



# **DIGITAL LEARNING** **IN A POST-COVID-19** **ECONOMY**

An evidence review



**Report**  
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# Digital learning in a post-COVID-19 economy: an evidence review

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# 1 Executive summary

## Introduction

This report presents the findings from an evidence review that the Institute of Employment Studies (IES) was commissioned to carry out by the CIPD on digital and online learning within adult vocational education and in the workplace.

The CIPD defines 'digital learning' to be *'learning that's facilitated, enabled or mediated using electronic technology for the explicit purpose of training, learning or development'*.<sup>1</sup>

The immediate context has been the COVID-19 pandemic. This has prompted a rapid acceleration in the already-occurring shift to digital and online learning.

The aims of the review are to:

- Examine how the potential of digital learning can be further harnessed to support reskilling in the post-COVID-19 economy.
- Highlight approaches that are linked to improved provision, uptake and the enhanced effectiveness of digital learning.
- Highlight barriers to digital learning and how these have been overcome.
- Capture learning on the success factors underpinning digital learning effectiveness.

The methodology for the review involved desk-based research, which included: accessing literature from various relevant academic platforms; reviewing the 'grey' management and practitioner literature; and seeking out individual organisational examples to illustrate practice. The CIPD also hosted a roundtable in September 2020, from which we drew considerable insights to inform our government policy recommendations.

## Definitions, types and growth

The CIPD categorises digital learning into three broad and overlapping categories:<sup>2</sup>

- **formal digital learning:** through which technology delivers formal courses and usually involves a fee
- **informal digital learning:** through which technology provides opportunities to support informal workplace learning, typically linked to knowledge-sharing
- **blended or supported learning:** through which formal or informal learning is combined with other types of learning.

There are many different supporting technologies, nearly twice as many used today compared with ten years ago,<sup>3</sup> with the more emergent forms of digital learning technology including game-based learning, artificial intelligence and the extended reality immersive technologies.

Data on the usage and incidence of digital learning suggests its prevalence in the workplace has steadily increased, used by over half (57%) of organisations in 2020 (pre-pandemic), compared with 29% in 2015. Usage is now above trainer-led training (36%) and in-house development programmes (51%).<sup>4</sup>

In the UK, online learning is most common in organisations with 250+ employees and in private sector employers. Among organisations already invested in digital learning technologies, some 64% have ramped up their use over the past two to three years. However, at least before the pandemic, the majority of organisations were using online learning to deliver less than 20% of their total learning and development activity.<sup>5</sup>

In the workplace, the top areas of growth in digital learning content are in: video; mobile; blended learning; user-generated content; microlearning; and curated content.<sup>6</sup> Use of the more emergent technologies, such as virtual or augmented reality, has been found to be 'sluggish', used by only a small proportion of employers – 4% and 2% respectively.<sup>7</sup>

### What are the drivers and barriers to growth?

Even before the stimulus of the pandemic, employers, vocational providers and higher education (HE) institutions had already been investing in their online learning development and delivery. The overall global market for online learning is projected to reach US\$350 billion by 2025<sup>8</sup> across education and corporate markets.

This growth has been driven by such factors as:<sup>9</sup>

- technological change and advances (such as improved access to high-speed broadband, emerging applications such as artificial intelligence and virtual reality-based learning, and increased learner familiarity with technology that can support learning)
- learner expectations around flexibility of study
- cost and resourcing considerations, meaning employers are demanding shorter, faster and cheaper development programmes and courses that can be more integrated with an employee's 'day job'
- the widespread requirement for re- and upskilling of jobs in many employers due to technological and organisational changes.<sup>10</sup>

Research studies have been particularly effective at highlighting the many barriers to the further expansion and the effective use of digital and online learning. These typically fall into three main categories:<sup>11</sup>

- **technological** barriers such as disparities of access to reliable devices or Wi-Fi; a lack of tech support; or cybersecurity risks
- **instructional** barriers such as the digital competence levels of instructors and lack of training and support provided
- **learner** barriers, such as feelings of isolation and lack of time for learning.

Despite progress on the technological front – although such barriers are still acutely felt by some individuals, particularly low-income workers – the research suggests that it is the cultural barriers to digital learning, in terms of organisational and individual resistance, which remain almost as persistent as ever. It should be noted that most of the evidence reviewed is pre-pandemic.

We provide a number of international examples of major government and employer-driven digital learning initiatives that demonstrate the potential of the approach to reach large numbers of learners, especially when provision is made free to use.

## What impact has COVID-19 and lockdown had on digital learning?

The COVID-19 pandemic has forced a faster and far more widespread shift to digital learning, driven by the surge in homeworking and the urgent need for new forms of training and support.

In the employer market, there has been a huge and rapid shift in how learning and development is delivered, with attempts to adapt and move learning online, and some organisations attempting to move to fully online provision.

