **Specific Digital Skills** are digital skills not found in the baseline category and which are not required across the majority of jobs, but define or dominate specific roles or sectors. They include digital skill requirements for more technically-oriented jobs. Specific digital skills can be broken down into seven clusters: Software and Programming, Networking Systems, Data Analysis, Digital Marketing, Digital Design, Customer Relationship Management Software, and Machining and Manufacturing Technology.

The skills and occupations most relevant to these clusters are detailed in the table below. To note: these were the skills and occupations most relevant to these clusters in 2019. It is possible that these skills and occupations may have changed over the four years since this report was published due to rapid technological transformation since the COVID-19 pandemic, particularly the range of skills included within the Baseline/Productivity cluster.

Table 2.1: Digital Skills Clusters

Digital Skill Type	Digital Skill Cluster	Description	Common Occupations
BASELINE	Productivity Software	Skills such as Word and Excel, Enterprise Resource Planning (ERP), Project Management Software, SAP	Administrative Customer Service
	Software & Programming	Programming languages, e.g., Java, SQL, Python	Programmers Software Developers Database Administrators
SPECIFIC	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 such as 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	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 Technologies/DCMS

2.3 BENEFITS OF DIGITAL SKILLS FOR THE WORKFORCE

The DCMS report found that digital skills have the following benefits for workers:

Digital skills carry a wage differential: Overall, roles requiring digital skills pay 29% (£8,300 per annum) more than those roles that do not (£37,000 p.a. vs £28,700 p.a.). This difference is apparent at all skill levels, but particularly higher-skilled roles: 14% higher (+£2,700) for low-skilled jobs, 19% higher (+£5,800) for middle-skill jobs and 33% higher (+£11,300) for high-skilled jobs. The Open University² also found that 73% of employers would pay a premium to hire staff with the right digital skills.

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. For jobs requiring baseline digital skills, 61% are at risk of automation (i.e., could be automated by existing technology in the coming years), compared to 29% of jobs requiring specific digital skills. Specific digital skills commonly complement uniquely human skills such as design, writing or communication, which in combination are difficult to automate and are critical to a firm's success.

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. Importantly, these specific digital skills are not solely required in the tech sector but are in demand across all sectors of the economy. Specific digital skills are required in 29% of low-skill jobs, 59% of middle-skill jobs, and 67% of high-skill jobs.

2.4 BENEFITS OF DIGITAL SKILLS FOR BUSINESSES

Digital skills hold the key to 2.4% minimum of a company's bottom line: A report from Microsoft and Goldsmiths, University of London³ found that, based on a detailed analysis of organisational performance, digital skills hold the key to 2.4% minimum of a firm's bottom line performance. For a company with an annual profit of £1 million, this equates to £24,000 every year. Other research⁴ suggests that business leaders could save an average of 150 hours each year by adopting new tech tools and digitalising processes – worth the equivalent of £3,400 in wages.

Businesses in South Yorkshire say that digital skills are highly valued as they can help improve efficiency, reduce costs, enhance communication, and generate additional revenue streams⁵. Companies are increasingly using digital media to promote their activities and improve customer experiences. Technology is being used to streamline processes, automate tasks, and reduce manual inputs. Contractors and service providers also require digital skills to provide technical reports and services to their clients.

'All of our business uses digital inputs to facilitate efficiencies'

'We are upgrading our technology to look at travel trends to see where marketing needs to be directed'

'Technology is already an important part of our business and will continue to be'

'All job roles need an element of digital skills from office managers to directors – we're constantly using technology'

² The Open University (2019) *'Bridging the Digital Divide'*

³ Microsoft/Goldsmiths University of London (2020) *'Unlocking the UK's potential with digital skills'*

⁴ Enterprise Nation and Dropbox (2021) *'Breaking the 'Can't Adopt, Won't Adopt' Cycle in UK Tech Use'*

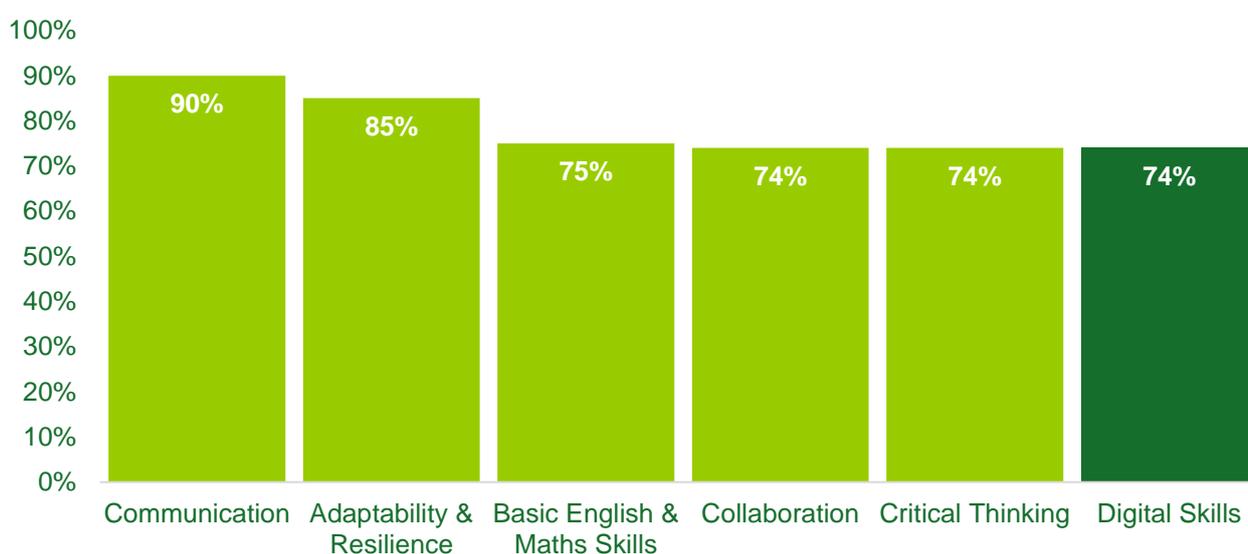
⁵ South Yorkshire Digital Skills Survey 2023, in-depth interviews

2.5 GROWTH OF DIGITAL SKILLS

Demand for digital skills has grown considerably: In 2017, a survey by the British Chambers of Commerce (BCC)⁶ found that 84% of businesses said that digital and IT skills were more important to their business than two years ago, with 51% saying that they were significantly more important. The World Economic Forum's (WEF) 'Future of Jobs Report 2020', also highlighted that the past few years have seen a clear acceleration in the adoption of new technologies. Cloud computing, big data and e-commerce are high priorities while there has been a significant rise in interest in encryption, reflecting the new vulnerabilities generated by technology. By 2025, more than 90% of UK companies expect to have adopted cloud computing, encryption & cyber security, big data analytics, AI, and the Internet of Things & connected devices as part of their growth strategies.

Digital skills are now seen as a top workplace skill in South Yorkshire: Digital skills are seen as one of the top six workplace skills among South Yorkshire employers, with three quarters of employers (74%) viewing these skills as important.

Chart 2.1: Top Six Workplace Skills in South Yorkshire, 2022



Source: South Yorkshire Employer Survey 2022

The COVID-19 pandemic has recently accelerated the pace of digitisation, automation and artificial intelligence (AI) as many businesses and organisations turned to technology to overcome the physical challenges of social distancing. These included the need to reduce human contact, digitise on-site customer experience and to enable/monitor home working for roles that could be performed remotely. Commentators expect some changes to be long-lasting: remote working/virtual meetings, faster adoption of automation and AI, and the continuing growth of e-commerce. The McKinsey Global Survey 2020 demonstrated that businesses spent more on digital investments than on any other business continuity measures during the pandemic, with the digitisation of customer and supply chain interactions and of internal operations accelerating by three-to-four years. Likewise, the WEF⁷ found that more than 90% of UK companies had accelerated the digitisation of work processes and provided more opportunities to work remotely during the pandemic, while 57% had accelerated the automation of tasks.

⁶ British Chambers of Commerce Digital Economy Survey 2017

⁷ WEF (ibid)

In South Yorkshire, COVID-19 has accelerated tech adoption in various industries, such as the legal and education sectors, and led to a shift towards remote work and online operations, resulting in increased demand for digital infrastructure and video editing skills. While this has given some companies a competitive advantage, it has also added pressure to their capital and capacity.

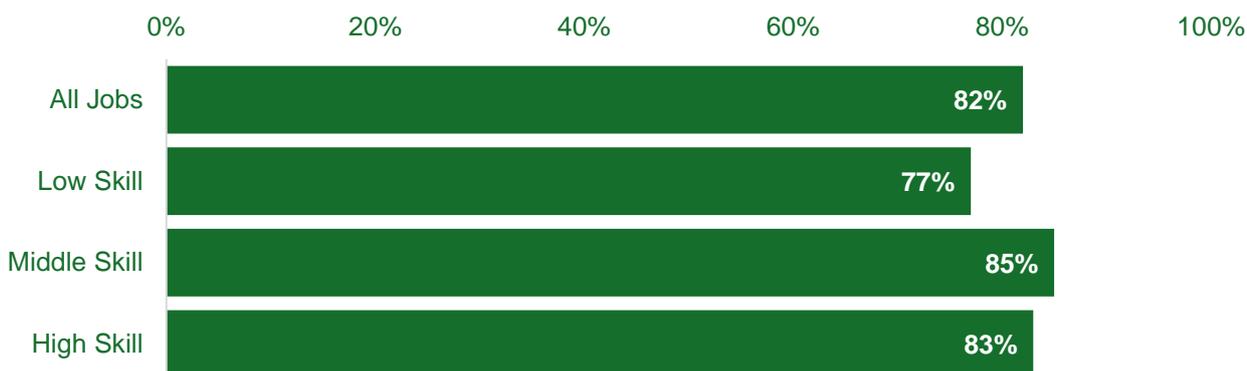
‘Changes have been compounded by COVID and the ability to work at home as staff are applying for roles out of area now as they can work remotely’

Source: South Yorkshire Digital Skills Survey 2023, in-depth interviews

Digital skills are becoming near-universal requirements for employment at all skill levels:

Digital skills are no longer limited to tech-related roles. The DCMS report found that digital skills are essential entry requirements for two-thirds of UK Standard Occupation Classification occupations, and these occupations account for 82% of online job vacancies across the UK. The equivalent figure for Yorkshire and the Humber is 81%. Even amongst low-skilled jobs, 77% of job postings are in digital occupations, increasing to 85% of middle-skill jobs and 83% of high-skill jobs. Job seekers that do not possess in-demand digital skills therefore risk consigning themselves to a narrow segment of the job market. This finding was echoed by the Open University⁸, which stressed that, ‘Digital skills are not just about the needs of tech companies - today, digital technology touches nearly every industry, and nearly every job function uses it to some extent.’

Chart 2.2: Percentage of Job Openings in Occupations Requiring Digital Skills, UK



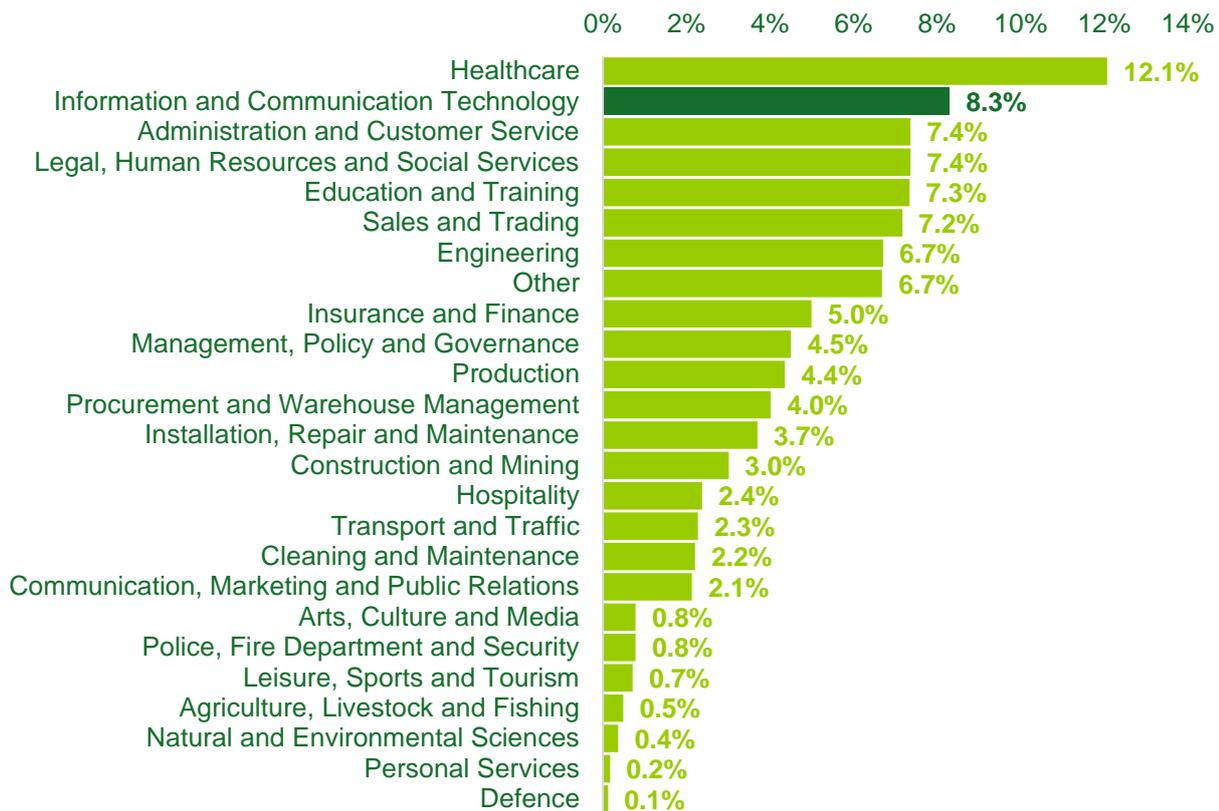
Source: Burning Glass Technologies/DCMS

2.6 GROWTH OF DIGITAL OCCUPATIONS

Specialist IT professionals now account for the second highest proportion of job openings in South Yorkshire, with demand being highest for Programmers: In December 2022, there were 1,695 online job adverts for ICT professionals in South Yorkshire. ICT professionals accounted for 8.3% of all job vacancies, equivalent to one-in-12 vacancies. This was the second highest share of all vacancies after Healthcare (12.1%).

⁸ The Open University (ibid)

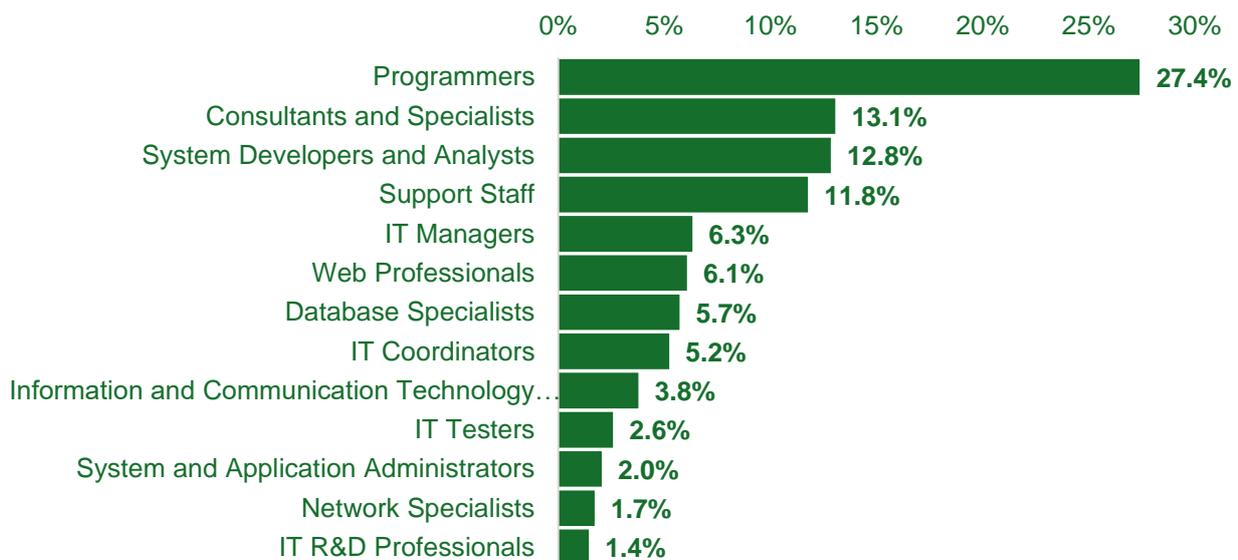
Chart 2.3: Percentage of Online Job Adverts by Profession in South Yorkshire, Dec 2022



Source: Unit for Future Skills

Programmers account for the largest share of vacancies for ICT professionals: Of all adverts for ICT professionals, Programmers accounted for the largest share, at over one-quarter of all job vacancies (27.4%). This was followed by Consultants & Specialists, Systems Developers & Analysts, and Support Staff.

Chart 2.4: Percentage of Online Job Adverts by ICT Profession in South Yorkshire, Dec 2022



Source: Unit for Future Skills

Vacancies for Programmers are also the fourth highest type of vacancy of almost 300 professions in South Yorkshire, after Care Assistants, Other Management, Policy & Governance Professions, and Sales Managers.

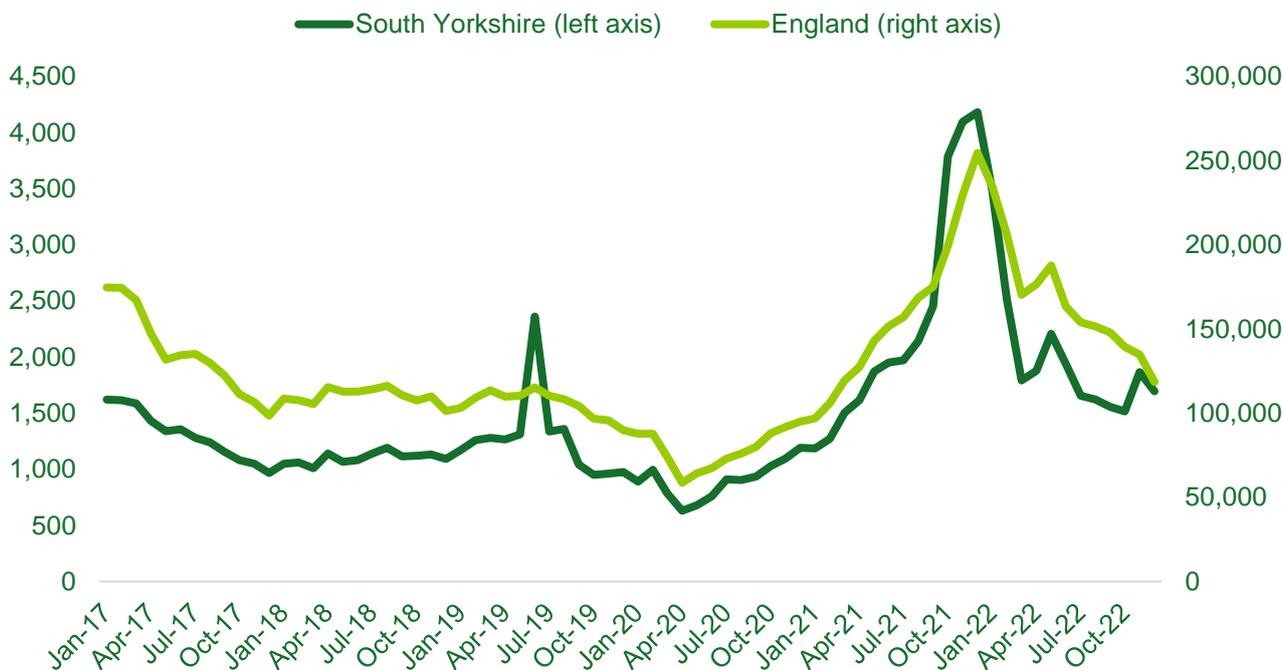
Chart 2.5: Ten Professions with the Highest Numbers of Vacancies in South Yorkshire, Dec 2022



Source: Unit for Future Skills

Demand for ICT professionals has grown since the pandemic: Demand for ICT professionals in South Yorkshire grew strongly throughout 2020 and 2021, following national trends. The number of vacant ICT posts has since fallen but remains higher than pre-pandemic levels.

Chart 2.6: Online Job Adverts for ICT Professionals, 2017-2022



Source: Unit for Future Skills

2.5 MEETING FUTURE SKILLS DEMAND: THE INCREASING IMPORTANCE OF DIGITAL SKILLS

Research on future skills demand is closely linked to discussions about technological change and its effects on employment and labour markets, such as job losses and creation, the transformation of occupations and the reorganisation of workplaces. The ‘Skills Imperative 2035: Essential Skills for Tomorrow’s Workforce’ project⁹ highlights the key megatrends that will shape the world of work in 2035: **technological advancement** (digitisation, automation, AI), **ongoing shifts from manufacturing to service sectors, changing business models** (e.g. greater use of contractors and shifts to digital/online services – the ‘platform economy’), **changing working practices** (e.g. flexible working and self-employment), **demographic shifts** – in particular the ageing population and longer life expectancies impacting on the need for care for the elderly and reskilling during a longer working life, **growing inequalities** in the labour market and wider society playing out across demographic groups and regional geographies, and **environmental change**.

The introduction of new technologies is the top reason for expected need for new skills among South Yorkshire employers: According to the 2019 Employer Skills Survey, 40% of South Yorkshire employers expected the introduction of new technologies or equipment to create new skills needs within their organisation. This was the top reason for expected need for new skills within their workforces. As a result of technological advancement, around one-half of employers also believe that the digital skills of their workforce will need to improve to meet future needs. The 2019 Employer Skills Survey found that 48% of South Yorkshire employers anticipated that their workforce’s digital skills needs would need to be improved in the future. The 2022 LSIP Trailblazer Employer Survey also found that more than half (53%) of South Yorkshire employers thought that their reliance on digital skills would increase over the next five years.

Chart 2.7: Top Five Reasons for Expected Need for New Skills in South Yorkshire, 2019



Source: *Employer Skills Survey 2019*

As a result of the evolving digital landscape, employers expect 37% of the roles in their workplace to alter significantly within the next five years. One-in-six (18%) employees also believe that they will have to change jobs at some point because of new technology or automation. This figure rises to a quarter (26%) among those aged 18-34 years¹⁰. The days of working for a

⁹ Nuffield Foundation and National Foundation for Educational Research (2022). ‘*The Skills Imperative 2035: what does the literature tell us about essential skills most needed for work? Working Paper 1*’

¹⁰ The Open University (ibid)

single employer have therefore long ended and individuals may have to work across several fields, perhaps having multiple careers, throughout their working lives.

Various research highlights that the fastest growing employment opportunities across the UK over the next 15 years to are likely to be health, social and personal care roles, followed by roles in education, professional services, business development, creative, digital and design, green economy, information and communication, and natural and applied sciences.

Growth is being driven by increased demand for both digital and human factors: whilst 'specialist digitally enabled' professions are among the fastest growing roles, the continuing need for and importance of human interaction is clear in the care economy and roles in the 'marketing, sales and content' and 'people and culture' clusters. Conversely, roles most likely to decline include administrative/secretarial, manufacturing/production, and retail/cashier work, agricultural and business administration/finance.

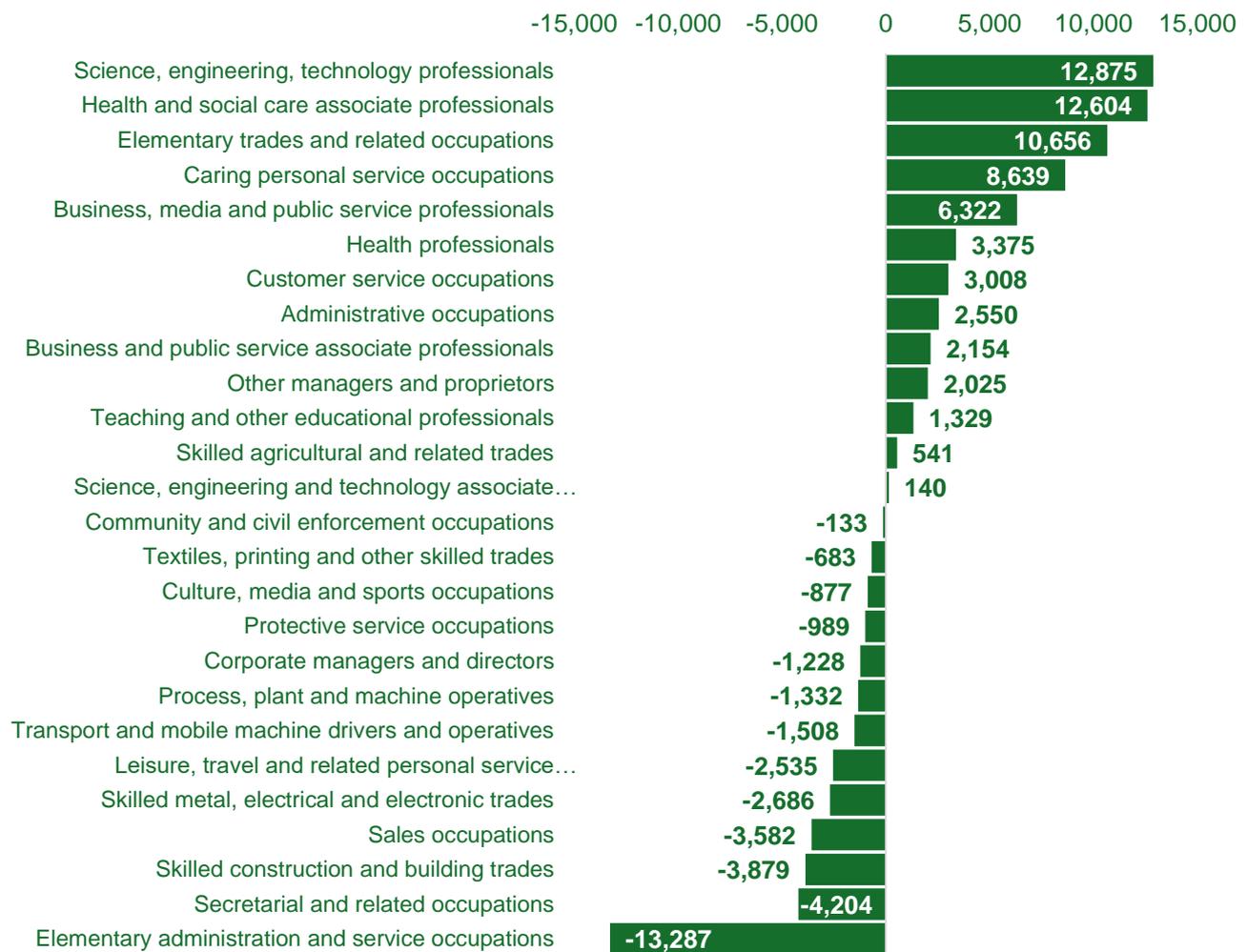
In South Yorkshire, technological change will be a strong driver of demand for new high-skilled jobs.

Between now and 2035, Science, Engineering and Technology Professionals are projected to account for the highest share of new job opportunities in South Yorkshire, with 12,900 new jobs created and representing 44% of all net employment growth across the region.

Conversely, technological change will be a key driver of reduced demand for secretarial and low-skilled administrative workers, with overall employment declining most sharply for elementary administration and service occupations (-13,300) and secretarial and related occupations (-4,200).

The strong increase in demand for health-related occupations (Health and Social Care Associate Professionals, Caring Personal Service Occupations and Health Professionals) also reflects the difficulties in replacing the tasks which they undertake with machines and the importance of human interaction with regards to managing, advising, decision-making, reasoning, communicating and interacting.

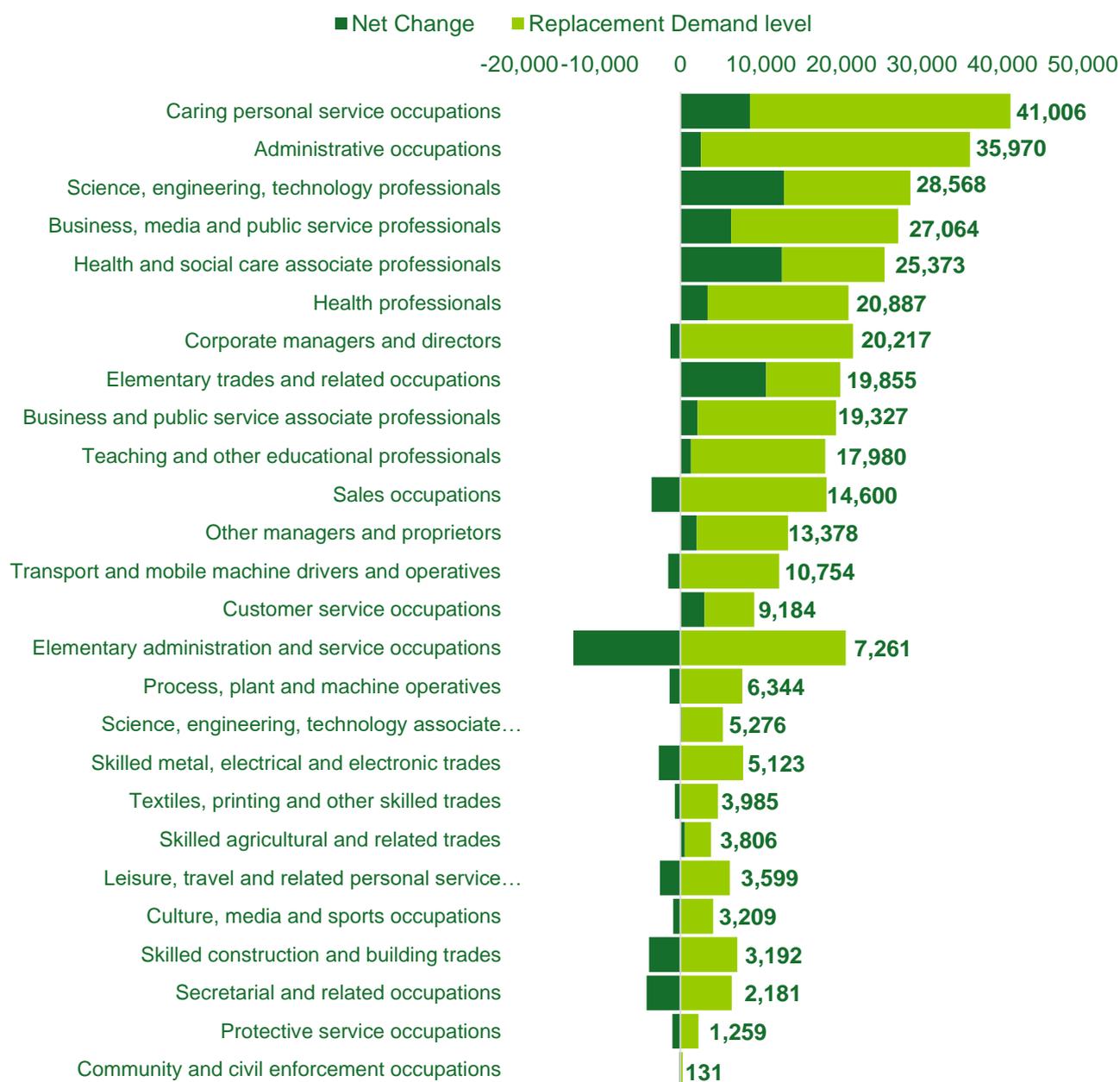
Chart 2.8: Forecast Net Change by Occupation in South Yorkshire, 2020-2035



Source: Skills Imperative 2035

Replacement demand – job openings resulting from the need to replace people that leave the workforce – show that demand for workers will be positive across all occupations – even those that are expected to see a decline in the total number of jobs. In terms of the total requirement for labour (net new employment + replacement demand), all occupational groups are expected to require additional labour, and one-in-12 employment opportunities will be for Science, Engineering and Technology Professionals.

