techUK response to Post-pandemic economic growth: UK labour markets Call for Evidence
House of Commons Business, Energy and Industrial Strategy Committee

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About techUK

techUK is the trade association which brings together people, companies and organisations to realise the positive outcomes of what digital technology can achieve. More than 850 companies are members of techUK. These companies across the UK range from leading FTSE 100 companies to new innovative start-ups. The majority of our members (around 60%) are small and medium-sized digital businesses. techUK creates a network for innovation and collaboration across business, Government and stakeholders to provide a better future for people, society, the economy and the planet.

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Executive summary

The impact of Brexit and the pandemic has been felt across the UK economy, which is now grappling with the additional impacts of rising inflation and war in Ukraine. Stimulating economic growth and taking action to ensure the UK economy can recover from these impacts will be critical.

However, even before the pandemic and the increased pace of digital adoption that came with it, UK businesses were not able to recruit the skills they need to grow and prosper. In particular, the UK is lacking the digital and technology skills that are becoming increasingly essential across all sectors of the economy. techUK has seen the demand for digital and technology skills outpace supply for some time and the sector remains keen to hire new, skilled talent. Jobs in the tech sector pay 50% more than the average for all vacancies in the UK, and equipping people with digital skills will be key to driving higher wages and wider economic growth.

Trends towards more flexible working models and remote work were also accelerated by the pandemic, revealing benefits for productivity and wider inclusion in the UK labour force. However, concerted action is required by government to respond to these trends and their implications, as well provide the clarity and guidance businesses and individuals need to take advantage of these new ways of working.

In this submission, techUK has made a number of policy recommendations across skills, AI, workers' rights and protections, and employment status and modern working practices:

Skills:

- Calling for the Shortage Occupation List to be sustainably reformed and encouraging UK Visas and Immigration (UKVI) and the Home Office to work with the Department for Education's Future Skills Unit on how labour market data can be better effectively shared and used across government departments
- Calling on government to expand the Help to Grow: Digital scheme and introduce a Digital Skills and Productivity Tax Credit to incentivise companies, particularly larger SMEs (100 + staff), to invest in training their workforce as well as to adopt productivity-enhancing technologies in their business models

- Recommending that government review and reform the Apprenticeship Levy, increasing the lifetime of apprenticeship levy funds from two to five years and increasing the transferable funds rate from 25% to 80%
- Calling on government and industry to work together to provide fuller guidance on pathways into a digital job
- Recommending that government and industry work to expand short modular digital skills courses that focus on job readiness
- Calling for government to replicate AI Masters conversion courses to other digital sectors
- Recommending that government develop an online 'Digital Skills Toolkit 2.0' to help people navigate to digital skills and careers

Artificial Intelligence:

- Calling on government to address barriers to AI adoption, particularly in large sectors of the economy where uptake is low, including those around the cost of investment in skills and technical infrastructure
- Calling on government to support investment in digital skills to support workers as the adoption of digital technologies in the workplace, including AI, continues to grow

Workers' protections, employment status and modern working practices:

- Recommending that government seek to address uncertainty in the gig economy around employment status by publishing non-statutory guidance on how employment status definitions work in practice and an improved online tool to help individuals and businesses understand their rights and obligations
- Calling on government to create a Single Enforcement Body tasked with ensuring consistent and clear obligations for gig economy firms to deliver a fair and competitive market that protects flexibility for individuals and businesses whilst providing protections for all gig economy workers and enabling platforms to offer protections in a way which reflects the way those in the gig economy work in practice
- Recommending that government review its metrics around pay and hours worked and ensure it has a sustainable way of evaluating good wages and work to drive industry standards in the gig economy
- Recommending that government take action to embrace flexible working, including making the right to request flexible work available to all employees on day 1, adopting flexible working practices across the public sector, and providing guidance to drive flexible work across the economy
- Calling on government to consider how initiatives such as funding local co-working hubs can facilitate flexible and hybrid work whilst encouraging high street footfall and supporting the growth of local economies as more people conduct their work locally

The state of play in the UK labour market post-Brexit and the impact of the covid-19 pandemic on recruitment, skills shortages and the growth of the labour market

Do we have enough workers with the right skills in the right places?

1. No. The tech labour market in the UK has rebounded from COVID-19. According to Tech Nation, demand for tech jobs was 42% higher in June 2021 than at the same time in 2019. But the UK is not on course to deliver the skills, particularly in digital, it needs. 53% of UK employees do not have the essential digital skills required for the workplace today, and by 2030, an additional 7 million workers (20% of the current UK labour market) could be under-

skilled for their job. Additionally, we are not able to generate digital skills at the pace and scale that the economy needs.

2. techUK sees specialist technical skills as being the most significant digital skills shortage for our members. These 'productive' technical skills (RQF 4 and above) are currently most in demand by employers and likely to drive economic growth in the near term. Higher-level technical digital skills are specific skills that include data analysis or coding as well as digital transformations and emerging technologies like Artificial Intelligence (AI) and machine learning that require technical and specialist skills.

3. techUK and its members have seen a growing mismatch in the supply and demand of digital skills in the UK. The current skills gaps in AI, data analytics, and cyber security for example, show the depth of the work needed to upskill and retain people. Such technologies are creating requirements for specialist skills that the labour market is struggling to supply which has led to intensifying competition for talent. 62% of UK business executives say that their tech talent pool does not have the capability they need to deliver their digital strategy. According to a report by the Learning & Work Institute, 92% of organisations state that digital skills are key to success, helping to drive growth, innovation and productivity. Of those surveyed, 23% of employers admit that their existing workforce lacks basic digital skills. The significance of this on organisations is evident: two-thirds of employers believe that a lack of digital skills will affect the profitability of their business.

4. There are many reasons why we do not have enough workers with the right skills in the right places. This includes: a lack of suitable candidates with technical skills or knowledge, lack of candidates with experience, or lack of industry knowledge. Nesta has also found that employers struggle to find recruits with the right combination of skills. With 82% of job vacancies now requiring digital skills, providing relevant digital skills upskilling can be a critical step in helping people to build up the skills for jobs, and not only for tech specialist jobs but for the majority of roles across all sectors of the economy.

