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GC Education & Skills

The Demand for Digital Skills - Digital & Technology Insight Report

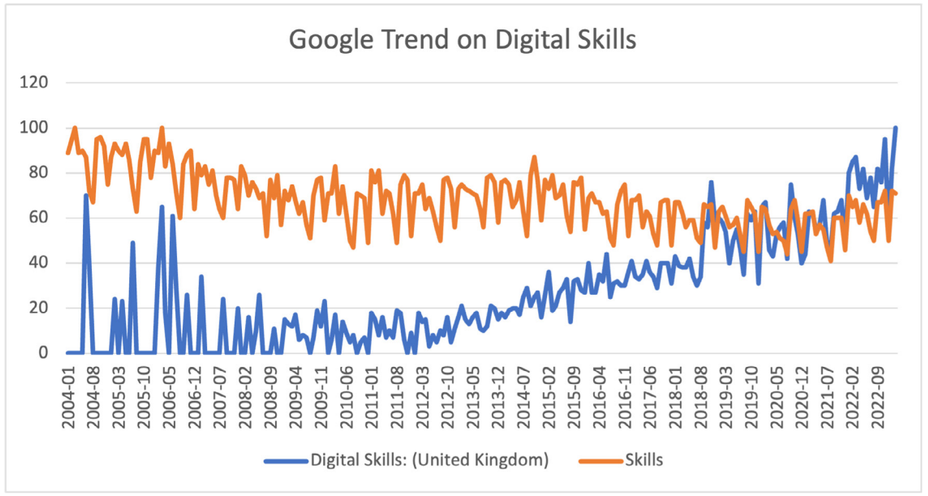
March 2023

The Growth Company

As technology continues to rapidly advance, it is essential to stay up-to-date with the latest digital trends in order to remain competitive and relevant in today's ever-evolving landscape. This report focuses on the demand for digital skills with insight into future trends in the digital world

Understanding the demand for Digital Skills

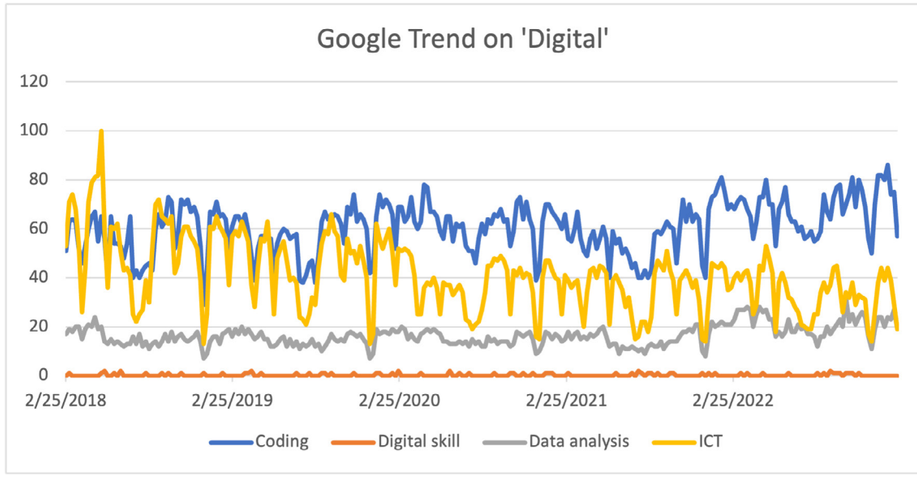
How we define digital skills is central to how we understand the gaps around them. The easiest place to start is by looking at how people use the term. The diagram below gives a snapshot of Google searches for the terms 'digital skills' and 'skills' since 2004:



The trends have shown an interesting shift whereby searches for 'digital skills' have overtaken searches for 'skills'. This could suggest that increasingly people have identified the idea of digital skills as a specific set of skills. But what skills are included in 'digital skills' in this unknown.

To start to answer this we need to look at what is associated with terms like digital skills. Taking a basic approach, if we assume that digital skills is associated with computers then we should get an idea of how trends for these searches have grown in relation to 'digital skills'.

The next Google trend looks at searches for Coding, Data Analysis, Digital Skills and ICT:



The difference is stark. Although our earlier diagram had shown an increasing trend for 'digital skills', it is a search term which is almost insignificant compared to more stereotypical terms associated with digital skills, like coding. This doesn't mean that digital skills are not important, it means that the term is one of many that people use to mean similar things.