Chart 2.9: Forecast Total Requirement by Occupation, South Yorkshire, 2020-2035

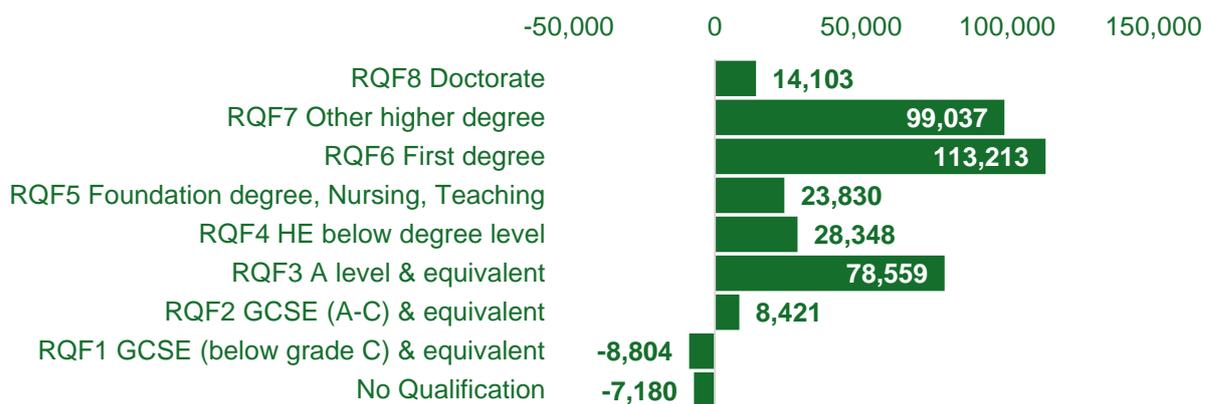


Source: Skills Imperative 2035

Within 20 years, 90% of all jobs will require some element of digital skills¹¹, with technological change tending to raise demand for higher-level skills while displacing lower skilled jobs. Between now and 2035, almost two-thirds (65%) of demand for workers in South Yorkshire will be at RQF Level 6 and above (at least degree level), and there will be a reduction in demand for the lowest skilled (those with no qualifications or those with low qualifications at RQF Level 1 (below GCSE Grade C and equivalent)).

¹¹ Deloitte LLP. (2015) 'From brawn to brains: The impact of technology on jobs in the UK'

Chart 2.10: Forecast Total Requirement by Qualification Level, South Yorkshire, 2020-2035



Source: Skills Imperative 2035

2.6 RISK OF AUTOMATION IN SOUTH YORKSHIRE

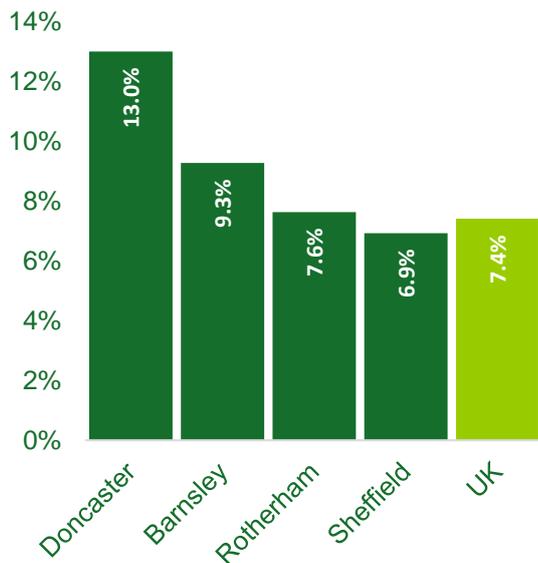
There are various estimates of the percentage of jobs that are at risk of automation (where routine and repetitive tasks can be carried out more quickly and efficiently by an algorithm or machine). As noted above, the 2019 DCMS report found that 37% of all UK jobs are at risk of automation, with risk ranging from 71% of low-skilled jobs to 19% of high-skilled jobs, and 61% of jobs requiring baseline digital skills only to 29% of jobs requiring specific digital skills. The Skills Imperative 2035 project also cites that, by 2030, an estimated 22% of current workforce activities across the EU could be automated (although fully automatable occupations are in a minority with just 5% of jobs likely to be replaced entirely by technology).

The Office for National Statistics (ONS)¹² has produced estimates of the percentage of jobs at risk of automation at local level within England. In 2017, it found that 7.4% of all jobs in England were at high risk of automation, while 66.9% were at medium risk and 27.7% were at low risk. The share of jobs at medium- and high-risk decreased between 2011 and 2017, while the proportion at low-risk increased. This could be because automation of some jobs has already happened while the majority of new jobs are in occupations that are at low- or medium-risk, suggesting that the labour market may be changing to jobs that require more complex and less routine skills.

Almost 43,000 jobs in South Yorkshire are at high risk of automation: Within South Yorkshire, the ONS found that almost 43,000 jobs were at high risk of automation: 14,300 in Sheffield, 13,400 in Doncaster, 8,100 in Barnsley and 6,900 in Rotherham. Doncaster had the highest share of jobs at high risk, at 13.0% (one in every 7.7 jobs) – ranking the 19th highest of 319 local authority areas in England for which data were available. The percentage of jobs at high risk was also above average in Barnsley (9.3%), around average in Rotherham (7.6%) and below average in Sheffield (6.9%).

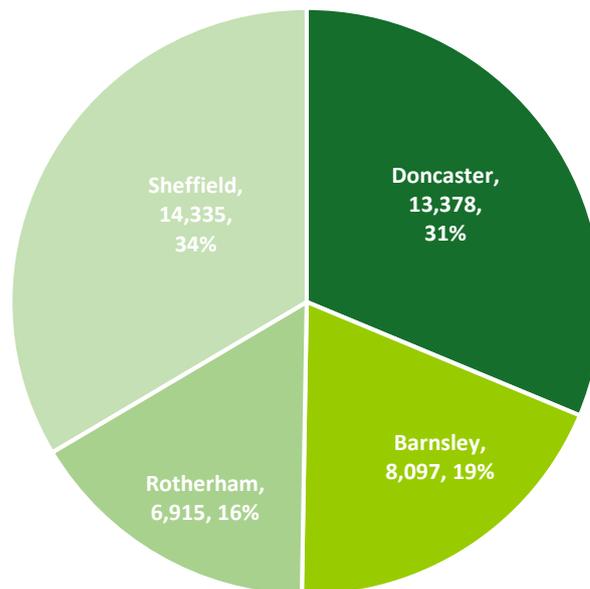
¹² Office for National Statistics (2019) 'Which Occupations Are at Highest Risk of Being Automated?'

Chart 2.11: Percentage of Jobs at High Risk of Automation, 2017



Source: Office for National Statistics

Chart 2.12: Number of Jobs in South Yorkshire at High Risk of Automation, 2017



Source: Office for National Statistics

Workers in low-skilled routine tasks or with low education levels are at the greatest risk of being displaced by technology whilst also lacking the skills to transfer into newly emerging opportunities. However, some better-educated, higher-skilled workers/roles are also at risk of being replaced by AI, particularly those relying on intellectual abilities (e.g., comprehension and conceptualisation) rather than social abilities (e.g., social interaction and communication). There is therefore an inverse link between the potential to automate in a sector and the expected growth of roles within that sector¹³, e.g., the health/care sector has the lowest percentage of jobs at risk of automation and corresponding potential for net job gains, as illustrated in job projections as above.

Occupations at highest risk of automation are lower-skilled roles (particularly waiters and waitresses, shelf fillers, elementary sales occupations, bar staff, and kitchen and catering assistants) with risk of automation lowest for highly-skilled roles¹⁴. Across England, occupations at lowest risk of automation are medical and education professionals: medical practitioners, higher education teaching professionals, senior professionals of educational establishments, secondary education teaching professionals, and dental practitioners. A 2019 report from the Brookings Institution¹⁵ also found that occupations involving the following activities remained relatively secure: the management and development of people, applying expertise to decision-making, planning and creative tasks, interfacing with people, and the performance of physical activities and operating machinery in unpredictable physical environments. This reflects the continuing importance of human interaction in the future labour market.

In terms of other characteristics of jobs at high risk of automation, high-risk jobs were most likely to be held by women (70.2% of the roles at high risk), the youngest and oldest age groups (15.7% held by 20-24-year-olds and 7.7% held by 60-65-year-olds), and people in part-time positions (69.9% of all employees in jobs at high risk of automation, compared to just 11.0% of low-risk jobs)¹⁶.

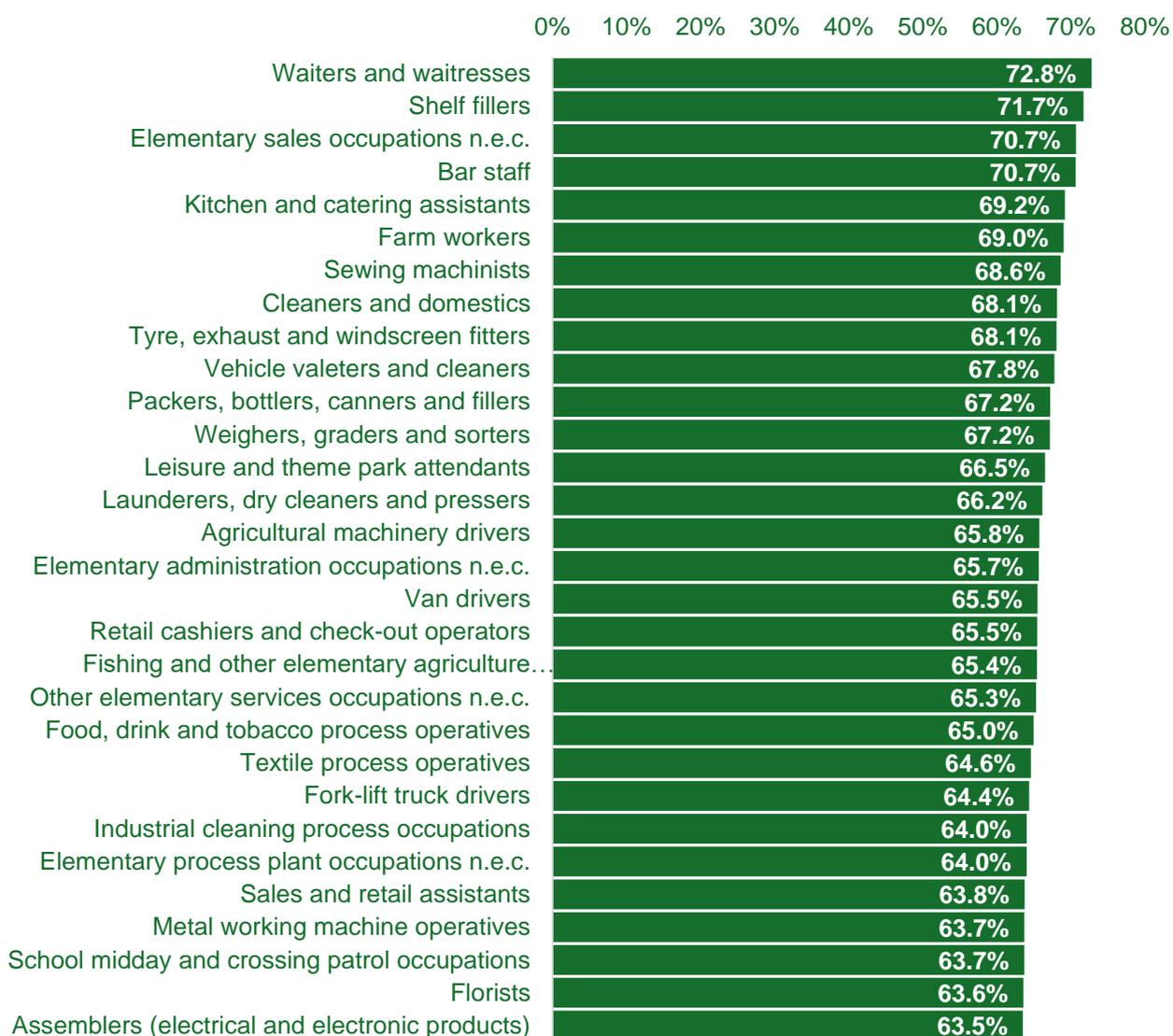
¹³ Skills Imperative 2035

¹⁴ ONS (ibid)

¹⁵ Muro, M., Maxim R. and Whiton J. (2019). 'Automation and Artificial Intelligence: How Machines are Affecting People and Places'

¹⁶ ONS

Chart 2.13: 30 Occupations with the Highest Probability of Automation, England, 2017



Source: Office for National Statistics

Automation is impacting job roles in various ways in South Yorkshire. While some employers in the region see specific use cases for automation in sectors such as medical treatment, others believe that it is about taking a business and looking at what processes can be automated. Digital communication, setting up autonomous systems, and using digital tools for work processes are also some of the areas where employers feel that training is required. However, in the view of some, automation cannot replace the personal transaction-based nature of their business: for them, use of technology should be aimed at enhancing rather than replacing human interaction.

‘In a few years all admin functions will disappear - this will be done by AI.’

‘We don’t know what we don’t know in terms of process and automation.’

‘It’s all about taking a business and looking at what processes can be automated.’

Source: South Yorkshire Digital Skills Survey 2023, in-depth interviews

2.7 DIGITAL SKILLS TO ACHIEVE NET ZERO

As well as improving business productivity and career outcomes for individuals, digital technology also has a key role in helping to achieve net zero greenhouse gas emissions by 2050 by enabling a shift towards zero-carbon solutions. A 2020 report from The Royal Society¹⁷ references studies that suggest that existing digital technologies could help reduce UK and global carbon emissions by up to 15% – contributing nearly a third of the 50% reduction required by 2030 to keep on a pathway to a global average temperature rise of well below 2°C – while AI 's environmental applications alone could save up to 4% greenhouse gas emissions by 2030.

Opportunities to deploy digital technologies in support of net zero include, amongst many others, include the use of robotics and precision farming to optimise crop yields and save energy, the use of smart meters and digital technology to model the availability of different energy sources and to integrate intermittent renewable energy sources into the grid, facilitating collaboration between delivery and logistics providers to avoid empty vans and duplicate journeys, and the use of internet and videoconferencing services to enable remote working since the COVID-19 pandemic.

‘Part of our business is to support clients in reaching net zero targets. We continue to develop digital solutions to enable them to do this more effectively and efficiently - a programme to show where in a building energy is lost, cost implications to that, cost to fix, etc.’

‘All of our business uses digital inputs to facilitate efficiencies. Our build onsite minimises travel of parts and also of vehicles which all add to the reduction of our footprint.’

‘We can all work remotely and so that affects our carbon footprint as limited travel is now required compared with the past’

Source: South Yorkshire Digital Skills Survey 2023, in-depth interviews

The degree to which digital technologies will provide valuable tools in achieving net zero aims will depend on the ability of many segments of the population to interact with and use these technologies and to analyse the data that they generate. With many businesses not currently having the appropriate digital skills base, the Royal Society stresses that building digital skills and net zero knowledge at all levels must be a priority, and recommends:

- Widening access to data science and computer science education and training
- Sharing talent, e.g., creating and sharing industry-academia positions and braided careers for skills that sectors seeking to digitalise towards net zero could tap into
- Enabling data scientists to donate time to applying data science to societal challenges
- Encouraging local authorities to push digital skills in their local economy, for example by auditing whether universities and local employers are collaborating to identify and meet local digital and net zero skills needs.

¹⁷ The Royal Society (2020) *‘Digital Technology and the Planet: Harnessing Computing to Achieve Net Zero’*

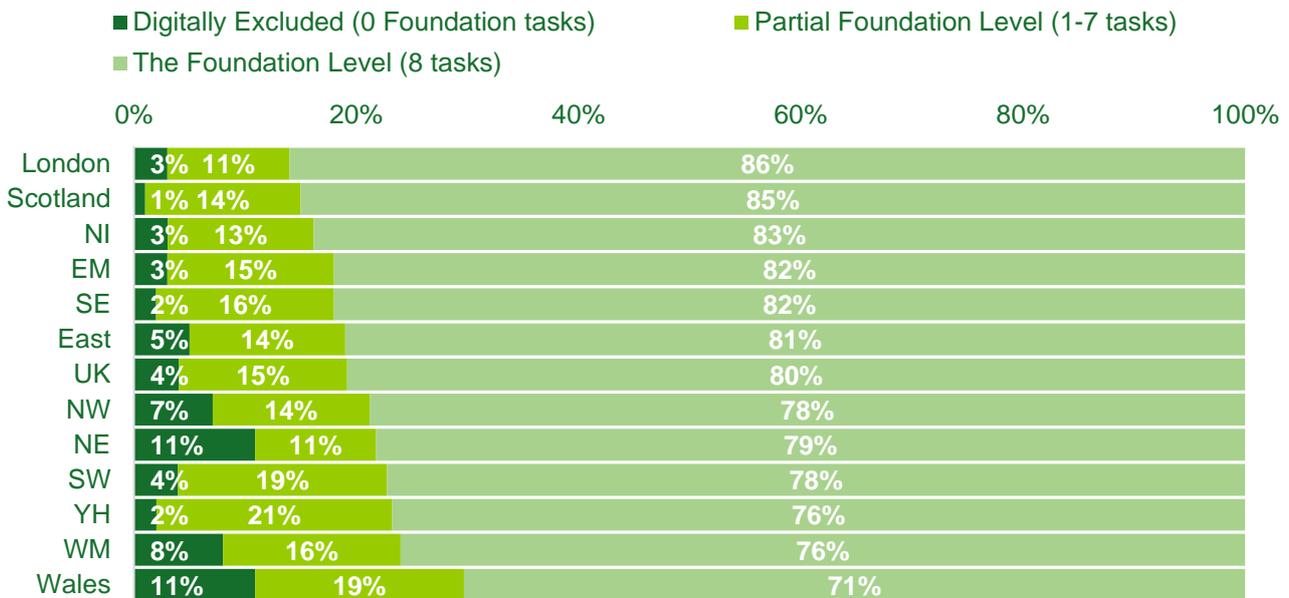
3. SUPPLY OF DIGITAL SKILLS

3.1 ESSENTIAL DIGITAL SKILLS FOR LIFE AND WORK

The [Essential Digital Skills \(EDS\) framework](#) was created in 2018 and has been measured by Lloyds Banking Group, on behalf of the Department for Education, since 2019. The framework measures the extent to which adults possess essential Foundation, Life and Work digital skills. As evidenced below, Yorkshire and the Humber ranks well for Life EDS but poorly for Foundation Digital Skills and Work EDS.

Yorkshire and the Humber has one of the highest percentages of adults lacking basic digital skills of all UK regions: To qualify as meeting the Foundation level, an individual needs to be able to perform all of the eight tasks listed in Table 3.1 below. In 2022, almost one-quarter of adults living in Yorkshire and the Humber lacked basic digital skills: 21% lacked the full Foundation Level (i.e., unable to complete all eight Foundation tasks) and 2% were fully digitally excluded (unable to complete any Foundation task, although this was down from 9% in 2019). The share of adults with the Foundation level in Yorkshire and the Humber (76%) was the third lowest of all UK regions and below the UK average (80%).

Chart 3.1: Percentage of Adults with Foundation Digital Skills, 2022



Source: UK Consumer Digital Index 2022, Lloyds Bank

Of all Foundation tasks, adults were most able to turn on a device and enter login information (84%) and use the available controls on their devices (94%) and were least able to set up a connection to a Wi-Fi network on their devices (86%) and adjust settings on their devices to make them easier to use (88%). National data show that age is the largest correlating factor of basic digital capability: the youngest age group is by far the most proficient in the digital basics (94% of 18-24-year-olds have all Foundation skills) while the oldest age group is least proficient (31% of 75+ year olds have all Foundation skills). Other factors correlating with digital exclusion include disability (those with an impairment are 2.5 times more likely to lack the Foundation level), income (people earning up to £13,499 are the only salary range below the UK average), having no formal qualifications, being female, living alone, and being from a white ethnic group.

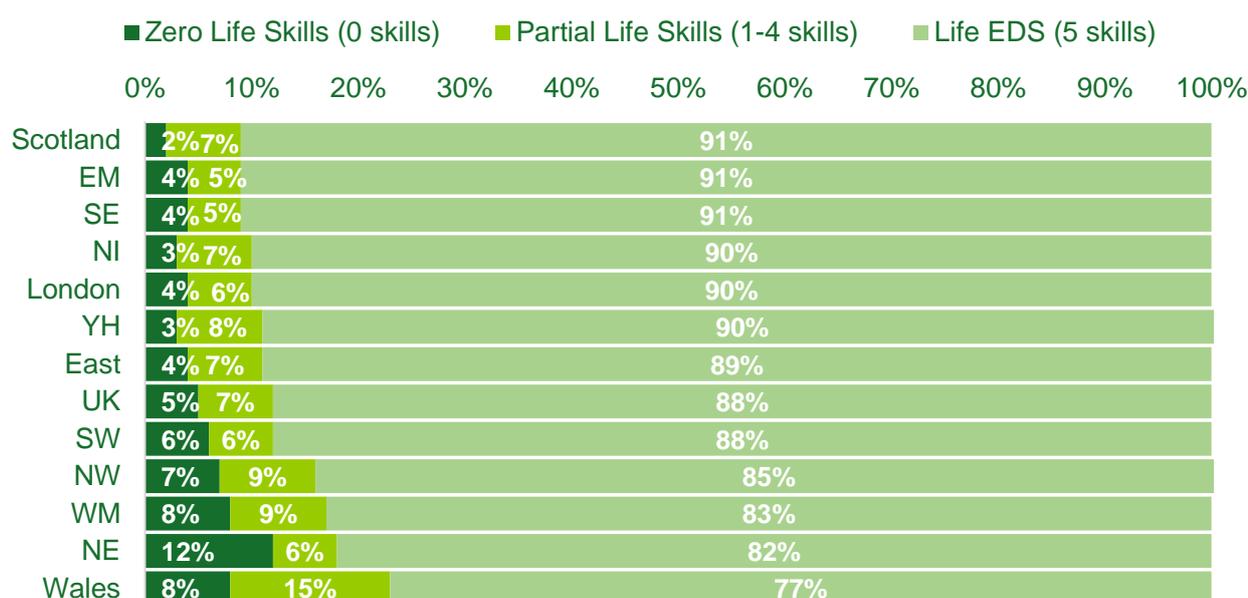
Table 3.1: Percentage of Adults with Foundation Digital Skills, 2022

	YH	UK
I can turn on the device and enter any account login information as required	94%	92%
I can use the available controls on my device (e.g. mouse, keyboard, touchscreen, trackpad)	94%	93%
I can open an Internet browser to find and use websites	93%	92%
I can update and change my password when prompted to do so	91%	91%
I can find and open different applications/programmes/platforms on my devices	91%	90%
I can keep my login information and passwords for a device and any accounts secure	90%	90%
I can use the different settings on my device to make it easier to use (e.g. adjust font size, volume settings, brightness of screen, voice activation or screen readers)	88%	90%
I can set up a connection to a Wi-Fi network on my devices	86%	87%

Source: UK Consumer Digital Index 2022, Lloyds Bank

One-in-ten adults lack essential digital skills for life. To qualify as meeting the EDS Life skills level, an individual must be able to one task in each of five categories – Communicating, Handling Information & Content, Transacting, Problem Solving, and Being Safe & Legal Online. In Yorkshire and the Humber, 90% of adults had essential digital skills for life – above the UK average of 88%. However, one-in-ten did not qualify, with 8% lacking skills in at least one of the five areas and 3% having no life skills.

Chart 3.2: Percentage of Adults with Essential Digital Skills for Life, 2022



Source: UK Consumer Digital Index 2022, Lloyds Bank

Of all 26 EDS Life tasks, adults were most confident in using search engines to find information (95%), communicating with others digitally using email or other messaging applications (93%), using the Internet to find information that helps them to solve problems (90%), buying goods/services online using online payments (89%), and recognising suspicious links and knowing that there is a risk in clicking on these links or downloading unfamiliar attachments (89%).

Life tasks that adults were least likely to be able to do were using the cloud to access content from different devices (71%), setting privacy and marketing settings for websites and their accounts (76%), posting messages, photographs, videos or blogs on social media platforms (78%), storing and backing up photos, messages, documents or other information (80%), and using

software to create, write or edit documents (81%). Boosting skills and confidence in these activities are key to helping individuals be more digitally capable. Using the cloud and privacy and marketing settings are common gaps for both those who can do 1-15 tasks and 22-25 tasks. Lack of ability to set privacy and marketing settings for websites and their accounts also correlates with security and privacy concerns being the biggest barrier to people using the internet (concern cited by almost two-thirds of all people that hadn't used the internet in the past three months). The biggest determining factors of having no EDS Life skills are being 75 years and over, retired, and living alone.

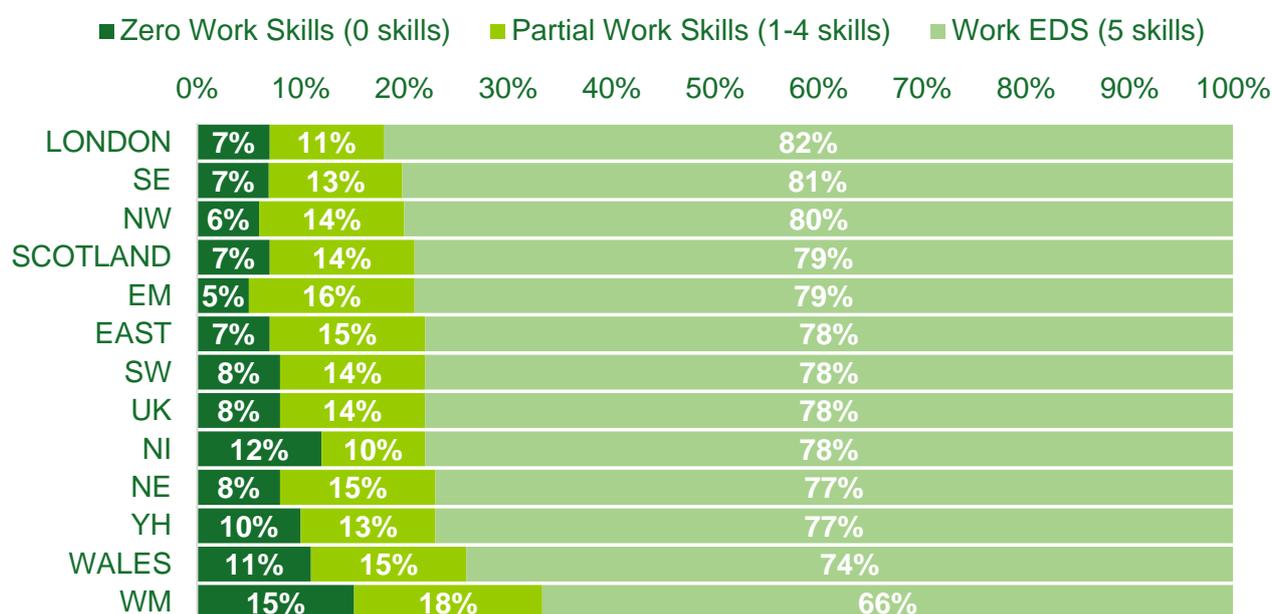
Table 3.2: Percentage of Adults with Essential Digital Life Skills for Life

	YH	UK
COMMUNICATING		
I can communicate with others digitally using email or other messaging applications	93%	91%
I can make and receive video calls	88%	86%
I can share files or links with others by attaching to an email, uploading to a website or an application	86%	85%
I can set up accounts which help me communicate online (e.g. email, social media, forums)	85%	85%
I can use software to create, write or edit documents (e.g. Microsoft Word/ Google docs/ Pages for a CV/letter)	81%	80%
I can post messages, photographs, videos or blogs on social media platforms	78%	80%
HANDLING INFORMATION & CONTENT		
I can use search engines to find information I'm looking for	95%	92%
I can use the Internet to stream or download entertainment content	87%	85%
I can recognise what information or content online may, or may not, be trustworthy	86%	85%
I can store and back up photos, messages, documents or other information (e.g. iCloud, Google Drive, Dropbox, OneDrive, desktop or storage drive)	80%	82%
I can use the cloud to access content from different devices	71%	72%
TRANSACTIONING		
I can buy goods/services online using online payments	89%	87%
I can fill in forms online to access the services I need (e.g. Voting registration, ordering repeat prescriptions, booking doctor appointments, booking train tickets or beauty appointments)	88%	86%
I can set up an account online that enables me to buy goods or services	87%	87%
I can manage my money and transactions online	84%	84%
PROBLEM SOLVING		
I can use the Internet to find information that helps me solve problems	90%	88%
I can use the Internet to improve my skills and ability to do new things (e.g. using online tutorials, learning platforms and how-to guides)	84%	82%
BEING SAFE & LEGAL ONLINE		
I can recognise suspicious links and know that clicking on these links or downloading unfamiliar attachments is a risk	89%	89%
I can act with caution online and understand that there are risks and threats involved in carrying out activities online	88%	89%
I can be careful with what I share online as I know that online activity produces a permanent record that can be accessed by others	88%	89%
I can update my device software/ operating systems when necessary to prevent viruses and other risks	87%	85%
I can respond to requests for authentication for online accounts	86%	85%
I can follow data protection guidelines online	85%	85%
I can identify secure websites	85%	83%
I can identify secure Wi-Fi networks to connect to	84%	83%
I can set privacy and marketing settings for websites and my accounts	76%	78%

Source: UK Consumer Digital Index 2022, Lloyds Bank

Almost one-quarter of adults lack essential digital skills for work. As with Life skills, an individual must be able to one task in each of five categories to qualify as meeting the EDS Work skills level. Again, these are Communicating, Handling Information & Content, Transacting, Problem Solving, and Being Safe & Legal Online. In Yorkshire and the Humber, 77% of adults had essential digital skills for work – slightly below the UK average of 78%. Conversely, 23% did not qualify as having essential digital skills for work – the joint third highest rate of all UK regions after the West Midlands (33%) and Wales (26%), along with the North East (23%) and slightly above the UK average (22%). One-in-ten (10%) of adults also lacked any EDS Work skills – the fourth highest rate of all regions after the West Midlands (15%), Northern Ireland (12%) and Wales (11%), and above the UK average (8%). Compared to the UK average, adults in Yorkshire and the Humber were less likely to be able to communicate in the workplace digitally using messaging applications (81% vs 85%) and set privacy and marketing settings for websites and accounts (69% vs 73%).

Chart 3.3: Percentage of Adults with Essential Digital Skills for Work, 2022



Source: UK Consumer Digital Index 2022, Lloyds Bank

Of all 20 EDS Work tasks, people were most confident in following data protection guidelines online (83%), communicating in the workplace digitally using messaging applications (81% - but lower than the UK average of 85%, as above), finding information online that helps them solve work related problems (81%), and improving their skills and ability to do new things at work using online tutorials, learning platforms and how-to guides (81%).

