



Just Transition to Net Zero Wales

Welsh Government Consultation

Ufi VocTech Trust Response

15 March 2023

Executive Summary

At a time when Wales and the rest of the UK are facing an acute skills crisis, the transition to a net zero future presents an additional and significant skills challenge. Historically, we have sort to addresses skills shortages by focusing on what is needed today. Missing that the challenge of preparing for a more complex and changeable future requires us instead to address the inadequacies of the skills system itself. It is only by creating a more flexible, modular and tech-enabled skills system that we will be able to ensure everyone in Wales, and the UK as a whole, can get the skills they need to help us transition to a net zero future.

By creating a better skills system, we can address the present challenges and create the capacity to adapt and deliver the skills we will need in the future. Increasing the development and deployment of technology in skills can form a critical part of a systems-led approach to resolving upskilling and reskilling challenges.

Across all sectors of the economy at least 24% of current vacancies are proving hard to fill because of skills shortages¹, and only 8% of people who left school at 16 intending to learn in the next three years². A 34% decline in student interest in engineering and manufacturing technologies³, key to a carbon zero economy, means there is a serious threat to our economic capacity.

The good news is that we have the tools to improve the skills market, making it more accessible, higher quality and more adaptable. To make this change, we are keen to see a comprehensive systems-based approach to skills in Wales that is based on a modular, flexible, and tech-enabled approach to learning, that can better integrate gamification, modular learning, and well-designed digital pedagogies to bring employers and other stakeholders with it; creating new sets of standards is unlikely to achieve this.

Work in Wales is heavily tied to localities and the proximity of key industries and workforce mobility has often been limited by income, skills, and house price barriers. Instant access to technology-led training could be vital to surmounting some of these challenges.

Digital technology is transforming how we acquire skills and how we prepare for the future of work; by integrating technology across Wales's skills system, we could open access to all forms of adult learning. Technology, like gamification, digital or online learning, and personalised mobile learning, offers tried and tested methods of delivering training that is adaptable to the lives of Welsh learners and workers, online with flexibility over when to study, so that nobody is left behind.

¹ Department for Education, *Employer Skills Survey*, 2019, [link](#)

² Learning and Work Institute, *Adult Participation in Learning*, 2022, [link](#)

³ Engineering UK, *Fit for the future*, January 2023, [link](#)

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We believe the Welsh Government must see such innovations as a core part of the wider debate on skills reform and would be delighted to discuss further how Wales can better integrate technology to support skills for net zero.

Introduction to Ufi VocTech Trust

Ufi VocTech Trust is an independent charity. Our aim is to help improve vocational skills in the UK's workforce by funding digital solutions for vocational learning. We do this by providing funding and expertise to organisations developing and deploying tech for use in adult vocational education.

We have provided over £25m to over 280 organisations and invested over £3.2m in ventures developing technology and digital tools for adult learners. In the last year, our funding has impacted over 1,000,000 learners in sectors across the entire breadth of the UK's economy. We champion the power of technology to improve skills for work and deliver better outcomes for all.

We act as a funding partner and advocate for innovators in skills development, looking to help people progress in the workplace. We want to see a fundamental shift in how individuals, employers, and our society view, embrace and benefit from vocational skills development through digital innovation. With the UK as a whole facing an unprecedented skills crisis, we know that technology has the capacity to improve how adults across the country get the skills they need now and for the future of work.

We have been helping Wales to make more innovative use of technology, providing people with the capacity to prepare for a just transition to a cleaner, greener world, developing projects and ventures that use technology in the delivery of training. In our response, we provide a series of illustrative case studies that showcase how technology might be effectively developed and deployed to support the transformation of Wales's skills system through the smarter use of technology.

Inquiry Response

In this submission we have responded to questions 13, 14 and 15, that cover evidence around the net zero skills that Wales needs, evidence which demonstrates that additional support is required to develop Wales's carbon zero skills, and gaps between the present provision and that which is needed if a just transition is to be achieved. While the skills required by consumers to engage with new technologies and processes also need to be identified and addressed, our response focuses on the vocational skills that the Welsh labour market will need and the value that vocational technology can bring to expedite these changes.

Wales can transform its skills delivery landscape by looking at the system in its entirety and making better use of digital tools and pedagogies that provide learners, teachers and employers with the capacity to better prepare for a just transition to a cleaner, greener world.

We need to shift our thinking to one that accepts and encourages lifelong learning as the default, where technology is baked into the solutions that governments, educators and businesses reach for. By better developing and deploying technology as part of a systems-based approach to skills, Wales can provide people with the motivation and opportunity to learn throughout their lives in a way that makes sense to each person, place, and business.