[CIPD research](#) conducted in summer 2020<sup>12</sup> found 54% of more than 1,000 employers surveyed had been using digital and online learning during lockdown and 80% plan to increase this provision over the next 12 months. [Research from the Open University](#) found a quarter of employees have engaged in additional learning opportunities to improve their employability.<sup>13</sup>

[Research by the Fosway Group](#) on the impact of the pandemic on corporate L&D also showed that demand for digital learning has increased among senior stakeholders and there has also been increased demand for digital learning content from learners.<sup>14</sup>

Throughout the pandemic, some employers have used digital learning to provide and maintain access to necessary training and to provide opportunities for continual professional development. Some employers have also trained, and attempted to maintain the engagement of, furloughed workers through offering online opportunities for learning and social support.

During the pandemic, video content has been viewed as the most successful in supporting learning, followed by curated content, mobile learning and microlearning.<sup>15</sup>

Some employers have also shared their existing online learning content with a wider public audience in recognition of a social need for upskilling and retraining.

There is also some evidence of the pandemic leading to the forging of new partnerships between government and private/public sector organisations<sup>16</sup> in order to effectively deliver digital learning within reskilling programmes.

However, the disruption and recession caused by the pandemic has led to reductions in overall learning provision and spending in around a quarter of employers, even if a higher proportion of that is being delivered online.<sup>17</sup>

## How effective is digital learning?

Much of the evidence about 'what works' in digital learning and its effectiveness, particularly within the workplace, shows mixed results. However, there are some reasonably robust conclusions that can be drawn from the available studies to date.

Good-quality digital learning can be just as effective as traditional in-person/classroom learning – with the majority of studies finding little or no significant difference in the learning outcomes achieved.<sup>18</sup> However, some research has shown that learners with '*weak academic preparation and those from low-income and under-represented backgrounds*' on average underperform and experience poorer outcomes in fully online learning environments.<sup>19</sup>

A blend of both synchronous learning (which occurs at the same time and in the same place either online or in-person) and asynchronous learning (occurring at different times and in different places) can increase student engagement and improve learning.<sup>20</sup>

Digital learning has been shown to require less time for learning than traditional classroom learning,<sup>21</sup> because learners can study at their own pace.

Retention of learning is improved in a digital setting,<sup>22</sup> even if completion rates are generally found to be lower – attributed to learners having more control, allowing them to focus on the most relevant personal material.

There is evidence that the adoption of digital learning can generate significant returns on investment. For example, the [University of Maryland](#) found an 8.8% improvement in overall recall accuracy using virtual reality (VR),<sup>23</sup> and the [US Navy](#) found that immersive learning realised \$4.24 million in avoided costs, yielding an ROI of \$2.96 million on a \$1.28 million investment.<sup>24</sup>

The research literature, however, does indicate that it is important to appropriately align the digital delivery method (or use of technologies) with the learning content to achieve effective learning outcomes. Matching content, tools and learners appears to be critical, as indeed research shows it to be with more traditional methods.

The CIPD similarly observes that regardless of any digital platform, the first consideration is the needs of the organisation and how digital solutions will best meet that need.<sup>25</sup>

The research indicates that no single action or area on its own appears likely to have a significant impact on the effectiveness of digital learning, but a broad range of factors are relevant.

Some recommendations for effective digital learning stem from practices in traditional learning contexts, while others are more explicitly connected to the digital delivery method. The former category identified in research studies include: the provision of timely feedback; ensuring the learning meets future labour market needs; tailoring to employer needs; and customisation to the needs of the learner.

The success factors more explicitly linked to learning delivered through digital medias can be categorised in respect of three areas:

- **the design of online learning programmes:** the most important factors identified by research here include: the provision of an easy-to-use digital platform, with searchable content and compatibility across devices; ensuring an element of social interaction in some form in the learning; and providing practical learning experiences
- **the level and nature of support provided** within online programmes, including: providing regular instructor and peer support; building a community of learners; senior management/leadership support; supporting learning professionals; and careers advice and support
- **actions linked to boosting learner engagement**, including: promoting the benefits of online learning; enabling and empowering learners; establishing achievable goals; recognising the learning in a way that is valued by learners; and personalising content.

Actions in all three of these areas, our review suggests, can enhance the overall effectiveness of digital learning provision.

### Implications for employers

There are a number of reasonably sound conclusions and recommendations for employers that can be reliably drawn from this research. These are as follows:

- Create a learning philosophy to ensure there is a common vision, understanding and expectation for learning provision within the organisation, including how technology will be used to support and engage employees in learning.

- Ensure this learning philosophy drives a clear learning and development strategy, with a clear aim and outcome, with digital learning likely to be a significant and increasingly important element of that strategy.
- Identify the aspects of learning that are most suited to digital delivery and where it is likely to be most effective in any given setting.
- Set clear objectives and success criteria for digital learning, and regularly evaluate its impact and effectiveness and modify its use accordingly.
- Recognise that digital technology can increase the reach/participation of, and engagement in, learning initiatives, as well as be extremely cost-effective, but digital learning may not be any cheaper than traditional formats.
- Be bold. Big and rapid ‘jumps’ in the use of digital learning can, as the pandemic has shown, be achieved.
- Don’t be blinded by the technology. The people – the learners, instructors, corporate L&D leaders and senior management – are still key. In particular, support and train the people designing and delivering the training.
- Focus very heavily on the learners themselves and their needs. The desire for more flexible learning is a key factor driving the growth in usage.
- Recognise this also increases the need to fully support and motivate individual learners. Designing a supporting environment and recognising the learning is vital.
- Digital learning has generally shown to be more effective in a blended format, in conjunction with other delivery channels, with peer-to-peer/instructor interaction and curated content being key to successful applications.
- Some of the keys to success highlighted in research studies are common across any form of learning, such as having the right learning environment; however, some are specific to digital learning and highlight the importance of getting the online learning design and learning support structures right, as well as fostering learner engagement.