Work tasks that people were least likely to be able to do were improve their own and/or the organisation's productivity using digital tools, such as Trello, Microsoft Projects and Planner, and Slack (65%), setting privacy and marketing settings for websites and their accounts (69%), accessing salary and tax information digitally (72%), and setting up and managing an account on a professional online network/community/job site (74%).

Unsurprisingly, work digital skills capability was higher among those in employment than those not in employment: the unemployed were more than twice as likely as the employed to lack the essential digital skills needed for work in the UK today (40% versus 18%), putting them at risk of securing a job or falling behind if they were to re-join the workplace.

Table 3.3: Percentage of Adults with Essential Digital Skills for Work, 2022

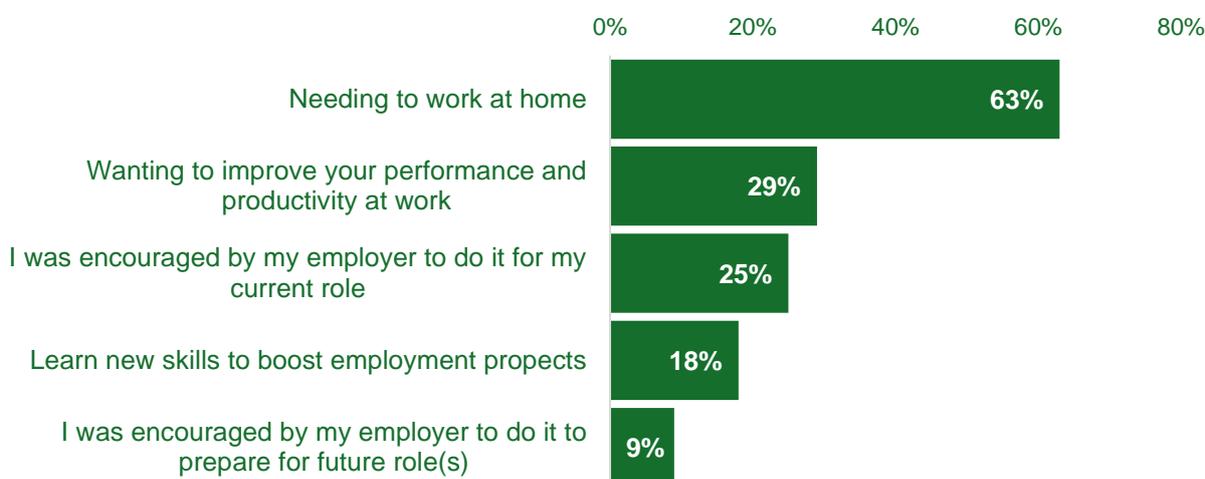
	YH	UK
COMMUNICATING		
I can communicate in the workplace digitally using messaging applications (e.g. Email, Microsoft Teams, Zoom, Slack, internal intranet, WhatsApp)	81%	85%
I can use workplace digital tools to create, share and collaborate with colleagues (e.g. Microsoft Teams, OneDrive, G-Suite, Office 365, WeTransfer, DropBox, WebEx, Slack)	77%	78%
I can set up and manage an account on a professional online network/ community/ job site (e.g. LinkedIn, Total Jobs, Indeed)	74%	74%
HANDLING INFORMATION & CONTENT		
I can follow my organisation's IT policies when sharing information internally and externally (e.g. classifying emails/ documents, encrypting sensitive information, sharing appropriate information on social media)	78%	80%
I can securely access, synchronise and share information at work across different devices (e.g. manage email, calendar or appointment system via different devices)	78%	79%
I can complete digital records on behalf of, or within my organisation (e.g. absence management, holidays, timesheets, expenses, tax returns)	77%	76%
TRANSACTING		
I can access salary and tax information digitally (e.g. password protected payslips, P60, P45)	72%	73%
PROBLEM SOLVING		
I can find information online that helps me solve work related problems (e.g. Search Engines, IT helpdesk, software providers, peer networks)	81%	83%
I can use appropriate software that is required of my day-to-day job (e.g. spreadsheets, online booking systems, HR management, workflow or sales management)	80%	80%
I can improve my skills and ability to do new things at work using online tutorials, learning platforms and how-to guides (e.g. LinkedIn Learning, YouTube, iDEA, Skillsoft, internal learning platforms)	81%	81%
I can improve my own and/or the organisation's productivity using digital tools (e.g. Trello, Microsoft Projects and Planner, Slack)	65%	65%
BEING SAFE & LEGAL ONLINE		
I can act with caution online and understand that there are risks and threats involved in carrying out activities online (e.g. use anti-virus software, classify and share information securely or avoid certain types of websites such as piracy websites)	80%	82%
I can set privacy and marketing settings for websites and my accounts	69%	73%
I can follow data protection guidelines online (e.g. following data storage and retention guidelines, not sharing or using other people's data or media such as movies or music without their consent)	83%	82%
I can respond to requests for authentication for online accounts (e.g. resetting my password when I've forgotten it, two-factor authentication, using a remote access key or an authenticator app)	80%	80%
I can identify secure websites (e.g. by looking for the padlock and 'https' in the address bar)	78%	79%
I can recognise suspicious links and know that clicking on these links or downloading unfamiliar attachments is a risk (e.g. spam/ phishing emails, texts, pop ups)	80%	81%
I can update my device software/ operating systems when necessary to prevent viruses and other risks (e.g. enabling automatic updates, or installing when prompted to do so)	78%	77%
I can identify secure Wi-Fi networks to connect to (e.g. Wi-Fi networks where a unique password is required, trusted source or padlock next to Wi-Fi network)	79%	78%

	YH	UK
I can be careful with what I share online as I know that online activity produces a permanent record that can be accessed by others (e.g. publicly shared photos, forums, personal information or opinions)	80%	81%

Source: UK Consumer Digital Index 2022, Lloyds Bank

Working from home is the biggest incentive for improving digital skills for work: Across the UK, 91% of people are looking to improve their digital skills for personal use and 64% are upskilling for work use. Of those looking to improve skills for work use, the biggest drivers are ‘needing to work at home’ (63%) and ‘wanting to improve their performance and productivity at work’ (29%). Working from home is therefore a key driver of the increased need for digital skills with 36% of the UK workforce engaging in hybrid working¹⁸. In a 2021 survey of employers across South Yorkshire¹⁹, the percentage of employees working from home post-Covid was expected to increase by 6.6 percentage points to 13.7%.

Chart 3.3: Motivation for Improving Digital Skills Among Those Looking to Improve Digital Skills for Work, UK, 2022



Source: UK Consumer Digital Index 2022, Lloyds Bank

3.2 DIGITAL POVERTY

Some areas of South Yorkshire exhibit very high levels of digital poverty: Digital poverty reflects someone’s inability to interact with the online world when, where and how needed. The most digitally poor are likely to be those who lack the most basic digital skills, have basic digital skills for life but not for work purposes, are digitally disengaged (non-users) – especially due to worries over data privacy and security or lack of interest in the digital world, cannot afford internet access and the cost of the necessary devices to connect, and older adults (more than 75 years old). In 2022, the University of Sheffield mapped digital poverty across South Yorkshire²⁰, using a Digital Poverty Index, comprised of data on levels of deprivation, demographic profile and broadband access. This found that the ten most digitally poor lower layer super output areas (LSOAs)²¹ in South Yorkshire were:

¹⁸ Office for National Statistics (2022) ‘Homeworking and spending during the coronavirus (COVID-19) pandemic, Great Britain: April 2020 to January 2022’

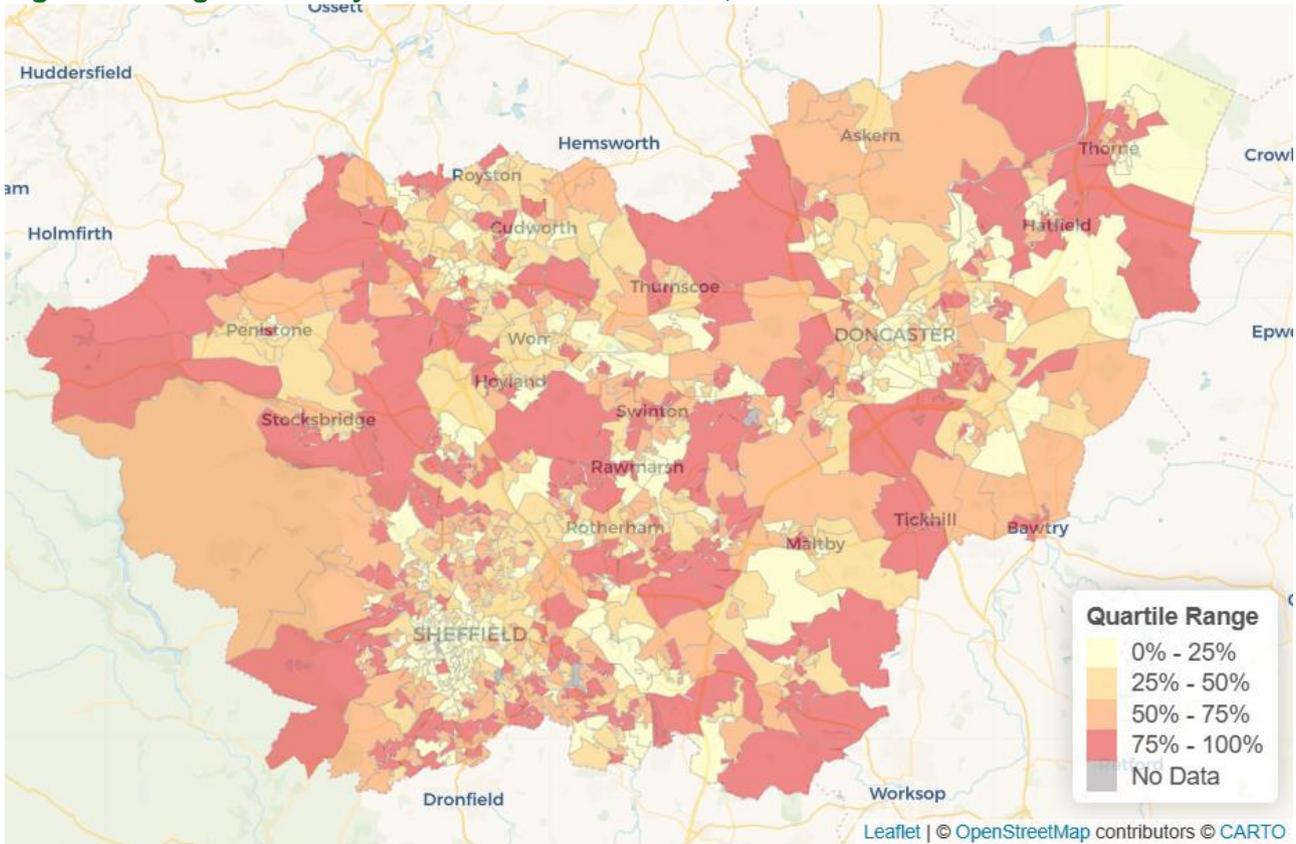
¹⁹ South Yorkshire Passenger Transport Executive (2021), ‘Employers Survey 2021’

²⁰ University of Sheffield (2022), ‘Digital Poverty in South Yorkshire: Policy Brief’

²¹ An LSOA is reflective of an average population of 1,500 people or 650 households

- Sheffield 065E (within Mosborough ward)
- Sheffield 027A (within Darnall ward)
- Doncaster 005F (within Adwick le Street & Carcroft ward)
- Barnsley 017A (within Central ward)
- Sheffield 018C (within Darnall ward)
- Sheffield 022F (within Burngreave ward)
- Sheffield 022D (within Burngreave ward)
- Sheffield 013D (within Firth Park ward)
- Doncaster 032D (within Conisbrough ward)
- Rotherham 014D (within Rotherham East ward)

Figure 3.1: Digital Poverty Index in South Yorkshire, 2022



Source: Digital Poverty Index, University of Sheffield (DPI is a number between 0 and 10. The higher the score, the higher the risk for digital poverty in the area)

The report provided a number of recommendations for tackling digital poverty in South Yorkshire, including social tariffs for those living in the most digitally poor areas, zero-rated digital education, device charging solutions to address the rising cost of living, funding for areas with the highest deprivation, e.g., to develop hubs to access digital/online services, device donation scheme for students from disadvantaged areas and backgrounds, digital skills programmes for young people, and digital champions schemes to support the digitally disengaged.

3.3 WORKPLACE DIGITAL SKILLS GAPS

A number of national reports have evidenced that workplace digital skills gaps are affecting the majority of employers:

- The British Chambers of Commerce Digital Economy Survey 2017 found that, nationally, more than three-quarters of businesses (**76%**) reported a shortage of digital skills in their workforce: 3% of businesses faced a critical shortage of digital skills, 21% faced a significant shortage and 52% faced a slight shortage of digital skills within their workforces.
- The Open University²² found that **88%** of organisations across Great Britain were lacking in digital skills, with many expecting these shortages to increase in the next five years. The biggest skills gaps and shortages were seen as cybersecurity capabilities (reported by 33% of organisations), skills to move to cloud-based infrastructure (33%), the capability to successfully integrate new technologies or data sources (31%), and emerging technologies (30%). As a result of digital skills gaps, employers were most concerned about their agility and ability to adapt going forward, with 95% reporting that this had already been affected by digital skills shortages or would be impacted in the future. The next biggest concerns related to productivity (96%) and the ability to implement new time or cost saving technologies (90%).
- More recently, the 2020 survey from Microsoft and Goldsmiths University of London found that two thirds (**69%**) of business leaders said their organisation was currently facing a digital skills gap, and more than two-fifths (44%) feared that the lack of digital skills within their organisation would have a negative impact on their success. The report also found that nearly two-thirds (63%) of employees did not agree that they had the appropriate digital skills to fulfil new and emerging roles in their industry, while only 38% thought that they had the appropriate digital skills to benefit from the digital economy.

Digital skills/new technologies are a key cause of skills gaps among South Yorkshire

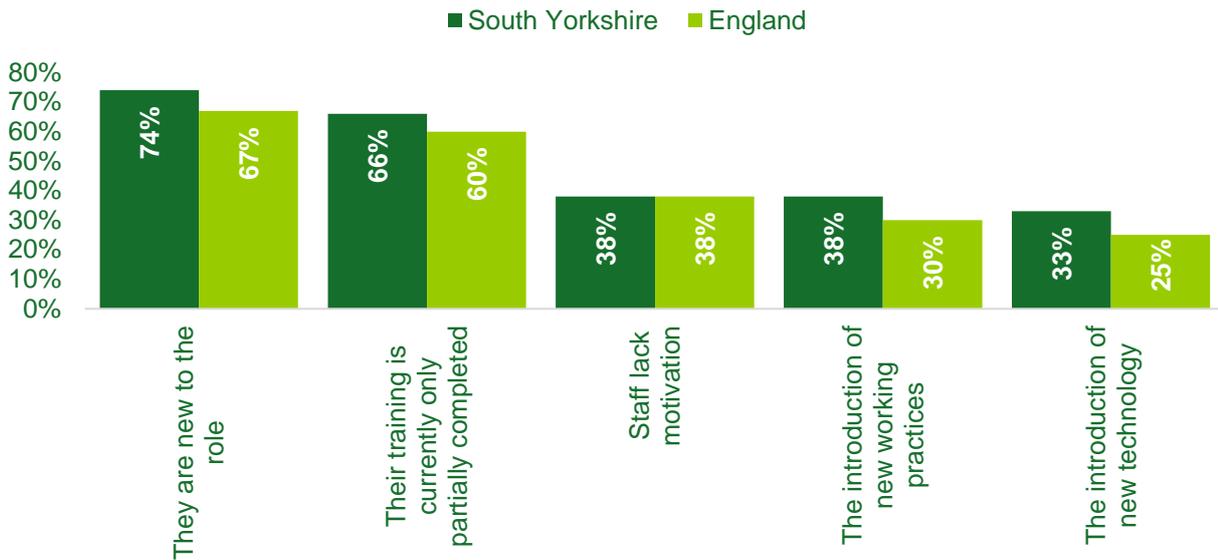
employers: A prominent source of information on workplace digital skills gaps at sub-regional level is the Employer Skills Survey, conducted by the Department for Education in England. The latest survey is for 2019. While now somewhat dated due to advances in digital workplace capabilities since the COVID-19 pandemic, it is one of the most comprehensive surveys of employer skills needs at a regional level. It showed that almost two-fifths (39%) of employers with skills gaps reported that digital skills needed to be improved among their workforces – slightly above the national average (37%). Breaking this down further, 30% said that computer literacy/basic IT skills gaps needed to be improved (above the England average of 28%) while 22% said that advanced or specialist IT skills needed to be improved (slightly above the England average of 21%). Of those with IT-related skills gaps in 2019, the main IT skills that South Yorkshire employers reported that needed to be improved were specialist software or hardware/internal systems (39% of all with IT skills gaps), basic Microsoft Office skills (26%), foundation digital skills (22%), advanced Microsoft Office skills (14%) and skills using new or updated company software/systems (10%).

The introduction of new technology is one of the top factors causing skills gaps in South

Yorkshire: The 2019 Employer Skills Survey showed that South Yorkshire employers reported that the top five causes of skills gaps within their workforces were employees being new to the role, employees' training only partially completed, staff lacking motivation, the introduction of new working practices, and the introduction of new technology. One third (33%) of employers with skills gaps reported that these were due fully or in part to the introduction of new technology – well above the England average of 25% and the seventh highest rate of all 38 Local Enterprise Partnership areas.

²² The Open University (ibid)

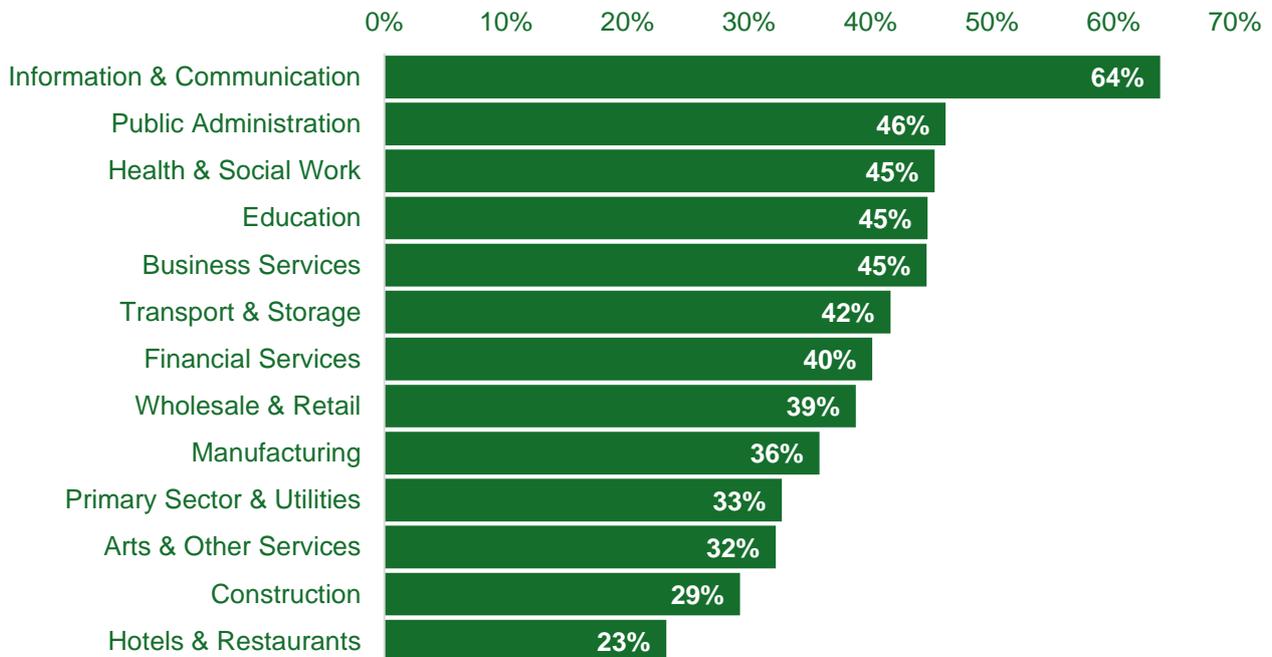
Chart 3.4: Top Five Causes of Skills Gaps in South Yorkshire, 2019



Source: *Employer Skills Survey 2019*

Digital skills gaps are most acute in the Information & Communication and public sectors: data for England showed that the industries with the highest shares of skills gaps attributable to a lack of digital skills were Information & Communication (64%), Public Administration (46%), Health & Social Work (45%), Education (45%) and Business Services (45%). Advanced/specialist IT skills were most likely to be lacking in the Information & Communication (56% of skills gaps) and Business Services (30%) sectors, while basic IT skills were most likely to be lacking in the predominantly public sectors – Public Administration (35%), Health & Social Work (35%) and Education (33%).

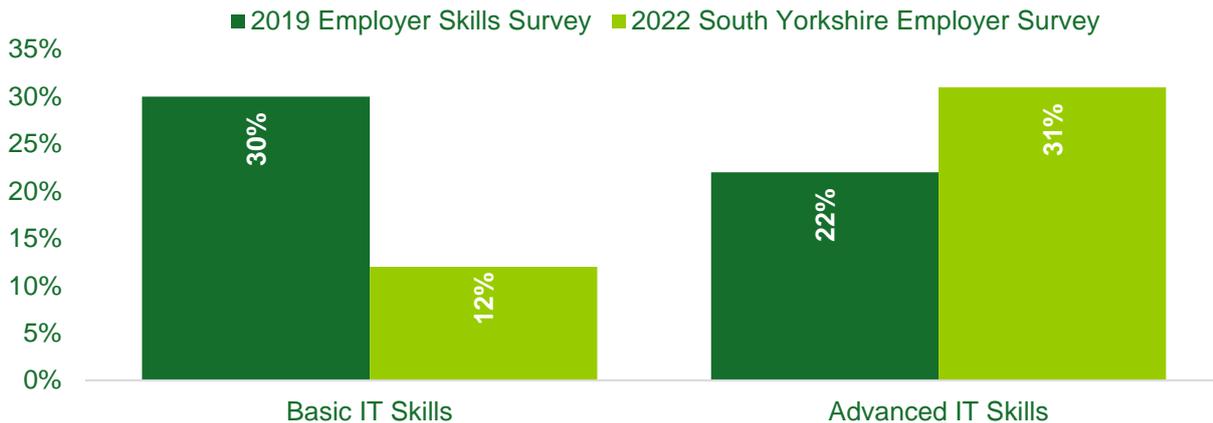
Chart 3.5: Percentage of Skills Gaps Caused by Digital Skills Shortages, England, 2019



Source: *Employer Skills Survey 2019*

Advanced digital skills gaps have increased over the past three years, suggesting that the pace of skills development is not matching the speed of technological adoption: More recent data, from the 2022 LSIP Trailblazer Employer Survey suggests that basic IT skills gaps may have reduced since 2019 but that advanced IT skills gaps may have increased: 12% of employers reported that their workforces did not have the basic digital skills required – lower than the 30% reported in the 2019 Employer Skills Survey, while 31% said that their workforces did not have the advanced digital skills required – higher than the 22% reported in 2019.

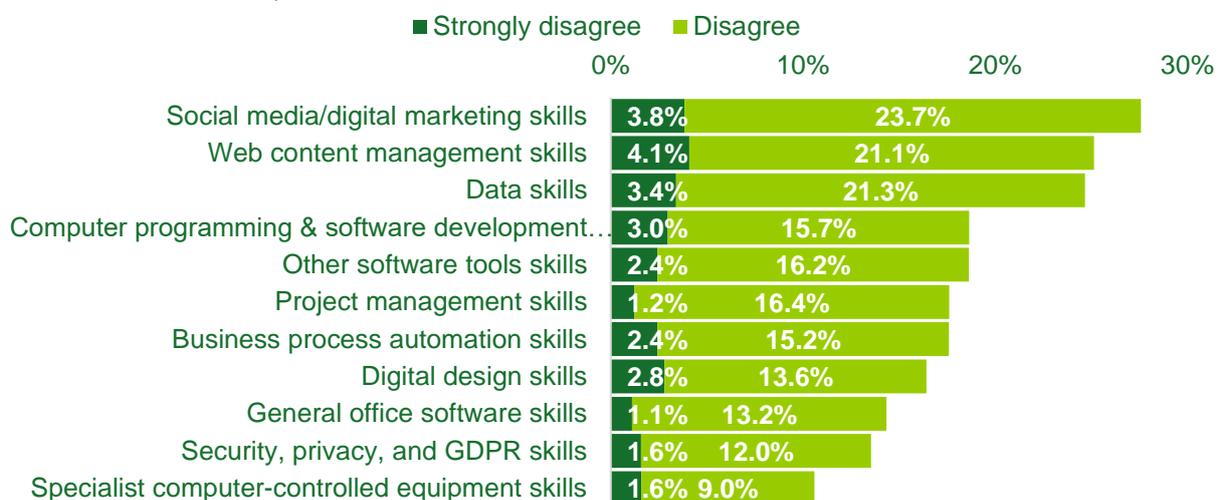
Chart 3.6: Percentage of South Yorkshire Employers Reporting that their Workforces Lack Basic and Advanced IT Skills



Source: Employer Skills Survey 2019 and KADA Research 2022

Looking at types of digital skills gaps, the biggest workplace digital skills gaps in South Yorkshire relate to social media/digital marketing skills, web content management skills and data skills: Results from the South Yorkshire Digital Skills Survey show that the highest shares of organisations strongly disagreeing/disagreeing that their workforce currently meets the needs of the business relate to social media/digital marketing skills (27.6%), web content management skills (25.1%) and data skills (24.7%). Many in-depth interviews with employers in South Yorkshire identified social media and web development as key requirements for businesses, particularly the need for creating and managing social media content and the importance of basic web management and analytics skills. For some, there was a desire to bring social media activities in-house, but the lack of expertise in this area was noted as a challenge.

Chart 3.7: Percentage of Businesses Disagreeing that their Workforce Currently Meets the Needs of the Business, 2023



Source: South Yorkshire Digital Skills Survey, February to April 2023

'We want to take on a greater amount of social media activity in-house which is where our skills are lacking'

'The only digital skills that are insufficient at the moment are our social media skills. We do need to look at how we approach that'

'We have a gap in knowing how to grab the data we have and really analyse it and strip it out and understand what the issues might be'

Source: South Yorkshire Digital Skills Survey 2023, in-depth interviews

Social media/digital marketing skills, web content management skills and data skills are the top three digital skills gaps in micro, small and medium-sized businesses. For large businesses (250+ employees), the top three digital skills gaps are data skills, social media/digital marketing skills, and computer programming and software development skills (with project management skills following close behind).

Table 3.4: Top Three Digital Skills Gaps by Size of Business, 2023

Business Size	Top Three Digital Skills Gaps	% Respondents Strongly Disagreeing/Disagreeing that the Workforce Meets the Need of the Business
Sole trader	Web content management skills	24.7%
	Social media/digital marketing skills	20.0%
	Data skills	18.0%
2 to 9 employees	Data skills	22.4%
	Web content management skills	20.6%
	Social media/digital marketing skills	20.5%
10 to 49 employees	Social media/digital marketing skills	29.9%
	Web content management skills	29.2%
	Data skills	25.9%
50 to 249 employees	Social media/digital marketing skills	52.2%
	Web content management skills	33.8%
	Data skills	32.9%
250 or more employees	Data skills	30.6%
	Social media/digital marketing skills	27.9%
	Computer programming and software development skills	26.8%

Source: South Yorkshire Digital Skills Survey, February to April 2023

Looking at digital skills gaps by sector shows that:

- **Social media/digital marketing skills** is the top digital skills gap in eight sectors – Manufacturing, Energy, Transportation and Storage, Information Technology and Communications, Real Estate Activities, Professional, Scientific and Technical Activities, Health and Social Work, and Education
- **Web content management skills** is the top digital skills gap in five sectors – Financial and Insurance Activities, Administrative and Support Service Activities, Public Administration and Defence, Arts, Entertainment and Recreation, and Other Service Activities
- **Data skills** is the top digital skills gap in three sectors – Wholesale and Retail Trade, Accommodation and Food Service Activities, and Public Administration and Defence
- **Project management skills** is the top digital skills gap in Agriculture, Forestry and Fishing

- **Computer programming and software development skills** is the top digital skills gap in Construction

Table 3.5: Top Digital Skills Gap by Sector²³, 2023

Business Sector	Top Digital Skills Gap	% Respondents Strongly Disagreeing/Disagreeing that the Workforce Meets the Need of the Business
Agriculture, Forestry and Fishing	Project management skills	50.0%
Manufacturing	Social media/digital marketing skills	37.3%
Electricity, Gas, Steam and Air Conditioning Supply	Social media/digital marketing skills	40.0%
Construction	Computer programming and software development skills	25.0%
Wholesale and Retail Trade	Data skills	23.3%
Transportation and Storage	Social media/digital marketing skills	33.3%
Accommodation and Food Service Activities	Data skills	45.5%
Information technology and Communications	Social media/digital marketing skills	24.1%
Financial and Insurance Activities	Web content management skills	35.0%
Real Estate Activities	Social media/digital marketing skills	25.0%
Professional, Scientific and Technical Activities	Social media/digital marketing skills	30.0%
Administrative and Support Service Activities	Web content management skills	58.3%
Public Administration and Defence	Data skills and Web content management skills	50.0% each
Human Health and Social Work Activities	Social media/digital marketing skills	45.7%
Education	Social media/digital marketing skills	37.5%
Arts, Entertainment and Recreation	Web content management skills	36.0%
Other Service Activities	Web content management skills	24.1%

Source: South Yorkshire Digital Skills Survey, February to April 2023

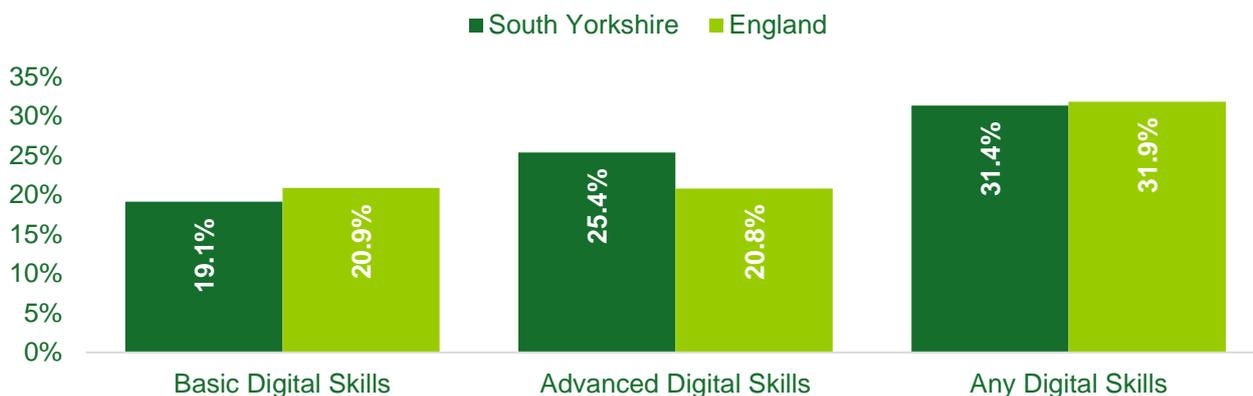
3.4 DIGITAL SKILLS SHORTAGES

One third of skills shortage vacancies are caused by a lack of digital skills: The latest Employer Skills Survey showed that, in 2019, one third (31.4%) of employers with skills shortage vacancies (SSVs) – vacancies that are hard to fill because applicants lack the required skills – reported that the required digital skills were difficult to find from applicants – similar to the national average (31.9%).