From a policy point of view, the development of a single definition is also a challenge. Digital skills should be taken to mean a range of different areas which includes coding, data, and ICT but also includes the application of digital skills across the economy.

Essential Digital Skills

Linked to this we then need to differentiate the application of digital skills in different circumstances. The first is basic digital literacy which is required to function in today's society, whilst it may seem that digital literacy is commonplace it is not. Linked to this is how digital skills are demanded by different sectors and jobs. This is best summarised in the following:

"Digital literacy is already an essential (if basic) requirement, with varying degrees of digital skills required in different sectors and different occupations. However, across roles, skills around understanding and use of data will only increase in importance in future as responsibilities for data handling and data security are shared across organisations."

Accordingly, when we talk about digital skills, we are talking about essential digital skills which a fundamental not only to work but also to taking part in society. A key issue here is the extent to which people can develop these essential digital skills.

In 2021, the Learning & Work Institute estimated that 1 in 20 households in the UK did not have access to the internet. The idea of digital poverty is real and is the first clear challenge in any discussion about meeting the demand for digital skills. The ability of households, learners and people in the labour market to access digital services is the foundation of what can be achieved.

Also in 2021, a parliamentary research note into essential digital skills stated that around 1/5 of the UK population do not have essential digital skills for life. Yet, in 2021, 77% of 9.4m UK job advertisements requested basic digital skills.

The problem of digital skills should not be seen in isolation. The challenge of meeting the digital skills needs of the UK plc is part of a wider challenge of meeting various skills mismatches. Back in 2019, a key piece of research into skill mismatches predicted that by 2030 7 million additional workers (20%) would be under-skilled. Specifically, it suggested that 5 million would be under-skilled in basic digital skills by 2030. They also suggested that what we call basic skills will become increasingly complex over time.

Interestingly the research also suggested that 2.1m workers would be under-skilled in at least one core management skill (leadership, decision-making, or advanced communication) and this would also include 400,000 people who lacked basic digital skills. The critical point is that a lack of digital skills is a problem throughout the workforce.

Linked to this, the UK government estimates that the Digital Skills Gap costs the UK around £63billion a year in GDP.

The potential gains from filling this gap are potentially huge. The Goodthings foundation has argued that when dealing with the Digital Divide every £1 invested in reskilling around digital could produce a return of £15. This would be worth about £21 billion over ten years. Building on this, digital skills are calculated to be worth 2.4% of a company's bottom line, according to Futuredotnow who used the example of a business with £1bn profit whereby digital skills are worth £24m every year.

When we talk about digital skills, we are really talking about a set of skills which are as important as reading, writing and numeracy.

Defining Digital Skills for the workplace

One of the key challenges is being clear about what digital skills means for different groups of learners. Again, we can divide those learners into two – those coming through the education system, and those already in the workforce.

The objective shouldn't be to have every person a 'coder' nor is it to ignore the sheer variety of skills, tasks and competencies which Digital Skills represent. The seminal report 'No longer optional: Employer Demand for Digital Skills' is key for starting to segment the employer demand for skills in a way that is practical for learners and providers to plan the necessary pathways.

The report has identified a key distinction between baseline and specific skills. Baseline skills should be seen as the application of the essential digital skills needed to work in the modern workplace and includes MS Office. Specific digital skills reflect a wider spectrum of the application of either particular skills such as coding or a specific demand associated with a sector. When we talk about digital skills we are in fact talking about a variety of skills, tasks and competencies which are not only as complex as the current labour market, but are likely to become more complex as technology changes and become more essential to employment in future.

Skills needs in selected occupations over the next 5-10years, DfE & Government Social Research, April 2022

Developing essential digital skills - POST (parliament.uk)

UK Skills Mismatch in 2030, Industrial Strategy Council October 2019

New Digital Strategy to make UK a global tech superpower - GOV.UK (www.gov.uk)

To Level Up we need to Fix The Digital Divide - Good Things Foundation

Unpacking the hidden middle - FDN (futuredotnow.uk)

No Longer Optional: Employer Demand for Digital Skills (publishing.service.gov.uk)