5. An OECD Survey of Adult Skills states that technological change and changes in the structure of employment have led to a growing demand for higher-level cognitive skills, particularly around understanding, interpretation, analysis and communication of complex information. Employers are looking for different human aptitudes and competencies that are required in a more automated world. Complex problem solving, creativity, critical thinking, cognitive flexibility, collaboration, leadership, and perhaps most importantly the ability to keep learning. As technological change accelerates, the longevity of specific hard skills will decline. Many tech companies are now looking for people they can teach. Interestingly, many tech companies are at the fore of recruiting for these competencies.

6. The demand for tech professionals has increased in every region across the UK from last year, according to Accenture, but 4 in 5 companies find it difficult to find the talent that they need, with this being even more of an issue outside of London. Often, pathways into tech and digital sectors are seen as difficult to access, and London-centric. It's important to shift this narrative to ensure tech can play a major role in economic recovery and growth for all areas of the UK. techUK has found within its Nations and Regions work that building 21st century skills for an inclusive workforce is essential to tackle the immediate challenges brought by the COVID-19 pandemic. Closing the Local Digital Capital gap would transform the UK, boosting economic output by as much as £145 billion and creating 2.7 million new jobs in the process.

techUK believes that remote and hybrid working can help make it easier to match employers to the skills they need. When it comes to attracting talent, remote working can broaden the pools of talent employers usually recruit from.

What impact has the UK's departure from the EU had on the flow of workers into and out of the UK? Are there particular sectors or skill sets that are most impacted?

7. 13% of the UK's digital tech workforce is international – a higher rate than in other sectors. Migration has been, and continues to be, a primary driver of growth within the UK's tech sector and is critical in delivering continued innovation, competitiveness, and employment opportunities. However, the digital skills gap is not unique to the UK, making tech talent in high demand across competitive markets. Employers have said they find it difficult to recruit experienced individuals for senior roles that require higher-level technical digital skills. They would look overseas in the event of being unable to find suitable candidates in the UK but are having trouble with the costs of the new points-based immigration system.

The costs and fees of the system has impacted tech businesses

8. For tech SMEs, access to talent is a significant concern due to a combination of extreme competition for domestic talent and difficulty bearing the costs and administrative burdens of recruiting talent from abroad. The costs of the immigration system have discouraged businesses. There is often reluctant acceptance of the skyrocketing prices of visas as they want to hire international talent, but this is contingent on the size of the company. The cost to small UK firms is £6,910 and £11,030 for large firms for a five-year sponsored visa. Depending on the size of the sponsor, it is £199 to assign a Certificate of Sponsorship, £364/£1,000 per year of sponsorship for Immigration Skills Charge and £3,120 for 5-year health surcharge payment for an adult.

   In comparison with Australia, France, Germany and Canada, the UK's visa fees are significantly more expensive. For one techUK member, it can cost six times more to get a UK visa as it does to get a visa for their offices in a competing EU country, and that is before we consider dependents or other associated costs. The cost to hire a worker for five years is £5,199 for a large sponsor, £2,019 for a small sponsor. This equates to about £7,700/£2,555 for a large/small sponsor with licence costs included. On current rates, a family of four paying standard application costs and health surcharge for five-year visas need £15,780. Individuals currently pay £2,404 per person for settlement applications after the five years completes, so add another £9,616 to the total. That's £25,396 if you just look at the individual application fees.

   Some techUK members have offered to pay the relocation costs of their overseas workers, including visa application charges. This is not mandatory, and employers are only required to pay the licence, Certificate of Sponsorship, and Immigration Skills charges. It is optional whether employers contribute to visa applications and health surcharges, but in the race for talent, this is becoming a useful tool for employers to attract people to the UK, but ultimately, the UK must continue to appeal to the best tech talent and these high costs and fees may risk deterring global talent and may even encourage them to look to neighbouring European countries instead.

   Although UK Visas and Immigration (UKVI) recognises ongoing shortages in the labour market and makes provision for that, the Shortage Occupation List needs to be sustainably reformed. Currently for jobs that are accepted as being difficult to recruit for in the UK,

government aims to make sponsorship applications simpler and quicker, for instance by lowering the salary required. The current list includes 4 tech-specific codes. However, such applications have not been made simpler and quicker. This is because the list is not exhaustive or updated frequently. This is a cause for concern as the tech sector is keen to move and hire people at pace. techUK encourages UKVI and the Home Office to work with the Department for Education's Future Skills Unit on how labour market data can be better effectively shared and used across government departments.

9. The need for international talent should not be seen as a stopgap until such time as the UK is able to train a sufficient domestic talent pool. If the UK is to home to the world-leading tech companies, the need to attract international talent will be constant. Companies will always want to hire the best and brightest talent available to them, wherever they come from. This principle will not change as the domestic talent pool grows.

Which sectors are experiencing the most acute shortages of workers since the pandemic? Have there been structural changes in the labour market post-Covid?

10. techUK's Digital Economy Monitor Q1 2022 showed that tech companies have a strong desire to increase their headcount in the UK. However, they have experienced significant obstacles to fulfilling the goal of creating more jobs and have asked for better training and skills support and better access to overseas talent to improve the tech sector's outlook. techUK would like to offer an in-depth analysis of the Data Centre, AI, Quantum, and Cyber sectors, which sit within the digital and tech industries, as sectors that have been suffering acute skills shortages.

Data Centre sector

11. The UK Data Centre sector is a world leading industry that enables all our digital activity – commercial, governmental, societal, and academic. A data centre is a building (or self-contained unit within a building) that houses computing equipment such as servers along with associated components such as telecommunications, network and storage systems. They provide the core digital infrastructure that underpins our modern economy.

12. Data centres are catalysts for jobs, growth, and exports, underpinning an internet economy that contributes over 16% of domestic output and 24% of total UK exports. Each new data centre contributes between £397 million and £436 million per year to the UK economy and the contribution of each existing data centre is estimated to lie between £291 million and £320 million per annum. techUK estimates that there are between 400-450 recognisable facilities, around half of which are run by commercial operators, who provide data centre services to third parties.

