NCFE 175TH ANNIVERSARY

Sector Spotlight: Digital

October 2023

Contents

Foreword

By Deborah Jenkins MBE DL,
Chair of the NCFE Board of Trustees

Back when what is now NCFE was founded in 1848, change and revolution were sweeping through Europe and beyond. From France and Hungary to Brazil, people were rising up against rulers and deposing regimes.

Garibaldi returned to Italy and started the military campaigns against the Austrian Empire which would lead to the reunification of Italy. Marx was fomenting revolution in Berlin, Paris and London.

The North East of England was going through a golden age of industry..."

The North East of England was going through a golden age of industry, growth, extraordinary new technology and scientific advancement. Mining, shipbuilding and engineering were booming, and architectural marvels were being built throughout the region's cities.

In Newcastle alone, William Armstrong opened his gigantic Elswick Works, William Smith launched the Blenheim from his shipyard on the Tyne, Robert Stephenson was appointed as chief engineer of the new Newcastle and Berwick railway line, and the new High Level Bridge across the Tyne opened.

The beautiful Catholic cathedral had been completed by Pugin the year before, and the grand Central Station would be opened by Queen Victoria two years later. The Newcastle School of Medicine and Surgery had been founded 15 years earlier and already had grand buildings in the centre of the city and a great pride in the expertise it was bringing to the region.

There was a huge and constant demand for skilled workers and the industrialists, scientists and landowners of the North East knew that they had to fuel this growth and prosperity – not only by drawing in experienced people from far afield, but by providing training and opportunities for the people in the poor slums of the cities and the isolated villages of the rural communities.

Within this cauldron of change, people came together to found the Northern Union of Mechanics' Institutes (what is now known as NCFE) to "become a centre from whence the elements of knowledge and civilisation shall go on with an unceasing progress, conferring intellectual, scientific and moral blessings throughout the length and breadth of the Northern Counties."

There is once again the spirit of social unrest in the air."

175 years later, in 2023, we are once again in a time of change and turbulence. Advances in technology and industry are quite literally unbelievable to some older generations. They also have unknown consequences for the young who are growing up in a world which may not provide them with the opportunities for work which were assumed by previous generations.

There is once again the spirit of social unrest in the air. Dissatisfaction with inequalities, rejection of old norms and aspirations by many, and an overwhelming sense for some that existing structures and systems are not keeping pace with the speed of change create a sense of anxiety which often outweighs the exhilaration of the new.

...shaping learning for the society of today so that it is fit for the society of tomorrow."

Our charitable mission at NCFE has not fundamentally changed all that much since that of our founders in 1848. We continue to devote our resources to shaping learning for the society of today so that it is fit for the society of tomorrow. We want people of all ages and stages of life to find learning that helps them to enter and navigate an increasingly volatile and challenging labour market.

Increasingly, we are looking for ways to strengthen cross-cutting and underpinning human skills which will build resilience, agility, creativity and adaptability, as well as technical and vocational skills aiming at particular sectors.

Like our founders, we believe in the great power of learning to transform lives and unlock unexpected futures – and as the guardians entrusted with NCFE's future, we will continue to do our best to "go on with unceasing progress".

Introduction

By Philip Le Feuvre,
Chief Operating Officer

At NCFE, we're on a mission to maximise our contribution in delivering a fairer and more inclusive society through education.

Over the last 175 years, NCFE has adapted and grown to support more learners each year, but one fundamental thing has remained the same – our promise to provide the best possible products and services that are aligned to the needs of learners, educators and employers.

> **Supporting some of the most important, essential and emerging industries and sectors has always been at the heart of what we do...”**

Supporting some of the most important, essential and emerging industries and sectors has always been at the heart of what we do, and many of them need help now more than ever.

That's why we're going far beyond the remit of a traditional awarding organisation to stimulate debate, find solutions, and unlock the limitless potential that these sectors hold.

To mark NCFE's 175th anniversary, we have invited collaborators from across the sector to develop a series of spotlight reports focused on four key sectors that are essential to the future of the UK. They include early years, social care, the Further Education (FE) sector itself and this one – a focus on the digital sector.

By analysing data and bringing together leading voices from across the different areas, as well as hearing from those working on the frontline of their respective fields, we can begin to identify current or upcoming challenges, as well as potential opportunities.