There is no agreed definition of a 'green skill' and it is no longer possible to view green economy skills within traditional industry silos of energy, manufacturing etc; instead, we see a continuum that allows many of the skills present in non-green jobs to be transferred to green jobs in new roles in areas such as housing, heating, electrical installation, and land and nature restoration that will be created as part of the upskilling of the Welsh labour market, as the decarbonisation of the Welsh economy takes effect.

Training will need to reflect the reskilling of those who operate in those traditional sectors that will be affected by the transition, so their existing skill sets can be adapted. In short supply are high-level analytical and technical experts, connected to the design, production, and management of environmental technologies; identifying trainers at this level, who can reskill existing workers, will be crucial to a successful transition and will require experienced over-50s in Wales to play a role in this transition, a demographic whose relative presence in the labour market, in Wales and across the UK, has declined since the Covid pandemic. This is a dual challenge for the labour market: at the one end not having enough people with the skills and potential to train others to acquire the skills that businesses are looking for, and at the other, trying to get people into work and ensuring they don't drop out of long-term work.

Case Study: [TimberTED](#), at Edinburgh Napier University Development Trust

TimberTED demonstrates the ability of technology to improve assessment in the offsite timber construction industry. There is an acute shortage of people with accredited skills in offsite timber construction. Current qualifications don't match industry innovation, with many learners and professionals unaware of the new technical knowledge and skills needed for the manufacturing-line approach to building. The TimberTED project is providing construction students and professionals with online flexible training modules to upskill and gain a recognised, accredited qualification with a bespoke digital assessment tool. Similar tools, used throughout post-16 qualifications and suitable for further education and employers delivering in-house training, have the capacity to enhance existing CPD and improve formal qualifications. While the specific

challenges of the offsite timber construction industry are niche, the TimberTED project demonstrates technology's ability to adapt and provide students with new and effective methods of developing and then assessing their skills. It is by applying a pedagogical approach which has technology at its core, that the bespoke problems of an industry have been addressed with a more adaptable and suitable result achieved for learners.

A just transition that involves well-paid jobs with career progression in sustainable sectors of the economy, while also seeking a just distribution of burdens and benefits for workers and affected communities, is a challenge on an unprecedented scale that has never been attempted before, and which each nation in the UK is approaching in different ways, and to differing extents. As most Welsh emissions occur in non-devolved policy areas, Wales will need to continue to rely on the UK Government to help it to deliver Carbon 2. Carbon 3 will require Wales to do even more, with dramatic reductions in carbon emissions; if done without regard to impact, this could have immense consequences on levels of unemployment, living standards and people's access to energy supplies.

While each geographic area in Wales faces distinct skills challenges and has a different combination of assets with which to respond to the opportunities presented by the transition, Wales has rightly chosen to develop national solutions via a skills plan that seeks to takes everyone with it, so that the burden doesn't fall on those shoulders that are least able to bear it.

The good news is that we have the tools to provide people with the opportunity to learn throughout their lives by adopting greater use of micro-credentials, digital bite-sized learning, and personalised mobile learning which offer a tried-and-tested method of delivering lifelong upskilling that is accessible and adaptable. We need to shift our mode of thinking to one that accepts and encourages lifelong learning as the default and where technology is baked into the solutions that governments, educators and businesses reach for.

Case study: [Blockchain, Badging, and ePortfolios for Skills](#) at City of Glasgow College

A Ufi funded project with the City of Glasgow College is developing a blockchain based method of reliable and verifiable digital certification. Records are held and controlled by learners and can be used to prove to future employers what specific assessments they have passed. This allows the qualifications to maintain their relevance to students while also ensuring even higher levels of security. This project also looked at the inclusion of micro-credentials, which can allow for small scale skills development to be tracked and accredited as part of larger units of study. These more specific, and often work relevant skills can then be reliably proven to future employers. A system that relies on paper certificates is likely to find itself increasingly out of date, both in terms of security and learner relevance. Technology has the capacity to increase the ways students can prove what they have learnt, making it more relevant to them and their future employers, whilst maintaining the highest levels of security.

We can already see that the transformation to a low carbon economy is increasing demand for new skills, with the risk that this transition could create skills gaps in new and modernised industries and cause adverse impacts for workers in declining sectors, or for those who will face challenges in adapting to the requirements of their restructured occupations.