Digital Skills Typology			
Digital Skill Type	**Digital Cluster**	**Description**	**Common Occupations**
Baseline	Productivity Software	MS Office, Enterprise Resource Planning, Project Management Software, SAP	Administration Customer Service
Specific	Software & Programming	Languages: C#, Java, SQL and Python	Programmers Software Developers Database Administrators
	Computer & Networking Support	Set up, support and manage computer systems and networks	Network Administrators Software Developers IT User Support Technicians
	Data Analysis	Data Analysis with tools like R or Stata, Power BI, understanding of Big Data, Data Science, Statistics	Management Consultants Business Analysts Economists Statisticians
	Digital Design	Digital Production, graphic design, online advertising skills, Adobe and other production suites	Marketing Associate Professionals Graphic Designers
	CRM	CRM Software (salesforce, Microsoft Dynamics)	Sales Professionals Marketing Associate Professional Customer Services Managers
	Digital Marketing	Digital marketing technologies, social media platforms, and analytics such as Google Analytics	Sales & Marketing Professional Marketing Associate Professional 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

Understanding businesses & digital skills

In addition to understanding the skills gaps, we have identified there is a need to see how these gaps impact businesses right now. How we measure a gap varies greatly between different types of research. You can look at survey responses, skills shortage vacancies or a mixture. Either way, you find a digital skills gap.

The Education Policy Institute, using the concept of skills shortage vacancies, found one in twenty employers reported a vacancy due to a shortage of skills. Of these vacancies, 29 per cent were related to a lack of digital skills and 17 per cent were related to a lack of advanced digital skills.

According to research conducted by BT, 31% of SMEs are facing a shortage in technological skills, and 34% of all firms said that insufficient internal skills was a challenge for adopting digital technology.

Techuk suggested that: “Accessing talent and meeting current investment plans will be the biggest challenges … in 2023.” Other research by the Learning and Work Institute found that whilst 92% of firms saw the essential value of digital skills to productivity, innovation and growth; 76% said that a lack of digital skills would affect the profitability of their business. The same report found that 23% of employers surveyed believed their staff lacked basic digital skills.

What these numbers show in addition to the reason why there is such high demand for digital skills, is that these gaps impact how well firms can adopt new technology and maintain their productivity.

The UK has a well-known productivity challenge, and whilst it is too simplistic to say that is because of digital skills, the inability of firms to find people with the right skills is only part of the problem, they need to be able to use those skills to enhance productivity. In one sense, part of filling the skills gap will come from supporting businesses to adopt technology and create the demand for people with digital skills to fill. This should include the business advantages of investing in upskilling the current workforce to fill that demand.

However, not every business wants to be digital. BT has suggested that the demand is still heavily impacted by the size of the firm. They found that only 22% of SMEs they surveyed were pursuing digital transformation and 50% said they were not using any of the technologies BT had identified.

More importantly, the same BT research showed a variation in firms saying that digital technologies like Artificial Intelligence, Machine Learning and Cloud Computing were ‘not right or relevant’. They found that 60% of small, 48% of medium and 41% of corporate-sized firms thought such technologies were not right or relevant.

This is important, as although digital skills are increasingly in the spotlight the demand for the skills related to them will only be met if there is sufficient demand in jobs and wages for learners to focus on them. This is not just about vacancies right now, but future opportunities. Learners will only invest in skills they feel will advantage them in future and if the jobs they can see require them

Digital-Skills-Divided-Technical-Provision-for-16-to-19-Year-Olds-2022.pdf (epi.org.uk
BT_TFI2021_Report.pdf
Digital Economy Monitor Q3 2022 results (techuk.org)
Disconnected? Exploring the digital skills gap - Learning and Work Institute
BT_TFI2021_Report.pdf

The current skills gap reflects a lot of demand for skills which most people currently working do not recognise in relation to their own work. However, as the technology become more ubiquitous the need for such skills will increase.

Meeting the demand for digital skills

So how do we meet the demand? The answer comes in two parts. Firstly it is important to recognise that we already have a lot of the resources and mechanisms to address gaps in digital skills. There is no need to reinvent the wheel or constantly change funding or incentives.

The second is being clear that the supply of learners to fill the gaps comes in part from retraining those already working. This means that in addition to ensuring that digital skills are a bedrock of accredited training, we develop a way for the current workforce to access various forms of training to develop their digital skills.

However, we do face some challenges. Despite the demand for digital skills, there is evidence that GCSE choices around ICT have seen a decline: In 2015, 33,000 students took GCSE IT or Computing qualifications but this has fallen by around 1/3 to 22,000 students. Whilst it's entirely possible for someone to move into digital skills without a GCSE in Computing or ICT, it is a good predictor that someone will do something relating to digital skills in their 16-18 courses.