> **...we can begin to identify current or upcoming challenges, as well as potential opportunities.**

What's clear from the insights in these reports is that continuing as we have been isn't an option. The issues represented by the respective sectors' skills gaps are only going to continue, and failure to act will only exacerbate the problems that have been highlighted by our experts.

We are simultaneously releasing a paper on transforming the skills landscape, drawing in data and deep insight from employers and further sector experts, to create a bold and exciting vision for post-16 education.

NCFE was born at a time of revolution – and that's exactly what's needed again if we are to ensure both the survival and long-term prosperity of these critical sectors.
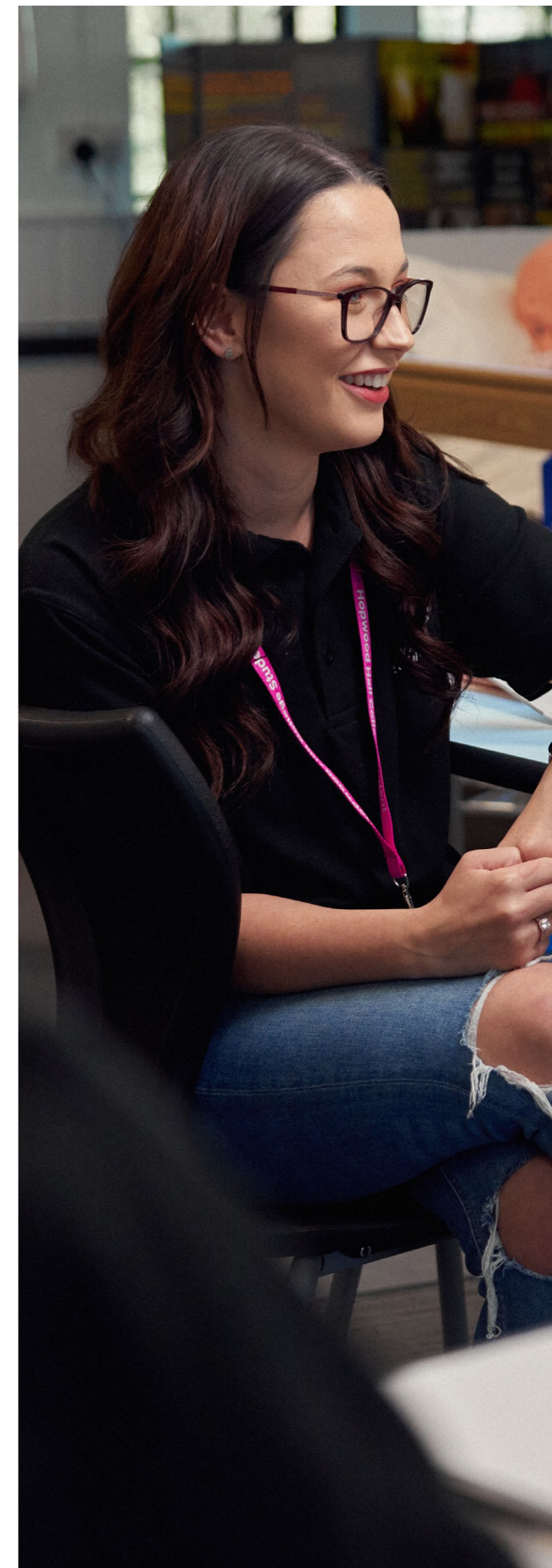
Executive summary

As an educational charity and leader in vocational and technical learning, NCFE's core purpose is to promote and advance learning. This means helping more individuals to realise their true potential – in turn, establishing more sustainable communities.

NCFE's series of sector-based reports – of which this Digital sector paper is the final one – provides an opportunity to reflect on some of the biggest skills challenges the UK is currently facing, as well as look ahead to what could happen if the changes required aren't implemented. With almost two centuries of experience to draw upon, this is an opportunity to learn from the past and forge a path forward in some of the UK's most important sectors.

Movements need collaborators, so by combining NCFE's deep knowledge with external experts and first-hand experiences, we get a more rounded picture of the unique challenges, but also opportunities, within this sector including:

➔ recruitment and retention

➔ career progression and professional development

➔ awareness and recognition

➔ employer and industry engagement

➔ pay gaps and funding.