## Implications for government

In the context of this research, below we outline what we consider to be the most important ways in which the Government can further harness the potential of digital learning to support reskilling in the post-COVID-19 economy.

## Priorities for future investment and action

- Greater investment is needed to **address the social divide in the access and availability of technology infrastructure**, including the roll out of 5G networks to support universal and low-cost broadband coverage in all parts of the country. Low-income and unemployed people should be prioritised to enable wider access to digital devices to support digital learning, in addition to ensuring all individuals have access to the acquisition of adequate digital skills to engage in digital learning.
- The announcement of the new Lifetime Skills Guarantee is welcomed; however, the Government should consider offering a broader model of **free or heavily subsidised digital or blended learning, through a ‘skills wallet’**. This could be similar to the Skills Credit in Singapore (discussed in this report), or a renewed version of the previous



Individual Learning Account provisions, in order to support upskilling and reskilling in the post-COVID economy.

- While existing government funds are seeking to drive innovation and improve the quality of adult digital learning, we believe there is a need to stimulate the digital learning market further and to **incentivise providers**, through more generous funding **to capacity-build and rapidly develop new quality digital learning opportunities. The COVID-19 jobs crisis highlights the need to rapidly reskill potentially large numbers of displaced workers.**
- The impact of the pandemic has exacerbated the need for retraining as the job market is rapidly changing and unemployment increases. In recognition of the urgent need to support those workers who have lost their jobs, we believe the Government should **prioritise funding for the low-skilled or unemployed to undertake formal digital training that meets the skills requirements of employers in growth sectors and delivers industry-recognised certifications**, in order to facilitate career moves into growth sectors. This should be supported by investment in strong employer–provider partnerships, local job brokerage and enhanced information, advice and guidance.

### Recommendations for the implementation of the Skills for Jobs white paper

- The [Skills for Jobs](#) white paper, released in January 2021, rightly recognises the need to support FE staff to develop the skills they need to deliver a high-quality blended learning offering.<sup>26</sup> In recognition of the different skills, instructional and learning engagement techniques required for digital learning, compared with traditional classroom delivery, the Government should ensure that sufficient funding is made available to **upskill FE staff linked to the delivery of high-quality digital learning**, especially in the context of accelerated use of digital learning or future demand for blended learning programmes.
- The white paper also recognises the need for the FE sector to provide more flexible and modular learning, and the Government has committed to introducing pilots to incentivise its development. The results of our review suggest that this should focus on collaborating with employers and FE providers to **develop flexible digital learning opportunities that are bite-sized, certificated through micro-qualifications or credits**, and which can be packaged up over time into more substantive and recognised learning journeys and underpinned by a common skills framework to support cross-sector moves.

### Employers

- The pandemic has forced a wider and more rapid shift to digital learning among employers. We believe the Government should **support employers to invest further in digital training for their workforces** at a time when all workforce costs are under scrutiny and pressure. This could be achieved **by providing more flexibility in the Apprenticeship Levy, enabling employers to use their levy funding for other forms of accredited and digital training and skills development**. This would allow employers to use levy funding to retrain and redeploy staff to new growing areas of the business, as well as enable them to support retraining opportunities for employees who are being made redundant.
- We suggest that a **nationwide awareness campaign should be launched by the Government that promotes the benefits of digital learning and increases awareness of the types of digital training opportunities available** to employers and potential learners.

## Young people

- During the pandemic, we saw evidence of many organisations shifting to remote internships and providing remote learning opportunities for those on work placements. We would like to see such digital learning opportunities as an element within the Government's Kickstart Scheme for young people, with **requirements for work placements to include access to digital training and skills development activities** to help young people move into sustained employment and support pay and create progression.

## 2 Introduction

This report presents the findings from an evidence review that the Institute for Employment Studies (IES) was commissioned to carry out by the CIPD on digital and online learning provision in adult vocational education and in the workplace.

The CIPD defines 'digital learning' to be *'learning that's facilitated, enabled or mediated using electronic technology for the explicit purpose of training, learning or development. Examples of digital learning include using a website, ebooks, online communities or a distinct piece of online learning'* (CIPD 2020a). This definition includes the use of tools or technologies that do not require connection to a network (offline media), whereas the term 'online learning' exclusively covers learning delivered through the Internet or intranet (ibid), so it is a subset of the wider digital learning.

The immediate context for the review has been the COVID-19 pandemic. This has presented many *'unique challenges to all types and levels of learning'* provision (Cedefop 2020a<sup>27</sup>). It has, though, prompted a rapid acceleration in the already-occurring shift to digital and online learning, in order to ensure learning continuity throughout the global lockdown. With everything from corporate induction programmes to university finals' examinations, top business schools' MBA programmes and your gym's Pilates classes moving almost overnight from in-person to on-screen delivery, as the *Financial Times*<sup>28</sup> put it, *'Zoom became king of the quarantine economy.'*

Although the current environment has underlined the importance of digital learning opportunities (especially as the pandemic is expected to continue to limit access to the more traditional methods of learning going forward in a *'low touch economy'*<sup>29</sup>), even before the virus struck, the use of digital and online learning was on the rise in corporate learning and all areas of state and private education.