13. The data centre sector is suffering an acute technical skills shortage, both in the short and long-term. The number of individuals emerging from the UK's domestic education system with STEM skills and qualifications is insufficient to meet the sector's needs, leading operators to recruit from across Europe and beyond. At least one in five key technical roles is filled by international talent across the sector and in a techUK SME member data centre company two-thirds of their staff are EU citizens.

14. In terms of its skills needs, the data centre sector has complex requirements. This is because it is not a single sector, but rather a composite of different industries: construction, IT, communications, facilities management, engineering – to name just a few. As a result, the

sector has technical skills needs across multiple disciplines. Data centres also need people who are multi-disciplined as these specialist technical areas have to work together, not in isolation. The core requirements are also changing, from pure mechanical and electrical engineering skills to a broader range of technical competences covering areas like IT and connectivity.

15. Data centres require 'T-shaped professionals' who have both broad and deep skills across both business and technical domains: The vertical stem of the T is a foundation of deep disciplinary skills. The horizontal bar of the T adds the breadth of skills necessary to work across an organisation with the ability to influence others, collaborate across disciplines, and develop creative solutions to complex business problems. IBM is working to hire T-shaped professionals by exploring ways to scan and code an applicant's resume to assess their 'T-score'. A study abroad experience, for instance, may show someone's ability to adapt, while a leadership role when volunteering on a football team may demonstrate management traits.

16. A shortage of individuals able to work in or with data is impeding the quantity and quality of data driven activities. On average prior to COVID-19, it took techUK members between 2-3 months to fill a vacancy. For a techUK member and telecommunications service provider, it can take up to 70 days to fill an engineering role. techUK's Data Centre Programme has highlighted that they often see roles taking 6-9 months to be filled.

17. techUK has also noted significant wage inflation, which in some cases only larger companies can afford to pay. A techUK member in the Data Centre sector stated that they had seen a 40% raise in wages for network engineers. Tech Nation has found that the average tech salary is up to 50% higher than the average for all vacancies in as the UK, and is increasing, whilst the average salary for all jobs in the UK has decreased in 2021.

AI sector

18. The government recently launched its National AI Strategy where skills and talent are central to investing in the long-term needs of the AI ecosystem. But despite investment from government, the gaps remain significant and are growing. 35% of UK business leaders foresee an AI skills gap in the next two years, 28% say they already have one. Employers will have to address the growing skills gap within the workforce to ensure their business is able to fully leverage every digital transformation investment that is made. IBM has found that nearly 7 in 10 tech job seekers and tech employees believe that potential recruits lack the skills necessary for a career in AI.

19. Microsoft's AI Skills in the UK report, identified that the UK is facing an AI skills gap that could leave companies struggling to compete with rivals from across the world. Not only are only 15% of UK companies classified as advanced 'AI pros' compared to 23% of global companies, but only 52% of UK employees use AI at work, compared to 69% globally. Employers will have to address the growing skills gap within the workforce to ensure their business is able to fully leverage every digital transformation investment that's made.

Quantum sector

20. Currently, there is a shortage of talent familiar with the technical skills needed for quantum, and even fewer candidates with business training that will be needed for quantum commercialisation. It will be rare for businesses to find a candidate competent in all key

areas needed and businesses are increasingly recognising and preparing to offer necessary upskilling on the job to develop the right talent needed. One of the biggest challenges of quantum commercialisation is the development of a suitable talent pipeline, and the UK is in fierce international competition to create the right environment for such skills to develop. Research by Quantum Futures provided to techUK shows that salaries in quantum are starting at £50,000, increasing to over £90,000 in five years. However, for positions in the United States salaries are reaching $250,000 (£192,000) within five years of experience in the industry. It is difficult for the UK to keep pace with this level of investment and growth; this places intense pressure on both start-ups and scale-ups in the UK trying to attract quantum talent. Consequently, ramping up the talent pipeline must happen immediately and rapidly to mitigate the potential of brain drain. The development of a suitable talent pipeline in the UK will be difficult and will require the UK tech sector, the quantum industry, academia, and UK Government to actively work together to prioritise quantum skills.

21. Quantum will align closely with other forms of technologies; whether in developing new business use cases, enabling existing use cases to become more efficient or sustainable, or being deployed to solve some of the key national challenges the UK is facing in developing low carbon solutions and cyber security. Quantum will require a plethora of skills outside of quantum engineering or physics including data science, cloud skills, broad based software development, and business skills like critical thinking, customer engagement and interview skills. Combining these skills with quantum awareness will help encourage access to quantum technologies for many businesses. Crucially, these skills are also part of the UK's baseline skills required for the modern workplace. techUK has previously highlighted the particular importance of these baseline digital skills to ensure the UK's workforce is prepared as technology becomes more embedded and sophisticated within techUK's skills report, Fast Forward for Digital Jobs.

22. Ramping up the talent pipeline must happen immediately and rapidly. One of the biggest challenges of commercialisation is the development of a suitable talent pipeline and the UK will be in fierce competition with other nations that feature the development of skills as one of their core objectives and have already had considerable successes such as the United States and Germany. To remain competitive, we must ensure that the UK has access to the large international talent pool from overseas, and that, in turn, the UK remains an attractive place for international talent to develop a career in quantum.

Cyber sector

23. The pandemic led to an increase in people working from home, which led to more online transactions and a rise in malicious cyber-attacks. 47% of individuals fall for a phishing scam while working at home. The growing threats of cyber-attacks and data breaches have made cyber threat & resilience management a business imperative. On CWJobs' platform, 'cyber security' was the third top keyword search in January and February 2021, with a 16% month-on-month increase, showing the demand for such skills. But whilst around 7 in 10 cyber sector businesses (68%) have tried to recruit someone in a cyber role within the last 3 years, these employers reported a third (35%) of their vacancies as being hard to fill.

24. Beyond the basic skills gap, with common incapacities including setting up firewalls, storing personal data and removing malware, 30% of businesses have more advanced skills gaps, in areas such as penetration testing, forensic analysis and security architecture. Although there's some infrastructure currently in place to support the upskilling of existing staff and

new recruits, there isn't nearly enough, with 25% of employers stating that skills gaps have prevented them from achieving business goals.