There is the risk that a misdistribution of skills across Wales will be a barrier for some areas to be able to reap the benefits of a low carbon economy. Bringing employers, skills providers and local stakeholders together to resolve local skills mismatches, and to produce skills and labour market analysis to identify local skills and employment challenges that can help to inform a national approach is more likely to succeed than a regionally dispersed approach to skills development in Wales.

A holistic approach is also more likely to remedy concerns that technological change will outpace the capacity of the Welsh skills and training system to respond because of time lags between developing courses and standards and recruiting students. It will also help to ensure that Wales does not reduce its carbon footprint Wales only to import the same from other parts of the UK. This requires a strong local manufacturing base to be aligned to a Wales-wide skills plan.

Successful transition will need cross-connectivity between Government Departments, identifying the responsibilities of each, reducing silos of funding streams, co-ordinating programme delivery as well as identifying how they will collaborate with the UK Government. This may include trying to minimise greater migration of Welsh skilled workers to urban areas, where there may be more lucrative green work opportunities in the short term, only to exacerbate rural areas' shortages of skilled workers that will be needed to subsequently develop, manufacture and install innovative systems and technologies in Wales: if the urban-rural labour market is out of synch, rural areas may face irreversible brain drain. Worse, this may not be only from Welsh rural to urban areas but may also be from Wales to other parts of the UK. This is why a systems-wide calibrated national plan, with technology supporting personal learning accounts, employability and skills plans, apprenticeships, employer mentoring programmes, can help to make learning accessible, engaging and fun.

At Ufi VocTech Trust we always focus on tech to solve real problems in adult vocational learning to provide people with the training and education they need throughout their working lives. To do this people must have a positive relationship with learning and have the confidence and motivation to improve existing skills or develop new ones. Key to ensuring that innovation in skills happens is sharing knowledge, skills, experience, and content, innovating the relationship between private and public sectors, where risk is shared, and new ideas nurtured with solutions that work scaled at pace. In these times when money is constrained it is key that we work together to make the most of the limited time and resources. Having funded over 250 projects we have become expert in understanding how technology can improve skills for work and in delivering better outcomes for all.

Case Study: [WastEd](#) by Wamitab

Training in the waste industry is critical to ensure the safety of all workers. WastEd is a social learning application for the waste and resource management sector, combining the benefits of peer-to-peer learning with the engagement and popularity of social media, gaming, and on-demand news. It supports workers in high-risk environments to overcome barriers to learning, gain confidence and develop new skills. The team was able to identify the 'pain points' of their learners' experiences with traditional learning methods. Many were unconfident in the classroom; ensuring compliance training was completed to industry standards was a challenge. The organisation looked at its core business and reimaged it for the future. In response, a platform is being created with free to use basic functionality, with potential for individual employer-sponsored additional learning modules and games. The application will benefit micro, SME and large waste and resource management businesses in the UK, connecting employees across organisations to share best practice whilst they learn.

Wales has particular areas of need, including maintaining and enhancing the woodland and timber industries that makes it a renewable asset for Welsh farms as a sustainable income, one of numerous sectors that could be enhanced by vocational technology to upskill workers and help them to deliver carbon 2, as we have shown in our TimberTED case study. This could be replicated across other industries that the Welsh Government has deemed a priority, such as flood, hydrometry, telemetry, peatland, specialist engineering skills, skilled nature conservation and environmental skills. In each area not only capacity- and skill-building but broader eco-literacy will be needed across large areas of the workforce, in retrofit building for traditional, listed and historic properties, including farmhouses, one of the biggest rural challenges that Wales faces, and where there is already a critical skills shortage. Wales will need new apprenticeships for hard-to-recruit skills and future occupations, which can be expedited by vocational technology.

Conclusion

Wales can address the skills crisis it faces, like the rest of the UK, and help prepare the UK for a just transition to net zero by supporting the development and deployment of technology to form a critical part of a systems-led approach to adult vocational education.

We have the digital tools to improve the skills market, making it more accessible, higher quality and more adaptable. To make this change, it requires a comprehensive systems-based approach to skills in Wales that is based on a modular, flexible, and tech-enabled approach to learning, that can better integrate gamification, modular learning, and well-designed digital pedagogies to bring employers and other stakeholders with it; creating new sets of standards is unlikely to achieve this.

Our case studies show how to make it easier for businesses to work with their learners, how to support learning for people from diverse backgrounds in different green tech-related areas, and how we can use technology to give people the skills they need for work in real work like scenarios. We believe such innovations should contribute to the wider debate on skills reform and would be delighted to discuss any of the solutions or projects cited in this submission.