²³ Results for Mining and Quarrying and Water Supply excluded due to fewer than five respondents

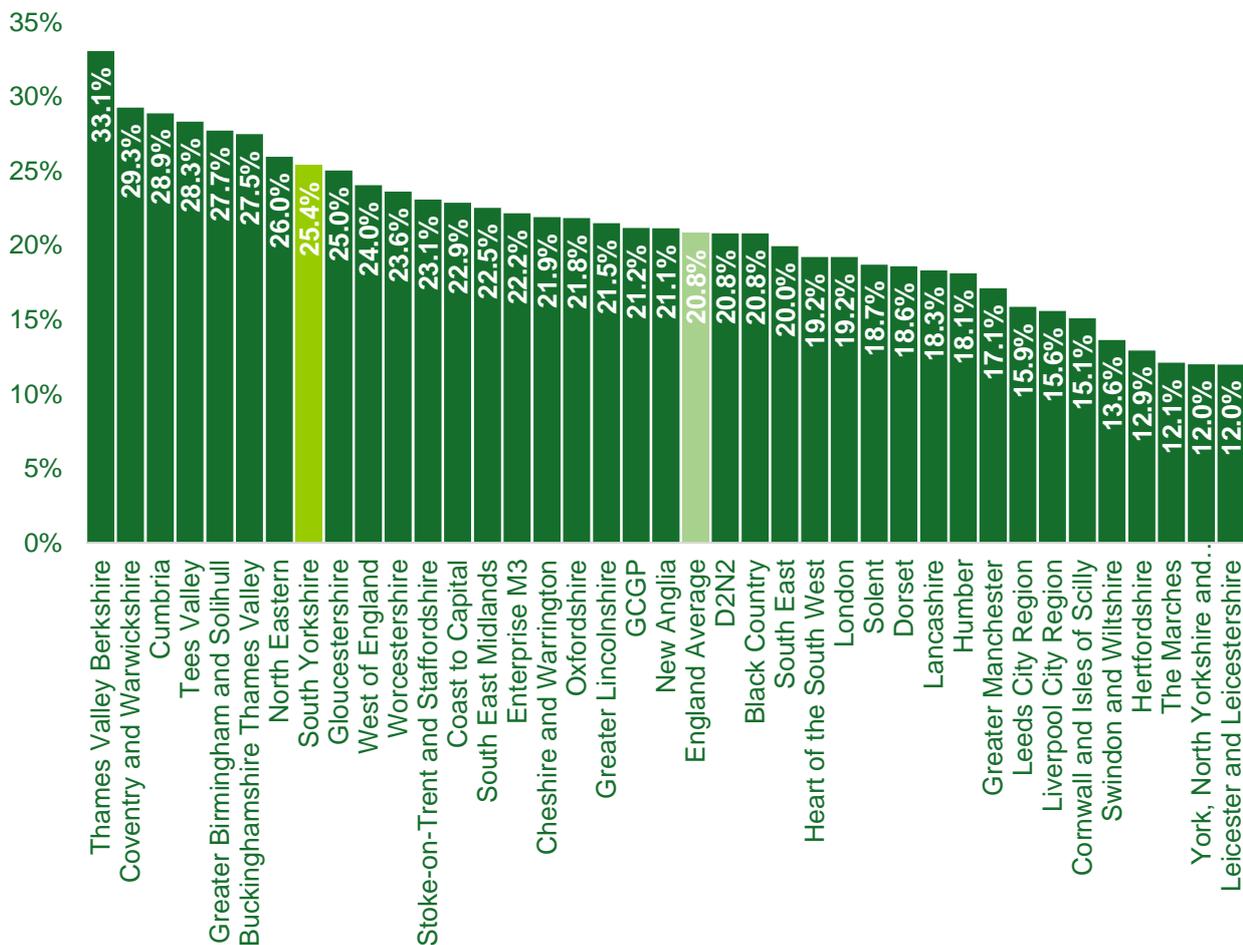
Advanced digital skills are a bigger cause of recruitment difficulties in South Yorkshire than many other areas of England: Looking at reasons for skills shortages in more detail shows that 19.1% of SSVs were caused by a lack of basic IT skills while 25.4% were due to a lack of advanced/specialist IT skills. South Yorkshire had one of the highest rates of SSVs caused by a lack of advanced IT skills of all LEP areas (eighth highest of 38) and above the England average of 20.8%.

Chart 3.8: % Employers with SSVs Reporting That Digital Skills Were Difficult to Obtain from Applicants, 2019



Source: Employer Skills Survey 2019

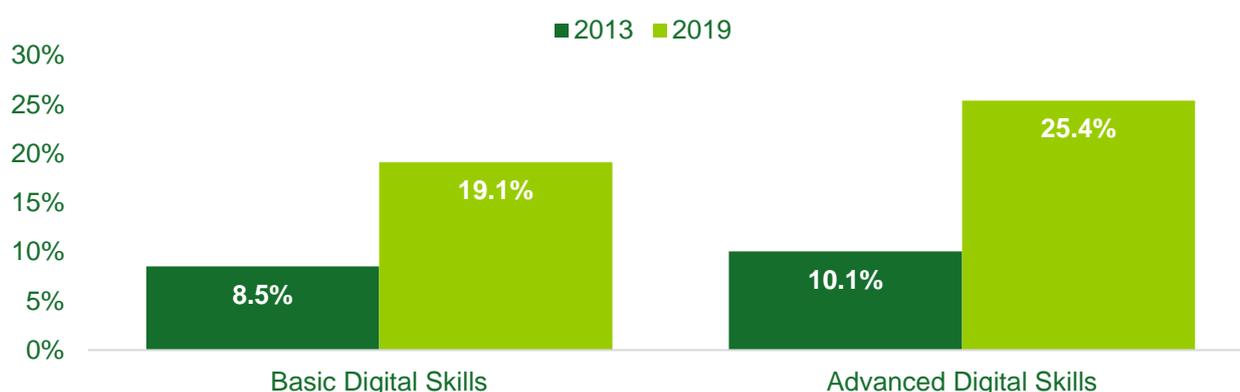
Chart 3.9: Percentage of SSVs Caused by a Lack of Advanced/Specialist IT Skills, LEP Areas, 2019



Source: Employer Skills Survey 2019

As digital skills have increased in importance, so have recruitment difficulties caused by a lack of digital skills, highlighting that demand is increasing faster than supply: Comparing the results of the 2019 Employer Skills Survey with the 2013 survey shows that the percentage of recruiting establishments reporting that basic digital skills were lacking in applicants increased from 8.5% to 19.1% between 2013 and 2019, while the percentage reporting that advanced digital skills were lacking increased more sharply, from 10.1% to 25.4%.

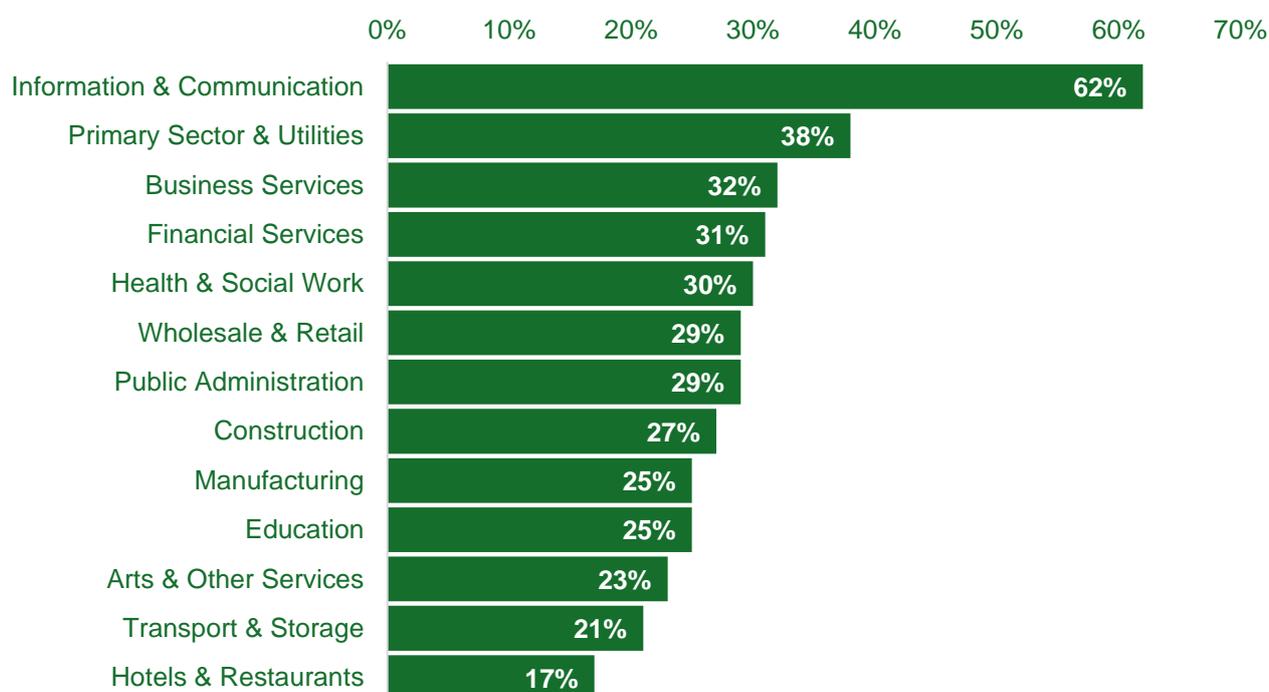
Chart 3.10: Change in Percentage of South Yorkshire Employers Reporting that Digital Skills Were Difficult to Obtain from Applicants



Source: Employer Skills Survey 2019

As with skills gaps, digital skills shortages are most acute in the Information and Communication sector: Across England, a lack of digital skills are causing recruitment difficulties in all sectors, but particularly Information & Communication and the Primary Sector & Utilities. These were the sectors reporting the highest demand for digital skills in the DCMS report highlighted above.

Chart 3.11: Percentage of SSVs Caused by Digital Skills Shortages by Industry, England, 2019



Source: Employer Skills Survey 2019

In South Yorkshire, interviews with employers reveal that recruitment is a major challenge for many businesses due to difficulty in finding the right talent and a shortage of skilled workers. The lack of digital skills is a concern for some businesses, particularly in specialist roles such as civil engineering. Employers also struggle to find people with the right attitude, skills, and salary expectations, while Brexit has made it more challenging to find employees. However, some businesses have been successful in recruiting staff by partnering with universities, while others have a strong culture and reputation that attracts candidates.

‘Hiring staff with the right skills and retaining staff are our biggest issues’

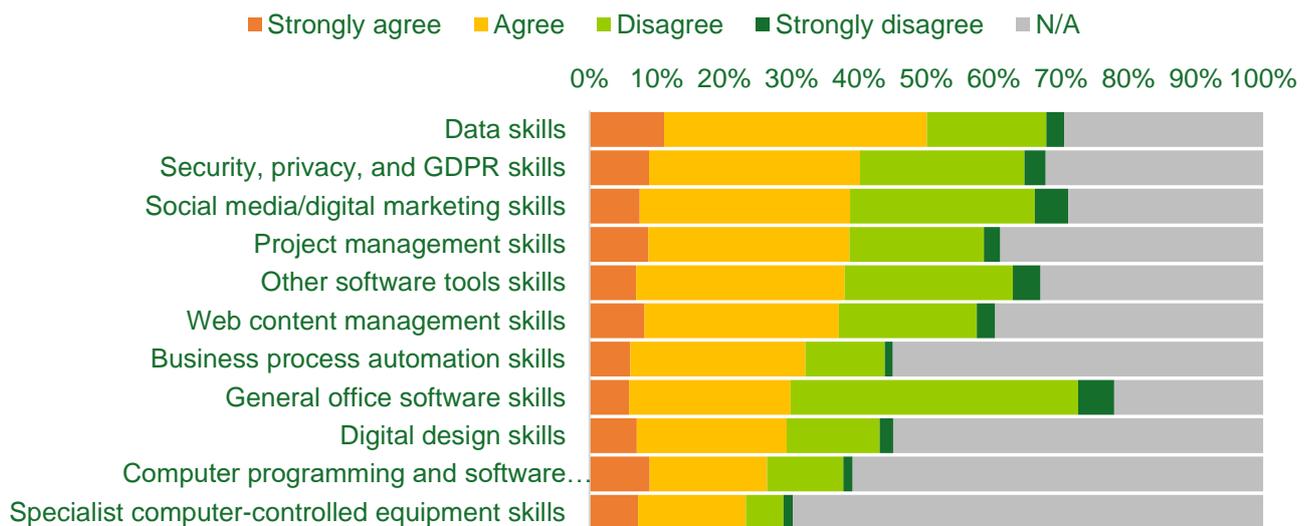
‘Finding the number of required employees, at the right skill levels, is more difficult than ever since COVID’

‘We will need to hire the right people who have good digital skills from the outset’

Source: South Yorkshire Digital Skills Survey 2023, in-depth interviews

Across types of digital skills, South Yorkshire employers find it most difficult to recruit people with good data skills: 50.1% strongly agree/agree that it is difficult to recruit people with these skills. This is followed by security, privacy and GDPR skills (40.2%), social media/digital marketing skills (38.7%) and project management skills (38.6%).

Chart 3.12: It Is Hard to Recruit People with Good Skills, 2023



Source: South Yorkshire Digital Skills Survey, February to April 2023

Data skills are also the biggest digital skills recruitment difficulty among all sizes of business, apart from sole traders, and the biggest digital skills recruitment difficulty in the majority (12 out of 17) of sectors.

Table 3.6: Top Three Digital Skills Recruitment Difficulties by Size of Business, 2023

Business Size	Top Three Digital Skills Recruitment Difficulties	% Respondents Strongly Agreeing/Agreeing that it is Hard to Recruit People with Good Skills
Sole trader	Security, privacy, and GDPR skills	23.6%
	Data skills	23.1%
	Web content management skills	20.6%
2 to 9 employees	Data skills	43.9%
	Other software tools skills	36.3%
	Security, privacy, and GDPR skills	35.5%
10 to 49 employees	Data skills	57.3%
	Security, privacy, and GDPR skills	46.9%
	Project management skills	46.0%
50 to 249 employees	Data skills	69.9%
	Project management skills	61.5%
	Web content management skills	57.4%
250 or more employees	Data skills	69.4%
	Social media / digital market skills	58.1%
	Project management skills	52.6%

Source: South Yorkshire Digital Skills Survey, February to April 2023

Table 3.7: Top Digital Skills Recruitment Difficulty by Sector²⁴, 2023

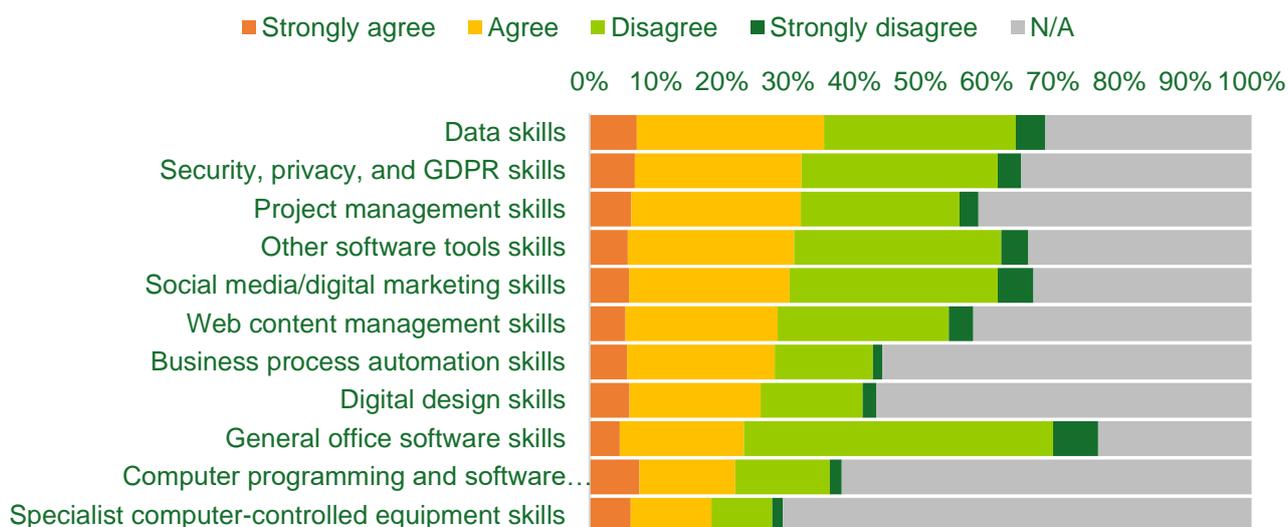
Business Size	Top Digital Skills Recruitment Difficulty	% Respondents Strongly Agreeing/Agreeing that it is Hard to Recruit People with Good Skills
Agriculture, Forestry and Fishing	Other software tools skills	42.9%
Manufacturing	Data skills	54.5%
Electricity, Gas, Steam and Air Conditioning Supply	Data skills and Project management skills	70.0% each
Construction	Data skills	47.8%
Wholesale and Retail Trade	Social media/digital marketing skills	58.6%
Transportation and Storage	Data skills and Other software tool skills	37.5% each
Accommodation and Food Service Activities	Other software tools skills	63.6%
Information technology and Communications	Security, privacy, and GDPR skills	69.0%
Financial and Insurance Activities	Data skills	47.6%
Real Estate Activities	Data skills	66.7%
Professional, Scientific and Technical Activities	Data skills	56.3%
Administrative and Support Service Activities	Data skills	61.5%
Public Administration and Defence	Data skills	83.3%
Human Health and Social Work Activities	Data skills	56.8%
Education	Data skills	57.1%
Arts, Entertainment and Recreation	Social media/digital marketing skills	52.0%
Other Service Activities	Data skills	40.7%

Source: South Yorkshire Digital Skills Survey, February to April 2023

South Yorkshire employers also struggle to retain workers with good data skills: Employers in South Yorkshire find it most difficult to retain workers with good data skills (35.4% strongly agreeing/agreeing that it is difficult to retain people with these skills), followed by security, privacy and GDPR skills and (32.0%) and project management skills (31.9%). Data skills are the top digital skills retention issue for medium and large businesses, and a top three retention issue for micro small businesses. The top digital skills retention issue differed across sectors, with data skills being most prominent (the top digital skills retention issue for seven out of 17 sectors).

²⁴ Results for Mining and Quarrying and Water Supply excluded due to fewer than five respondents

Chart 3.13: It Is Hard to Retain People with Good Skills, 2023



Source: South Yorkshire Digital Skills Survey Interim Results, March 2023

Table 3.8: Top Three Digital Skills Retention Issues by Size of Business, 2023

Business Size	Top Three Digital Skills Retention Issues	% Respondents Strongly Agreeing/Agreeing that it is Hard to Retain People with Good Skills
Sole trader	Security, privacy, and GDPR skills	20.8%
	Project management skills	18.6%
	General office software skills	16.9%
2 to 9 employees	Other software tools skills	28.9%
	Data skills	28.0%
	Security, privacy, and GDPR skills	27.8%
10 to 49 employees	Project management skills	41.3%
	Data skills	35.7%
	Social media/digital marketing skills	35.1%
50 to 249 employees	Data skills	58.9%
	Project management skills	50.0%
	Web content management skills	47.1%
250 or more employees	Data skills	63.3%
	Other software tools skills	48.9%
	Social media/digital marketing skills	48.8%

Source: South Yorkshire Digital Skills Survey, February to April 2023

Table 3.9: Top Digital Skills Retention Issue by Sector²⁵

Business Size	Top Digital Skills Retention Issue	% Respondents Strongly Agreeing/Agreeing that it is Hard to Retain People with Good Skills
Agriculture, Forestry and Fishing	Other software tools skills	42.9%
Manufacturing	Specialist computer-controlled equipment skills	39.7%
Electricity, Gas, Steam and Air Conditioning Supply	Project management skills	60.0%
Construction	Data skills	36.9%
Wholesale and Retail Trade	Social media/digital marketing skills	34.5%
Transportation and Storage	Business process automation skills	35.7%
Accommodation and Food Service Activities	Security, privacy, and GDPR skills and Project management skills	50.0% each
Information technology and Communications	Data skills	50.0%
Financial and Insurance Activities	Data skills	28.6%
Real Estate Activities	Web content management skills, Security, privacy, and GDPR skills, and Business process automation skills	14.3% each
Professional, Scientific and Technical Activities	Data skills	31.2%
Administrative and Support Service Activities	Data skills	69.2%
Public Administration and Defence	Security, privacy, and GDPR skills and Computer programming and software development skills	80.0% each
Human Health and Social Work Activities	Project management skills	39.4%
Education	Data skills	48.6%
Arts, Entertainment and Recreation	Security, privacy, and GDPR skills	56.0%
Other Service Activities	Data skills	27.6%

Source: South Yorkshire Digital Skills Survey, February to April 2023

²⁵ Results for Mining and Quarrying and Water Supply excluded due to fewer than five respondents

4. DEMAND FOR DIGITAL SKILLS

4.1 TECH ADOPTION BY SOUTH YORKSHIRE BUSINESSES

The majority of organisations in South Yorkshire view technology as either central to their business strategy or as being important but not key to their business strategy; few regard technology as unimportant to their business. When organisations were asked about the use of technology within their business, the largest shares said that technology was central to their business strategy (38.6%) or that they used technology but it wasn't key to their overall strategy (38.3%). A smaller share viewed technology positively but were low adopters – with 14.1% having some understanding and were trying to apply technology to the business and 3.0% thinking that technology could help their business but didn't understand how it could be applied. Just 6.0% of organisations thought that technology wasn't relevant.

Chart 4.1: Importance of Technology within Organisations in South Yorkshire, 2023



Source: South Yorkshire Digital Skills Survey, February to April 2023

'The way we find / sell our [products] is all around technology. From the management of our own website; the purchasing and selling of [products] using online platform auctions; our own stocking system; setting up of finance for customers'

'Our staff use a CRM system but we probably only use 10% of what it is applicable to'

'We are going through a systems overhaul which will mean learning new applications and processes'

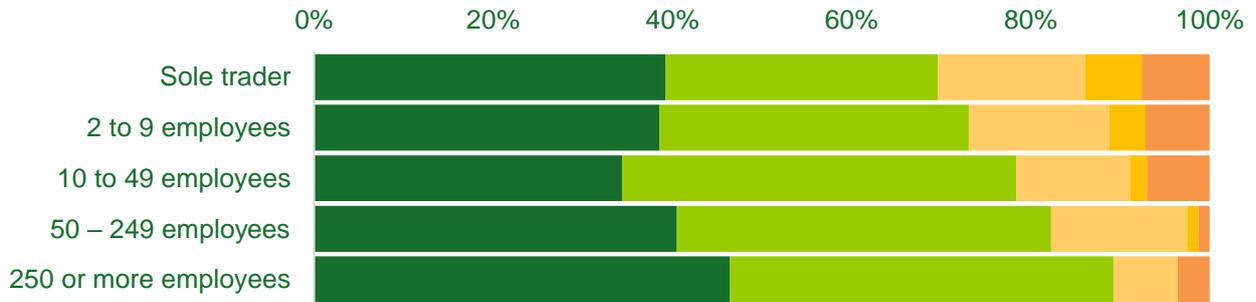
'The main challenge is working through the process of our internal team adopting new digital processes'

Source: South Yorkshire Digital Skills Survey 2023, in-depth interviews

Tech adoption is highest among large businesses, with sole traders/micro businesses most likely to require help to apply technology within their business. Intensive use of technology (i.e. technology being central to the business strategy or important but not central) is highest among large businesses (89.3%), and declines as business size reduces, to 69.6% of sole traders. Conversely, the share of businesses potentially requiring assistance to apply technology (i.e. those trying to apply technology and those not understanding how technology could help) is highest for sole traders (22.8%) and declines as business size increases, to just 7.1% of large businesses. Sole traders are also most likely to view technology as not relevant to their business (7.6%).

Chart 4.2: Importance of Technology within Organisations in South Yorkshire, by Business Size, 2023

- We are a technology-centric business – it is central to our business strategy.
- We use technology in our business but it isn't key to our business strategy.
- We have some understanding of technology and are trying to apply it to our business.
- We think technology could help our business but we don't really understand how.
- We don't think technology is relevant to our business.

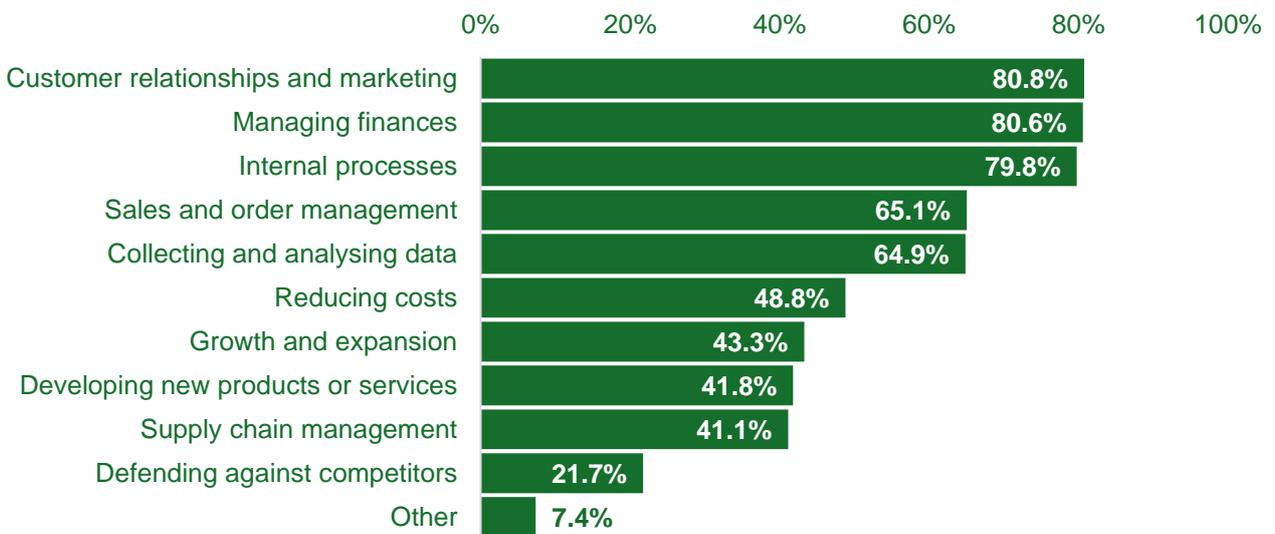


Source: South Yorkshire Digital Skills Survey, February to April 2023

Interviews with South Yorkshire employers show that there are a number of drivers of technology use within businesses, which include improving processes, efficiency and productivity, collecting data and providing real-time management information, reducing need for manual data entry, improving sales, marketing and customer service, supporting hybrid/remote working, supporting the transition to paperless workplaces, and supporting commitment to net zero initiatives.

Organisations in South Yorkshire are most likely to use technology for customer relationships/marketing, managing finances and internal processes: When organisations were asked how they use technology within their business, the most common responses were for customer relationships and marketing (80.8% of respondents), managing finances (80.6%) and internal processes (79.8%). These were followed by sales/order management (65.1%) and collecting/analysing data (64.9%).

Chart 4.3: How Do You Use Technology in Your Business?, 2023



Source: South Yorkshire Digital Skills Survey, February to April 2023

Across different sizes of business, customer relationships/marketing, managing finances and internal processes were the top three drivers of technology use for all sizes apart from large businesses, where collecting and analysing data was a bigger driver than managing finances.

Table 4.1: How Do You Use Technology in Your Business?, 2023

■ Skills ranked 1-3 out of 11 ■ Skills ranked 4-6 out of 11

Skill	Sole trader	2 to 9 employees	10 to 49 employees	50 to 249 employees	250 or more employees
Customer relationships and marketing	74.7%	78.7%	78.3%	92.4%	87.5%
Internal processes	57.0%	73.3%	88.5%	94.9%	91.1%
Collecting and analysing data	41.8%	56.0%	73.9%	79.7%	85.7%
Managing finances	73.4%	76.0%	86.6%	86.1%	83.9%
Growth and expansion	24.1%	45.8%	42.7%	39.2%	66.1%
Defending against competitors	15.2%	19.6%	24.2%	25.3%	28.6%
Developing new products or services	34.2%	36.9%	47.8%	44.3%	51.8%
Reducing costs	35.4%	44.4%	49.7%	59.5%	66.1%
Sales and order management	53.2%	60.4%	70.7%	74.7%	69.6%
Supply chain management	15.2%	37.8%	46.5%	54.4%	57.1%
Other	8.9%	8.0%	8.3%	3.8%	5.4%

Source: South Yorkshire Digital Skills Survey, February to April 2023

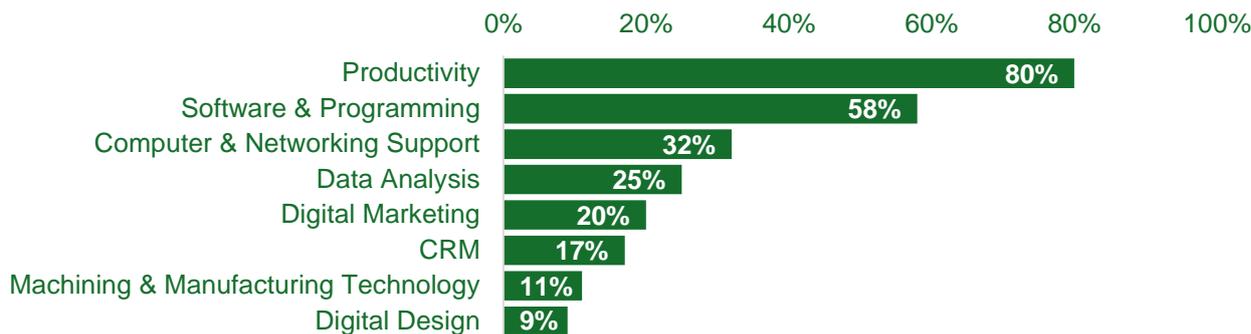
Businesses are using a variety of software to help them with their operations: Business interviews suggest that the most widely used software include Microsoft Office (with skills such as presentation, cloud storage knowledge, computing, word processing, spreadsheets, and Teams being highly utilised), FinTech solutions (such as Sage, Xero, and automated financial management systems), and Netsuite (for enterprise resource planning), followed by Google/G Suite, desktop publishing tools, and copy writing and editing tools. Sector specific software also featured prominently in the interviews.

4.2 CURRENT DEMAND FOR DIGITAL SKILLS

Nationally, baseline/productivity skills are most in demand among UK businesses²⁶: These skills are requested in 80% of job adverts for all digital occupations and are now seen as a ‘ticket to entry’ in the labour market. Regardless of the job function, fluency in productivity software tools allows job seekers to become more versatile and effectively communicate, problem-solve, and organise work in an increasing digital workforce.

²⁶ Burning Glass Technologies/DCMS (ibid).