What more can the Government do to ensure that employers are able to recruit people with the right skills for the job, including the effective use of apprentices?

25. Please see answer to previous and following question.

What are the skills and training needs of different sectors over the coming months and years? Are there particular case studies that underpin priority policy objectives from the Government (for example, in the energy industry)?

26. Now is a key time across the labour market to look at the technology skills development pipeline through the review of pathways to employment, training, and development. This requires new training models and approaches that include on-the-job training and opportunities that support and signpost workers to opportunities to match their skills. UK government's data suggests that the UK could forfeit as much as £141.5 billion in GDP growth if we fail to close the digital skills gap stressing the need for urgent action in this space.

Expand Help to Grow and offer a Digital Skills & Productivity Tax Credit

27. techUK believes that in order to grow, create jobs, generate investment, the UK economy needs to accelerate the pace of digitalisation. The Government has recognised this developing a welcome agenda to promote digital adoption and digital skills though the Help to Grow: Digital Scheme. While the Help to Grow: Digital scheme is a welcome initiative across the tech sector, it has some limitations.

28. For example, the first wave of the Help to Grow: Digital scheme was launched with a limited software offering of CRM, accounting, and e-commerce. In future waves, BEIS could consider expanding the number of technologies the scheme covers, including payroll and HR and communication tools that enable hybrid teams to collaborate productively, with further interactions to support other business software such as advanced communications and marketing. Future waves could also include APIs, or microservices that can be integrated into the existing digital capability, like digital customer engagement tools.

29. Furthermore, SMEs of different sizes have significantly different demands, with larger SMEs (100+ staff) requiring more complex and expensive solutions. While Help to Grow: Digital can eventually support this kind of adoption, the £5000 voucher would have diminishing returns as the size of the SME and complexity of the software option increase. Supporting larger SMEs who use a combination of cloud-based IT systems, online accounting software, and digital training can achieve increased annual turnover of £262,000 compared to those who do not use any of these services.

30. With many businesses now running leaner operations because of the pandemic and the current economic context, there is a real concern that investment in skills and training, which is already low, falls even further down the list of priorities, particularly among SMEs.

31. As a starting point, Help to Grow and other relevant Government programmes could act as gateways to free online digital skills and mentoring resources as an on-ramp to more advanced paid-for provision. This, however, will not be sufficient. techUK therefore recommends the Government to introduce a Digital Skills & Productivity Tax Credit to

incentivise companies, particularly larger SMEs, to invest in training their workforce as well as to adopt productivity-enhancing technologies in their business models.

32. This incentive should be deductible against retraining programmes and larger and more complex digital adoption projects (including integration and training costs). This incentive can also be used not just for finished software products, but also tools that support businesses in building their own digital customer engagement tools, expanding the existing digital capability companies already have.
The Digital Skills & Productivity Tax Credit can be designed in a similar way to the R&D Tax Credit which has been shown to bring important social and economic benefits beyond the businesses that claim it. This tax relief can also help SMEs reduce lost earnings for those periods in which the company is adapting to the new technology, as well as offset other costs such as the training itself. Providing additional incentives and support for SMEs to meet their desire for tech adoption has a huge payoff. Economic modelling shows that further £232 billion GVA per year could be unlocked through effective action by government to encourage digital adoption, illustrating how digital adoption can boost the growth of the UK economy.

Make more of apprenticeships and sustainable reform of the Apprenticeship Levy

Building up a tech talent pool requires investment in education and training. Tech companies are committed to building a strong domestic talent pipeline and are aligning future industry skills needs with pipeline development. The tech industry remains engaged in retraining and upskilling by increasing trainee and apprenticeships programmes and supporting the shaping of T-levels.

33. The Apprenticeship Levy is an important part of the changes to raise apprenticeship quality and supports techUK members to make a long-term and sustainable investment in skills and training. However, the number of apprenticeship starts since the introduction of the levy in 2017 has fallen year-on-year, with 23,400 fewer people participating in an apprenticeship in 2019-20 than in 2018-19, according to official figures.

34. Now is the time to institute a full review of the Apprenticeship Levy to ensure that it is working for tech businesses small and large. Engineering and Manufacturing Technologies and ICT apprenticeships continue to remain in the top six sector areas of apprenticeship starts in England, with 81,000 starts in 2018. Employers should be further encouraged to invest in skills to maximise the number of apprenticeships and the effectiveness of the levy. This should include increasing the percentage of unspent funds from levy-payers that can be transferred to smaller companies in their ecosystem and supply chain. Currently, the bureaucracy and complexity of the levy has left funds going unspent, with smaller businesses missing out. To combat stagnant apprenticeship growth in companies, techUK recommends reforming the apprenticeship levy to increase the lifetime of apprenticeship levy funds from two to five years and increasing the transferable funds rate from 25% to 80%.

35. Businesses are crying out for highly skilled people and degree apprenticeships offer a unique opportunity for them to develop the skilled workforce they need for the future. They are a fantastic option with many students being offered serious salaries while getting university level qualifications. TechSkills, a techUK company, is a not-for-profit, employer-led organisation responsible for Tech Industry Gold, the industry accreditation for education and training relevant to digital and tech careers. The Tech Industry Gold accreditation programmes deliver job-readiness for digital and tech careers, meeting industry standards

for quality and relevance to employment. The accreditation is the result of a unique collaboration between universities and industry successfully addressing the historically low employment rates of computer science graduates. The results from this collaboration have been exceptional, reducing unemployment rates from 8% to 3% when compared to traditional computer science degrees, whilst also encouraging greater diversity, doubling the proportion of females on programmes with 37% of graduates identifying as BAME.

Provide fuller guidance on pathways into a digital job

36. Both Government and businesses across the UK are working together to improve careers advice in schools so that young people are aware of the high-quality options available for both technical and academic routes into digital careers, and that they have access to information about the variety of careers that digital technology pathways have to offer. But there is more we can do to highlight the number and breath of opportunities available for people of all ages and all skill levels. techUK is a part of the consortium developing the UK Cyber Security Council which will look to develop clearer career pathways and support the profession. Instigated by Government but delivered by a coalition of industry partners, this is a good example of progress that can be made together.