The analysis presented in this report has incredible potential to sustain, revitalise and even transform the sector. Data from the last five years show the skills gap in digital to be growing and yet the future demand for these roles is only set to increase.

Now is the time for education, industry and policymakers to use insight like this to create a brighter tomorrow for digital, its current and future workforce, and the people that rely on it.

Setting the scene

The digital sector is a diverse and rapidly evolving industry that encompasses all aspects of digital technology and services. It includes companies involved in software development, information technology, telecommunications, digital marketing, e-commerce, and more.

Having experienced significant growth and innovation, the digital sector is a key contributor to the UK economy. It plays a vital role in driving technological advancements, enhancing business efficiency, and transforming various aspects of daily life through digital solutions and services.

Digital skills are the proficiency and knowledge required to effectively navigate and utilise digital technologies. These skills encompass a wide range of attainment, from basic digital literacy to advanced technical competencies. The increasing digitalisation of work, education, and daily life has made digital skills essential for employability and social inclusion.

**Table A:** ONS Labour demand volumes by profession and local authority, UK

Number of job postings (2022)	2,519,290
Job postings 5-year change (2017-2022)	+468,430
Job postings 5-year % change (2017-2022)	+22.84%

In 2022, there were over 450,000 more job postings within the digital sector compared with 2017. This growth includes brand-new jobs, known as emerging skills, as well as vacancies created by people leaving roles. Both result in a skills gap which, within the digital sector, has increased by more than 22% over the last five years.
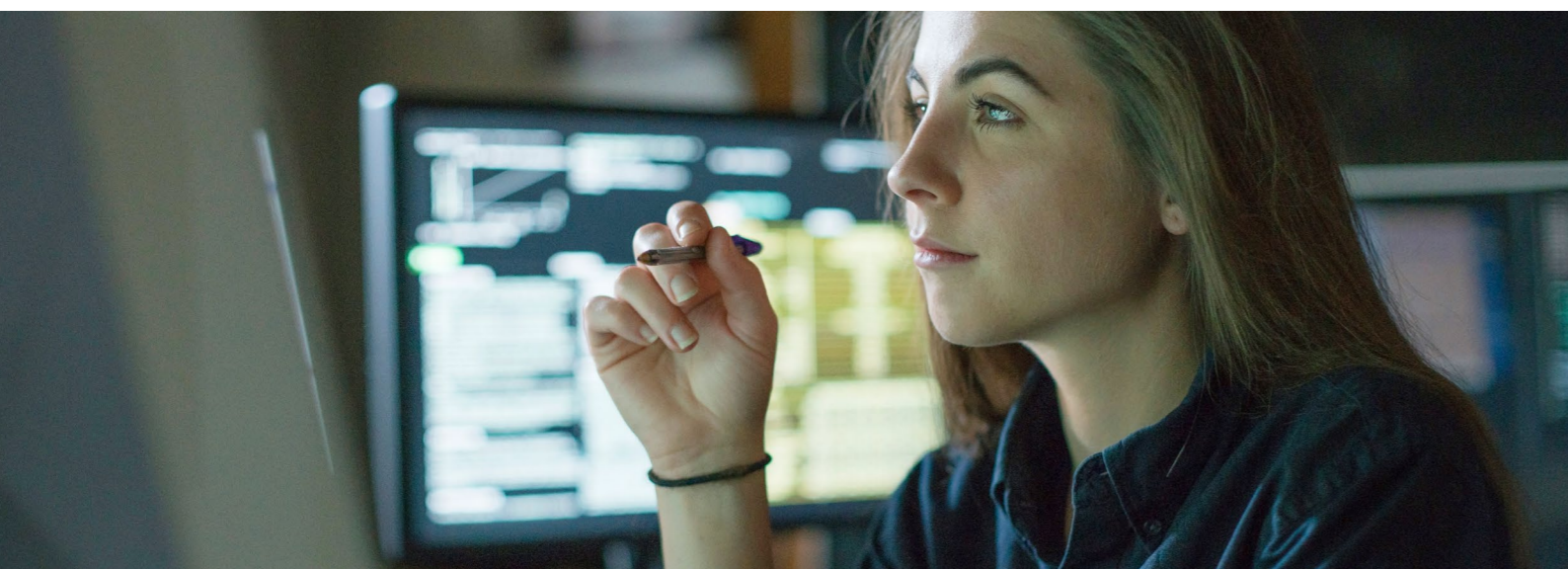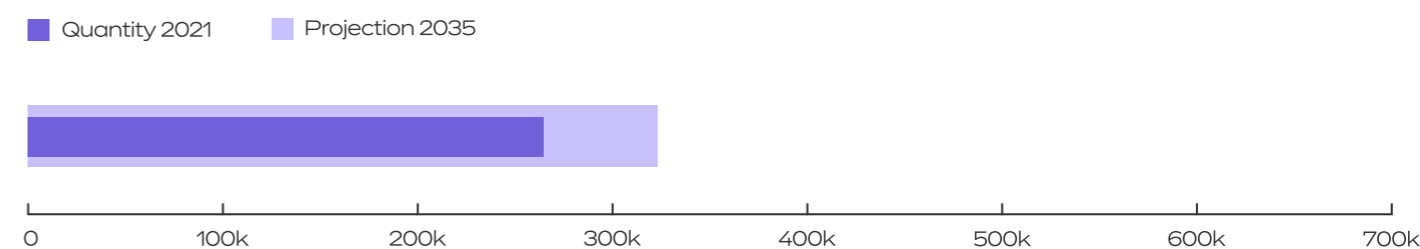
Table B: NFER The Skills Imperative 2035: Occupational Outlook – Longrun employment prospects for the UK, Baseline Projections
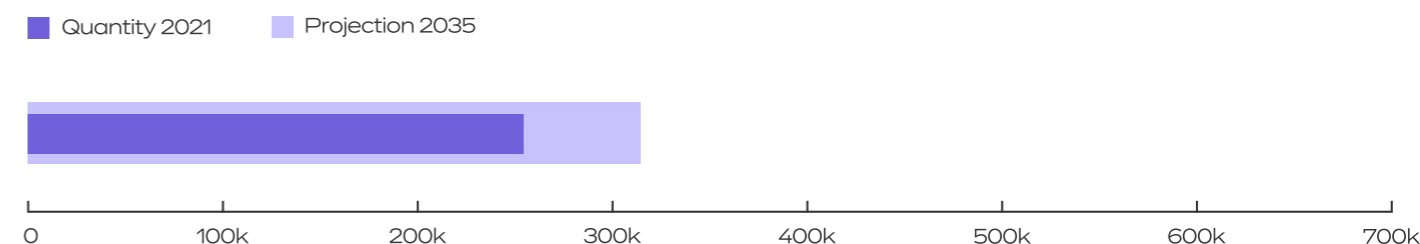
Programmers and software development professionals