Growth in digital learning markets and recognition of the potential of digital learning to provide easily accessible and low-cost learning at scale had been spurred already by a variety of factors. In particular there has been a requirement to meet through technology the challenges being created for jobs and employment by technological advances, through acting as a key channel for adult upskilling and reskilling in the context of rapidly changing business models, digitalisation and automation (McKinsey 2020).<sup>30</sup>

This evidence review aims to capitalise on the momentum that the pandemic has provided for continued expansion of digital learning. By reviewing the evidence of the expansion and experience thus far, the aims of this work are to:

- Examine how the potential of digital learning can be further harnessed to support reskilling in the post-COVID-19 economy.
- Highlight the approaches that are linked to improved provision, uptake and the enhanced effectiveness of digital learning.

- Highlight barriers to the effective and more widespread delivery of, and engagement by learners in, digital learning and how these have been overcome.
- Use specific examples of employer-led and government-driven initiatives to capture learning on the success factors underpinning digital learning effectiveness.

In regard to methodology, this review is based on desk-based research, involving:

- accessing literature from various relevant academic platforms (JSTOR, Business Source Premier, Wiley, Scopus and Emerald)
- reviewing the 'grey'<sup>31</sup> management and practitioner literature, including searches of relevant organisations' websites and articles; popular management journals; and consultancy publications and surveys
- seeking out individual organisational examples to illustrate identified practices.

Searches were conducted in July 2020 using a combination of search terms and limited to results published within the last five years and in English. The review focused on adult vocational education digital learning provisions and included employer approaches in using digital learning. The resulting literature was screened and an assessment made as to its relevance in addressing the aims of the review. The retained literature was reviewed and the findings synthesised into core themes.

The CIPD also hosted a roundtable in September 2020, from which we drew considerable insight to inform our government policy recommendations.

The scope of this review has included the following aspects of digital learning, which we summarise in turn in this report:

- definitions, the different channels and methods of digital/online learning
- the drivers of the expansion and the barriers and challenges to the wider implementation/delivery of digital learning highlighted by research to date
- research into both employer-led and government-driven upskilling and reskilling initiatives delivered online, using national and international examples
- the rapid impact of the COVID-19 pandemic on the provision of adult vocational and workplace digital learning
- success factors drawn from this prior research that have been shown to contribute to increasing the effectiveness of digital learning, including increasing uptake, completion and improving the quality of the learning and its outcomes
- high-level policy implications of the findings are drawn for government and employers.

### 3 Definitions, types and growth of digital learning

#### Definitions

There is a myriad of terminology and 'buzzwords' linked to digital and online learning, 'combining the worst of HR' and 'geek' technology jargon.<sup>32</sup> The terms are also often used inconsistently and interchangeably within the research literature. In addition, new technologies and types of digital

media are continually emerging that add to an already broad and evolving concept and the complexity of terminology.

The many and various forms of digital learning are also categorised in a multitude of ways ([Belaya 2018](#)<sup>33</sup>). The CIPD categorises digital learning into three broad and overlapping categories, which was very useful for this research and is reflected in the wider literature:

- 1 **Formal digital learning:** through which technology delivers formal courses, typically with limited interactions, or support from, training/learning professionals, managers or peers. [Belaya \(2018\)](#) adds that formal digital learning, in the context of vocational education and training (VET) in particular, is typically bound to certain learning objectives and qualifications, incorporates end-point assessments and usually involves a fee.
- 2 **Informal digital learning:** through which technology provides opportunities to support informal workplace learning, typically linked to knowledge-sharing ([CIPD 2020a](#)). [Belaya \(2018\)](#) adds that this informal category often occurs via informal channels, lacks an instructor, and the learner is required to locate information themselves ([Cox 2013](#), cited in [Belaya 2018](#)).
- 3 **Blended or supported learning:** through which formal or informal learning is combined with other types of learning ([CIPD 2020a](#)). Blended learning (also called hybrid or mixed instruction learning) incorporates both traditional (for example, in-person learning) and online delivery models and has been the foundation of many workplace learning programmes ([LinkedIn Learning 2020a](#)<sup>34</sup>). A popular model of blended learning is the 'flipped' classroom model, where knowledge transfer is conducted online with learning discussions conducted in-person ([CIPD 2020a](#)<sup>35</sup>).

Digital learning can also be divided into that which occurs through 'synchronous engagement' (where learners are doing the same thing together at the same time, for example, through webinars), or through 'asynchronous engagement' (where learners are learning separately at different times) ([Cleveland-Innes and Wilton 2018](#)<sup>36</sup>), or a combination of both. Synchronous learning typically provides a facilitator presence, immediate feedback and peer interaction, while asynchronous learning offers learners independence, flexibility and the ability to self-pace their learning ([OpenLearn](#)<sup>37</sup>).