Work to expand short modular digital skills courses that focus on job readiness

37. techUK and TechSkills are leading the debate on how government and industry can work together to champion and expand the development and take up of short modular courses, including bootcamps. They have been proven to be a flexible, affordable, and effective route for learners to acquire productive digital skills that are valued by employers.

38. For example, IBM SkillsBuild is an online learning platform that aims to upskill 30 million people globally by 2030. While Uber has established a partnership with the Open University to provide free flexible degree courses and access to free short courses for their drivers (or one of their family members), supporting flexible earning and learning around other commitments. These types of more modular learning can drive lifelong skill building and offer easier avenues for people transitioning between sectors.

39. By helping fund bite-sized industry-led training designed to fit around the learner and their life, we can address some of the biggest barriers to training and skilling. Remote learning also increases accessibility and with increasing availability of online and virtual digital skills training, organisations are able to build a more inclusive workforce with up-to-date digital skills.

Replicate AI Masters conversion courses to other digital sectors

40. techUK has welcomed joint government-industry collaborations to drive up AI skills in the UK. The UK has had success in the creation of AI Masters conversion courses which enable graduates to do further study courses in the field even if their undergraduate course is not directly related. Supported by techUK members including Deepmind, QuantumBlack, Cisco, BAE Systems, Infosys, and Accenture, this programme has enabled 2,500 people to develop new digital skills or retrain to help find new employment in the UK's cutting-edge AI and data science sectors.

41. The UK Government could help deliver further training opportunities, working to develop post-graduate certificates to fill key missing gaps; and education programs that accelerate

cross-disciplinary programs and bridge engineering, science, business, and social sciences to develop graduates with an understanding of the huge potential of technologies such as quantum from a technological and business perspective. These programmes could also fund studies on the societal and ethical considerations of such technologies, where the UK could grow as a leader. Creating a steady pipeline of tech talent is imperative to the UK remaining a leader in the AI and data revolution and these partnerships are needed to develop the next generation of tech talent.

Develop an online 'Digital Skills Toolkit 2.0' to help people navigate to digital skills and careers

42. techUK wants to work with the Government to deliver a transformational package to ensure every individual has the opportunity to explore and build a digital skills portfolio that enables them to access the jobs of the future. Building on the success of the Government's Skills Toolkit, an end-to-end 'Digital Skills Toolkit 2.0' should be developed to make digital opportunities and pathways more transparent and accessible to more people. It would enable people across all areas of society to understand the digital job opportunities available to them and the skills pathways to access those jobs.

Artificial Intelligence (AI) and technology in the workplace

How is AI currently being used in the workplace? Is it more prevalent in some sectors than others?

43. Within organisations, data analytics and AI are increasingly being deployed by businesses to accelerate processes and decision-making. For example, in human resources, organisations are utilising AI to undertake tasks including work allocation and resourcing, assessing skill levels and training needs, risk and reputation management, fraud detection, as well as supporting diversity and inclusion. More broadly, the most common AI solutions within organisations are focused on data management and big data analysis. This analysis may be around sales and innovation trends and supply chains, for example, or to understand and act on energy usage.

    There are many different reports and studies on AI adoption and how different sectors and industries compare. For example, research by EY commissioned by DCMS on data foundation and AI adoption from August 2021 showed that AI adoption was high in sectors including finance, technology, media and telecoms. What is clear is that there is a wide variety of uptake across sectors. For example, 30% of businesses in the legal sector have adopted some form of AI compared to only around 12% in retail and hospitality.

    However, a recent global poll found that the population of Great Britain are among the most sceptical of AI use, with only 35% saying they trust a company using AI as much as they trust a company which does not. One way to help secure greater public trust is by adopting a clear and transparent approach to AI governance, which facilitates informed engagement. techUK makes several recommendations in its position paper on governance for an AI future on how to increase public trust.

    The ability to effectively operationalise AI depends on significant upfront investment of both technical infrastructure and people, including: business domain and subject matter experts, data scientists, data engineers and software developers who can build data pipelines, optimise Machine Learning (ML) models and deploy them onto software systems. These costs along with often large timescales for AI deployment, and the difficulty in quantifying

returns on investment, act as major barriers to AI use in many business sectors. For a more diverse range of sectors to benefit from what AI has to offer, we need to be proactive in removing the barriers to adoption. This includes focusing on some of the largest sectors in the UK, such as retail and manufacturing, where AI is currently only used to a very limited extent. Identifying how these sectors may benefit from greater uptake of AI technologies, and how we can help to increase the knowledge of and confidence in their uses, is a priority for techUK.

Is AI improving productivity in the workplace?

As organisations gather increasingly more data on their business practices, AI is enabling them to analyse this data for efficiency and productivity gains. An IBM report found that 85% of advanced adopters of AI are reducing operating costs across numerous areas, including process efficiency, supply chain and production, and headcount efficiency.

AI also has the potential to support increases in labour productivity in the UK by 25% by 2035. Four out of five UK organisations who have already implemented AI said this has made their employees more productive, improved their decision-making and made their processes more efficient. This is not only beneficial for businesses; the effective use of AI has also been welcomed by employees too. A 2021 SnapLogic survey of office workers in the US and UK found that 81% of employees believe AI improves their overall performance at work, with 68% calling for their employers to deploy more AI-based technologies to support their work.

Examples of where AI has been deployed effectively to support businesses and employees include:

- In financial services and accounting, AI is supporting the processing and authorisation of tasks like invoicing and expense reports, whilst AI models are also being used to manage risk with one organisation improving their digital resolution rate for fraud by 100%.
- In healthcare, intelligent automation and AI is being used for high-volume tasks and manual processes to free up resources, to boost employee and citizen experience and enable smarter decision making through large and ongoing data analysis.
- In human resources, automation and AI is being used to enable faster and more consistent on and offboarding experiences, as well as support in recruitment. A client of a techUK member managing 100+ employee lifecycle requests per month saved 40 hours on manual tasks across their IT team through employee lifecycle management automation.

How are companies monitoring workers and setting performance targets through algorithms? Is this practice widespread? To what extent are employers using algorithms in recruitment? How well does existing regulation protect workers from the risks posed by AI and algorithms in the modern workplace?