■ Quantity 2021   ■ Projection 2035

IT managers

■ Quantity 2021   ■ Projection 2035
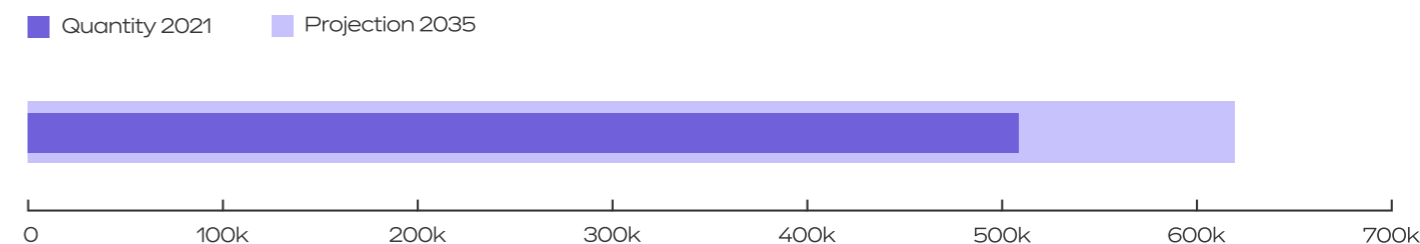
IT business analysts, architects and system designers

■ Quantity 2021   ■ Projection 2035

Projections for skills demand have been researched by the Nuffield Foundation and the National Foundation for Educational Research (NFER) in the October 2022 paper, *The Skills Imperative 2035: Occupational Outlook – Long-run employment prospects for the UK, Baseline Projections.*

The paper acknowledges that it cannot foresee the future, but its predictions present a likely scenario of what will happen in the labour market in the coming years. By focusing on three professions within the digital sector, we can see that a significant increase in numbers is required to counter rising demand.