Other commentators classify digital learning into the different formats, such as: individual learning (where learners only have access to the digital materials provided), tutorial-assisted learning (where online learners are supervised by a facilitator), collaborative learning (learning via a virtual community), or blended learning mixing these forms ([German Federal Academy of Public Administration](#), cited in [Belaya 2018](#)).

### Types of digital learning technology

Within the delivery of digital learning there are many different supporting technologies, with continual development expanding the delivery options. For example, nearly twice as many technologies are reportedly used today compared with ten years ago ([Towards Maturity 2019](#)<sup>38</sup>).

Types of digital learning technology include:

- virtual learning environments, such as webinars, online classrooms and chat tools ([CIPD 2020a](#), [Hart 2020](#)<sup>39</sup>)
- online learning communities/social networks/social media applications/collaboration platforms/tools that facilitate interaction between learners and that support collaborative approaches to learning ([Cleveland-Innes and Wilton 2018](#), [CIPD 2020a](#), [Green 2016](#)<sup>40</sup>)

- smartphone technology/mobile apps ([CIPD 2020a](#)), which are a fast-growing form of delivery utilising common mobile devices such as smartphones, tablets, and so on, and promoting the ‘learner anytime, anywhere’ potential ([Kang 2019](#)<sup>41</sup>)
- video and audio content, for example YouTube/podcasts and self-authoring tools such as blogs and wikis (online audio or writing tools) ([Cleveland-Innes and Wilton 2018](#))
- learning management systems (LMS) and learning experience platforms (LXP), which integrate various learning technologies and content onto one platform; in recent years, cloud-based platforms have also significantly grown in popularity ([Zambito 2018](#))<sup>42</sup>
- curated content through social bookmarking, mashups and digital storytelling (methods of storing, tagging and sharing online resources) ([Cleveland-Innes and Wilton 2018](#))
- online course/resource platforms ([Hart 2020](#)), including massive open online course (MOOCs) platforms, offering free university-level online courses ([CIPD 2020a](#)) and delivered by such providers as the Open University’s FutureLearn, Coursera, and so on, and open educational resources (OER) platforms, which offer free, open-licensed digital teaching and learning resources online ([UNESCO 2020](#)<sup>43</sup>), for example the Open University’s OpenLearn platform.

The more emergent forms of digital learning technology also include:

- game-based learning, which applies game concepts to learning and development and forms part of the contemporary shift towards more personalised learning, with the aim to make learning more engaging and create a safe environment for learners to test skills and build competence ([Talreja 2018](#),<sup>44</sup> [CIPD 2020d](#),<sup>45</sup> [CIPD 2017](#), [Belaya 2018](#))
- artificial intelligence and machine-based learning to support personalisation and analytics ([Fosway Group 2020b](#))<sup>46</sup>
- extended reality (XR)<sup>47</sup> immersive technologies such as augmented reality (AR), ‘*which overlays abstract digital information contextually into the physical world*’ ([Cafaro 2019](#)<sup>48</sup>), and virtual reality (VR), which enables ‘*physical interaction with a simulated, digital world*’ (ibid).

In the workplace, the use of virtual reality to train or retrain employees is more common within larger companies ([CIPD 2020b](#)), particularly in the technology, automotive, defence and aerospace sectors ([Cafaro 2019](#)); while in the education sector there have been some headline-grabbing innovations linked to the use of AR/VR. For example, in November 2018, Imperial College London announced that its students would be the first globally to have lectures delivered to them live via a hologram lecturer ([Chowdhury 2018](#)<sup>49</sup>).