44. In the area of recruitment there are AI products and services, such as algorithmic driven machine learning, that have been developed and are being used to support employers. According to a Gartner report 38% of companies use AI for recruitment. For example, tools developed can support HR professionals to remove repetitive administrative tasks such as those in recruitment, freeing up more time for HR experts to engage and interact with candidates and respond to employees needs and wants.

45. Whilst evaluating, recalibrating, and testing AI systems to counter bias is important, it is key to remember that the ability to review a decision made by an automated decision-making

system, and explain how a decision was reached, already exists. For example, in an employment situation if bias may have entered in a system and resulted in an individual being discriminated against, a grievance process can be followed. It is also important to remember that existing discrimination and employment laws still apply meaning that individuals can receive redress if appropriate.

46. In fact, AI in recruitment is being deployed with the purpose of mitigating bias in traditional decision-making processes and ensuring fairness across all stages of process, including job adverts, talent screening, blind recruiting, and interviews. MeVitae, a techUK member, utilises Augmented Intelligence – a deep learning system capable of processing data just like humans, but free of distortions – to offer recruitment solutions around blind recruiting. Organisations that utilise these solutions have confirmed that they receive twice as many applicants than when using traditional recruitment methods. Moreover, employers are increasingly using AI and advanced analytics to identify diversity, equality and inclusion issues in their recruitment pipelines and suggest fixes.

47. In addition, many of the concerns regarding the use of AI technologies, such as algorithmic driven machine learning, are focused on how data is being used in these systems. These systems are therefore regulated under the UK's data protection framework.

Will well-paid skilled jobs be lost to AI, as well as routine manual tasks that already have?

48. While the evolution of AI will undoubtedly bring changes – just as the invention of the printing press, the industrial revolution, and the birth of the internet before them – it is important that this debate considers the possible impact on current jobs but also the opportunities that this new era of technological innovation will bring.
49. The increased use of AI in the workplace will mean that the nature of many jobs will change. However, the adoption and use of AI will also create opportunities for the creation of new, innovative roles. A report by the World Economic Forum estimates that whilst 85 million jobs will be replaced by machines with AI by 2025, automation and AI may prompt an increase in new positions. These new positions will include AI trainers and data scientists, with an emphasis on skills such as data handling, modelling and analysis and machine learning, as well as roles where humans will work supported by AI technology.

50. The adoption of AI will free up human resources that can be used to undertake more productive, value creating activity and roles, aided by technology. A McKinsey study found that women were more likely than men to have their jobs partially automated, leaving room for women to work alongside machines. In an emergency room in 2030, for instance, health workers could spend less time doing clerical work (due to the adoption of preregistration by mobile phone and computerised checkout and billing) and physical work, but more time interacting with patients, and using their emotional intelligence. This new wave of tech is nothing to fear. Work may become more interesting and stimulating.

51. In any case, AI will not be able to replace human judgment and humans will be required to work alongside technology in the jobs of the future. As AI develops, it will still be the responsibility of humans to decide upon, teach and deploy these technologies. It is thus critical that workers are equipped with the skills they need to thrive in the technology-supported workplace of the future.

52. Please see techUK's answers to the questions under the heading 'The state of play in the UK labour market post-Brexit and the impact of the covid-19 pandemic on recruitment, skills shortages and the growth of the labour market' for our positions around developing the digital and tech skills the UK needs.

How should the Government protect workers and prepare them for this new future?

53. Research from Nesta indicates that, as a result of technological progress and changing demographics, more than 6 million people in the UK are currently employed in occupations that are likely to change radically or disappear entirely by 2030. There are huge structural shifts taking place in the global labour market and, in particular, the impact of automation. Children in primary school today will enter a labour market that is likely to have been significantly reshaped by automation. The long-term challenge of levelling-up can only be met if we educate the children of today for the jobs of tomorrow. There is a need for concerted action to understand how we can best equip the next generation for meaningful work and to identify and implement the changes required in traditional and non-traditional educational settings.

54. Currently, an average of 71% of total task hours across the industries covered in the World Economic Forum Future of Jobs Report is performed by humans, compared to 29% of total task hours performed by machines or algorithms. By 2022 this average is expected to have shifted to 58% of total task hours performed by humans, and 42% of total task hours performed by machines or algorithms. People will have no choice but to re-skill or upgrade themselves to perform new tasks that future jobs will demand.

    Please see techUK's answers to the questions under the heading 'The state of play in the UK labour market post-Brexit and the impact of the covid-19 pandemic on recruitment, skills shortages and the growth of the labour market' for our positions around developing the digital and tech skills the UK needs.

How will workers be supported to adapt to the changing skills that growing use of AI will require of them?

Adapting the curriculum to ensure young people today are equipped for the jobs of tomorrow is vital. techUK surveyed parents working in tech to find out what they thought the future of work held for their children. Parents working in tech roles are not convinced that, as it stands, the education system will help develop the opportunities required for their children. 73% of those surveyed felt the curriculum did not place sufficient emphasis on the types of skills that would become more vital in the future world of work – with 90% believing their children would need to retrain throughout their lives to keep up with the pace of technological change. The need for us all to embrace a culture of lifelong learning has been core to everything techUK does.

As the pace of technological change moves rapidly, schools must understand and consider how foundational subjects like mathematics teach content that form the basis of many AI models and will be key in designing them in the future. An understanding of chance, probability and risk, and the differences and similarities between them, are an example of skills that are integral to understand bias and the implications of bias in AI models. However, teaching soft skills will be equally important, with businesses valuing traits like adaptability, time management, teamwork, and communication as indicative of candidates who will be able to learn new skills as new tech emerges.

For those in work, there will be a need to retrain and upskill continuously throughout their career. techUK believes that workers must be supported to do so by opening up pathways into digital jobs – which will eventually become all jobs – and increasing awareness; providing access to short, modular, flexible learning; and supporting businesses and individuals to invest in digital skills training. Please see our answers to the questions under the heading 'The state of play in the UK labour market post-Brexit and the impact of the covid-19 pandemic on recruitment, skills shortages and the growth of the labour market' for our positions around developing the digital and tech skills the UK needs.