From the sector: Zoe Amar, Director of Zoe Amar Digital

Zoe Amar is founder and director of Zoe Amar Digital, a social enterprise and digital agency that helps charities lead change with confidence, developing strategies which increase their resilience, income and influence. She is chair of The Charity Digital Code of Practice, and blogs for Third Sector and others. Zoe is the co-author of The Charity Digital Skills Report and co-host of the leadership podcast Starts at the Top. She has 15 years' experience of sitting on charity boards and is currently a trustee of Charity Digital Trust. Zoe is a previous winner of an Inspiring Communicator award from Charitycomms and was selected by Charity Times as one of their top 20 Pandemic Pioneers.

How to close the digital skills gap

Nothing sums up the state of digital skills in the UK like my news feed.

One moment I'm reading a story about how AI could replace the equivalent of 300 million jobs. Within minutes I've spotted another story about how millions of UK citizens are digitally excluded, with half of those over 75 years' old lacking basic digital skills.

Next, I read about how the digital skills gap is holding back the NHS's digital transformation. It's a baffling mix, showing that some of us are worrying about the impact of emerging technology, whilst others cannot get online. In summary, the UK is a nation of digital haves and have nots.

Whatever stage your digital skills are at, demand in this area has grown significantly since before the pandemic. ONS statistics show that there were over 450,000 more job postings within the digital sector in 2022 than five years prior to this. Worryingly, this is an increase of 22%. This includes the creation of brand-new jobs, seen as emerging skills, as well as people leaving roles and creating a vacancy.

> **This skills gap has not arisen out of the blue, although the digital acceleration we saw during the pandemic will have exacerbated it."**

It has its roots in education, going right back to when children first enter the classroom.

Research done in collaboration with Nominet in 2022 found that teachers are struggling with their own skills gaps. 61% of UK primary teachers tasked with teaching computing do not have a background in the subject, while three in five said that a lack of resources was a major barrier.

The Learning and Work Institute's 2021 report showed that the number of young people taking IT subjects at GCSE has dropped 40% since 2015. Contrast this to Estonia, where teachers have been offered digital training since 1997, lessons moved online seamlessly when lockdown began, and children are taught robotics from kindergarten age.

The skills gap is not an isolated issue; it has far-reaching consequences. The UK Government's own digital strategy notes that the digital skills gap is estimated to cost our economy as much as £63 billion a year in potential GDP.

If that wasn't worrying enough, The Institution of Engineering and Technology's 'Skills for a Digital Future' survey found that 49% of employers with a digital skills gap in their workforce said it harms productivity, whilst 35% felt that growth was restricted. Similarly, 35% also said that innovation was harmed and 29% said their ability to deliver contracts was reduced.

What can we do to change this? It's going to take a significant policy commitment from whichever government gets elected in 2024 to change the situation in education.

This would need to be reinforced with investment and digital skills training for teachers to be meaningful. If it were to happen, it would be a positive step in the right direction, although it would take years for the results to filter through to the workforce and the economy.

Can we wait that long? The education system will need to change, but we also need urgent action to grow digital skills as the disruption of artificial intelligence moves closer. Employers will need to focus on what is in their gift.

The good news is that employers can make some progress with digital skills under their own steam.

Organisations' response to AI is an excellent test case in how to develop digital skills when prompted by market demand. Over the last few months, I have spoken to organisations who are progressing with AI by giving their staff time and space to learn, encouraging them to share how they are using tools such as ChatGPT and modelling the right behaviours from the top.

These include a curiosity to learn, whilst supporting staff with the right parameters and risk management so that they are growing their skills in a culture of psychological safety.

It's even more important now that employers reach out to each other. In the charity sector, where I work, we've been mapping digital skills and adoption annually since 2017 for The Charity Digital Skills Report. This report has helped charities understand how they benchmark against the rest of the sector and learn from each other.

