

Routes to tech through digital skills provision

The problem



We have a shortage of tech-skilled workers in the UK. Tech job opportunities have hit a 10-year high with the explosion in demand for tech products and services over the past two years, according to new data from [Tech Nation](#). To address this demand, we need to train more people and support them into tech roles starting now and continuing indefinitely and at scale.

Traditional routes to tech, including multi-year university degrees, still have value but cannot produce work-ready talent fast enough to meet the demand. There is a growing need to explore routes to tech through non-traditional digital skills provision, including short courses, bootcamps, and other intensive programmes. These types of non-university programmes were referred to as ‘alternative’ routes to tech in some of our previous work. We are transitioning to use the phrase ‘routes to tech’ to recognise the increasingly established role that all types of digital skills provisions play in providing a pipeline of tech talent.

Our review of non-traditional digital skills provision builds upon the skills provision pipeline that is developing in the UK at all levels. For example, in addition to bootcamps and other advanced non-degree programmes, several of the TTC’s Key Partners operate in this space. [FutureDotNow](#) supports individuals in acquiring essential digital skills for work. Charity [Tech She Can](#) is designing female-friendly apprenticeship opportunities for school leavers, returners, and beyond, and the [Institute of Coding](#) is a consortium of universities and employers designing more flexible, accessible digital skills provision at the higher education level.

Background

The [Tech Talent Charter](#) (TTC) is an industry-led, government-funded membership network (700+ organisations), committed to driving diversity and inclusion in tech and securing the future of the tech talent pipeline for all. In our most recent annual [Diversity in Tech](#) survey, 580 UK businesses identified

the biggest challenges to their D&I efforts. **Attracting diverse talent was the most frequently reported issue and in fifth place was tech skills.**

In 2021, we began a deeper dive into the topic of routes to tech, developing a multi-phase project that has brought together employers, digital skills providers, and government to capture best-practice, areas of need, and suggested ways forward.

During the first phase of the project, we worked with the [Institute of Coding](#) (IoC) and [Attest](#) to undertake research to understand how learners from tech/digital skills providers and other alternative routes into tech were perceived by tech hiring managers. The goal of this phase of work was to understand existing levels of awareness and attitudes towards non-traditional (i.e. non-degree) digital skills programmes and providers.

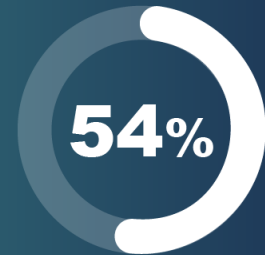
Findings from initial research

In a TTC survey of 250 working-age people in the UK, we asked hiring decision-makers in tech about different tech skills providers. Their overall awareness of these targeted training programmes was high — 89% of respondents knew of them; 54% of whom said they had had direct experience with learners from tech skills providers.

**89% of
tech hiring
decision-makers
know about tech
bootcamps**



**54% of tech hiring
decision-makers have
direct experience
interviewing, hiring
or working with tech
bootcamp graduates**