Chart 4.4: Percentage Shares of Digital Demand by Digital Skills Cluster²⁷, UK



Source: Burning Glass Technologies/DCMS

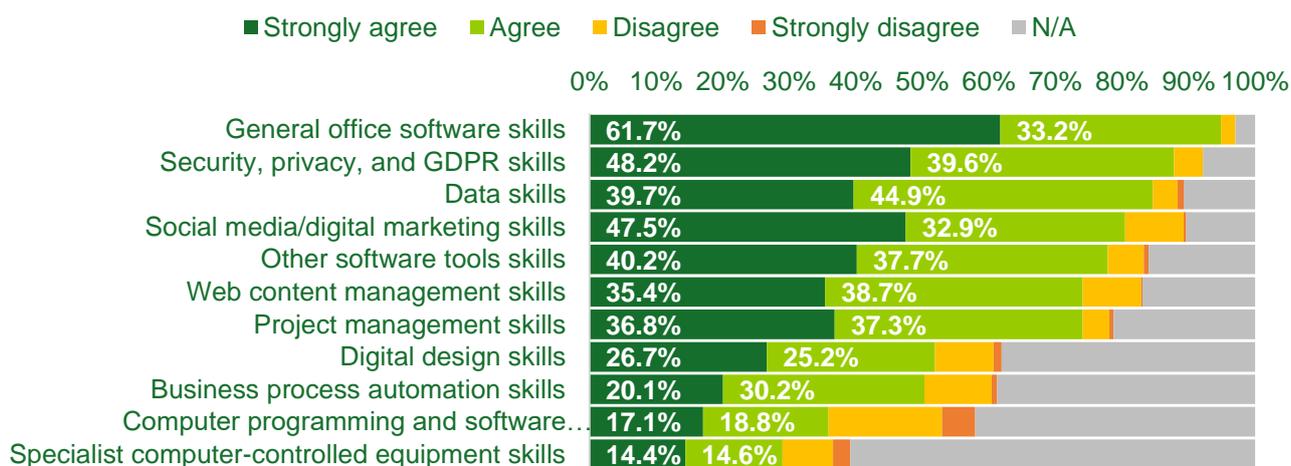
South Yorkshire businesses have growing demand for digital skills across a range of job roles and functions: Business interviews confirm that technology is now essential for most jobs, with growing demand across a range of roles and work tasks – the most prominent of which being administration, followed by apprentices, comms/marketing, accounts, and business development. Businesses are also looking for digital skills to maximise value from a range of tech tools and platforms. The most popular are skills for social media, using Customer Relationship Management systems (CRM), online marketing and sales, and website Content Management Systems (CMS).

In line with national findings, general office software skills are the most in-demand set of digital skills in South Yorkshire: When asked which digital skills were most important to South Yorkshire organisations now, the highest shares strongly agreed/agreed that general office software skills (94.9%) were important, followed by security, privacy and GDPR skills (87.8%), data skills (84.6%) and social media/digital marketing skills (80.5%). Least important were specialist IT skills – specialist computer-controlled equipment skills (29.0%) and computer programming and software development skills (35.9%).

“Web / E-mail / Word / Excel cover most of what is required in all of the roles across the business”

Source: South Yorkshire Digital Skills Survey 2023, in-depth interviews

Chart 4.5: These Digital Skills are Important to My Business Now, 2023



Source: South Yorkshire Digital Skills Survey, February to April 2023

²⁷ Percentage Share of Digital Demand is calculated as the number of job adverts in digital occupations focusing on the respective digital skill cluster divided by the total number of all job adverts in digital occupations. Skill clusters are not mutually exclusive. Percentages therefore do not add up to 100%

Across different business sizes, general office software skills and security/privacy/GDPR skills ranked within the top three important digital skills for each size of business. Across industry sectors, general office software was the most important/joint most important digital skill in most sectors, apart from Accommodation and Food Service Activities (social media/digital marketing skills), Financial and Insurance Activities (data skills), Public Administration (data skills), Health and Social Work (security/privacy/GDPR skills) and Arts, Entertainment and Recreation (social media/digital marketing skills).

Table 4.2: These Digital Skills are Important to My Business Now by Size of Business (Top Three Skills Highlighted), 2023

Skill	Sole trader	2 to 9 employees	10 to 49 employees	50 to 249 employees	250 or more employees
Data skills	75.6%	78.0%	90.9%	90.4%	100.0%
General office software skills	88.3%	93.3%	97.1%	100.0%	97.8%
Other software tools skills	61.0%	73.2%	84.1%	87.3%	93.3%
Social media/digital marketing skills	77.3%	73.5%	82.8%	94.2%	88.4%
Web content management skills	69.9%	68.8%	77.9%	85.3%	76.2%
Security, privacy, and GDPR skills	80.8%	83.8%	91.5%	92.5%	100.0%
Computer programming and software development skills	32.9%	25.6%	40.0%	44.8%	63.4%
Specialist computer-controlled equipment skills	14.3%	23.2%	33.9%	38.8%	48.8%
Digital design skills	58.6%	42.5%	53.5%	61.2%	65.8%
Business process automation skills	38.6%	39.4%	56.3%	74.2%	67.6%

Source: South Yorkshire Digital Skills Survey, February to April 2023

Table 4.3: These Digital Skills are Important to My Business Now by Sector²⁸, 2023

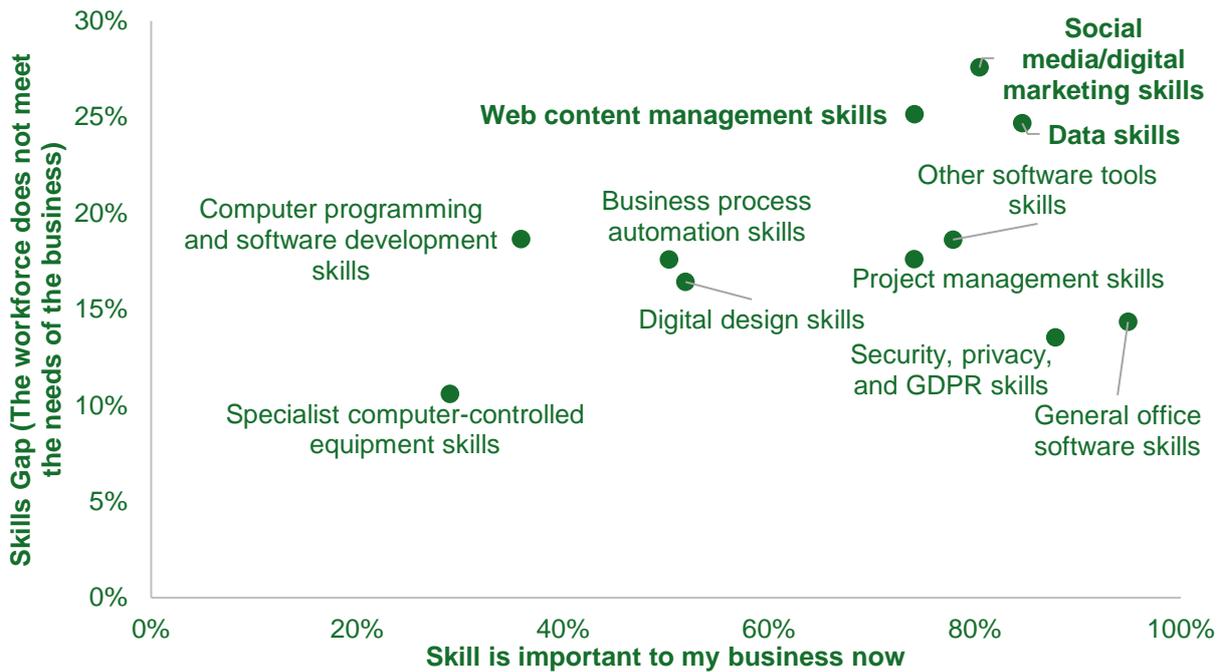
Business Size	Most Important Digital Skill Now	% Respondents Strongly Agreeing/Agreeing that the Skill is Important to the Business Now
Agriculture, Forestry and Fishing	General office software skills	100.0%
Manufacturing	General office software skills	98.7%
Electricity, Gas, Steam and Air Conditioning Supply	General office software skills and Security, privacy, and GDPR skills	100.0% each
Construction	General office software skills	90.2%
Wholesale and Retail Trade	General office software skills	86.7%
Transportation and Storage	General office software skills	87.5%
Accommodation and Food Service Activities	Social media/digital marketing skills	100.0%
Information technology and Communications	General office software skills	100.0%
Financial and Insurance Activities	Data skills	95.2%
Real Estate Activities	General office software skills and Data skills	100.0% each
Professional, Scientific and Technical Activities	General office software skills	96.8%
Administrative and Support Service Activities	General office software skills and Data skills	100.0% each
Public Administration and Defence	Data skills	100.0%
Human Health and Social Work Activities	Security, privacy, and GDPR skills	100.0%
Education	Data skills	97.1%
Arts, Entertainment and Recreation	Social media/digital marketing skills	100.0%
Other Service Activities	General office software skills	93.7%

Source: South Yorkshire Digital Skills Survey, February to April 2023

Comparing current demand for digital skills with current skills gaps shows that social media/digital marketing skills, data skills and web content management skills are both very important to businesses now but are also the biggest workforce deficiencies. Conversely, workforces are generally competent in the top two most important digital skills for businesses – general office software and security/privacy/GDPR.

²⁸ Results for Mining and Quarrying and Water Supply excluded due to fewer than five respondents

Chart 4.6: Important Digital Skills Now Vs Workplace Digital Skills Gaps, 2023



Source: South Yorkshire Digital Skills Survey, February to April 2023

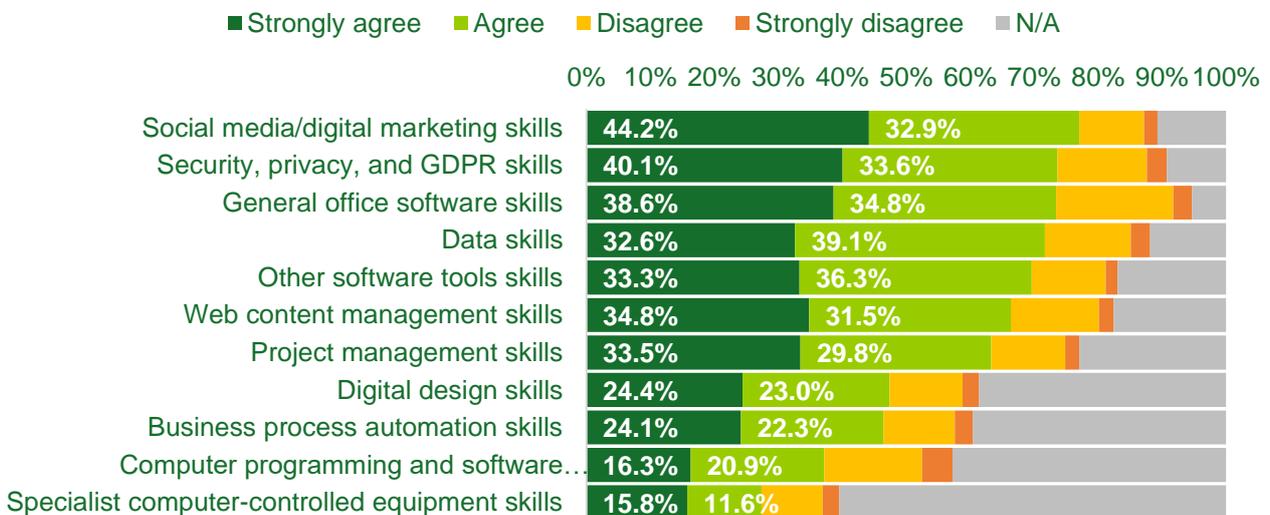
4.3 PROJECTED DEMAND FOR DIGITAL SKILLS

Social media/digital marketing skills is seen as the biggest digital skills growth area among organisations in South Yorkshire: When asked which digital skills would be more important to their organisations in two-to-five years’ time, the highest share strongly agreed/agreed that social media/digital marketing skills would be more important (77.1%), followed by security/privacy/GDPR skills (73.7%), general office software skills (73.4%), data skills (71.7%) and other software tools skills (69.7%).

'Currently the challenges are getting our web and social media activities sorted'

Source: South Yorkshire Digital Skills Survey 2023, in-depth interviews

Chart 4.7: These Digital Skills Will Be More Important to My Business In 2-5 Years' Time, 2023



Source: South Yorkshire Digital Skills Survey, February to April 2023

Across different business sizes, social media/digital marketing skills, security/privacy/GDPR skills, and general office software skills featured within the top three digital skills growth areas for most sizes of business.

Table 4.4: These Digital Skills Will Important to More Important to My Business in 2-5 Years' Time by Size of Business (Top Three Skills Highlighted), 2023

Skill	Sole trader	2 to 9 employees	10 to 49 employees	50 to 249 employees	250 or more employees
Data skills	65.4%	66.2%	72.7%	76.7%	93.9%
General office software skills	67.5%	74.8%	67.9%	77.5%	89.1%
Other software tools skills	62.3%	69.1%	66.7%	76.1%	82.2%
Social media/digital marketing skills	78.7%	75.0%	70.4%	87.0%	88.4%
Web content management skills	68.5%	63.8%	61.1%	73.5%	78.6%
Security, privacy, and GDPR skills	67.1%	72.7%	69.8%	79.1%	92.7%
Computer programming and software development skills	38.6%	28.7%	38.0%	46.3%	58.5%
Specialist computer-controlled equipment skills	17.2%	24.2%	27.3%	31.3%	51.2%
Digital design skills	58.6%	38.7%	43.3%	58.2%	65.8%
Business process automation skills	38.6%	39.4%	47.6%	63.6%	64.9%

Source: South Yorkshire Digital Skills Survey, February to April 2023

Across industry sectors, social media/digital marketing skills was the biggest/joint biggest digital skills growth area in eight out of 17 sectors. For others:

- **Data skills** was the biggest digital skills growth area for businesses in Construction, Administrative and Support Service Activities, and Public Administration,
- **Security/privacy/GDPR skills** was the biggest growth area for businesses in Agriculture and Energy
- **General office software skills** was the biggest growth area for businesses in Manufacturing and Wholesale and Retail Trade
- **Other software tools skills** was the biggest growth area for businesses in Transportation and Storage and Information Technologies and Communications.

Table 4.5: These Digital Skills Will Be More Important to My Business In 2-5 Years' by Sector²⁹, 2023

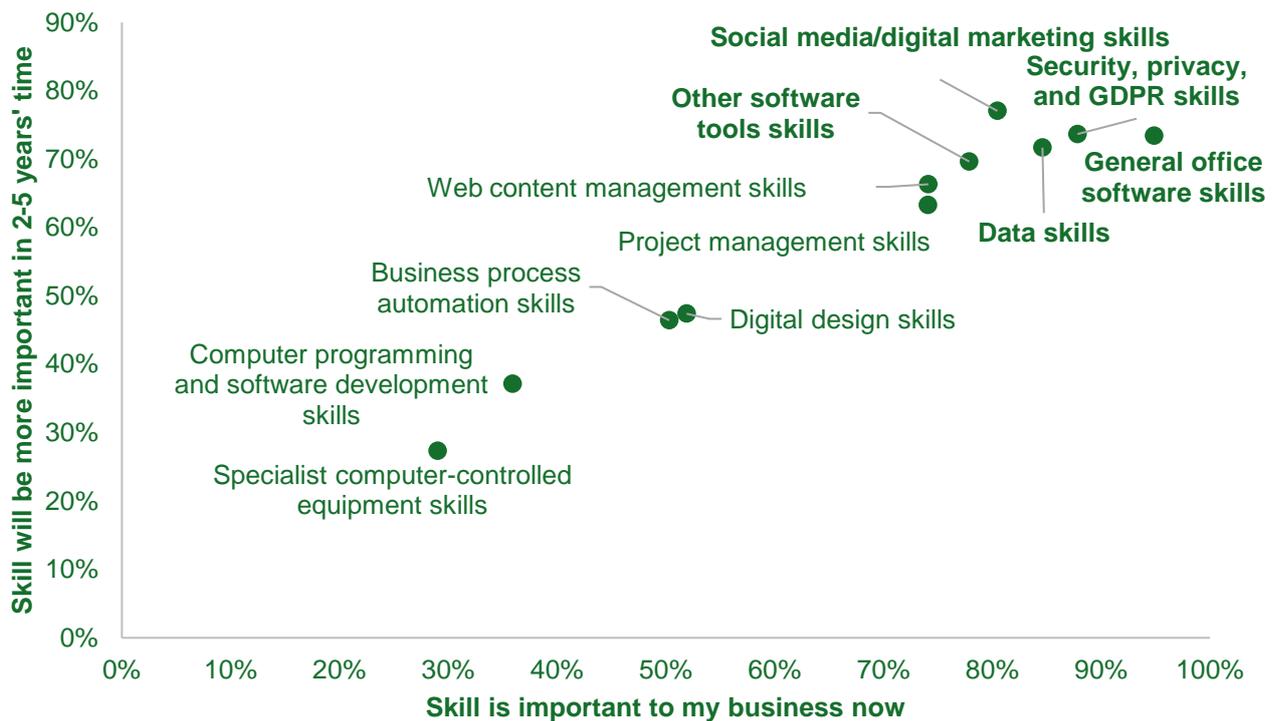
Business Size	Digital Skill More Important in 2-5 Years' Time	% Respondents Strongly Agreeing/Agreeing that the Skill Will Be More Important to the Business in 2-5 Years' Time
Agriculture, Forestry and Fishing	Security, privacy, and GDPR skills	66.7%
Manufacturing	General office software skills	80.3%
Electricity, Gas, Steam and Air Conditioning Supply	Security, privacy, and GDPR skills	90.0%
Construction	Data skills	69.6%
Wholesale and Retail Trade	General office software skills	83.3%
Transportation and Storage	Other software tools skills	75.0%
Accommodation and Food Service Activities	Social media/digital marketing skills	90.0%
Information technology and Communications	Other software tools skills	77.4%
Financial and Insurance Activities	Social media/digital marketing skills	90.5%
Real Estate Activities	Social media/digital marketing skills and General office software skills	100.0% each
Professional, Scientific and Technical Activities	Social media/digital marketing skills	86.7%
Administrative and Support Service Activities	Data skills	84.6%
Public Administration and Defence	Data skills	100.0%
Human Health and Social Work Activities	Social media/digital marketing skills	77.1%
Education	Social media/digital marketing skills	84.4%
Arts, Entertainment and Recreation	Social media/digital marketing skills	88.0%
Other Service Activities	Social media/digital marketing skills	72.7%

Source: South Yorkshire Digital Skills Survey, February to April 2023

There is strong correlation between the digital skills that are most important now and those that businesses believe will be more important in two-to-five years' time: The five most important digital skills now (social media/digital marketing skills, security/privacy/GDPR skills, general office software skills, data skills, and other software tools skills) are also those that employers believe will grow most in importance in two-to-five years' time.

²⁹ Results for Mining and Quarrying and Water Supply excluded due to fewer than five respondents

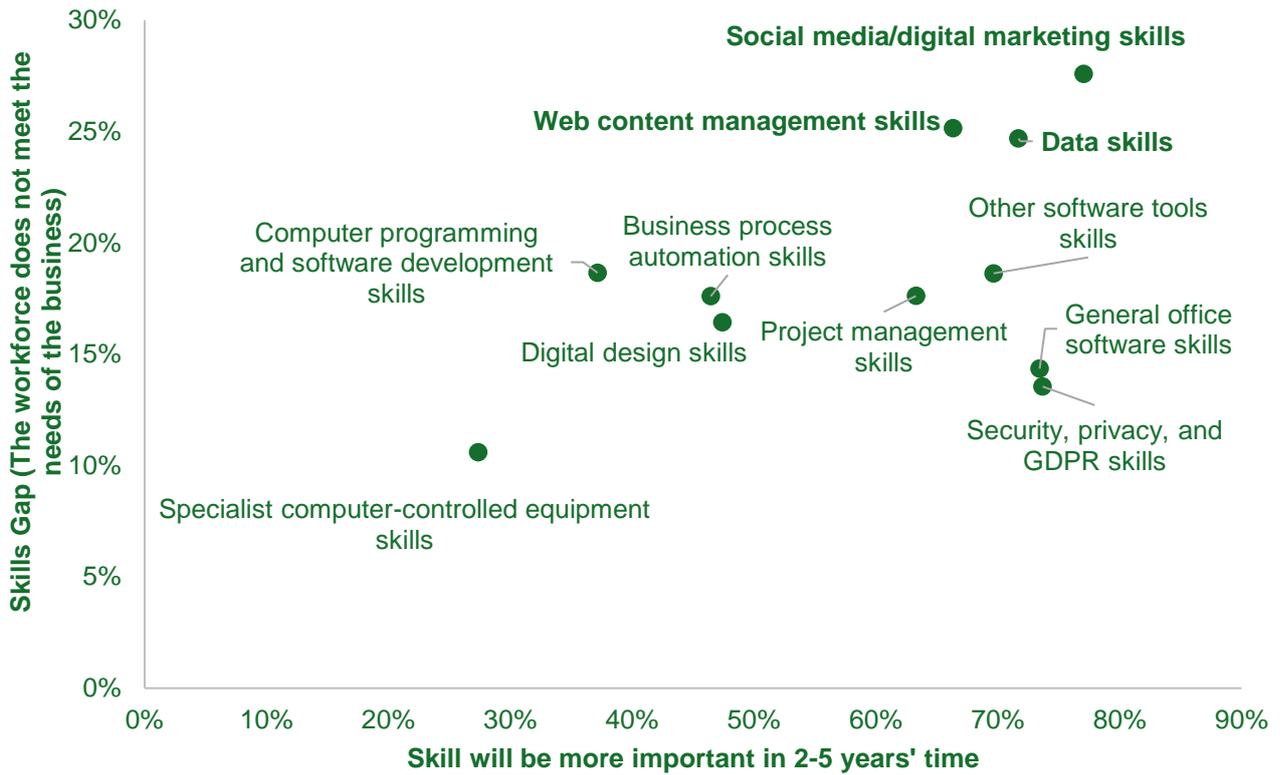
Chart 4.8: Skills Important to Businesses Now vs. Skills More Important to Businesses in 2-5 Years' Time, 2023



Source: South Yorkshire Digital Skills Survey, February to April 2023

Comparing digital skills that will grow in importance with current digital skills gaps highlights the importance of addressing workforce deficiencies in social media/digital marketing skills, data skills and web content management skills. These are the three biggest workforce digital skills gaps in South Yorkshire as well as some of the skills most important now and most likely to grow in importance over the next few years. Conversely, workforces are generally much more competent in other important digital skills growth areas, such as general office software skills and security/privacy/GDPR skills.

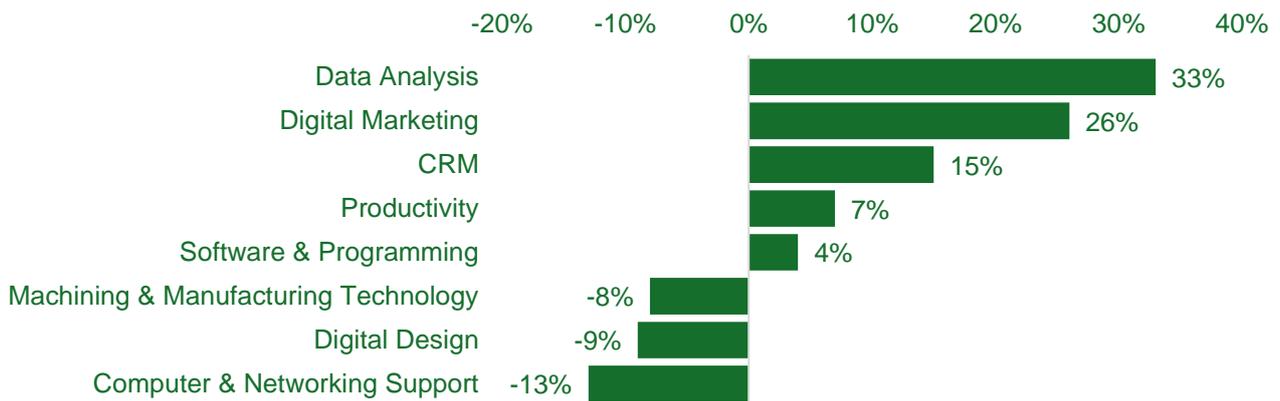
Chart 4.9: Important Future Digital Skills vs Workplace Digital Skills Gaps, 2023



Source: South Yorkshire Digital Skills Survey, February to April 2023

The South Yorkshire survey findings are in line with the findings of the 2019 DCMS report, which found that data analysis and digital marketing skills are the two clusters likely to grow fastest over the next five years. This highlights the increasing importance of data in the job market while digital marketing skills are becoming more important because of the increased usage of platforms such as Google Analytics to quantify marketing efforts.

Chart 4.10: Projected Growth in Demand by Digital Skills Cluster, UK, 2019-2024



Source: Burning Glass Technologies/DCMS

The following highlights the fastest growing skills in each cluster over the five years to 2024:

Table 4.6: Fastest Growing Skills by Digital Skills Cluster, UK, 2019-2024

Digital Skill Cluster	Description
Productivity Software	NetSuite (97%), Microsoft Office (82%), Spreadsheets (47%), Electronic Document Management System (37%), Pivot Tables (30%)
Software & Programming	Kubernetes (293%), Spring Boot (278%), Data Lakes/Reservoirs (235%), Docker Software (209%), Ansible (195%)
Computer & Networking Support	Cyber Security (120%), Threat Intelligence and Analysis (87%), Chief Infrastructure Automation (63%), Puppet (48%), Information Governance (40%)
Data Analysis	Deep Learning (192%), Pandas (147%), Pipeline (Computing) (143%), Alteryx (139%), YAML (134%)
Digital Design	Videography (53%), Adobe Premier (31%), Video Editing (21%), Human Machine Interface (20%), SketchUp (20%)
CRM	Salesforce Administration (62%), Sales Automation Software (46%), Salesforce (37%), Customer Acquisition (26%)
Digital Marketing	Adobe Analytics (151%), Salesforce Marketing Cloud (136%), HubSpot (135%), Mailchimp (81%), Social Content (71%)
Machining & Manufacturing Technology	CANape (72%), Mastercam (65%), Civil 3D (37%), STEP7 PLC (34%), 3D Printing/Additive Manufacturing (32%)

Source: Burning Glass Technologies/DCMS

5. MARKET DEMAND FOR DIGITAL SKILLS TRAINING

5.1 SCALE OF DIGITAL SKILLS TRAINING NEEDS

Training in digital skills is seen as vital to the UK's future growth and competitiveness. Four-in-five (78%) UK employers see having a large digital skills talent pool as essential to driving UK competitiveness and a similar rate (80%) believe that investment in digital skills will be important to the country's economic recovery following COVID-19. However, little over a third (36%) of employees believe that their industry is placing enough investment in digital skills training and education³⁰.

Workplace training is becoming an increasingly important source of digital skills training: Because a large proportion of the 2030 workforce have already left compulsory education and because the current pace of technological development is rapidly changing the digital skillsets required for work, employers cannot rely on the education system alone to satisfy industry's demand for digital skills in the short- to medium-term. Lifelong learning needs to become a reality, with employers, educators and governmental organisations helping to embed a culture of continuous learning within the workplace to help workers to continually update their skills to use new technologies and equip them for changing requirements and emerging roles. Employers are therefore increasingly recognising their responsibility in bridging the digital skills gap, with nine-in-ten (91%) organisations believing that they have a responsibility to boost the skills of existing staff and four-in-five (81%) employers believing that developing skills through workplace training and development opportunities is a more sustainable long-term strategy than hiring in new workers³¹.

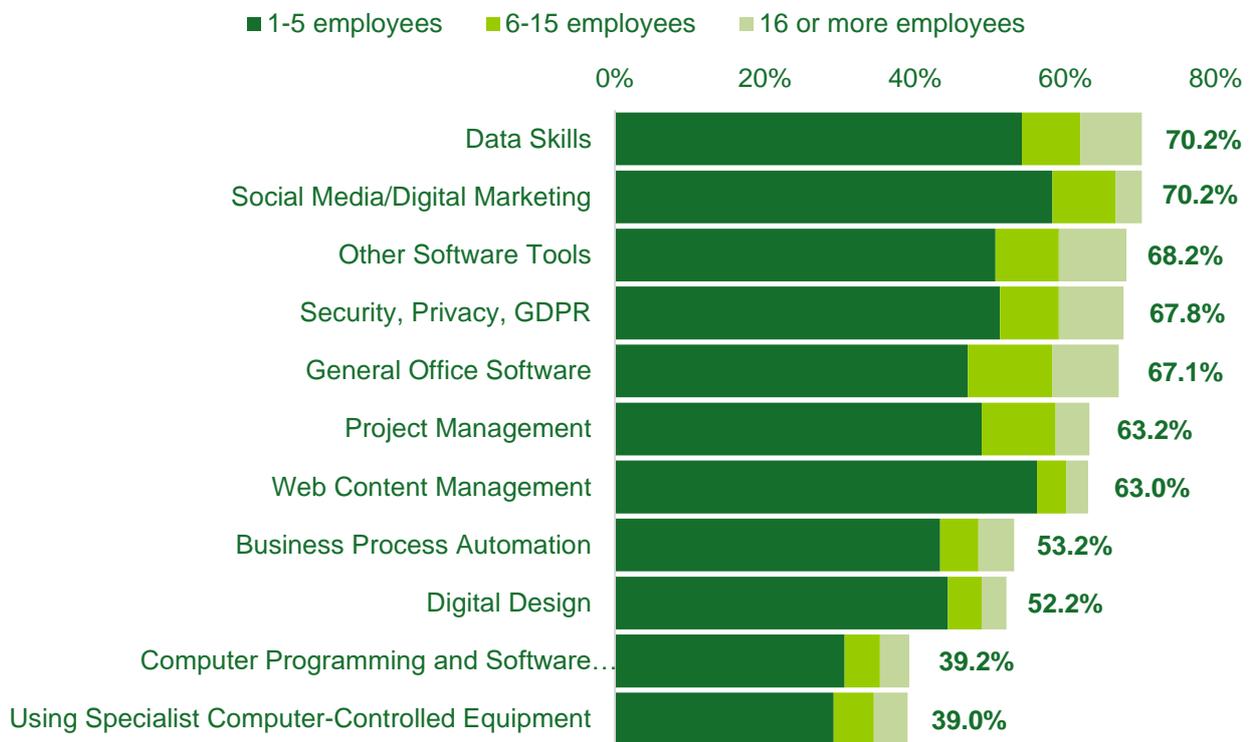
Data skills and social media/digital marketing skills training is in demand by more than two-thirds of South Yorkshire businesses: The South Yorkshire Digital Skills Survey asked businesses if their employees were likely to benefit from external digital skills training over the next two years. More than two-thirds indicated that their employees were likely to benefit from external data skills training (70.2%) and social media/digital marketing skills training (70.2%). Applying these rates to South Yorkshire's business population indicates that 29,000 businesses will be looking to provide employees with external data skills and social media/marketing skills training over the next two years. More than 25,000 businesses are also likely to seek external training in other software tools, security/privacy/GDPR, general office software, project management and web content management. Demand is lowest for external training in specialist computer-controlled equipment (39.0%, or 16,100 businesses) and computer programming and software development (39.2%, or 16,200 businesses).

The majority of businesses anticipate training one-to-five employees for each type of digital skill. Businesses are most likely to train six or more employees in general office software skills (20.1%), other software tools (17.5%), security/privacy/GDPR (16.4%) and data skills (16.0%).