Workers' rights and protections

What can the Government do to improve protection for people in low-paid work and the gig economy?

55. At present, there is a lack of clarity and policy certainty for individuals and businesses around the employment status of gig economy workers. This lack of clarity creates uncertainty around the types of rights and entitlements that individuals undertaking such work have and the protections and benefits which businesses can provide without the risk that these benefits will be viewed as evidence of an employment relationship.

56. techUK believes that government should seek to implement the recommendations of the Taylor Review that address this uncertainty, such as publishing non-statutory guidance on how employment status definitions work in practice and an improved online tool to help individuals and businesses understand their rights and obligations. techUK understands that BEIS guidance on this is imminent and we are keen to review.

57. Whilst trade unions are increasingly recognising self-employment as an alternative to traditional employment and offering benefits within that framework, developments in the employment space as it relates to gig economy work in the UK to date have, largely, been driven by legal cases and court judgments. The risk of being taken to court or workers being reclassified not only has a chilling effect on innovation, but also does not provide the right incentives for businesses to offer benefits such as payments when individuals are unable to work due to illness, or payments on the birth of a child, especially smaller firms who do not have the resources to assume additional risk. By providing certainty to individuals and businesses, gig economy firms of all shapes and sizes will be enabled to provide additional benefits to workers.

58. Another impact of the 'regulation by court' approach is that there is not a level playing field for gig economy firms to compete, including how they work with individuals, for example in the PHV ride hailing sector. Different platforms engage with gig economy workers in different ways. techUK has stressed the need for certainty and guidance but it is clear that 'gig work' is not homogenous.

59. The different obligations and responsibilities of work mean that the relationship between platforms/clients and individuals will be different, resulting in differing employment classifications. techUK believes Government should move now to create a Single Enforcement Body, as part of introducing the previously announced Employment Bill, tasked with ensuring consistent and clear obligations for gig economy firms to deliver a fair and competitive market that protects flexibility for individuals and businesses whilst providing

protections for *all* gig economy workers and enabling platforms to offer protections in a way which reflects the way those in the gig economy work in practice.

60. techUK would like to highlight that we should not conflate low-paid work and the gig economy. Many chose to work in gig economy because it provides flexibility and strong earnings potential. It may be unhelpful to associate a discussion about work in the gig economy with a question about low-paid work. A majority of gig economy workers are paid more than the National Minimum Wage and the recommendations we set out would help to tackle any issues of low pay.

Employment status and modern working practices five years on from the Taylor Review

How are working patterns changing in the UK? To what extent is the gig economy growing and permanent full-time employment contracts in decline?

61. In 2018, a BEIS survey showed that 4.4% of the population in Great Britain had worked in the gig economy in the last 12 months. When surveyed, 42% of those involved in the gig economy had carried out courier services in the last 12 months. 37% performed 'other jobs found through websites or apps'. Other major work activities undertaken were the provision of transport services 28% and food delivery services 21%.

62. A more recent study conducted by Britain Thinks and the University of Hertfordshire and published by the Trades Union Congress found that the gig economy workforce has trebled in the last 5 years. The research showed 15% of adults found work through online platforms at least once a week in 2021, an increase from 5% in 2016. In addition, almost 22.6% of workers have done platform work at some point, an increase from 11.5% in 2016.

63. Whilst the TUC study provides helpful statistics to quantify the growth of the gig economy, techUK does not agree with the view that gig economy work must mean poor conditions. Gig work offers something which traditional employment cannot: flexibility to work if, when and for however long you want. The increase in the percentage of the population taking up gig work is a reflection of the fact that technology has enabled people to fulfil their desire to be their own boss and determine their own way of working. It enables people who might otherwise be unable or unwilling to fit into the constraints of traditional employment (for example, parents, the retired, carers or students) with opportunities to fit work around their lives and earn money when they want. What's more, many gig economy firms are eager to go much further on worker protections if they are enabled to do so, and action or guidance from government can look to ensure those protections are realised in every such firm.

64. For the tech sector, the gig economy is broader than just transport or courier services, with organisations, for example, leveraging online freelancers and microwork to support with software development or troubleshooting. According to the Online Labour Index from the Oxford Internet Institute, in the UK 32% of the online gig economy – that is, excluding platforms for local gigs – is focused on software development and technology. The prevalence of online gig economy work has grown over the last 6 years but, whilst online gig economy work in the UK peaked in April 2022, it has largely returned to the same level as when the pandemic began.

65. Gig economy firms are seeing a growth in workers from across different sections of society, including those with families or caring responsibilities. As such, it can offer an additional way

of working for those who might otherwise be unable to work, rather than acting as a direct substitute for traditional employment. The gig economy is not just about any one gig, but rather a new flexible way of working. techUK believes that the future UK labour force will be characterised by a mix of full-time employees, contract and freelance talent working together in a flexible way. Gig economy work will play an important role in the total workforce and government must act to enable individuals and businesses in the UK to fully reap the benefits.

What should the Government be doing five years on from the Taylor review of modern working practices to address the issues raised in that report?

66. As outlined, techUK believes that government must seek to provide certainty around employment status and create the conditions for a fair and equal market for both businesses and individuals. The key principles of the Taylor Review can only be realised across the UK labour force once these longstanding gaps in the UK's approach are rectified.

67. Gig economy firms are committed to driving good and fair work and supporting workers but must be enabled to do so. Indeed, some firms have even sought to provide sick pay and maternity/paternity pay (or lump sum payments upon birth of a child[1]) but have been forced to find other mechanisms or means to offer such support to its workers due to the legal risk.

68. Government should also recognise the growth in flexible working across the economy following the pandemic and align its actions around these labour market trends with broader national objectives. techUK expands on this point in response to the following question.

    techUK believes that metrics on wages in the gig economy are important. Government is currently using old data/metrics relating to pay and hours worked to drive up standards, but their measurements do not reflect how much of the UK labour market operates today. It is clear that government needs ensure it has a sustainable way of evaluating good wages and work to drive industry standards. The Mayor of London and the Living Wage Foundation have worked together to fund a digital service for gig economy workers that analyses expenditure and remuneration data to provide insights that help them understand their take-home pay and if they are paid the London Living Wage. techUK is a Living Wage Employers and supports the Foundation.