### Incidence and growth of digital learning

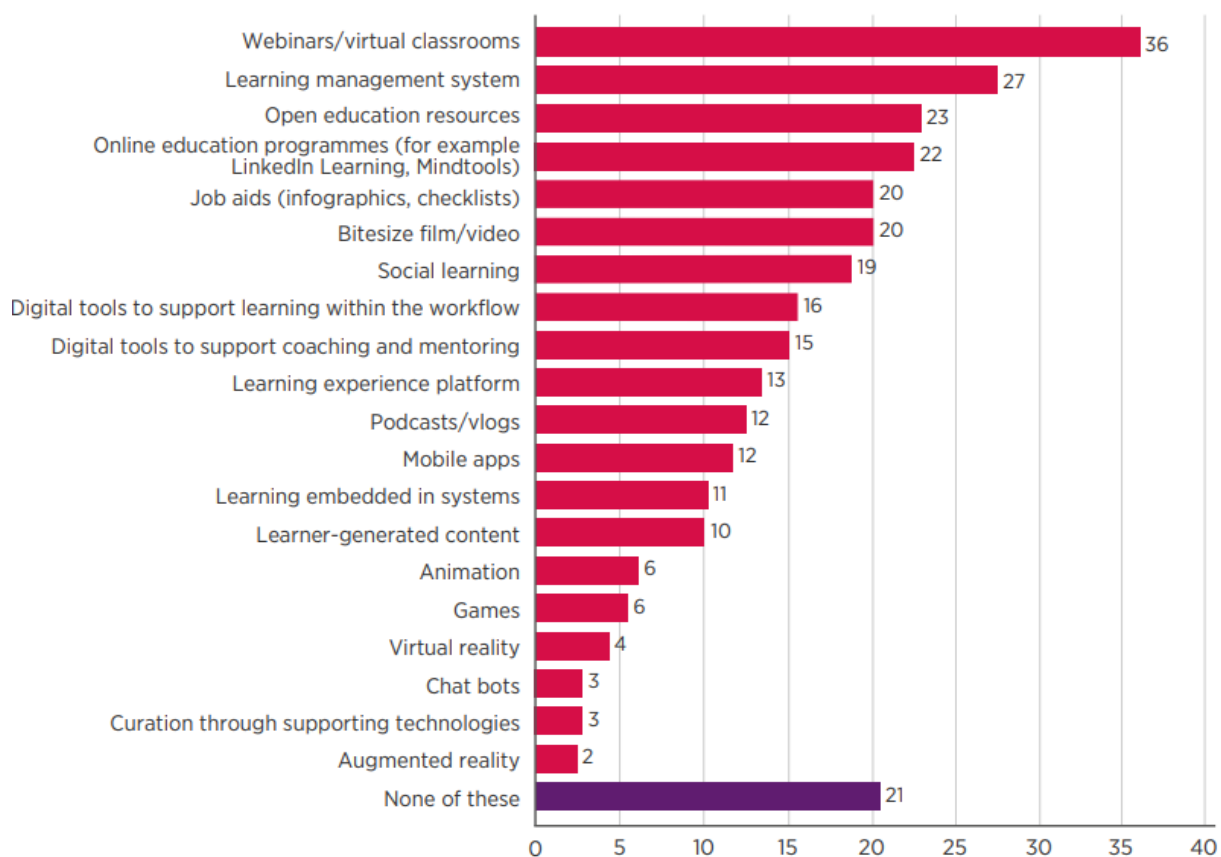
Even before the advent of the COVID-19 pandemic – which has caused rapid and massive shifts to online learning – digital learning opportunities were widely available across a range of providers and employers in the UK. For example, a DfE-commissioned study of the online/blended learning market in England, conducted in 2018 ([Zaidi et al 2018](#)<sup>50</sup>), found over 200 providers delivering online learning for adult learners (with low to intermediate skills). This included almost 100 private training providers, over 50 further education (FE) colleges, 22 MOOC platforms and nearly 400 developers of online learning (ibid).

Within higher education (HE), prior to the pandemic, online flexible learning made up only 8% of all provision at UK HE institutions,<sup>51</sup> with the Open University, a leading proponent of online learning delivery, accounting for 65% of this provision ([Universities UK 2018](#)<sup>52</sup>). However, there have been

more recent moves among universities and the main MOOC providers to provide full online degree programmes ([ICEF Monitor 2019](#)<sup>53</sup>).

In the workplace, data on the usage and incidence of online learning suggests its prevalence has steadily increased, used by over half (57%) of organisations in 2020 (pre-pandemic), compared with 29% in 2015 ([CIPD 2020b](#)). Usage of online learning now compares favourably with traditional forms of workplace learning, with higher usage than trainer-led training (36%) and in-house development programmes (51%) (see Figure 1). However, at least before the pandemic, the majority of organisations were still only using digital learning to deliver less than 20% of their total learning and development activity ([CIPD 2020b](#)), with usage typically limited to particular types of knowledge and development, such as compliance training, sales training, and desktop application training ([Training Magazine 2019](#)<sup>54</sup>).

**Figure 1: Current use of digital technologies within employer organisations (% of organisations)**



Base: all respondents: 1,217

Source: [CIPD \(2020b\)](#)

In the UK, online learning is most common in organisations with 250+ employees, with two-thirds (67%) of larger employers delivering or funding online learning over the past year, compared with 44% of SMEs ([CIPD 2020b](#)). Increased levels of investment in learning technologies have also been greater within the private sector compared with the public and voluntary sectors (37% compared with 26% in the public sector and 32% in the voluntary sector) ([CIPD 2020b](#)).

In organisations where technology-enabled learning has already been embraced, its use has also increased significantly over recent years ([CIPD 2020b](#)). For example, among organisations already invested in digital learning technologies, some 64% have ramped up their use over the past two to three years. In particular, the use of mobile-based learning has increased (some 70% have increased its use) ([CIPD 2020b](#)), and the use of video has also become mainstream, due to its

potential low cost and quick development time to support microlearning and user-generated content ([Fosway Group 2020b](#)).

The use of the more emergent technologies (VR and AR) among employers has been found to be 'sluggish' and used by only a very small proportion of organisations – 4% and 2% respectively ([CIPD 2020b](#)). The Towards Maturity report ([2019](#)<sup>55</sup>), which presents a global view, found only one in five organisations were accessing these newer learning technologies. The CIPD suggests that this slow adoption indicates there is still 'a way to go to achieve "any time, any place, any way" and "learning in the flow of work" models of learning delivery' ([CIPD 2020b](#)), but, as Ferguson et al ([2017](#)) observe, it 'takes time for newer technologies to be successfully implemented, accepted in a "learning" context and fully embedded within the prevailing learning culture'.<sup>56</sup>

The types of digital learning content and technologies discussed here are not intended to be exhaustive and the popularity of the various tools have waxed and waned over time ([CIPD 2017](#)<sup>57</sup>). It should also be noted that this information was collated before the pandemic struck and lockdown was instituted (see Section 5). It is also important to highlight that discussion of the various technologies within the literature is often caveated with a cautionary reminder that incorporating technologies without consideration as to how they support learning does not generally lead to effective learning outcomes ([Cleveland-Innes and Wilton 2018](#), [Ferguson 2019](#),<sup>58</sup> [Montgomerie et al 2016](#)<sup>59</sup>).