³⁰ Microsoft/Goldsmiths University of London (ibid)

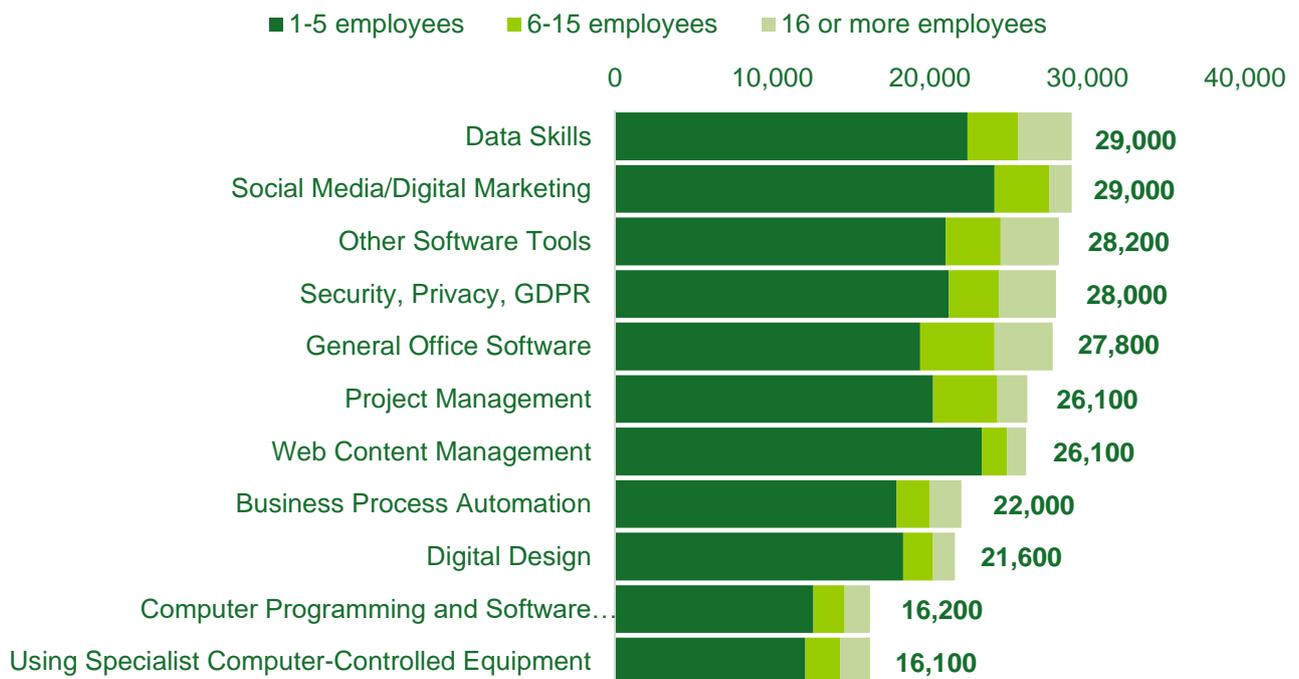
³¹ The Open University (ibid)

Chart 5.1: Percentage of Businesses Stating that their Employees Were Likely to Benefit from External Digital Skills Training Over the Next Two Years, by Types of Digital Skill and Numbers of Employees to be Trained, 2023



Source: South Yorkshire Digital Skills Survey, February to April 2023

Chart 5.2: Number of South Yorkshire Businesses Likely to Benefit from External Digital Skills Training Over the Next Two Years, by Types of Digital Skill and Numbers of Employees to be Trained, 2023



Source: South Yorkshire Digital Skills Survey, February to April 2023 and UK Business Counts 2022 (Office for National Statistics)

Key training requirements differ across business sizes: Micro and small businesses are most likely to benefit from external training in social media/digital marketing skills, data skills and security/privacy/GDPR skills, while medium and large businesses are most likely to benefit from external training in data skills, general office software skills and other software skills. The following table highlights the percentages of businesses likely to benefit from external training in different types of digital skills by size of business, with the top three training needs highlighted.

Table 5.1: Percentage of Businesses Stating that their Employees Were Likely to Benefit from External Digital Skills Training Over the Next Two Years, by Size of Business, 2023 (Top three skills highlighted)

	Sole trader	2 to 9 employees	10 to 49 employees	50 to 249 employees	250 or more employees
Data Skills	45.7%	64.7%	74.2%	92.4%	91.7%
General Office Software	44.3%	59.5%	73.4%	87.9%	91.7%
Other Software Tools	40.0%	63.2%	72.6%	90.9%	91.7%
Social Media/Digital Marketing	61.4%	64.2%	75.0%	78.8%	86.1%
Web Content Management	55.7%	56.8%	64.5%	74.2%	83.3%
Security, Privacy, GDPR	52.9%	58.4%	75.0%	86.4%	86.1%
Computer Programming and Software Development	32.9%	28.9%	37.9%	57.6%	75.0%
Using Specialist Computer-Controlled Equipment	21.4%	34.7%	39.5%	51.5%	69.4%
Digital Design	45.7%	44.2%	54.8%	60.6%	80.6%
Business Process Automation	38.6%	44.2%	60.5%	66.7%	77.8%

Source: South Yorkshire Digital Skills Survey, February to April 2023

5.2 MODAL PREFERENCES FOR DIGITAL SKILLS TRAINING

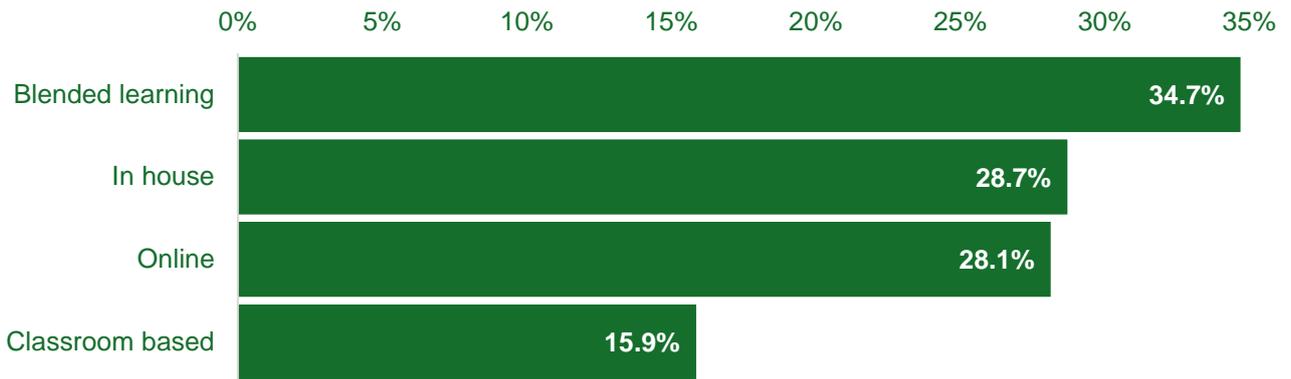
UK employers are most likely to be increasing in-house training provision and increasing training budgets to address digital skills gaps: According to The Open University³², businesses are taking steps to improve digital skills in their workforces by increasing in-house training provision (34%), increasing their training budget (34%), increasing external training provision (31%) redirecting their training budget to focus on digital skills (28%), and encouraging employees to develop their digital skills themselves (16%). Just 6% are doing nothing at all. Similarly, the WEF³³ showed that 39% of employers expected to rely on internal departments to offer training, supplemented by online learning platforms (16% of training) and external consultants (11%). Organisations that have offered digital skills training have reported the following benefits: increased productivity (41%), better engagement from workers who received training (31%), employees sharing their new skills with other employees (30%) and improved staff retention (26%).

Blended learning is the preferred training method for South Yorkshire businesses, followed by in-house training and online learning: Overall, South Yorkshire employers prefer blended learning approaches for digital skills training (34.7%), followed by in-house (28.7%) and online (28.1%) training. A low share of businesses prefer classroom-based training (15.9%). Blended learning is the preferred method of training for all sizes of business. Across sectors, blended learning is the preferred method of training in ten out of 17 sectors.

³² The Open University (ibid)

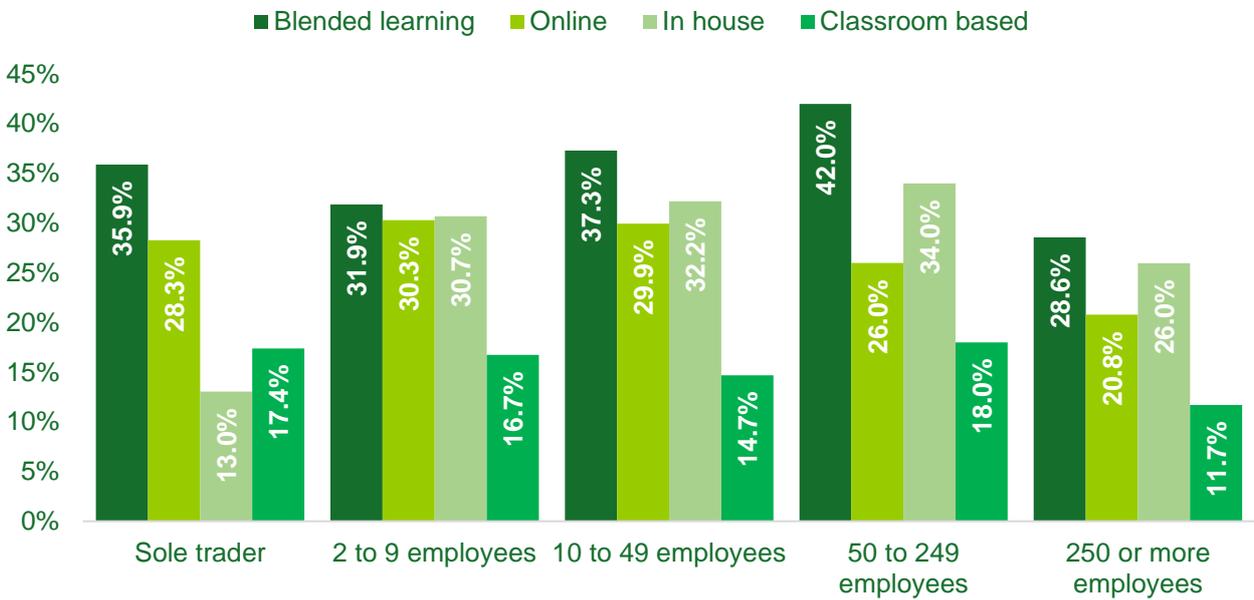
³³ WEF (ibid)

Chart 5.3: Preferred Mode of Digital Skills Training by South Yorkshire Employers, 2023



Source: South Yorkshire Digital Skills Survey, February to April 2023

Chart 5.4: Preferred Mode of Digital Skills Training in South Yorkshire by Business Size, 2023



Source: South Yorkshire Digital Skills Survey, February to April 2023

Table 5.2: Preferred Method of Digital Skills Training by Sector³⁴

Business Size	Preferred Method of Training	% Respondents
Agriculture, Forestry and Fishing	Blended Learning	37.5%
Manufacturing	Blended Learning	39.8%
Electricity, Gas, Steam and Air Conditioning Supply	Blended Learning	58.3%
Construction	In-House	23.8%
Wholesale and Retail Trade	In-House	50.0%
Transportation and Storage	Blended Learning	26.1%
Accommodation and Food Service Activities	Online and In-House	58.3% each
Information technology and Communications	Online	46.2%
Financial and Insurance Activities	Blended Learning and Classroom-Based	23.3% each
Real Estate Activities	Blended Learning	40.0%
Professional, Scientific and Technical Activities	Blended Learning	52.6%
Administrative and Support Service Activities	Blended Learning	50.0%
Public Administration and Defence	Blended Learning	44.4%
Human Health and Social Work Activities	Blended Learning	52.5%
Education	Blended Learning	29.8%
Arts, Entertainment and Recreation	Blended Learning	42.9%
Other Service Activities	Online	30.3%

Source: South Yorkshire Digital Skills Survey, February to April 2023

Interviews with local businesses also highlight that businesses value short courses, in-house and online learning, along with software-provider training, flexible/tailored approaches to training, and blended learning. Demand is lowest for long courses (this is valued most for specialist skills) and classroom-based training at an external venue. For many roles, accreditation of digital skills training is not essential, although there are exceptions, such as to meet customer requirements in IT services. Businesses access training through a variety of sources, particularly their local Chamber of Commerce. Other sources include the Skills Bank, internet searches, and providers they have worked with before.

‘Definitely short courses would fit into our schedule better’

‘We need short courses for a quick return on investment’

‘We utilise training offered by software packages providers’

‘I would ask the college in the first instance’

‘It’s about skills not qualifications’

‘Accreditation doesn’t matter as long as the person is trained to a good standard’

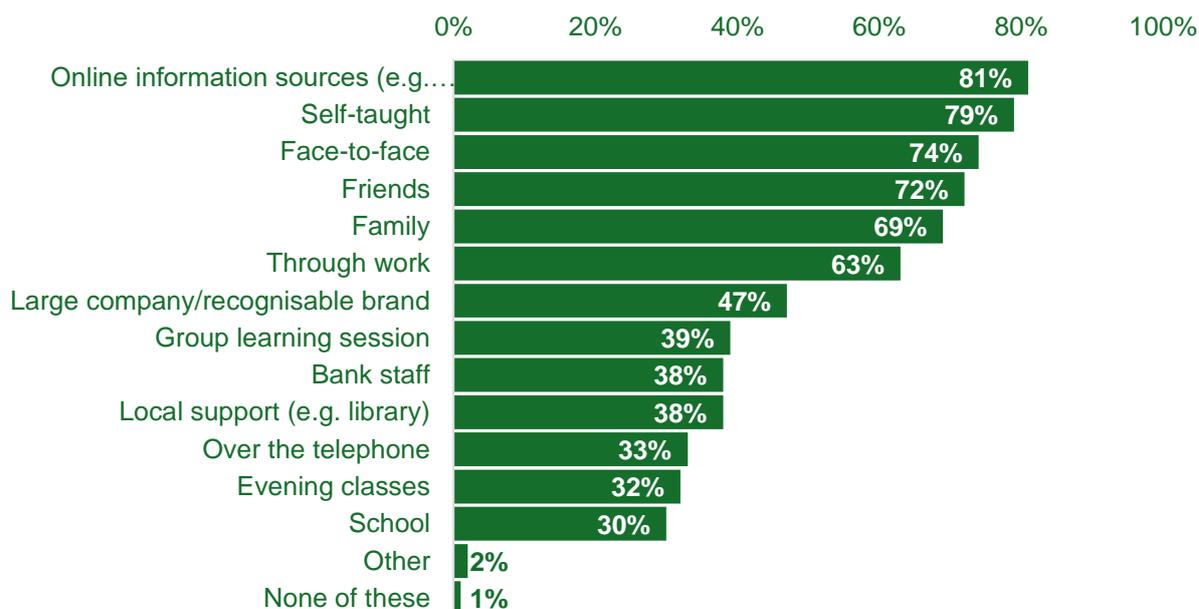
‘Accreditation is useful in knowing how much time it will take to study, how much commitment etc. It’s also an indicator when recruiting someone with particular qualifications’

Source: South Yorkshire Digital Skills Survey 2023, in-depth interviews

³⁴ Results for Mining and Quarrying and Water Supply excluded due to fewer than five respondents

Online sources of training are becoming increasingly popular among learners: The WEF³⁵ found that, in 2020, there was a four-fold increase in the numbers of individuals seeking out opportunities for learning online through their own initiative, a five-fold increase in employer provision of online learning opportunities to their workers, and an even more extensive nine-fold enrolment increase for learners accessing online learning through government programmes. In line with these findings, the Lloyds Consumer Digital Index 2022 found that more than four-in-five (81%) respondents identified online information as the easiest way to learn new digital skills, while 79% of people would opt for self-teaching, preferring to learn at their own pace with the flexibility to pick and choose materials that suit their needs.

Chart 5.5: What Would be the Easiest Way for You to Learn New Skills? UK, 2022



Source: UK Consumer Digital Index 2022, Lloyds Bank

³⁵ WEF (ibid)

6. GAPS IN LOCAL DIGITAL SKILLS PROVISION

6.1 DRIVERS OF DIGITAL SKILLS GAPS AND SHORTAGES

The pace of technological change, the agility of the education sector to meet rapidly-changing digital skills needs, inconsistent school provision of digital skills, insufficient provision of business support services linked to digital skills, and a lack of awareness of digital career opportunities are key drivers of digital skills gaps and shortages.

According to The Open University³⁶, the pace of technological change is seen as a key driver of digital skills gaps, with more than half (52%) of employers stating that technology evolves too quickly for them to keep up with the skills required. The Government's 2016 report, 'Digital Skills for the UK Economy'³⁷, also cites a number of factors contributing to skills shortages and gaps including:

- Challenges in matching the speed of change in the education sector to the speed of demand for rapidly-changing skillsets needed in the economy and society
- Variable and inconsistent provision of digital skills in primary and secondary education
- Lack of mandatory digital upskilling among teaching staff
- Insufficient provision, knowledge and availability of appropriate business support services linked to the digital skills agenda
- A lack of awareness of career opportunities within the digital sector, sometimes reflecting skills and gender stereotypes around the type of roles that exist, with women under-represented in computer-related higher education and employment.

6.2 BARRIERS TO WORKPLACE DIGITAL SKILLS TRAINING

South Yorkshire employers face several barriers to investing in digital skills. Interviews with South Yorkshire businesses show that the biggest barriers are weak demand for training from employees, cost (for smaller businesses), constraints in the supply of training, lack of communication about available training opportunities and funding, and finding time away from regular business.

“Not sure whether we should upskill our existing team or recruit in the skills, but don't consider the business large enough to justify the costs yet”

‘Communication of what is available and where to source it from could be improved’

Source: South Yorkshire Digital Skills Survey 2023, in-depth interviews

Focus groups with organisations in South Yorkshire also highlighted five key barriers to digital skills training/tech adoption:

- 1. Keeping pace with technological change:** Businesses – and the education system – face difficulties keeping up with trends and changes in technology. For businesses, this causes difficulties in creating long-term training plans.
- 2. Cost of technology and training:** The cost to enhance businesses' tech infrastructure and to upskill staff is very expensive and they often don't have the cash to transition.
- 3. Understanding paths to tech adoption:** Many businesses don't have a 'digital roadmap' and don't know where to begin. Many require help setting out a digital programme and which skills to invest in so that they can understand how to become more digitised. Interviews with South

³⁶ The Open University (ibid)

³⁷ Ecorys UK (2016) 'Digital Skills for the UK Economy'

Yorkshire employers also showed that, while many are confident in their understanding of digital skills needs and are planning ahead for them, this often takes place as part of their broader business planning rather than as a dedicated process of technology or digital road mapping.

4. Navigating digital skills provision and business support: Many businesses don't know what digital skills provision looks like or how they can find it. The same issue applies for financial support/grants for digitising – not all businesses know where to find available support or who to go to for information. Some businesses end up looking to graduates or apprenticeships to fulfil their digital skills needs, which puts too much focus on young people and doesn't give them options to upskill existing staff.

5. Ageing workforce: Many businesses have an ageing workforce, with older workers in particular having a lack of digital skills. Not all older workers want to learn or change to become more digitally enabled. These concerns have been echoed by The Open University, whose research³⁸ found that just one-in-four (26%) over-55-year-olds were interested in receiving digital skills training, compared to two-thirds (67%) of 18-to-34-year-olds. Likewise, interviews with South Yorkshire employers showed that those later on in their careers needed the most support to build confidence, to develop their skills, and to understand how technology could improve their lives. The task for employers is to encourage staff to engage with increasing their skills by demonstrating both the benefits this can bring to their own careers and to the wider organisation.

Other research setting key barriers to digital skills training also include the rapid pace of technological change, lack of time for staff training, cost, difficulty identifying appropriate training/which skills to invest in/which employees need to be skilled, and a lack of skills strategy. The Open University³⁹ found that half (52%) of organisations reported that technology evolves too quickly for them to keep up with the skills required. Barriers identified in other research have included lack of time for staff training (41% of BCC respondents⁴⁰), the cost of training (37% of Microsoft/Goldsmiths respondents⁴¹ and 25% of BCC respondents), difficulty identifying appropriate training (32% BCC), lack of skills strategy (28% Microsoft/Goldsmiths), lack of knowledge on which skills initiatives to invest in (23% Microsoft/Goldsmiths) and lack of knowledge regarding the employees that need to be skilled (20% Microsoft/Goldsmiths).

6.3 GAPS IN WORKPLACE DIGITAL SKILLS TRAINING

Where employers are seeking digital skills development opportunities for their employees, training in data skills, social media/digital marketing skills and web content management skills is hardest to find in South Yorkshire: Survey evidence shows that businesses in South Yorkshire find it hardest to find appropriate training in data skills (41.0%), followed by social media/digital marketing skills (38.4%) and web content management skills (37.2%). These are also the three biggest digital skills gap areas in South Yorkshire.

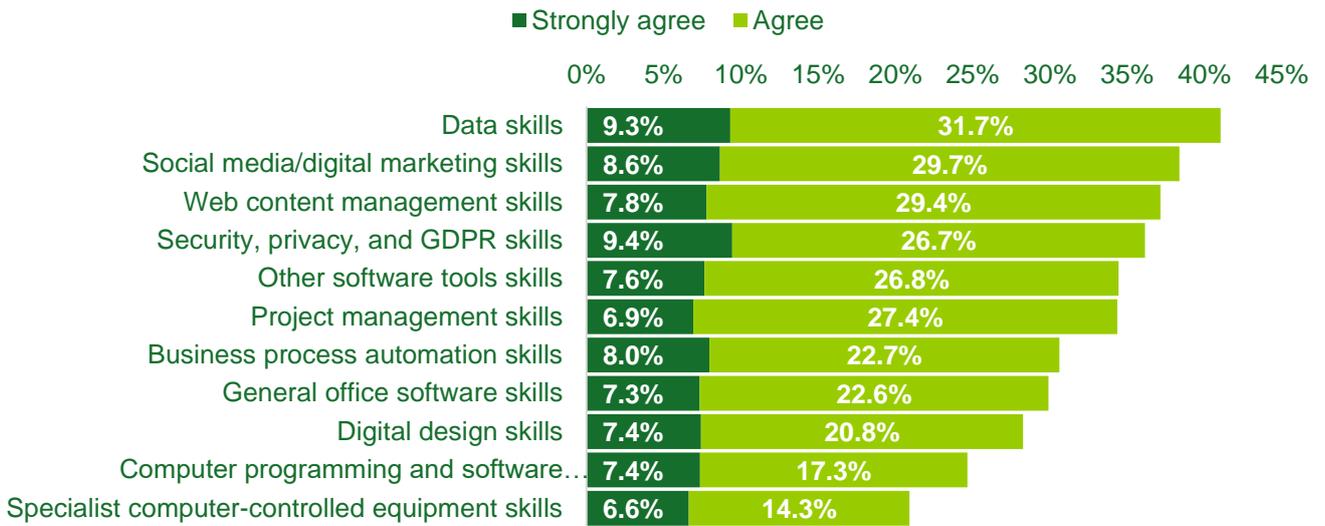
³⁸ The Open University (ibid)

³⁹ The Open University (ibid)

⁴⁰ British Chambers of Commerce (ibid)

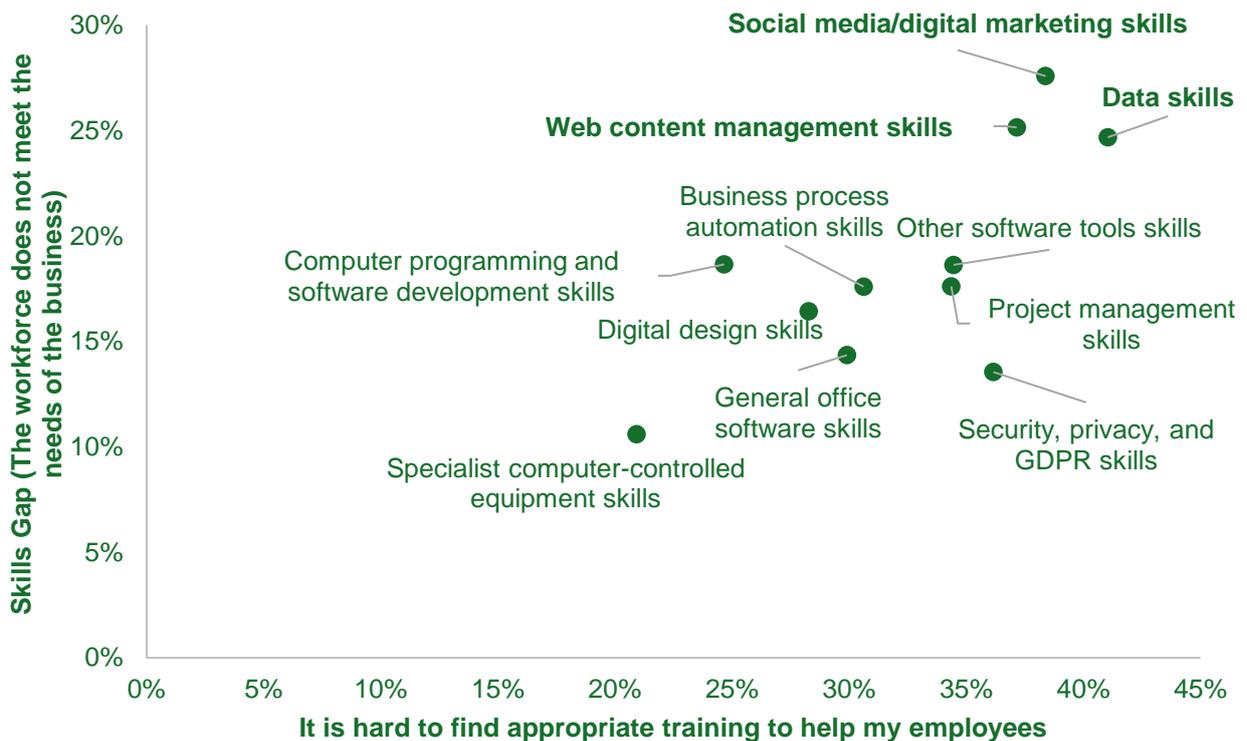
⁴¹ Microsoft/Goldsmiths University of London (ibid)

Chart 6.1: It Is Hard to Find Appropriate Training to Help My Employees, 2023



Source: South Yorkshire Digital Skills Survey, February to April 2023

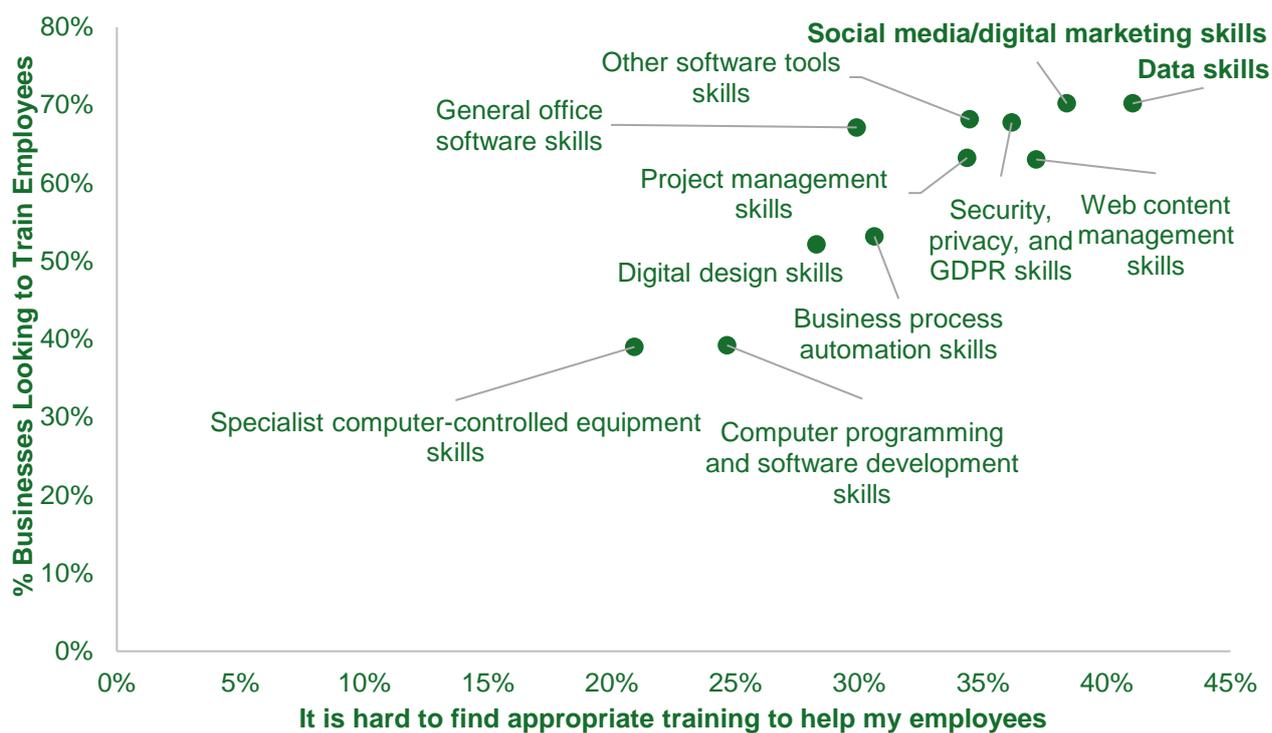
Chart 6.2: Difficulty Finding Suitable Training vs Workforce Digital Skills Gaps, 2023



Source: South Yorkshire Digital Skills Survey, February to April 2023

Mapping likely future training needs against training that is hard to find indicates that there could be particularly large shortfalls in data skills and social media/digital marketing skills provision: These are the two digital skills types with the highest shares of businesses stating that employees are likely to benefit from external training as well as the two digital skills types where training is hardest to find.

Chart 6.3: Difficulty Finding Suitable Training vs Future Training Needs, 2023



Source: South Yorkshire Digital Skills Survey, February to April 2023

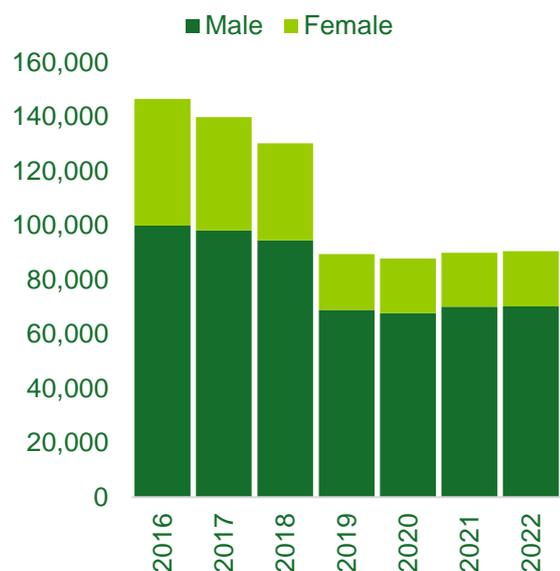
Interviews with training providers highlighted several constraints on the supply of digital skills training in South Yorkshire. In particular, there is a shortage of quality trainers who can adjust their sessions to individual business needs, and it is hard for providers to recruit and retain them, with some training providers depending on freelance associate trainers. There is also a lack of facilities/training premises in the area. The education sector itself is also faced with quickly-advancing technologies, like ChatGPT – which creates challenges in developing timely training provision in the use of AI services as well as challenges in verifying learners’ own work in courses and tests. Additionally, some preferred partner programmes with universities have been discontinued, leaving a gap to fill.