How have employee demands and employer offers of flexible working been affected by the pandemic? How should this affect Government plans and commitments around flexible working?

69. The pandemic accelerated the digital adoption plans of 85% of UK employers. Data from the ONS showed that the UK was already seeing growth (albeit slow) in the number of employees working from home before the pandemic with around 5% of workers reporting that they worked mainly from home. This growth was accelerated during the pandemic, and in February 2022 84% of workers who had to work from home as a result of the pandemic said they planned to carry out a mix of working at home and in their place of work in the future, with the proportion of workers hybrid working rising from 13% in early February 2022 to 24% in May 2022. Such hybrid working patterns have also shifted, with more people spending most working hours at home.

[1] (provided to self-employed contractors in lieu of maternity/paternity leave, which it is impossible to provide when there is no obligation to work in the first place, and therefore no ability to provide "leave" of absence)

70. Research on the views of workers, business leaders and senior decision makers in the UK has revealed that UK businesses are largely supportive of flexible working. A survey by the Institute for Directors found that 79% of UK bosses intend to adopt remote working in the long term, a separate survey of managers by the Chartered Institute of Management put the figure at 84% and described hybrid work as 'best practice'. Employees are increasingly putting a premium on flexible working, with a 2022 Envoy report showing that, for workers who go into the office at least some of the time, the majority would prefer to work hybrid. The same report highlighted that flexible work options are now just as important as traditional benefits such as matching pension and paid holiday leave or therapy and mental health days for UK workers, and employees feel they are more productive working from home.

71. The tech industry has seen the conversation on flexible working shift due to the pandemic, with flexible working models becoming ever more commonplace. Companies large and small from across our membership are adopting hybrid approaches with flexibility as the default and no mandated days per week in the office. A recent study by Zoom found that 78% of large UK businesses surveyed 'could not have survived' the pandemic without video conferencing, 87% of UK businesses surveyed expect video conferencing to be 'essential' to their business post pandemic and that UK SMEs using video conferencing grew from 20% to 82% during pandemic. Government should seek to expand the Help to Grow: Digital scheme to support SMEs with adopting the tools they need to adopt flexible working practices and thrive.

72. Flexible working in the UK would bring myriad benefits and align with the wider ambitions of government. Hybrid work can support levelling up by creating opportunities for citizens regardless of location whilst enhancing business performance and productivity. One larger member conducted a survey of their employees across over 25 markets on their hybrid working model and found improvements across work performance and productivity, employee wellbeing, employee's work-life balance, and increased confidence. Moreover, flexible working arrangements may also improve opportunities for people to work who may otherwise be unable or find it difficult, perhaps owing to care responsibilities. For example, flexible working can enable more opportunities for women in work, in turn improving inclusion and narrowing gender pay gaps.

73. techUK and its members therefore believe that Government must take action to embrace flexible working. This includes making the right to request flexible work available to all employees on day 1, adopting flexible working practices across the public sector, and providing guidance to drive flexible work across the economy. Government should also consider how initiatives such as funding local co-working hubs can facilitate such work whilst encouraging high street footfall and supporting the growth of local economies as more people conduct their work locally. This should form part of the ongoing Future of Work Review led by Matt Warman MP.

74. There is some practical guidance on flexible working out there, such as that stemming from the work of the Flexible Working Taskforce. techUK is keen to support the Taskforce to ensure the digital sector's voice is championed, and to highlight the ways in which the tech industry is encouraging the uptake of flexible working while keeping employee wellbeing at the forefront of considerations. Further such guidance would be welcome, especially if case studies for different size organisations (from start-ups and scale-ups to SMEs to large) are showcased. The Government Equalities Office has produced a number of guidance

documents that have proven beneficial to employers—guidance and best practice on flexible working and informal flexible working practices could be replicated in the same way.

75. However, as techUK outlined in its response to the Government consultation 'Making flexible working the default', it should be noted that some roles cannot be done at home, such as retail roles or on-site infrastructure roles. This day 1 right could conflict with business or customer needs and security so we must consider businesses rights to refuse. But most businesses who have the digital capability, where it is suitable for the job role, should offer employees this right as a default from the start of their contracts.

76. techUK is also keen to stress that this definition of flexible working is quite wide. Flexible working does not only mean working from home but also includes: job shares; compressed hours; part-time concessions; remote, hybrid, and digital-nomad models that are entering the mainstream of ways of working. As such, any definition of flexible working will likely need to be reconsidered by Government in the future. techUK believes that companies should define flexible and hybrid working with regard to their specific organisational context. This might include several different forms of flexible working, even within one organisation, depending on role requirements.

Are there particular types of work, for example night-time or shift work, which warrant further consideration in respect of the impact of that work on workers?

Digital nomads

77. The proliferation of digital technologies that facilitate remote and hybrid working has ushered in the growth of a new subsection of the labour force that is location-independent and uses technology to perform their job: digital nomads.

78. As more people take up such forms of work, the UK must be cognizant of potential impacts around tax, pensions, and national insurance contributions. Moreover, as national job markets are opened up to individuals based in other countries, it is imperative that the UK consider its position in the global economy and how it can remain an attractive place for talent that can choose to live or work anywhere in the world.

79. The UK should look to countries such as Estonia and Portugal who have sought to create tax incentives and visa schemes, such as e-residency, to attract nomad workers and strike the right balance between attracting innovators while also preventing tax uncertainty and evasion.

Contractors

80. Contractoruk.com found that IT contractor demand surged to a 23-year high in May 2021 to levels not recorded since 1998. This was backed up by REC's Chief Executive Neil Carberry who confirmed there was a "huge bounce in hiring during Q2." Industry professionals have been quick to report that the contract market overall is at its highest level of demand, growing faster than it has over the last six years, and boasting the highest starting rates it's seen. However, Hays Technology have found that 91% of employers have found it difficult to hire contractors over the last 12 months, even though 57% of employers increased contractor day rates over the last year. Additionally, 48% of contractors want their next role to be based fully remotely.