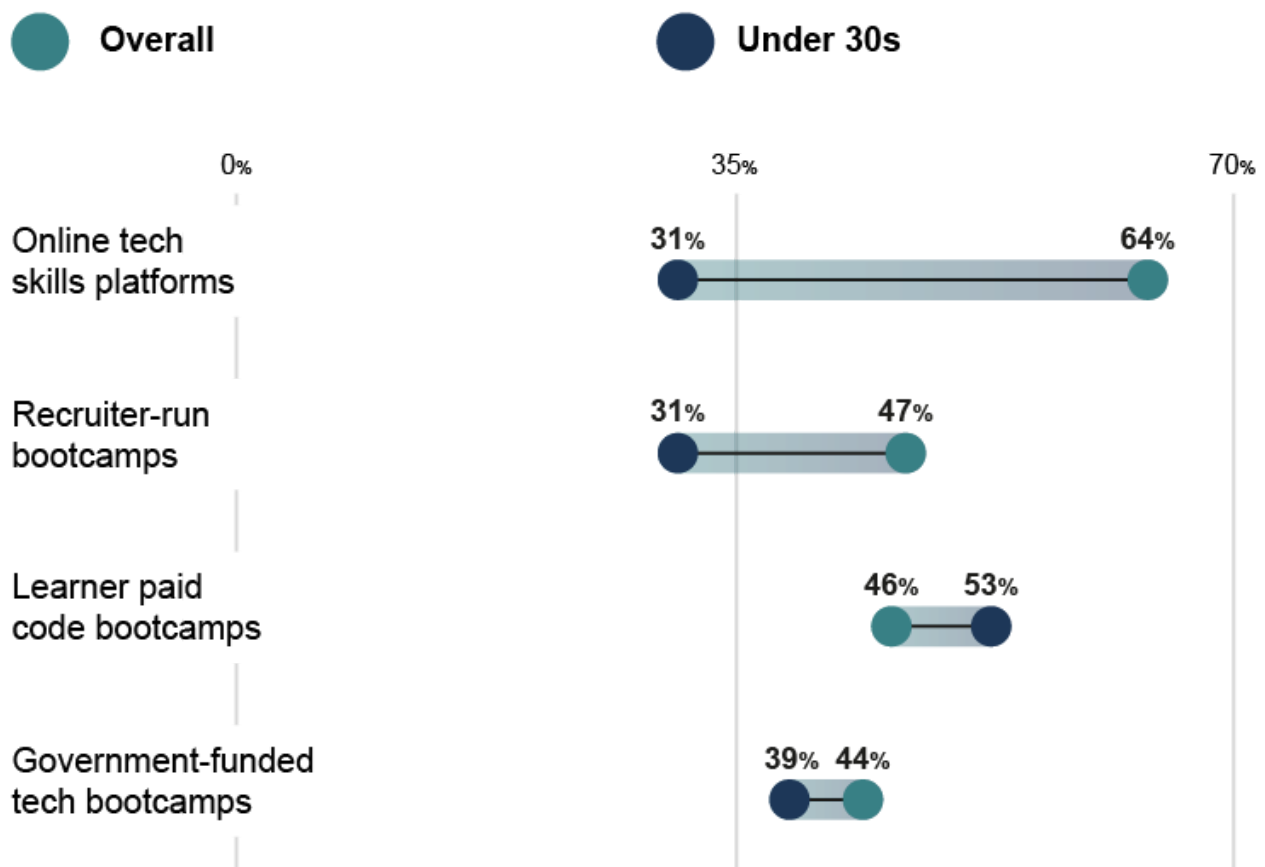


Among those who were aware of tech skills providers, paid and free online platforms such as Codecademy and Udemy emerged as the most widely known — 64% had knowledge of programmes. In comparison, 47% knew about recruitment tech skills providers, while 46% were aware of tech skills providers paid for by learners (e.g. Makers, General Assembly, Le Wagon).

The survey found that younger respondents were less aware of online platforms (54% of under 30s) and recruitment tech skills providers (31%).

This age cohort also demonstrated less awareness of government-funded training — 39% knew about this, compared with the overall average of 44%. However, these younger individuals were more aware of coding tech skills providers paid for by learners — 53% of under 30s knew about them, compared to the overall average of 46%.

Awareness of different types of tech bootcamps amongst tech hiring decision-makers



We asked respondents to share their impressions of candidates who've taken part in tech skills providers, versus those who entered tech roles through more traditional routes (e.g. degree programmes). For these specific questions, we asked respondents for their impressions of candidates who had taken a digital skills bootcamp programme.