## 4 What are the drivers and barriers to digital learning?

### Drivers of growth in digital learning

Before the pandemic, which prompted rapid, emergency, at-scale moves to digital learning (see Section 5), many employers, providers and higher education (HE) institutions already had plans for growth in their online learning development and delivery, with the overall global market for online learning projected to reach US\$350 billion by 2025 (pre-pandemic) ([Researchandmarkets.com 2019](#)<sup>60</sup>).

Within the education sector, this growth is being driven by such factors as:

- **technological change** and advances (such as improved access to high-speed broadband and increased familiarity with technology) ([Universities UK 2018](#))
- **learner expectations**, for example around flexibility of study – with digital provision being a key way for learners to balance their study with work and personal commitments (ibid)
- **increased competition** for learners, which is incentivising more tailored provision for learners by providers (ibid).

In addition, there has been significant investment, or plans for investment, in digital learning provision by HE institutions aimed especially at **supporting the career development** needs of learners in employment (ibid).

Employers are increasingly demanding shorter, faster development programmes ([Universities UK 2018](#)) and courses that can be more **integrated with an employee's 'day job'**, rather than requiring significant off-the-job learning, including provisions such as MOOCs and continuing professional development (CPD) ([Universities UK 2018](#)). Andy Lancaster, for example, states in the CIPD's [Professionalising Learning and Development report](#) that 'learning must now be delivered in the flow of work, not just in a classroom. Skills and capabilities must be developed through accessible and agile methods, which demands digital solutions.'<sup>61</sup>

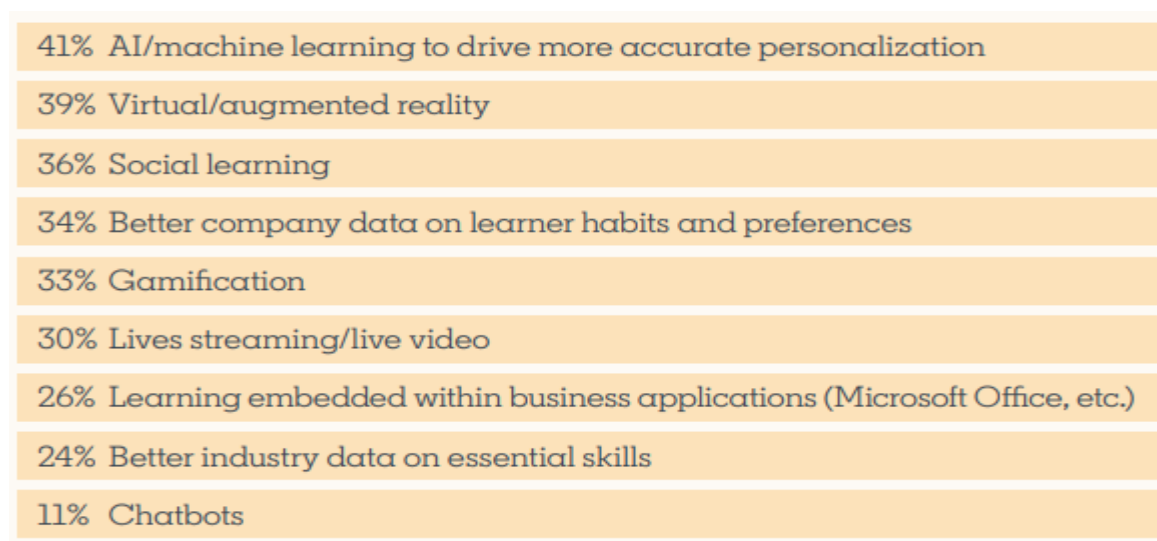
In the employer market, research studies suggest that **drivers such as globalisation, technological advancement, time pressures and cost considerations** have also been leading more organisations to implement more flexible and cost-effective forms of learning through digital delivery ([ReferNet Austria 2020](#)<sup>62</sup>, [Okano et al 2018](#)<sup>63</sup>). In addition, the Fosway Group indicates that drivers such as reduced headcounts, the rapid speed of change in organisations and the need for agility, learner demand for personalisation of content, and 'learning on the go' have driven organisational investment in digital learning ([Perring no date](#)<sup>64</sup>).

Prior to the pandemic, the Fosway Group also identified the top areas of growth in digital learning content among organisations to be: video (81%), mobile (71%), blended learning (67%), user-generated content (71%), microlearning (69%) and curated content (67%) ([Wilson and Perring 2020](#)<sup>65</sup>).