6.4 GAPS IN DIGITAL SKILLS EDUCATION

While demand for digital skills is increasing rapidly, the pipeline of digital skills through the education and skills system is not providing the skills at the scale needed, and in both schools and further education, the number of people taking ICT courses has declined in recent years. The number of GCSE entries in Computer Science or Information and Communication Technology (ICT) declined from 146,600 in 2016 to 87,800 in 2020, picking up slightly to 90,600 in 2022. This decline is largely explained by the government’s attempt to phase out the ICT GCSE, which was seen as insufficiently rigorous or valued by employers, and to replace it with the more challenging Computer Science GCSE⁴². However, while Computer Science entries have increased by 30% since 2016, the increase has not made up for the 89% fall in the number of pupils taking ICT, with the total number of Computer Science/ICT entries in 2022 being 38% lower than in 2016.

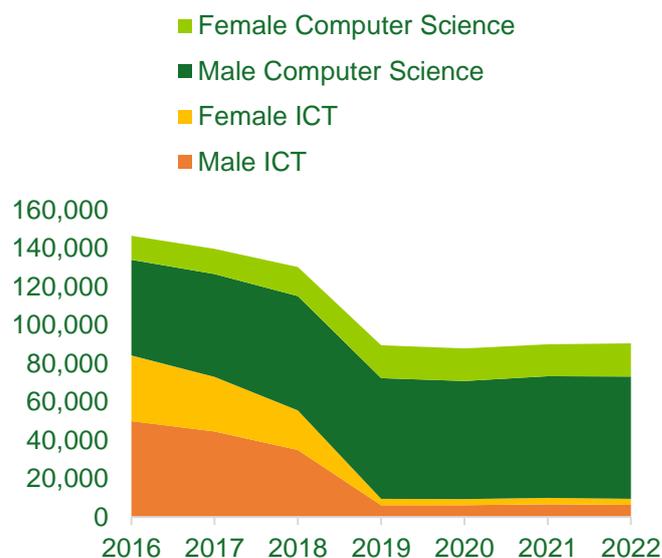
⁴² ‘Disconnected’ (2021), WorldSkills

Chart 6.4: ICT and Computer Science GCSE Entries by Gender, UK



Source: Education Datalab

Chart 6.5: Number of GCSE Entries in ICT and Computer Science, UK



Less than 2% of all GCSE entries across the UK over the past five years have been in ICT/Computer Science, with females accounting for just one-fifth of all entries: In 2022, the number of ICT and Computer Science entries accounted for just 1.6% of all GCSE entries across the UK, down from 2.8% in 2016. There has been a clear gender split year-on-year, with females accounting for less than one quarter of all ICT/Computer Science entries in 2022 – i.e. males were more than three times more likely than females to enter an ICT or Computer Science GCSE.

A large proportion of schools do not teach Computer Science. The British Science Association’s 2020 ‘Inquiry on Equity in STEM Education’ found that the Computer Science GCSE was not offered in 38% of secondary schools, and that these schools were more likely to be those with a less affluent intake. Teacher shortages was a key driver, with recruitment and retention issues common in secondary STEM education, particularly in physical sciences, computer sciences, design and technology, and maths, which disproportionately affects students at schools in disadvantaged areas. Poorer students were also found to be less likely to take Computer Science GCSE where it was offered. The COVID-19 crisis showed that many disadvantaged students lacked access to a computer at home, which could explain why some of these students may not take up Computer Science at school.

A Level entries in digital skills have increased but the gender divide is more acute. The number of A Level entries in ICT and Computer Science increased between 2019 and 2022 and was 17% higher in 2022 than in 2016. However, ICT and Computer Science accounted for just 2.0% of all A Level entries in 2022 and the gender divide was more acute than for GCSEs, with females accounting for just 16% of all entries – i.e. males were more than five times more likely than females to enter an ICT/Computer Science A Level.

Chart 6.6: ICT and Computer Science A Level Entries by Gender, UK

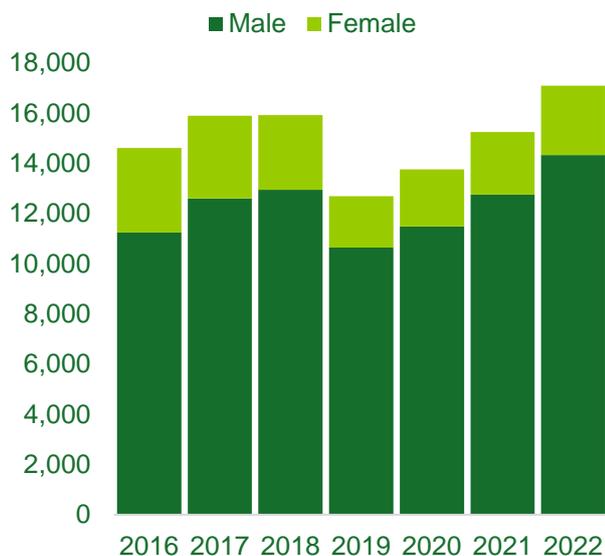
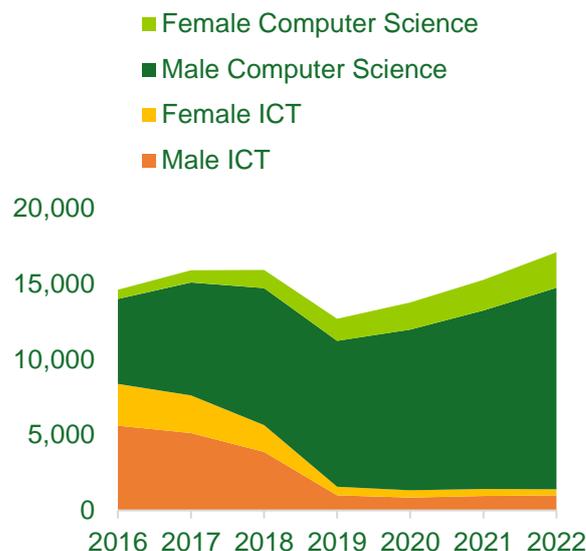


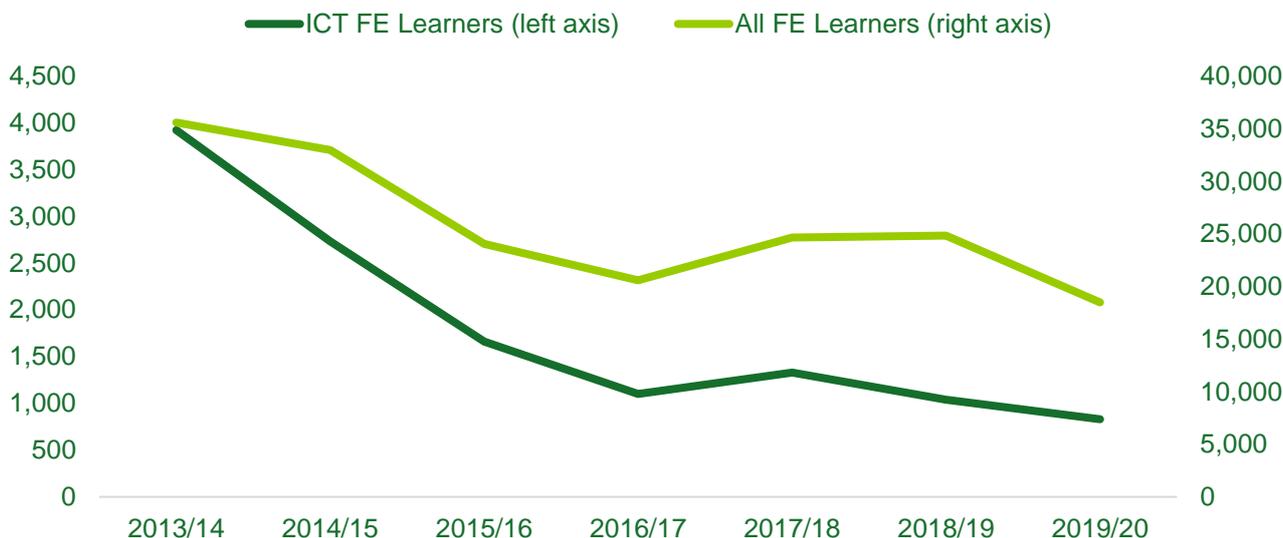
Chart 6.7: Number of A Level Entries in ICT and Computer Science, UK



Source: Education Datalab

The number of ICT further education learners in South Yorkshire declined by 79% in the six years to 2019/20: In 2019/20, there were 830 Information and Communication Technology learners in further education in South Yorkshire. This was down 79% on 2013/14 levels (3,920) – similar than the England average decline (-75%) but much sharper the contraction in all FE learners in South Yorkshire during this period (-48% across South Yorkshire and -50% across England). ICT learners accounted for just 4.5% of all FE learners in South Yorkshire in 2019/20, down sharply from 11.0% in 2013/14.

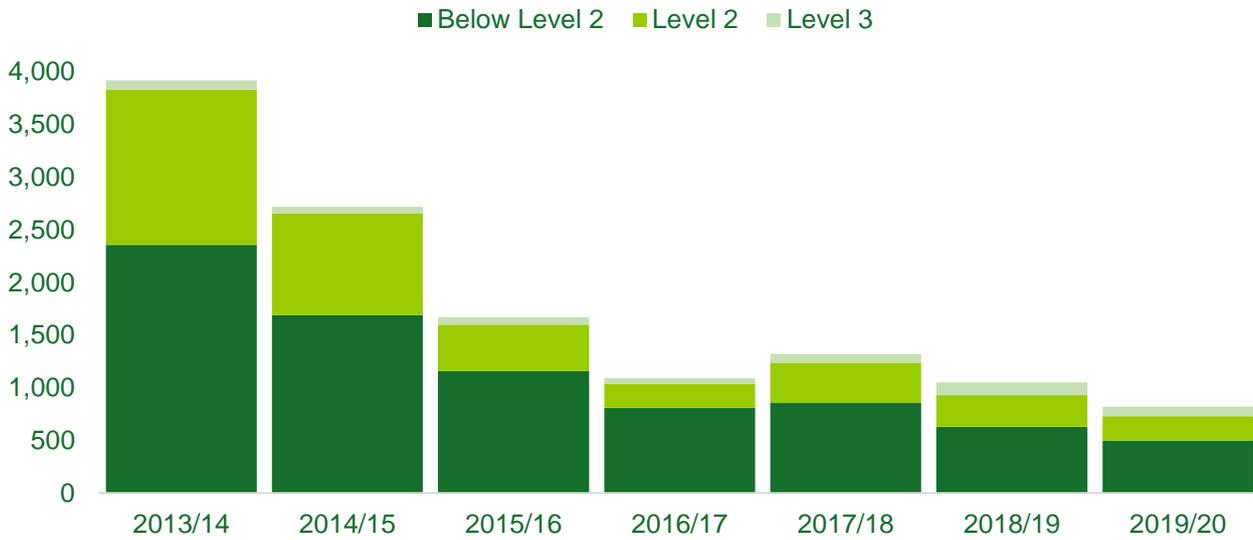
Chart 6.8: ICT Further Education Learners in South Yorkshire



Source: Unit for Future Skills

The majority of ICT further education is below Level 2 (below GCSE and equivalent): In 2019/20, the majority of ICT FE Education & Training was below Level 2, accounting for nearly two-thirds of all learners (61%), with Level 2 and Level 3 learners accounting for 28% and 11% of all learners respectively.

Chart 6.9: Further Education ICT Learners in South Yorkshire by Type



Source: Department for Education

ICT apprenticeships are relatively rare in South Yorkshire with a clear gender divide in participation and a decline in achievements over the past few years: In 2021/22, 400 people started an ICT apprenticeship in South Yorkshire (4.5% of all apprenticeship starts), while 140 completed an ICT apprenticeship (4.0% of all apprenticeship achievements). The number of ICT apprenticeship achievements has been on a downward trend since 2017/18, with achievements declining by 42% over the period. In 2021/22, females also accounted for 30% of ICT apprenticeship starts and 29% of ICT apprenticeship achievements – i.e. males were 2.5 times more likely to complete an ICT apprenticeship in South Yorkshire than females.

Chart 6.10: Apprenticeship Achievements in South Yorkshire

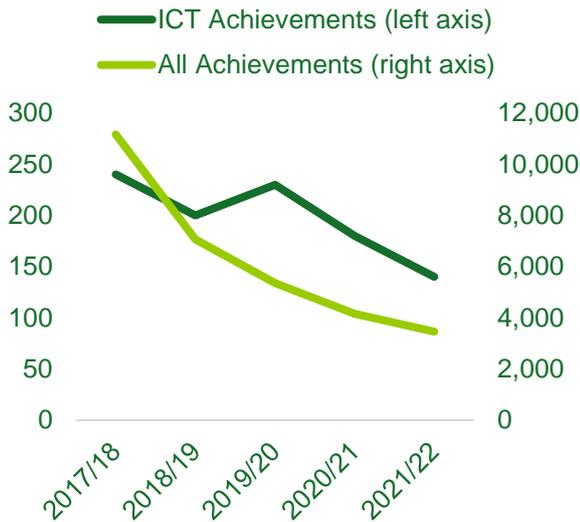
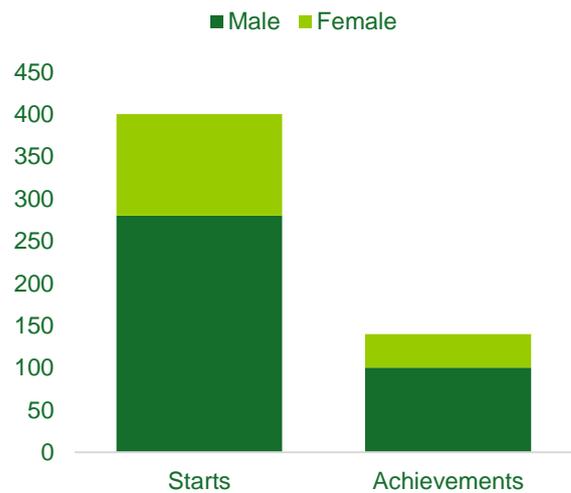


Chart 6.11: ICT Apprenticeship Participation by Gender in South Yorkshire, 2021/22



Source: Apprenticeships and Traineeships Data, Department for Education

The number of higher education learners enrolling on Computing courses in South Yorkshire has increased strongly over the past three years, but much less sharply than the UK average: In 2021/22, 3,460 students enrolled onto HE Computing courses in South Yorkshire – up 13% from 3,060 in 2019/20. While a strong increase, this was much weaker than the increase across England (+24%). Computing enrolments accounted for 5.2% of all HE enrolments in South Yorkshire – similar to the UK average (5.7%). Nationally, females accounted for just 23% of all enrolments on HE Computing courses – i.e. males were 3 times more likely to start a computing degree. However, participation increased more strongly for females (+42%) over the period than for males (+20%).

Chart 6.12: HE Enrolments in South Yorkshire

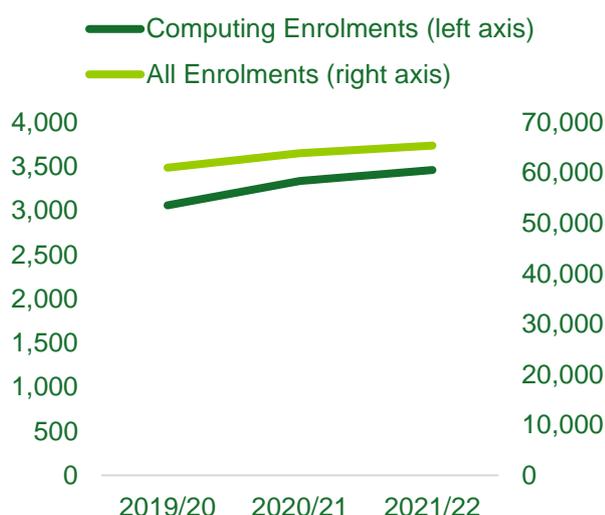
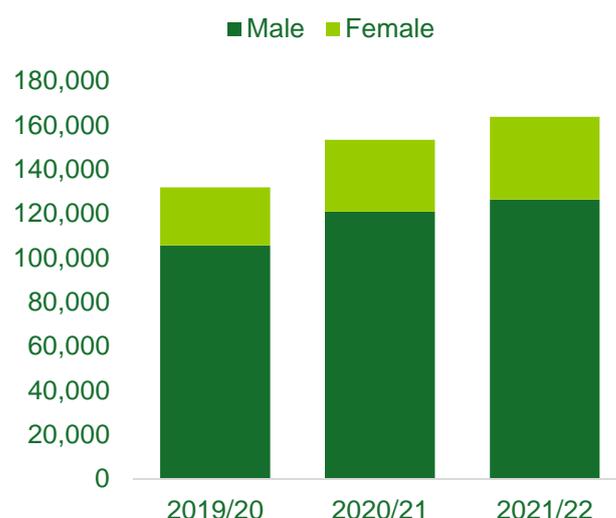


Chart 6.13: HE Enrolments in Computing Courses by Gender, UK



Sources: Higher Education Statistics Agency

A large proportion of employers do not believe that the education system equips young people with the advanced digital skills that they need: As detailed in WorldSkills 2021 ‘Disconnected’ report, its 2021 ‘Youthsight Young People Survey’ found that, while four in five businesses (78%) said that young people leaving education had the basic skills that they need (and just 17% disagreeing), just half (48%) of businesses said that young people leaving full time education had the advanced digital skills that they need, with two-in-five (40%) disagreeing. Similarly, just 28% of businesses surveyed by Microsoft/Goldsmiths⁴³ believed the education system offered adequate digital training for pupils. Interviews with South Yorkshire businesses also highlighted frustration with the education system and lack of emphasis on IT skills within schools.

‘Computer science should be taught in schools all the way through. Some students are not academic and need computer skills for the functions in business – not just gaming, coding and building websites.’

‘Grading system has become too complex - I only heard the term ‘T-levels’ yesterday’

Source: South Yorkshire Digital Skills Survey 2023, in-depth interviews

⁴³ Microsoft/Goldsmiths University of London (ibid)

7. CONCLUSIONS

7.1 THE IMPORTANCE OF DIGITAL SKILLS TO SOUTH YORKSHIRE'S ECONOMY

The demand for digital skills in South Yorkshire has grown significantly over the years, and this trend is likely to continue in the future. The COVID-19 pandemic accelerated this trend, with digitisation becoming more critical to business operations and customer interactions. Digital skills are already an essential entry requirement for two-thirds of occupations today; this is projected to rise to 90% within a generation. To meet the needs of employers and job-seekers, colleges, schools, and training providers in the region will need to provide relevant and high-quality digital skills education and training. This means provision that caters to the needs of different skill levels and occupations, considering the growing near-universal requirements for digital skills. They will also need to ensure that provision keeps pace with the evolving technological landscape.

7.2 DIGITAL SKILLS SUPPLY AND DEMAND

The evidence points to a need for South Yorkshire to increase the availability and accessibility of digital skills training, with a focus on data skills, social media/digital marketing skills and website management. These are in high demand but employers point to workforce deficiencies and a lack of training provision. Training providers should prioritise developing comprehensive and up-to-date training programmes in these areas to meet the needs of the large number of businesses seeking this type of training. This could involve partnering with industry experts and technology providers to ensure that training is relevant, current, and meets the needs of employers in South Yorkshire.

7.3 MODES OF TRAINING

The evidence suggests that to meet employer needs, education and training providers should offer a range of blended learning options for digital skills training, which is the preferred training method for businesses in South Yorkshire. This could involve developing flexible training programmes that combine online learning modules with in-person or on-the-job training, as well as offering bespoke training solutions to meet the specific needs of individual businesses.

7.4 TRAINING GAPS AND BARRIERS

Barriers to digital skills training include difficulty keeping pace with technological change, the cost of technology and training, and difficulty navigating provision. While some of the policy levers are outside the scope of the LSIP, the region's skills system role-players could explore alternative funding models and provide more guidance on digital adoption and road-mapping. The evidence also suggests there is an opportunity for the education system to provide more comprehensive and inclusive digital skills education, particularly for underrepresented groups, to ensure a sustainable pipeline of digital talent for the future workforce.

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APPENDIX A: DIGITAL SKILLS SURVEY HEADLINE INDICATORS BY GEOGRAPHY

Skills ranked 1-3 out of 11
 Skills ranked 4-6 out of 11

BARNESLEY							
Digital Skill Area	Important to Business Now	More Important to Business in 2-5 Years' Time	Skills Gap (The Workforce Doesn't Meet Business Needs)	Hard to Recruit	Hard to Retain	Hard to Find Training	Businesses Likely to Benefit from Training in the Next Two Years
Data skills	93.3%	75.5%	24.4%	60.0%	37.8%	44.4%	75.6%
General office software skills	100.0%	86.7%	17.8%	37.8%	17.8%	26.7%	78.0%
Other software tools skills	88.9%	75.5%	26.7%	50.0%	33.3%	33.3%	78.0%
Social media/digital marketing skills	81.4%	86.0%	32.5%	41.8%	26.2%	39.5%	82.9%
Web content management skills	76.7%	72.1%	32.5%	48.8%	30.2%	41.8%	73.2%
Security, privacy, GDPR skills	83.7%	76.7%	21.4%	50.0%	35.7%	42.8%	70.7%
Computer programming and software development skills	43.9%	39.0%	21.9%	41.5%	26.8%	31.7%	41.5%
Specialist computer-controlled equipment skills	51.2%	53.6%	12.5%	39.0%	36.6%	34.1%	51.2%
Digital design skills	68.3%	63.4%	19.5%	46.3%	34.1%	39.0%	70.7%
Business process automation skills	65.9%	58.5%	19.5%	51.2%	48.8%	34.1%	65.9%
Project management skills	92.7%	82.9%	24.4%	51.2%	43.9%	43.9%	73.2%

Source: South Yorkshire Digital Skills Survey, February to April 2023

Skills ranked 1-3 out of 11
 Skills ranked 4-6 out of 11

DONCASTER							
Digital Skill Area	Important to Business Now	More Important to Business in 2-5 Years' Time	Skills Gap (The Workforce Doesn't Meet Business Needs)	Hard to Recruit	Hard to Retain	Hard to Find Training	Businesses Likely to Benefit from Training in the Next Two Years
Data skills	78.8%	62.9%	27.5%	46.9%	35.0%	42.8%	70.3%
General office software skills	90.5%	69.6%	18.4%	31.6%	26.6%	33.5%	67.8%
Other software tools skills	70.1%	65.0%	19.1%	38.2%	32.5%	39.5%	70.5%
Social media/digital marketing skills	81.7%	75.2%	28.1%	39.2%	32.0%	38.6%	70.7%
Web content management skills	75.6%	63.8%	29.6%	37.5%	30.3%	36.2%	65.1%
Security, privacy, GDPR skills	86.8%	71.0%	13.8%	42.8%	36.2%	44.7%	70.5%
Computer programming and software development skills	29.5%	30.9%	16.1%	22.1%	19.5%	24.2%	34.9%
Specialist computer-controlled equipment skills	24.3%	24.2%	10.7%	19.5%	16.9%	21.8%	35.4%
Digital design skills	46.6%	41.6%	17.5%	28.2%	25.5%	31.5%	51.0%
Business process automation skills	46.9%	42.5%	16.3%	32.9%	26.7%	35.6%	50.0%
Project management skills	73.0%	61.5%	21.0%	40.5%	33.3%	39.9%	66.7%

Source: South Yorkshire Digital Skills Survey, February to April 2023

■ Skills ranked 1-3 out of 11 ■ Skills ranked 4-6 out of 11

ROTHERHAM							
Digital Skill Area	Important to Business Now	More Important to Business in 2-5 Years' Time	Skills Gap (The Workforce Doesn't Meet Business Needs)	Hard to Recruit	Hard to Retain	Hard to Find Training	Businesses Likely to Benefit from Training in the Next Two Years
Data skills	95.9%	72.6%	26.0%	61.6%	41.1%	47.9%	87.3%
General office software skills	100.0%	63.4%	22.5%	31.0%	21.1%	26.7%	82.5%
Other software tools skills	92.8%	73.9%	26.1%	42.0%	31.9%	34.8%	79.4%
Social media/digital marketing skills	89.6%	77.6%	43.3%	46.3%	32.8%	46.3%	81.0%
Web content management skills	82.8%	71.9%	23.8%	43.7%	32.8%	48.4%	71.4%
Security, privacy, GDPR skills	90.6%	70.3%	9.4%	34.4%	21.9%	29.7%	71.4%
Computer programming and software development skills	45.3%	39.1%	23.4%	21.9%	18.7%	25.0%	47.6%
Specialist computer-controlled equipment skills	41.3%	31.7%	12.7%	28.6%	15.9%	20.6%	46.8%
Digital design skills	60.3%	50.8%	23.8%	28.6%	31.7%	30.1%	58.7%
Business process automation skills	61.9%	57.2%	30.1%	41.3%	33.3%	38.1%	65.1%
Project management skills	84.1%	69.8%	27.0%	44.3%	34.9%	34.9%	66.7%

Source: South Yorkshire Digital Skills Survey, February to April 2023

Skills ranked 1-3 out of 11
 Skills ranked 4-6 out of 11

SHEFFIELD							
Digital Skill Area	Important to Business Now	More Important to Business in 2-5 Years' Time	Skills Gap (The Workforce Doesn't Meet Business Needs)	Hard to Recruit	Hard to Retain	Hard to Find Training	Businesses Likely to Benefit from Training in the Next Two Years
Data skills	87.4%	77.4%	28.3%	52.2%	36.5%	40.9%	69.1%
General office software skills	95.5%	77.2%	10.2%	23.1%	21.0%	28.5%	62.5%
Other software tools skills	79.7%	74.5%	15.7%	37.3%	30.7%	32.7%	64.4%
Social media/digital marketing skills	79.3%	78.8%	24.5%	37.1%	30.7%	37.1%	67.6%
Web content management skills	78.1%	70.9%	25.2%	36.4%	29.2%	40.4%	62.2%
Security, privacy, GDPR skills	88.7%	78.0%	14.0%	42.0%	37.3%	34.7%	68.4%
Computer programming and software development skills	44.0%	50.3%	24.0%	35.3%	28.7%	30.2%	41.9%
Specialist computer-controlled equipment skills	29.5%	28.9%	12.1%	26.9%	20.8%	22.8%	38.5%
Digital design skills	58.1%	56.1%	15.0%	32.0%	27.9%	28.6%	53.3%
Business process automation skills	53.1%	50.3%	19.3%	27.6%	26.2%	27.1%	54.4%
Project management skills	76.4%	68.0%	15.3%	39.6%	33.6%	33.3%	62.8%

Source: South Yorkshire Digital Skills Survey, February to April 2023

APPENDIX B: DIGITAL SKILLS SURVEY HEADLINE INDICATORS BY BUSINESS SIZE

Skills ranked 1-3 out of 11
 Skills ranked 4-6 out of 11

SOLE TRADERS							
Digital Skill Area	Important to Business Now	More Important to Business in 2-5 Years' Time	Skills Gap (The Workforce Doesn't Meet Business Needs)	Hard to Recruit	Hard to Retain	Hard to Find Training	Businesses Likely to Benefit from Training in the Next Two Years
Data skills	75.6%	65.4%	18.0%	23.1%	15.4%	28.6%	45.7%
General office software skills	88.3%	67.5%	10.4%	19.5%	16.9%	23.4%	44.3%
Other software tools skills	61.0%	62.3%	13.0%	16.9%	14.3%	23.4%	40.0%
Social media/digital marketing skills	77.3%	78.7%	20.0%	20.0%	14.7%	28.0%	61.4%
Web content management skills	69.9%	68.5%	24.7%	20.6%	16.4%	28.8%	55.7%
Security, privacy, GDPR skills	80.8%	67.1%	4.2%	23.6%	20.8%	30.6%	52.9%
Computer programming and software development skills	32.9%	38.6%	17.2%	15.7%	12.9%	23.2%	32.9%
Specialist computer-controlled equipment skills	14.3%	17.2%	10.0%	7.1%	7.1%	13.0%	21.4%
Digital design skills	58.6%	58.6%	17.2%	17.1%	17.1%	25.7%	45.7%
Business process automation skills	38.6%	38.6%	10.0%	18.6%	15.7%	24.3%	38.6%
Project management skills	71.4%	65.7%	8.6%	18.6%	18.6%	25.7%	48.6%

Source: South Yorkshire Digital Skills Survey, February to April 2023

Skills ranked 1-3 out of 11
 Skills ranked 4-6 out of 11

MICRO BUSINESSES (2-9 EMPLOYEES)							
Digital Skill Area	Important to Business Now	More Important to Business in 2-5 Years' Time	Skills Gap (The Workforce Doesn't Meet Business Needs)	Hard to Recruit	Hard to Retain	Hard to Find Training	Businesses Likely to Benefit from Training in the Next Two Years
Data skills	78.0%	66.2%	22.4%	43.9%	28.0%	36.5%	64.7%
General office software skills	93.3%	74.8%	11.5%	27.5%	19.2%	28.2%	59.5%
Other software tools skills	73.2%	69.1%	17.2%	36.3%	28.9%	33.3%	63.2%
Social media/digital marketing skills	73.5%	75.0%	20.5%	32.0%	23.2%	34.7%	64.2%
Web content management skills	68.8%	63.8%	20.6%	31.8%	22.6%	35.2%	56.8%
Security, privacy, GDPR skills	83.8%	72.7%	10.1%	35.5%	27.8%	32.8%	58.4%
Computer programming and software development skills	25.6%	28.7%	13.8%	21.0%	15.9%	19.0%	28.9%
Specialist computer-controlled equipment skills	23.2%	24.2%	9.3%	18.6%	12.4%	17.6%	34.7%
Digital design skills	42.5%	38.7%	15.5%	22.8%	16.0%	23.7%	44.2%
Business process automation skills	39.4%	39.4%	12.9%	23.3%	20.2%	24.0%	44.2%
Project management skills	63.2%	54.9%	12.4%	30.2%	22.0%	30.7%	55.3%

Source: South Yorkshire Digital Skills Survey, February to April 2023

■ Skills ranked 1-3 out of 11 ■ Skills ranked 4-6 out of 11

SMALL BUSINESSES (10-49 EMPLOYEES)							
Digital Skill Area	Important to Business Now	More Important to Business in 2-5 Years' Time	Skills Gap (The Workforce Doesn't Meet Business Needs)	Hard to Recruit	Hard to Retain	Hard to Find Training	Businesses Likely to Benefit from Training in the Next Two Years
Data skills	90.9%	72.7%	25.9%	57.3%	35.7%	44.7%	74.2%
General office software skills	97.1%	67.9%	15.7%	32.8%	22.1%	34.3%	73.4%
Other software tools skills	84.1%	66.7%	17.4%	38.4%	29.7%	34.8%	72.6%
Social media/digital marketing skills	82.8%	70.4%	29.9%	44.0%	35.1%	39.5%	75.0%
Web content management skills	77.9%	61.1%	29.2%	41.2%	29.8%	38.2%	64.5%
Security, privacy, GDPR skills	91.5%	69.8%	16.9%	46.9%	34.6%	38.5%	75.0%
Computer programming and software development skills	40.0%	38.0%	20.8%	28.5%	23.8%	26.9%	37.9%
Specialist computer-controlled equipment skills	33.9%	27.3%	8.6%	24.2%	21.9%	23.8%	39.5%
Digital design skills	53.5%	43.3%	14.3%	33.1%	32.3%	30.7%	54.8%
Business process automation skills	56.3%	47.6%	21.4%	38.9%	34.1%	37.6%	60.5%
Project management skills	78.6%	59.5%	23.8%	46.0%	41.3%	37.3%	68.5%