The resulting data shows subtle differences overall. The greatest distinctions in respondent perceptions of candidates versus their traditional counterparts were around understanding of role expectations and the likelihood of staying with a company:

Understanding of what was expected of them in their role



- 38% of respondents said bootcamp candidates had a better understanding of what was expected of them in their role; when assessing traditional candidates using the same criteria the corresponding figure was 26%

- 37% of respondents said bootcamp candidates had a higher likelihood of staying with a company; 22% of them believed this of traditional candidates

Likelihood of staying with the company



In all the categories covered in the survey – professionalism, likelihood of staying with a company, technical skills, soft skills, understanding expectations of their job and interpersonal skills – bootcamp candidates performed better than traditional candidates. The smallest divergence was around interpersonal skills – 31% of respondents said bootcamp candidates performed better on these, compared to 30% of their traditional counterparts.

When asked how successful or unsuccessful tech skills bootcamp candidates had been in the hiring process or in their tech role, just 2% of respondents selected 'unsuccessful'. A sizable 83% chose either 'mostly successful' or 'very successful', with a further 14% selecting 'neither successful nor unsuccessful'.

A deeper dive: recommendations from employers and providers

After we compiled the initial research included here, we convened collaborative focus groups of invited providers and employers who have experience in the end-to-end process of various alternative routes into tech roles.

As part of this activity, we sought to examine the available routes to tech and provide advice to help engage more employers with the idea of hiring from tech skills providers. The aim of this phase of work was to contribute to a resource that promotes the different routes to tech to potential employers, and help providers and employers bridge the transition from tech training to a career in tech.

These groups collectively identified the opportunities and challenges related to the current offering of non-traditional skills provision in the UK. Here is a summary of the information we gathered during these collaborative focus group sessions. Please note that these sessions looked at non-traditional routes broadly, however, bootcamps are the most frequently referenced programme type.

The benefits of working with tech skills providers

In a session, we asked industry participants to provide the potential benefits of alternative tech training provision for their organisation.

Here is a summary of their responses:

- Solves a talent problem – to fill specific roles like software engineer.
- Removes issues where employers can't compete on salary for experienced hires and are struggling with the candidate market.
- Builds diversity of existing teams.
- Brings a broad range of personality types, backgrounds, skills, and experiences leading to new ideas, better dynamics, and value. Individuals from tech skills programmes bring a broader outlook and a different approach to product.
- Level of enthusiasm is relatively high compared to those with relevant degrees.
- Technical knowledge is generally good in the specific areas covered by the training programme.
- Tech is changing, and tech jobs are not solely limited to technical occupations. Bootcamps and other digital skills programmes allow people to upskill to different levels.
- People who have graduated from tech skills providers are motivated and show initiative.
- For those learners who have changed careers, employers also benefit from the breadth of experience these individuals can bring and they have proved they can adapt and pivot.

Challenges to mitigate for

We asked industry participants to describe the problems or challenges that can occur when hiring from tech skills providers (e.g.hiring bootcamp learners).

Here is a summary of their responses:

- Traditional hiring criteria can be a barrier. Employers must revisit role requirements and hiring managers need to value mindset over technical expertise.
- Bootcamp learners with great insight from other industries are often sifted out of the recruitment process because agencies are looking for keywords or people whose experience aligns with the organisation's industry.
- Candidate diversity can still be limited for employers by the talent pool in the geographical region, irrespective of learner diversity on digital skills programmes.
- Newly-trained candidates may lack a broad knowledge of the industry. They may have completed team projects in industry but not spent enough time to properly embed understanding.
- With a significant amount of time spent remotely, this can affect the ability to coach and mentor new hires from digital skills programmes – particularly those who are inexperienced.
- Informal learning is more difficult online - employers need to be deliberate in creating opportunities for this.
- Employers struggle to provide enough mentors and buddies for newly-trained employees.
- Employers face internal reservations from staff because bootcamp learners/apprentices require significant support in the first year, including coaching into the 'new environment', support and careful management to transition them and set them up for success.
- Uncertainty about the skill level of newly-trained employees, and the amount of support they require, creates ambiguity and challenges. Support is not necessarily the same as for a university graduate.
- Some hiring managers have incorrect preconceptions about the effectiveness of newly-trained candidates from tech skills programmes.
- Expectation setting is required with bootcamp learners/apprentices and hiring managers: individuals may have had another career and they are essentially restarting.
- There is a challenge of retaining individuals that have been heavily invested in – this may drive reluctance of wider business support.
- A concern in relation to taking on bootcamp learners is often 'billable heads' compared to the time needed for somebody to become confident and competent at their role. Allowance for this must be given to ensure hiring managers are open to bootcamp learners who will take more time to become fully 'billable'.
- Time pressures and pressure to deliver can mean that employers and hiring managers will want a quick return on investment.
- Finding the balance to dedicate the time to upskilling learners vs. just delivering projects and work.
- Employers must break through the "just need someone to fit in" culture and narrative.
- Consideration must be given to how 'clawback'/exit fees for learners work in practice.

