THE UK IS A LAND OF DIGITAL OPPORTUNITY

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With more than 40 billion-dollar tech companies, known as 'unicorns', the UK is an international leader in digital innovation, and aspires to be a Global Science and Tech Superpower. Across fintech, telecoms, AI, e-commerce and beyond, the UK's tech startups and scaleups are tackling the world's most urgent challenges. Innovations, vital for the country's future, include AI to improve medicine and healthcare systems, fintech to improve financial exclusion, or combatting climate change.

Across this sunny landscape are stormy clouds casting dark shadows. The UK has more than one digital skills gap and, without concerted action, they will continue to grow.

DIGITAL SKILLS AND DIGITAL LITERACY

Essential digital skills cover the ability to use digital devices, applications, and networks to access, organise and analyse information. They apply to all manner of situations, across all aspects of life and work. Going beyond functional use of information technologies such as email, social media and search engines, a *digitally literate* person uses technology safely, responsibly and effectively.

More specialised digital skills apply to specific roles and disciplines such as programming, data analysis, computer-aided design, machine learning and AI, app and web development. These skills are in high demand, inviting attractive working conditions and pay.

Both essential and specialised digital skills are in high demand across the entire economy. Job openings calling for digital skills pay much more than those which do not – over £8,000 more per year – with this difference being even larger for high-skill jobs[1].

DIGITAL SKILLS GAPS

In 2021 a third of the workforce *lacked essential digital skills*[2]. When asked in 2022, four out of five UK respondents didn't feel ready to operate in a digital world, and nearly as many don't feel equipped to learn the digital skills required by businesses[3].

Over 92% of the UK population use the Internet[4], with the remainder risking being left behind as services move increasingly online. Avoiding digital exclusion is a pre-requisite to developing digital skills.

What impact does this have? The Institution of Engineering and Technology (IET) explored engineering employer perspectives, finding that around half of those reporting a digital skills gap in the current workforce said it harms productivity. Around a third reported this gap restricts growth, harms innovation and reduces ability to deliver contracts[5]. Such deficits will clearly have implications not only for the economy, but for individual progression and development.

THE FUTURE OF DIGITAL SKILLS

The Unit for Future Skills, based with the Department for

Education, suggest that digital skills are "critical to the future of most jobs"[6] as we progress through the Fourth Industrial Revolution.

The IET survey found that around half of companies regularly use technology exploiting AI and machine learning or use robotics or other automation technologies. Looking ahead, over one third of employers consider it important that their engineers understand AI by 2027, with an even greater proportion saying the same of cloud computing, machine learning and data security capabilities.

DIGITAL SKILLS GAPS ARE HARD TO CLOSE

Securing universal access to the most essential digital skills is crucial and calls for earlier investment in digital skills in education. In England, the relatively new computing curriculum is a foundation subject for all children aged 5-16; taught well, computing can prepare all young people for their digital lives ahead. Scotland, Wales and Northern Ireland have taken a proactive approach to digital skills, too, through curriculum reform.

Technology has the potential to enhance the way in which teachers explain and model[7]. Applications such as data handling in maths, and simulations in science, can improve learning and attainment in that subject whilst also boosting specialised digital skills and confidence – a win-win.

However, access to high quality curriculum experiences, and to the technology used to embed skills, is unevenly distributed. The advances in EdTech to support the wider curriculum have stalled[8], following a surge during the pandemic. At home, one in five young people from lower socioeconomic groups lack access to a laptop, desktop or tablet[9] making them at risk of being left behind.

Only around half of computing teaching in English state schools is by a teacher with a relevant post-A level qualification; for comparison, almost all teachers of Combined Science held specialist qualifications[10]. Young women, lacking confidence that they will succeed in the subject, are also far less likely to take tech and computing qualifications.

SUPPORTING EDUCATORS

The National Centre for Computing Education (NCCE) confronts these challenges head-on. It provides subject knowledge enhancement, high-quality teaching resources and much more to teachers across primary and secondary schools in England. NCCE support improves perceptions of computing, uptake of GCSE Computer Science, and student attainment[11]. NCCE has researched factors linked to the gender imbalance in computing, seeking to encourage more girls into further study in the subject where they tend to outperform boys. These interventions will scale-up over coming years.

High quality technical qualifications exist, as alternative pathways for students interested in tech. Digital T-Levels are gaining acceptance alongside more established qualifications. Here, educators with practical experience and teaching excellence are of great value, and we must do more to support their development. Teaching, or working in tech roles, shouldn't be a binary choice – with more flexible work patterns, those with the most to offer technical learners can do both.

The future of digital skills goes beyond computing, across STEM subjects and beyond. It is important, however, to remember the needs and accountability of teachers in these subjects. Schools and colleges need reassurance and encouragement to deploy proven digital teaching, prioritising the skills of their whole community.

THE NATION WORKING TOGETHER

Young people must see the relevance, and benefits, of digital skills development for their present lives and their future careers, and here is a critical role for government, employers and other stakeholders in the digital economy. We cannot take for granted that young people have an interest in the tech that surrounds them, as much part of their landscape as trees and buses, but together we can provide the spark.

While increased funding to address digital skills gaps is much needed there are myriad ways to support this joint effort, organised at national, regional and local levels. Convening and channelling campaign and advocacy groups; collaboration and partnership working; and volunteers sharing knowledge, resources and practices from the modern workplace are a few ways in which organisations can contribute, no matter how large or small. Together we can seize the moment and secure the future.

References

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