I encourage employers from all sectors to talk to their peers about how they are tackling the digital skills challenge, and to look at how they might collaborate, for example through skillshare, and shadowing or secondments, if appropriate.

Digital skills are a big challenge for the UK.

> **AI will alter how we live and work, and this change is likely to come sooner than we think."**

Employers can make progress in closing the digital skills gap if they are prepared to lead from the front on it and create the right conditions for their staff to learn.

From NCFE: James Lane, Sector Manager for Digital, Creative and Design at NCFE

James Lane leads on sector representation and subject specialism support to ensure the voice of the digital sector is included in all areas of NCFE's work. Having experience within the sector for many years before joining NCFE, James is passionate about inclusion, availability, and accessibility of these areas as well as the importance they lend to the employability and success of learners.

Ensuring we have the digital workforce of the future

The digital sector is one of the fastest growing in the economy, but that rapid expansion is inextricably connected with an increasing skills gap.

There are a number of reasons for this growth, with one being the rapid pace of technological change. New technologies are emerging all the time, and businesses need to be able to adapt to these changes to stay competitive. This means they need employees with the skills to use these new technologies.

Another reason for the skills gap is the increasing complexity of digital technologies. As they become more complex, they require more specialised skills to use them effectively. This results in a growing demand for highly skilled digital professionals.

The skills gap is also being exacerbated by the fact that there's already a shortage of qualified digital professionals in the workforce. This is due to several factors, including the availability of digital skills programmes.

If we look at cyber security, for example, a 2022 workforce study highlighted an estimated shortage of 3.43 million cyber security professionals globally, up 25% from 2021, with demand continuing to outpace the supply of talent.

The same report highlighted that the global workforce needs to grow by 65% in order to defend organisations from online threats effectively.

> **Having the ability to write code is no longer something that exclusively sits in the proverbial lap of a developer..."**

What needs to change?

A number of things need to happen to close the skills gap in the digital sector. One is that businesses should invest in training their employees on new technologies to ensure they have the skills they need.

We also need to see a continued focus on integration of these skills within other subjects. Having the ability to write code is no longer something that exclusively sits in the proverbial lap of a developer – we are all coders (albeit to varying degrees and applications).

Knowing how to script something could more progressively be seen as a tool of automation and can be applied to varying careers and pathways. Changing this focus will help to ensure that there is a pipeline of qualified digital professionals coming into the workforce.

Finally, government needs to create policies that support the development of the digital workforce. This could include things like providing financial incentives for businesses to train their employees on new technologies.

One such policy is the launch of the cyber security occupational specialism this year, that will form part of the Digital T Level. The qualification is aimed at 16- to 19-year-olds and equivalent to three A Levels – with a focus on developing technical and vocational skills through a mix of classroom-based learning and an industry placement.

I believe this represents an outstanding opportunity to attract a younger and more diverse workforce into the industry and create a talent pipeline. With a work placement forming a significant part of the qualification students will have the chance to experience the cyber security workplace first-hand.

> **The skills gap in the digital sector is a serious problem, but it is one that can be solved."**

Holding back innovation

The digital skills gap is having a significant impact on the sector and beyond. Businesses are struggling to find qualified employees, and this is impacting their ability to grow and innovate as well as having a negative impact on the economy as a whole.

Employers from across the digital sector are welcome to reach out to me and my team here at NCFE to work collaboratively with us. Our network brings together businesses, educational providers, and government agencies to share information and best practice on digital skills.

On a practical level, businesses can partner with us to develop custom training programmes for their employees. They can also offer tuition reimbursement programmes to encourage employees to take further education courses.

By taking these steps, we can help to ensure that the digital workforce is equipped with the skills they need to succeed. The skills gap in the digital sector is a serious problem, but it is one that can be solved. By investing in training, education, and policy, we can ensure that we have the digital workforce of the future.

From the frontline:
Gary Rogers

Associate Director of Tech & Digital at Northern Recruitment Group (NRG)

"Let's help this pioneering and progressive sector to thrive"

When I think about the digital and technology sector, I think about the excitement, the opportunities, and the possibilities that it offers. I think back to six years ago when I was working as a recruitment consultant at NRG and was offered the chance to join the Tech and Digital Division – one that I jumped at.