Hiring tech talent from skills providers: what works?

We asked industry participants and skills providers to describe positive experiences and what has worked for them when hiring bootcamp learners.

Here is a summary of their responses:

- Smart partnerships: pair bootcamp learners up with somebody who will be supportive and able to coach that individual. Also assign well supported co-located, tech 'buddies'. This ensures a wider group is ready to support the individual vs. relying just on the hiring manager.
- Onboarding: provide learners with plenty of context about what they are joining, then supporting them to build their network upon joining. To encourage diversity and inclusion, look at the team which individuals are joining and ensure that there is an understanding across the team that D&I is strategically important.
- Employers will still need to invest in providing non-technical skills: the role of tech skills providers is for providing the tech knowledge.
- Flexibility is important particularly the flexibility of hiring managers in taking on somebody who is perhaps 80% of the way there but needs some development. Test for values at the interview stage.
- Develop a contract upfront so providers are very clear on the needs of the organisation and the organisation's values and culture.
- Ensure the organisation works with the bootcamp provider so that the programme is properly tailored to meet the technical demands of the role that individuals go to - ideally programmes are bespoke to each organisation.
- Providing bootcamp learners with coaching skills is also very important, particularly because of the speed at which people might progress.
- Provide a clear career trajectory for bootcamp learners.
- Consider D&I when providing career path options, for example, neurodiverse bootcamp learners may feel more comfortable in a coding or developer type role, but could be uncomfortable going into a client-facing role like consulting. Candidates need to know all available career pathways and there should be shared responsibility between the provider and the client organisation to make sure these sorts of sensitivities are considered.
- Set expectations with bootcamp learners that the learning experience once inside an organisation will be different and they will receive less one-to-one or direct support.
- Identify an appropriate team that can support coaching or mentoring.
- Educate the wider team about the value of bootcamp learners and the incoming talent.
- Set individuals up for success – understand their needs in advance to place them well.
- Look for bootcamp providers that are open and willing to provide a full curriculum and who can provide a good assessment of the individual learners.
- Work with the bootcamp provider on the learner curriculum and the type of profiles the organisation is seeking.
- Provide induction sessions (e.g. 4 weeks) for learning about the organisation/teams/products - enable learners to meet others and break the silos.
- View tech skills providers as a complimentary route to recruitment and as an entry point to apprenticeships - continuing the learning journey instead of straight into a permanent job.

- Internally run tech training for employees, supporting employers to address reskilling requirements & retaining talent for large enterprises.
- Ensure bootcamp learners are part of a community and there is a safe space to share experience and feelings.
- Support bootcamp learners to increase their self-awareness and awareness of personal preferences regarding work/ communication.
- Be transparent and upfront to managers and to learners with time commitment.

What employers want from digital skills providers

We asked potential end employers what their 'wishlist' would be for digital skills programmes and how the providers could support learners into employment.