There is substantial evidence that the demand for digital skills is higher in jobs around levels 3-5. But this doesn't mean we should simply talk about digital qualifications or apprenticeships. Whilst we do need specific qualifications for some digital skill types, we also need to see a variety of digital skills and competencies built into all forms of training.

Someone doing an intermediate apprenticeship in engineering will need to understand the developments around machining and manufacturing technologies, but they are also likely to benefit from other forms of digital knowledge such as digital design or data.

The trick is to build digital skills into the base of all of our qualifications, as well as develop specific pathways for those clearly defined skills which local employers want or need. This has been started through the Essential Digital Skills Framework and the IfATE has introduced its own digital skills framework to embed the approach into apprenticeships and technical education.

Bootcamps, apprenticeships and various forms of online learning are also key to addressing the gap. We must recognise that the majority of people in the future workforce are already working now so we cannot just hope for improvements through better 16-18 learning.

The incentives and support for learners also needs to be present, and it is also important to recognise that in order to be good at data or digital requires a level of numeracy which people may lack confidence with.

There is also a need to recognise that whilst there is a demand for digital it will vary between places meaning that the specialist demand for skills listed above will vary. The West Midlands may have a higher demand for machining and manufacturing compared to London. Not every digital or tech job is the same in every place.

Digital-Skills-Divided-Technical-Provision-for-16-to-19-Year-Olds-2022.pdf (epi.org.uk)
Alice Battiston et al., 'Labour Market Outcomes Disaggregated by Subject Area Using the Longitudinal Education Outcomes (LEO) Data' (Centre for Vocational Education Research, August 2019)
Digital skills framework / Institute for Apprenticeships and Technical Education

One clear thing which can be done is to highlight the significant financial benefits of digital skills. On average, tech salaries are 50% higher than other average salaries. This, along with building on the accessibility of such jobs through apprenticeships and other forms of learning means that people starting out or retraining can make a major step towards good and well-paid jobs and careers through investment in their digital skills.

Snapshot of Vacancies Demand

The following presents a snapshot of the vacancies and average wages for some roles involving digital skills across the UK. The data is based on current vacancies posted by Adzuna and shows that there is not only a huge variation in wages but also a great demand for such roles.

Job/Skill	Location	Vacancies (Feb 23)	Average Wage
Software Developer	Manchester	631	£56,739
Web Developer	Belfast	92	£41,340
Salesforce Developer	UK	318	£64,064
Mechanical Engineer	Birmingham	288	£42,093
Java	Glasgow	312	£65,053
Graphic Design	London	886	£40,416
Python	East Midlands	634	£50,342
Digital	UK	95,399	£42,991
Administrator	UK	120,599	£31,879

Concluding messages

To summarise, below are a listed of key messages from the findings in this report:

- Digital Skills are now essential for pretty much every occupation.
- The impact of better digital skills is significant – for people it can mean higher wages, for businesses it can mean higher production and profitability.
- In 2021, 77% of job adverts requested basic digital skills.
- Yet the notion of digital skills is complex, and the complexity is only expected to increase as technology improves and changes.
- The impact on different sized firms and sectors is a major challenge in creating clear pathways for people to learn the skills.
- There is also a harsh reality – 1 in 20 homes in the UK experience digital poverty and 1/5 of the adult population does not have essential digital skills for life.
- However, we already have the tools to address the gap. From accredited qualifications, apprenticeships, and Bootcamps we have a variety of tools to work with learners, workers and employers to start filling these gaps.

The Future Starts Here

We hope you have enjoyed reading this report ‘Understanding the demand for Digital Skills’.

Do you want to help shape the next generation of tech experts? We are looking to partner with sector specialists and businesses to create a pioneering new software developer apprenticeship to meet the needs of the sector now, and for the future. As part of a social enterprise, we invest our energies into the improving the quality of training and learning, and by adopting a collaborative approach, we believe we can establish the best solution. If you would like to know more about how you can get involved, please contact stephanie.hodgson@gceducationandskills.ac.uk or visit our dedicated Digital & Tech webpage and complete our Contact Us form and one of the team will be in touch shortly.

Jobs and skills report 2021 - Tech Nation

Shape the future of digital & technology with GC Education & Skills

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