Source: South Yorkshire Digital Skills Survey, February to April 2023

Skills ranked 1-3 out of 11
 Skills ranked 4-6 out of 11

MEDIUM-SIZED BUSINESSES (50-249 EMPLOYEES)							
Digital Skill Area	Important to Business Now	More Important to Business in 2-5 Years' Time	Skills Gap (The Workforce Doesn't Meet Business Needs)	Hard to Recruit	Hard to Retain	Hard to Find Training	Businesses Likely to Benefit from Training in the Next Two Years
Data skills	90.4%	76.7%	32.9%	69.9%	58.9%	57.5%	92.4%
General office software skills	100.0%	77.5%	18.3%	35.2%	32.4%	29.6%	87.9%
Other software tools skills	87.3%	76.1%	26.8%	55.7%	45.1%	45.1%	90.9%
Social media/digital marketing skills	94.2%	87.0%	52.2%	55.1%	45.6%	47.8%	78.8%
Web content management skills	85.3%	73.5%	33.8%	57.4%	47.1%	51.5%	74.2%
Security, privacy, GDPR skills	92.5%	79.1%	28.4%	53.7%	43.3%	46.3%	86.4%
Computer programming and software development skills	44.8%	46.3%	25.4%	38.8%	34.3%	32.8%	57.6%
Specialist computer-controlled equipment skills	38.8%	31.3%	13.4%	37.3%	23.9%	23.9%	51.5%
Digital design skills	61.2%	58.2%	22.4%	47.8%	43.9%	34.3%	60.6%
Business process automation skills	74.2%	63.6%	30.3%	51.5%	40.9%	37.9%	66.7%
Project management skills	89.4%	80.0%	25.8%	61.5%	50.0%	51.5%	77.3%

Source: South Yorkshire Digital Skills Survey, February to April 2023

Skills ranked 1-3 out of 11
 Skills ranked 4-6 out of 11

LARGE BUSINESSES (250+ EMPLOYEES)							
Digital Skill Area	Important to Business Now	More Important to Business in 2-5 Years' Time	Skills Gap (The Workforce Doesn't Meet Business Needs)	Hard to Recruit	Hard to Retain	Hard to Find Training	Businesses Likely to Benefit from Training in the Next Two Years
Data skills	100.0%	93.9%	30.6%	69.4%	63.3%	44.9%	91.7%
General office software skills	97.8%	89.1%	23.9%	39.1%	41.3%	34.8%	91.7%
Other software tools skills	93.3%	82.2%	24.5%	51.1%	48.9%	37.8%	91.7%
Social media/digital marketing skills	88.4%	88.4%	27.9%	58.1%	48.8%	53.5%	86.1%
Web content management skills	76.2%	78.6%	21.4%	42.8%	40.5%	33.3%	83.3%
Security, privacy, GDPR skills	100.0%	92.7%	12.2%	46.3%	43.9%	36.6%	86.1%
Computer programming and software development skills	63.4%	58.5%	26.8%	43.9%	41.4%	34.1%	75.0%
Specialist computer-controlled equipment skills	48.8%	51.2%	19.5%	45.0%	43.9%	34.1%	69.4%
Digital design skills	65.8%	65.8%	17.1%	39.0%	39.0%	37.5%	80.6%
Business process automation skills	67.6%	64.9%	21.6%	46.0%	48.7%	41.7%	77.8%
Project management skills	92.1%	84.2%	26.3%	52.6%	42.1%	27.0%	88.9%

Source: South Yorkshire Digital Skills Survey, February to April 2023

APPENDIX C: DIGITAL SKILLS SURVEY HEADLINE INDICATORS BY SECTOR⁴⁴

Skills ranked 1-3 out of 11
 Skills ranked 4-6 out of 11

ACCOMMODATION AND FOOD SERVICE ACTIVITIES							
Digital Skill Area	Important to Business Now	More Important to Business in 2-5 Years' Time	Skills Gap (The Workforce Doesn't Meet Business Needs)	Hard to Recruit	Hard to Retain	Hard to Find Training	Businesses Likely to Benefit from Training in the Next Two Years
Data skills	63.6%	63.6%	45.5%	54.5%	45.4%	45.4%	90.0%
General office software skills	90.9%	63.6%	27.3%	36.4%	18.2%	27.3%	80.0%
Other software tools skills	81.8%	72.7%	36.4%	63.6%	45.5%	54.5%	90.0%
Social media/digital marketing skills	100.0%	90.0%	30.0%	30.0%	30.0%	40.0%	100.0%
Web content management skills	80.0%	60.0%	30.0%	50.0%	40.0%	40.0%	70.0%
Security, privacy, GDPR skills	90.0%	70.0%	30.0%	50.0%	50.0%	40.0%	90.0%
Computer programming and software development skills	10.0%	10.0%	20.0%	20.0%	20.0%	10.0%	70.0%
Specialist computer-controlled equipment skills	30.0%	20.0%	10.0%	30.0%	30.0%	20.0%	50.0%
Digital design skills	50.0%	40.0%	10.0%	20.0%	20.0%	20.0%	60.0%
Business process automation skills	40.0%	33.3%	20.0%	30.0%	30.0%	20.0%	50.0%
Project management skills	80.0%	60.0%	30.0%	50.0%	50.0%	40.0%	70.0%

⁴⁴ Results unavailable for Mining and Quarrying and Water Supply due to fewer than 10 respondents

Source: South Yorkshire Digital Skills Survey, February to April 2023

■ Skills ranked 1-3 out of 11 ■ Skills ranked 4-6 out of 11

ADMINISTRATIVE AND SUPPORT SERVICE ACTIVITIES							
Digital Skill Area	Important to Business Now	More Important to Business in 2-5 Years' Time	Skills Gap (The Workforce Doesn't Meet Business Needs)	Hard to Recruit	Hard to Retain	Hard to Find Training	Businesses Likely to Benefit from Training in the Next Two Years
Data skills	100.0%	84.6%	53.8%	61.5%	69.2%	53.8%	72.7%
General office software skills	100.0%	69.2%	15.4%	15.4%	15.4%	38.5%	63.6%
Other software tools skills	84.6%	69.2%	30.8%	46.2%	38.5%	38.5%	72.7%
Social media/digital marketing skills	83.3%	91.7%	33.3%	41.7%	41.7%	25.0%	81.8%
Web content management skills	66.7%	75.0%	58.3%	50.0%	41.7%	50.0%	63.6%
Security, privacy, GDPR skills	91.7%	75.0%	0.0%	16.7%	25.0%	41.7%	72.7%
Computer programming and software development skills	33.3%	41.7%	41.7%	41.7%	33.3%	33.3%	27.3%
Specialist computer-controlled equipment skills	16.7%	16.7%	16.7%	16.7%	16.7%	16.7%	27.3%
Digital design skills	58.3%	58.3%	25.0%	41.7%	41.7%	33.3%	54.5%
Business process automation skills	63.6%	72.7%	45.4%	54.6%	45.4%	36.4%	72.7%
Project management skills	81.8%	54.6%	36.4%	54.6%	54.6%	36.4%	63.6%

Source: South Yorkshire Digital Skills Survey, February to April 2023

Skills ranked 1-3 out of 11
 Skills ranked 4-6 out of 11

AGRICULTURE, FORESTRY AND FISHING							
Digital Skill Area	Important to Business Now	More Important to Business in 2-5 Years' Time	Skills Gap (The Workforce Doesn't Meet Business Needs)	Hard to Recruit	Hard to Retain	Hard to Find Training	Businesses Likely to Benefit from Training in the Next Two Years
Data skills	75.0%	50.0%	25.0%	12.5%	25.0%	37.5%	66.7%
General office software skills	100.0%	57.1%	28.6%	28.6%	28.6%	28.6%	66.7%
Other software tools skills	71.4%	57.1%	28.6%	42.9%	42.9%	42.9%	66.7%
Social media/digital marketing skills	66.7%	50.0%	16.7%	16.7%	16.7%	16.7%	66.7%
Web content management skills	50.0%	50.0%	0.0%	16.7%	16.7%	16.7%	66.7%
Security, privacy, GDPR skills	66.7%	66.7%	33.3%	33.3%	33.3%	16.7%	50.0%
Computer programming and software development skills	16.7%	16.7%	0.0%	0.0%	0.0%	0.0%	16.7%
Specialist computer-controlled equipment skills	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	16.7%
Digital design skills	33.3%	50.0%	0.0%	16.7%	16.7%	16.7%	50.0%
Business process automation skills	16.7%	16.7%	16.7%	0.0%	0.0%	0.0%	33.3%
Project management skills	66.7%	66.7%	50.0%	33.3%	16.7%	33.3%	66.7%

Source: South Yorkshire Digital Skills Survey, February to April 2023

Skills ranked 1-3 out of 11
 Skills ranked 4-6 out of 11

ARTS, ENTERTAINMENT AND RECREATION							
Digital Skill Area	Important to Business Now	More Important to Business in 2-5 Years' Time	Skills Gap (The Workforce Doesn't Meet Business Needs)	Hard to Recruit	Hard to Retain	Hard to Find Training	Businesses Likely to Benefit from Training in the Next Two Years
Data skills	85.2%	66.7%	29.6%	51.9%	40.7%	42.3%	64.0%
General office software skills	96.3%	70.4%	23.1%	34.6%	34.6%	30.8%	56.0%
Other software tools skills	73.1%	76.0%	28.0%	44.0%	44.0%	40.0%	68.0%
Social media/digital marketing skills	100.0%	88.0%	28.0%	52.0%	52.0%	56.0%	76.0%
Web content management skills	96.0%	80.0%	36.0%	48.0%	44.0%	52.0%	72.0%
Security, privacy, GDPR skills	88.0%	76.0%	8.0%	56.0%	56.0%	56.0%	64.0%
Computer programming and software development skills	36.0%	36.0%	4.0%	36.0%	32.0%	32.0%	36.0%
Specialist computer-controlled equipment skills	12.0%	12.0%	20.0%	16.0%	12.0%	20.0%	20.0%
Digital design skills	76.0%	72.0%	32.0%	36.0%	36.0%	36.0%	64.0%
Business process automation skills	41.7%	36.0%	8.0%	32.0%	32.0%	36.0%	32.0%
Project management skills	80.0%	72.0%	20.0%	44.0%	44.0%	52.0%	64.0%

Source: South Yorkshire Digital Skills Survey, February to April 2023

Skills ranked 1-3 out of 11
 Skills ranked 4-6 out of 11

CONSTRUCTION							
Digital Skill Area	Important to Business Now	More Important to Business in 2-5 Years' Time	Skills Gap (The Workforce Doesn't Meet Business Needs)	Hard to Recruit	Hard to Retain	Hard to Find Training	Businesses Likely to Benefit from Training in the Next Two Years
Data skills	86.9%	69.6%	17.4%	47.8%	36.9%	43.5%	57.6%
General office software skills	90.2%	65.8%	22.0%	41.5%	34.1%	31.7%	69.7%
Other software tools skills	74.4%	66.7%	10.3%	33.3%	25.6%	33.3%	66.7%
Social media/digital marketing skills	78.4%	67.6%	18.9%	35.1%	29.7%	43.2%	57.6%
Web content management skills	63.9%	55.6%	13.9%	27.8%	30.6%	38.9%	45.5%
Security, privacy, GDPR skills	72.2%	63.9%	5.5%	41.7%	33.3%	36.1%	57.6%
Computer programming and software development skills	30.6%	30.6%	25.0%	25.0%	25.0%	27.8%	30.3%
Specialist computer-controlled equipment skills	28.6%	25.7%	14.3%	22.8%	20.0%	20.0%	36.4%
Digital design skills	42.9%	42.9%	17.2%	26.5%	22.9%	22.9%	45.5%
Business process automation skills	44.1%	44.1%	17.7%	32.4%	29.4%	30.3%	48.5%
Project management skills	82.3%	67.6%	11.8%	47.1%	35.3%	35.3%	66.7%

Source: South Yorkshire Digital Skills Survey, February to April 2023

Skills ranked 1-3 out of 11
 Skills ranked 4-6 out of 11

EDUCATION							
Digital Skill Area	Important to Business Now	More Important to Business in 2-5 Years' Time	Skills Gap (The Workforce Doesn't Meet Business Needs)	Hard to Recruit	Hard to Retain	Hard to Find Training	Businesses Likely to Benefit from Training in the Next Two Years
Data skills	97.1%	77.1%	28.6%	57.1%	48.6%	54.3%	83.3%
General office software skills	93.9%	79.4%	12.1%	33.3%	37.5%	51.5%	83.3%
Other software tools skills	75.8%	72.7%	12.1%	39.4%	45.4%	45.5%	70.0%
Social media/digital marketing skills	90.6%	84.4%	37.5%	53.1%	41.9%	53.1%	76.7%
Web content management skills	75.0%	62.5%	15.6%	43.8%	34.4%	50.0%	63.3%
Security, privacy, GDPR skills	87.5%	78.1%	12.5%	50.0%	34.4%	50.0%	73.3%
Computer programming and software development skills	45.2%	48.4%	25.8%	38.7%	38.7%	38.7%	50.0%
Specialist computer-controlled equipment skills	33.3%	35.5%	19.4%	32.3%	32.3%	32.3%	56.7%
Digital design skills	64.5%	58.1%	19.4%	32.3%	35.5%	41.9%	56.7%
Business process automation skills	51.7%	41.4%	31.0%	34.5%	34.5%	42.9%	56.7%
Project management skills	90.0%	76.7%	26.7%	40.0%	40.0%	46.7%	73.3%

Source: South Yorkshire Digital Skills Survey, February to April 2023

Skills ranked 1-3 out of 11
 Skills ranked 4-6 out of 11

ENERGY SUPPLY							
Digital Skill Area	Important to Business Now	More Important to Business in 2-5 Years' Time	Skills Gap (The Workforce Doesn't Meet Business Needs)	Hard to Recruit	Hard to Retain	Hard to Find Training	Businesses Likely to Benefit from Training in the Next Two Years
Data skills	90.0%	70.0%	10.0%	70.0%	40.0%	60.0%	90.0%
General office software skills	100.0%	80.0%	0.0%	50.0%	30.0%	40.0%	80.0%
Other software tools skills	80.0%	70.0%	20.0%	40.0%	30.0%	30.0%	80.0%
Social media/digital marketing skills	60.0%	70.0%	40.0%	40.0%	20.0%	50.0%	70.0%
Web content management skills	70.0%	70.0%	20.0%	40.0%	10.0%	40.0%	80.0%
Security, privacy, GDPR skills	100.0%	90.0%	0.0%	40.0%	40.0%	50.0%	80.0%
Computer programming and software development skills	40.0%	30.0%	10.0%	20.0%	20.0%	20.0%	50.0%
Specialist computer-controlled equipment skills	20.0%	20.0%	10.0%	20.0%	20.0%	20.0%	40.0%
Digital design skills	40.0%	40.0%	0.0%	20.0%	20.0%	20.0%	50.0%
Business process automation skills	60.0%	60.0%	30.0%	40.0%	30.0%	30.0%	70.0%
Project management skills	90.0%	70.0%	30.0%	70.0%	60.0%	40.0%	80.0%

Source: South Yorkshire Digital Skills Survey, February to April 2023

■ Skills ranked 1-3 out of 11 ■ Skills ranked 4-6 out of 11

FINANCIAL AND INSURANCE ACTIVITIES							
Digital Skill Area	Important to Business Now	More Important to Business in 2-5 Years' Time	Skills Gap (The Workforce Doesn't Meet Business Needs)	Hard to Recruit	Hard to Retain	Hard to Find Training	Businesses Likely to Benefit from Training in the Next Two Years
Data skills	95.2%	80.9%	14.3%	47.6%	28.6%	42.9%	68.4%
General office software skills	95.2%	76.2%	4.8%	19.0%	9.5%	23.8%	68.4%
Other software tools skills	85.7%	81.0%	19.0%	33.3%	19.1%	33.3%	68.4%
Social media/digital marketing skills	81.0%	90.5%	33.3%	23.8%	19.0%	28.6%	52.6%
Web content management skills	50.0%	65.0%	35.0%	25.0%	15.0%	25.0%	47.4%
Security, privacy, GDPR skills	95.0%	75.0%	10.0%	25.0%	20.0%	30.0%	68.4%
Computer programming and software development skills	15.0%	25.0%	20.0%	15.0%	15.0%	20.0%	36.8%
Specialist computer-controlled equipment skills	10.0%	10.0%	0.0%	5.0%	0.0%	5.0%	21.1%
Digital design skills	20.0%	20.0%	10.0%	10.0%	10.0%	10.0%	36.8%
Business process automation skills	65.0%	60.0%	15.0%	30.0%	20.0%	25.0%	68.4%
Project management skills	75.0%	65.0%	15.0%	26.3%	20.0%	30.0%	68.4%

Source: South Yorkshire Digital Skills Survey, February to April 2023

■ Skills ranked 1-3 out of 11 ■ Skills ranked 4-6 out of 11

HEALTH AND SOCIAL WORK ACTIVITIES							
Digital Skill Area	Important to Business Now	More Important to Business in 2-5 Years' Time	Skills Gap (The Workforce Doesn't Meet Business Needs)	Hard to Recruit	Hard to Retain	Hard to Find Training	Businesses Likely to Benefit from Training in the Next Two Years
Data skills	86.5%	75.7%	37.8%	56.8%	35.1%	37.8%	87.9%
General office software skills	97.3%	73.0%	21.6%	29.7%	18.9%	29.7%	69.7%
Other software tools skills	67.6%	59.5%	32.4%	27.0%	21.6%	24.3%	66.7%
Social media/digital marketing skills	85.7%	77.1%	45.7%	51.4%	37.1%	51.4%	81.8%
Web content management skills	82.9%	74.3%	31.4%	50.0%	34.3%	37.1%	81.8%
Security, privacy, GDPR skills	100.0%	85.7%	2.9%	34.3%	28.6%	34.3%	69.7%
Computer programming and software development skills	20.0%	31.4%	8.6%	20.0%	17.1%	14.3%	42.4%
Specialist computer-controlled equipment skills	20.6%	23.5%	5.9%	20.6%	17.6%	14.7%	48.5%
Digital design skills	44.1%	44.1%	14.7%	29.4%	26.5%	26.5%	66.7%
Business process automation skills	48.5%	36.4%	21.2%	33.3%	27.3%	25.0%	63.6%
Project management skills	75.8%	72.7%	30.3%	45.5%	39.4%	36.4%	69.7%

Source: South Yorkshire Digital Skills Survey, February to April 2023

■ Skills ranked 1-3 out of 11 ■ Skills ranked 4-6 out of 11

INFORMATION TECHNOLOGY AND COMMUNICATIONS							
Digital Skill Area	Important to Business Now	More Important to Business in 2-5 Years' Time	Skills Gap (The Workforce Doesn't Meet Business Needs)	Hard to Recruit	Hard to Retain	Hard to Find Training	Businesses Likely to Benefit from Training in the Next Two Years
Data skills	93.8%	75.0%	15.6%	68.8%	50.0%	37.5%	70.4%
General office software skills	100.0%	74.2%	0.0%	28.1%	15.6%	25.0%	51.9%
Other software tools skills	93.5%	77.4%	22.6%	51.6%	38.7%	38.7%	70.4%
Social media/digital marketing skills	80.0%	73.3%	24.1%	37.9%	37.9%	41.4%	74.1%
Web content management skills	86.2%	72.4%	20.7%	55.2%	41.4%	51.7%	70.4%
Security, privacy, GDPR skills	89.7%	72.4%	17.2%	69.0%	48.3%	51.7%	85.2%
Computer programming and software development skills	77.8%	70.4%	14.8%	51.9%	44.4%	51.9%	59.3%
Specialist computer-controlled equipment skills	33.3%	29.6%	7.4%	29.6%	18.5%	26.9%	40.7%
Digital design skills	74.1%	66.7%	14.8%	51.8%	37.0%	44.4%	66.7%
Business process automation skills	81.5%	70.4%	18.5%	55.6%	48.1%	55.6%	63.0%
Project management skills	88.9%	73.1%	14.8%	59.3%	48.2%	55.6%	70.4%

Source: South Yorkshire Digital Skills Survey, February to April 2023

Skills ranked 1-3 out of 11
 Skills ranked 4-6 out of 11

MANUFACTURING							
Digital Skill Area	Important to Business Now	More Important to Business in 2-5 Years' Time	Skills Gap (The Workforce Doesn't Meet Business Needs)	Hard to Recruit	Hard to Retain	Hard to Find Training	Businesses Likely to Benefit from Training in the Next Two Years
Data skills	87.0%	76.6%	28.6%	54.5%	36.4%	39.0%	73.2%
General office software skills	98.7%	80.3%	14.5%	34.2%	27.6%	31.6%	73.2%
Other software tools skills	86.5%	75.7%	21.6%	47.9%	39.2%	36.5%	73.2%
Social media/digital marketing skills	75.7%	70.7%	37.3%	40.0%	27.0%	35.1%	76.1%
Web content management skills	72.6%	69.9%	31.5%	37.0%	28.8%	35.6%	69.0%
Security, privacy, GDPR skills	93.1%	76.4%	26.4%	44.4%	36.1%	36.1%	74.6%
Computer programming and software development skills	53.4%	49.3%	24.7%	35.6%	27.4%	32.9%	52.1%
Specialist computer-controlled equipment skills	72.6%	64.4%	16.4%	54.8%	39.7%	44.4%	69.0%
Digital design skills	61.1%	54.2%	19.7%	40.3%	35.2%	37.5%	63.4%
Business process automation skills	65.3%	62.5%	25.0%	43.1%	36.6%	43.1%	64.8%
Project management skills	77.8%	70.8%	23.6%	41.7%	36.1%	38.0%	66.2%

Source: South Yorkshire Digital Skills Survey, February to April 2023

Skills ranked 1-3 out of 11
 Skills ranked 4-6 out of 11

OTHER SERVICE ACTIVITIES							
Digital Skill Area	Important to Business Now	More Important to Business in 2-5 Years' Time	Skills Gap (The Workforce Doesn't Meet Business Needs)	Hard to Recruit	Hard to Retain	Hard to Find Training	Businesses Likely to Benefit from Training in the Next Two Years
Data skills	74.5%	62.5%	22.1%	40.7%	27.6%	33.1%	61.8%
General office software skills	93.7%	72.0%	11.2%	25.5%	21.7%	26.6%	61.8%
Other software tools skills	71.8%	64.1%	15.5%	31.7%	25.4%	28.2%	62.6%
Social media/digital marketing skills	77.7%	72.7%	18.0%	34.5%	24.6%	33.1%	64.1%
Web content management skills	72.5%	63.1%	24.1%	34.8%	24.6%	31.2%	58.0%
Security, privacy, GDPR skills	87.5%	71.8%	11.1%	36.6%	26.7%	28.1%	62.6%
Computer programming and software development skills	25.0%	28.0%	17.4%	18.2%	13.6%	17.6%	29.8%
Specialist computer-controlled equipment skills	15.2%	15.2%	7.6%	10.7%	8.3%	12.2%	27.5%
Digital design skills	50.4%	42.4%	16.7%	27.3%	22.7%	25.0%	45.8%
Business process automation skills	38.9%	36.6%	9.9%	21.5%	19.8%	20.8%	41.2%
Project management skills	64.9%	50.4%	9.9%	27.5%	20.6%	22.9%	54.2%

Source: South Yorkshire Digital Skills Survey, February to April 2023

Skills ranked 1-3 out of 11
 Skills ranked 4-6 out of 11

PROFESSIONAL, SCIENTIFIC AND TECHNICAL ACTIVITIES							
Digital Skill Area	Important to Business Now	More Important to Business in 2-5 Years' Time	Skills Gap (The Workforce Doesn't Meet Business Needs)	Hard to Recruit	Hard to Retain	Hard to Find Training	Businesses Likely to Benefit from Training in the Next Two Years
Data skills	93.8%	84.4%	15.6%	56.3%	31.2%	50.0%	74.1%
General office software skills	96.8%	64.5%	16.1%	22.6%	12.9%	25.8%	63.0%
Other software tools skills	93.3%	76.7%	13.3%	36.7%	30.0%	46.7%	63.0%
Social media/digital marketing skills	80.0%	86.7%	30.0%	23.3%	26.7%	23.3%	70.4%
Web content management skills	90.0%	70.0%	23.3%	16.7%	16.7%	30.0%	70.4%
Security, privacy, GDPR skills	90.0%	70.0%	16.7%	33.3%	30.0%	36.7%	66.7%
Computer programming and software development skills	50.0%	41.4%	23.3%	20.0%	13.3%	20.0%	33.3%
Specialist computer-controlled equipment skills	20.7%	24.1%	10.7%	17.2%	17.2%	17.2%	33.3%
Digital design skills	51.7%	51.7%	13.8%	17.2%	17.2%	24.1%	40.7%
Business process automation skills	58.6%	51.7%	24.1%	34.5%	24.1%	34.5%	66.7%
Project management skills	82.8%	79.3%	13.8%	31.0%	25.0%	24.1%	70.4%

Source: South Yorkshire Digital Skills Survey, February to April 2023

Skills ranked 1-3 out of 11
 Skills ranked 4-6 out of 11

PUBLIC ADMINISTRATION							
Digital Skill Area	Important to Business Now	More Important to Business in 2-5 Years' Time	Skills Gap (The Workforce Doesn't Meet Business Needs)	Hard to Recruit	Hard to Retain	Hard to Find Training	Businesses Likely to Benefit from Training in the Next Two Years
Data skills	100.0%	100.0%	50.0%	83.3%	66.7%	66.7%	75.0%
General office software skills	83.3%	66.7%	33.3%	16.7%	0.0%	16.7%	75.0%
Other software tools skills	66.7%	66.7%	33.3%	33.3%	33.3%	33.3%	75.0%
Social media/digital marketing skills	83.3%	83.3%	16.7%	50.0%	50.0%	50.0%	75.0%
Web content management skills	66.7%	66.7%	50.0%	50.0%	50.0%	33.3%	75.0%
Security, privacy, GDPR skills	80.0%	80.0%	20.0%	80.0%	80.0%	60.0%	75.0%
Computer programming and software development skills	60.0%	80.0%	40.0%	80.0%	80.0%	60.0%	50.0%
Specialist computer-controlled equipment skills	60.0%	60.0%	20.0%	60.0%	60.0%	60.0%	25.0%
Digital design skills	80.0%	80.0%	40.0%	60.0%	60.0%	50.0%	50.0%
Business process automation skills	60.0%	60.0%	40.0%	40.0%	40.0%	40.0%	75.0%
Project management skills	60.0%	60.0%	40.0%	40.0%	40.0%	25.0%	75.0%

Source: South Yorkshire Digital Skills Survey, February to April 2023

Skills ranked 1-3 out of 11
 Skills ranked 4-6 out of 11

REAL ESTATE ACTIVITIES							
Digital Skill Area	Important to Business Now	More Important to Business in 2-5 Years' Time	Skills Gap (The Workforce Doesn't Meet Business Needs)	Hard to Recruit	Hard to Retain	Hard to Find Training	Businesses Likely to Benefit from Training in the Next Two Years
Data skills	100.0%	88.9%	11.1%	66.7%	11.1%	55.6%	57.1%
General office software skills	100.0%	100.0%	0.0%	22.2%	11.1%	33.3%	57.1%
Other software tools skills	77.8%	77.8%	11.1%	33.3%	11.1%	44.4%	57.1%
Social media/digital marketing skills	87.5%	100.0%	25.0%	25.0%	0.0%	50.0%	71.4%
Web content management skills	71.4%	85.7%	0.0%	28.6%	14.3%	57.1%	42.9%
Security, privacy, GDPR skills	85.7%	71.4%	14.3%	28.6%	14.3%	28.6%	57.1%
Computer programming and software development skills	28.6%	28.6%	0.0%	14.3%	0.0%	14.3%	42.9%
Specialist computer-controlled equipment skills	0.0%	0.0%	14.3%	0.0%	0.0%	0.0%	28.6%
Digital design skills	14.3%	0.0%	14.3%	0.0%	0.0%	0.0%	28.6%
Business process automation skills	28.6%	14.3%	0.0%	14.3%	14.3%	14.3%	57.1%
Project management skills	57.1%	42.9%	0.0%	28.6%	0.0%	14.3%	42.9%

Source: South Yorkshire Digital Skills Survey, February to April 2023

Skills ranked 1-3 out of 11
 Skills ranked 4-6 out of 11

TRANSPORTATION AND STORAGE							
Digital Skill Area	Important to Business Now	More Important to Business in 2-5 Years' Time	Skills Gap (The Workforce Doesn't Meet Business Needs)	Hard to Recruit	Hard to Retain	Hard to Find Training	Businesses Likely to Benefit from Training in the Next Two Years
Data skills	62.5%	56.2%	18.8%	37.5%	31.2%	12.5%	61.5%
General office software skills	87.5%	62.5%	13.3%	18.7%	18.7%	12.5%	76.9%
Other software tools skills	75.0%	75.0%	0.0%	37.5%	18.7%	25.0%	61.5%
Social media/digital marketing skills	60.0%	73.3%	33.3%	20.0%	26.7%	33.3%	53.8%
Web content management skills	50.0%	42.9%	14.3%	21.4%	14.3%	21.4%	46.2%
Security, privacy, GDPR skills	78.6%	64.3%	7.1%	14.3%	7.1%	14.3%	46.2%
Computer programming and software development skills	21.4%	28.6%	0.0%	14.3%	14.3%	0.0%	7.7%
Specialist computer-controlled equipment skills	28.6%	28.6%	0.0%	14.3%	14.3%	14.3%	23.1%
Digital design skills	21.4%	14.3%	0.0%	7.1%	7.1%	7.1%	30.8%
Business process automation skills	50.0%	50.0%	7.1%	28.6%	35.7%	21.4%	30.8%
Project management skills	57.1%	50.0%	7.1%	28.6%	21.4%	28.6%	61.5%

Source: South Yorkshire Digital Skills Survey, February to April 2023

Skills ranked 1-3 out of 11
 Skills ranked 4-6 out of 11

WHOLESALE AND RETAIL TRADE							
Digital Skill Area	Important to Business Now	More Important to Business in 2-5 Years' Time	Skills Gap (The Workforce Doesn't Meet Business Needs)	Hard to Recruit	Hard to Retain	Hard to Find Training	Businesses Likely to Benefit from Training in the Next Two Years
Data skills	83.3%	76.7%	23.3%	36.7%	26.7%	50.0%	75.0%
General office software skills	86.7%	83.3%	20.0%	36.7%	23.3%	30.0%	71.4%
Other software tools skills	70.0%	63.3%	13.3%	30.0%	26.7%	30.0%	75.0%
Social media/digital marketing skills	82.8%	82.8%	17.2%	58.6%	34.5%	41.4%	75.0%
Web content management skills	79.3%	69.0%	20.7%	37.9%	27.6%	41.4%	60.7%
Security, privacy, GDPR skills	79.3%	72.4%	17.2%	31.0%	20.7%	34.5%	67.9%
Computer programming and software development skills	34.5%	37.9%	20.7%	20.7%	13.8%	20.7%	42.9%
Specialist computer-controlled equipment skills	34.5%	31.0%	6.9%	20.7%	14.3%	17.2%	42.9%
Digital design skills	48.3%	48.3%	13.8%	24.1%	17.2%	27.6%	50.0%
Business process automation skills	34.5%	41.4%	10.3%	24.1%	17.2%	24.1%	53.6%
Project management skills	53.6%	50.0%	10.7%	37.0%	29.6%	42.9%	53.6%

Source: South Yorkshire Digital Skills Survey, February to April 2023