Here is a summary of their responses:

- Providers should offer support during a 'settling in period' i.e. outreach from bootcamp providers for ongoing support for the first few months.
- Providers should check in with individuals to find out how they are doing.
- Providers should provide opportunities for employers to engage throughout the bootcamp to help identify gaps and get to know the team. They should also connect learners with someone they can use as a mentor and help with settling in/remote working.
- Providers should provide candidates with an extra month to understand project delivery; working as a team to understand overarching concepts. This will support candidates to land.
- Providers should provide CV writing/career support as sometimes it seems takes a long time to find a role – would help candidates get into the right organisations.
- Providers need to understand the employer's culture, spending time getting to know the client organisation.
- Provide training to learners regarding the technical environment, business systems and methods of working in which they'll be operating and how teams work together.
- Work with the client organisation regarding the support network that will be available once individuals graduate from a bootcamp. Integrate this information into the training programme.
- Providers should offer a quality guarantee in the form of industry-recognised certificates and/or employer-recognised qualifications.
- Providers should also share/offer an independent track record/history to support employers in making a provider choice for their organisation.
- Providers need to cover the learning fundamentals of problem solving.
- Providers to help support and influence within the end-employer organisation to gain buy-in for this type of training provision at both the line manager and the executive levels.
- Providers should provide employers with a roadmap and support to transition the candidate to successful employment.
- Providers should look for attitude and aptitude in candidates, rather than skills.
- Some employers suggested making tech skills programmes free and without caveats for the learner, enabling candidates to select a programme based on suitability and interest, rather than ability to pay.
- Selection must be far more than just a CV to select the best talent.

- Providers should focus on 'learning to learn' and 'techniques over tools'.
- Where possible, provide learners with options, for example: the individual could be made permanent at their placement, return to the provider to become a trainer, or work with the recruitment team to find a permanent position elsewhere.
- Co-creation is key. Providers should be working with client organisations to understand exactly what they need in terms of technical and non-technical skills and transition this into curriculum.

Next steps: how the TTC will take this forward

The themes of the information shared in our research and focus groups have been collated into this document, which we will present to the UK Government. We have collected case studies and industry resources that will support employers as they engage skills providers, and these items will be available on our website. Also available will be recorded discussions and live events related to digital skills provision and topics like reskilling, returner programmes, and use of the apprenticeship levy. We are working to include material on apprenticeships.

Moving forward we will continue to add resources related to this topic. Areas under consideration for further resources are:

- A directory of digital skills providers
- Setting up for success with your digital skills provider: questions to ask your digital skills provider to get the best from their offering
- Choosing the best digital skills provider model for you: mapping the different models of digital skills provision

Does your organisation have expertise or interest in this area? If so, please [get in touch](#) if there is a particular topic you would like to explore.

Contributors: thanks to the following individuals and organisations

TTC Principal Partners

These are organisations that are leading the strategic response to the digital skills crisis, supporting the government's aim to have the UK recognised as a "Science and Tech Superpower by 2030", and helping to drive diversity and inclusion in the tech ecosystem. Their investment in the TTC ensures that membership can remain free for all of our Signatories.

Thank you to:



Focus group participants were from the following organisations:

Employers and Recruiters:

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- Sky Betting and Gaming
- Sky
- Softwire
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Providers:

- 01 Founders
- Ada College
- Code Nation
- Code Your Future
- CompTIA
- Corndel
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About the Tech Talent Charter

The [Tech Talent Charter \(TTC\)](#) is a government-supported, industry-led membership group that brings together 700+ Signatory organisations and equips them with the networks and resources to drive their diversity and inclusion efforts. Our broad base of Signatories includes companies and industries of all sizes, non-profit organisations, charities, leading UK educators, and government departments.

Created in 2015, the TTC's goal is for the UK tech ecosystem to be a diverse and inclusive community where people from all backgrounds are welcomed and valued for their contributions.

If you would like information about the TTC, including how to become a Signatory at no cost, please visit www.techtalentcharter.co.uk.