> **...people were, and continue to be, intrigued by the potential that this ever-growing, boundary-breaking sector holds. "**

It was a sector I'd always been fascinated by, and the market was extremely buoyant at the time. Digital transformation has been a buzzword in recent years, and for good reason –

people were, and continue to be, intrigued by the potential that this ever-growing, boundary-breaking sector holds.

However, that isn't to say the sector isn't without its challenges. In my current role as Associate Director of Tech & Digital at NRG, I'm able to observe workforce patterns and note their impact on local and regional business here in the North East.

Currently, we're seeing retention issues which are resulting in problems for organisations. The fast-paced nature of the sector often leads to high turnover rates, as candidates are constantly seeking new opportunities and chances to progress. Retaining

skilled and experienced candidates therefore becomes increasingly difficult as companies attempt to hold onto the talent they have.

The other distinct challenge is the skills shortages we're witnessing in this area. The advancements in technology and marketing are resulting in a significant gap between the skills demanded by the employers, and the skills possessed by the available workforce.

> **...candidates no longer have to try and fit into a generic role..."**

It therefore becomes challenging for us to find professionals with the right expertise in emerging technologies. This has several knock-on impacts, for example on productivity and finances.

This is because the lack of digital talent can drive up the salaries and compensation packages offered by companies to attract and retain skilled employees. And, when also taking into account the current cost-of-living crisis, this is placing a strain on the financial resources of organisations – particularly on smaller companies and start-ups who already have limited budgets.

So – what's the solution? I believe greater collaboration with educational institutions will benefit all in the tech and digital sector. Partnerships between industry and academia can help to align the curriculum with the needs of the sector. By working together, educational institutions can produce individuals with the necessary skills, reducing the skills shortage in the long run.

We also need to prioritise bringing back local talent to local business, as well as attracting new talent and business from overseas, which will help to raise the regional profile of locations, such as here in the North East – something we're hugely passionate about at NRG. Increased jobs and interest for the North East will in turn influence and encourage the younger generation into this expanding sector, creating more opportunities and career paths for all individuals from a young age.

It's a pleasure and privilege to work in my current position to serve our partner organisations with digital divisions to help assess and push forward the next generation of the digital market, exploring bespoke niche positions to help them break into new markets and territories.

This is a benefit for the talent themselves, as new roles are always emerging, meaning that candidates no longer have to try and fit into a generic role that doesn't quite fit them; instead, it allows us, in partnership with the candidate, to identify what their traits and desires are, to enable them to find the perfect role that utilises their expertise and ambitions.

We must therefore do what we can to ensure that this talent pipeline doesn't run dry – we need to expand digital career pathways to make sure there is fresh talent entering into this workforce, and we also need to recruit and retain individuals who are highly skilled and qualified into jobs that will fulfil and challenge them.

From there, I believe we will continue to see one of the most pioneering and progressive sectors thrive and continue to deliver solutions and technologies that will benefit wider society.

Conclusions

Digital is unique in that it is both a sector and a skillset. To tackle the existing large skills gap, and ensure it does not continue to grow, far more needs to be done if the UK is to not only keep pace with innovation, but with other countries as well. We've outlined three of the key areas of focus that can be drawn from the data and expertise within this report:

1 Upskill teachers

Although the outcomes will be more long-term, we need measures that will get ahead of the future skills gaps in the sector. Ensuring teachers in primary and secondary schools are properly and appropriately trained will ensure learners receive the best and most up-to-date information to set them up for a career in digital – or to bring digital skills into other sectors.

2 Support employers

Employers play a key role in tackling more immediate skills gaps. They must be encouraged and supported to help their employees upskill digitally. This investment not only brings new ideas and innovations but helps with retention as well. Peer-to-peer employer support should also be encouraged, as well as the creation of new government initiatives to help employers shoulder the financial costs – particularly in the current economic climate.

3 Integrate digital into other subjects

Digital skills are needed in almost every sector. We must do more to incorporate digital into other qualifications and training pathways, such as apprenticeships. This will provide a base level of transferrable skills that can then be used in a variety of careers – something that will become important as more and more sectors go increasingly digital.