In addition, Donald Taylor's [7th annual L&D Global Sentiment Survey 2020](#)<sup>66</sup> found that L&D professionals, which Taylor describes as mostly 'innovators' and 'early adopters', expect the next dominant workplace learning trends, linked to digital, to be: the use of learning analytics, personalisation/adaptive delivery, collaborative social learning, learning experience platforms and artificial intelligence.

The use of artificial intelligence is expected to significantly impact and expand online learning delivery over the next five years, as is the growth forecast in virtual/augmented reality – see Figure 2. L&D professionals anticipate that *'learning platforms will only get smarter in the future and deliver a more personalized, curated learning experience by leveraging AI and machine learning'* ([LinkedIn Learning 2020a](#)).

**Figure 2: Technologies that L&D professionals think will significantly impact online learning in the next five years**



**Source:** [LinkedIn Learning \(2020a\)](#)

The continuing **growth of compliance or regulatory employee training** in areas such as health and safety, hygiene, governance and data protection ([Green 2016](#),<sup>67</sup> [Zaidi et al 2018](#)), alongside continuing pressures to reduce training costs ([Scott-Jackson et al 2015](#)), are also expected to drive further organisational investment in digital learning.

Growth in digital learning, particularly among managers, has also been driven by demands to **limit employees' time spent away from work** (52%) (ibid), particularly among upper management, who have less time to attend formal training events ([Ferguson et al 2017](#)), and a desire for the **capacity to train employees at scale** (48%) ([Scott-Jackson et al 2015](#)).



A changing labour market, driven by digitalisation and automation, is also rapidly **changing the skills requirements** of employees, increasing the need for training, an increasing proportion of which is digital ([McKinsey 2019a](#)<sup>68</sup>). McKinsey research claims that UK companies will need to transition up to a third of their workforces into new roles or higher skills levels over the next decade, regarding this as a key strategic responsibility for chief executives, as well as HR and learning professionals ([McKinsey 2019b](#)<sup>69</sup>).

The LinkedIn Learning 2020 Workplace Learning Report also found that identifying, tracking and closing skills gaps was a strategic priority for UK L&D professionals, with over half (51%) planning to launch upskilling programmes in 2020 and 43% planning reskilling programmes ([LinkedIn Learning 2020a](#)).

This need for upskilling and reskilling the workforce is expected to drive further growth in the employer market for digital learning, with the Department for Education commissioned review stating that ‘employers have only started to recognise the value of providing online learning to upskill their workforce’ ([Zaidi et al 2018, p11](#)). However, it should be recognised that in terms of overall investment in workplace learning, the UK is below that of most European counterparts. For example, the UK ranks 22nd in Europe for investing in professional development, and its expenditure on vocational training courses per employee (normalised for purchasing power standard) is one of the lowest in the EU ([Activia Training 2016](#)<sup>70</sup>).

The COVID-19 pandemic has significantly accelerated the use of digital learning to deliver all forms of training, alongside the huge growth in homeworking and restrictions on social and in-person interactions. Regular training has also been expanded to include wider topics such as wellbeing and remote working ([PM Insight and ICS Learn 2020](#)<sup>71</sup>). For example:

- A survey of over 100 mostly large employers in June 2020 by [REBA](#)<sup>72</sup> found that 86% reported growth in their employees’ usage of online classes, and 85% reported increased use of mental wellbeing apps.
- One training provider also noted an 80% rise in usage of online GDPR and cybersecurity courses, as well as the widespread development of new courses and training support in areas such as mental health ([iHASCO 2020](#)<sup>73</sup>).
- [LinkedIn](#) found ten times as many learners watched online courses on mindfulness and stress management in April compared with February 2020,<sup>74</sup> as well as growth in homeworking support programmes and tools, with extra demand driven by the increase in employees working from home and the risks that generates ([iHASCO 2020](#)).

CMI Chief Executive Ann Franke reported on ‘opportunity lockdown’, based on the results of their [latest member survey in mid-2020](#), observing:

*More autonomy over where people work will also accelerate digital transformation, and adoption of tools that make it easier to let people work in a way that works best for them. It will also encourage people to drive their own learning and development, and develop the digital and interpersonal skills needed in today’s world.*<sup>75</sup>

## Barriers to wider delivery of digital learning

Despite the steady growth in online learning, the research evidence highlights an assortment of continuing and relatively persistent barriers to wider delivery of, and engagement in, digital learning. This has tended to keep the actual growth significantly behind that predicted. And despite the homeworking stimulus, some of these barriers may have been exacerbated by the rapid transition to online delivery prompted by the pandemic.

The major barriers highlighted in previous studies vary according to the type of stakeholder (for example, individual learners, providers, practitioners, employers, and so on). Also, the challenges encountered have shifted as online learning forms have evolved over time ([Choudhury and Pattnaik 2020](#)<sup>76</sup>).

To provide a sense of the scale and breadth of the issues experienced, a recent literature review conducted by Choudhury and Pattnaik ([2020](#)) of emerging themes in online learning identified some 52 factors that present challenges for different stakeholders in digital learning delivery.

However, another review of digital learning barriers conducted by Ali et al ([2018](#)<sup>77</sup>) found that most barriers can be thematically categorised into three main areas: either technological, pedagogical/instructional or individual barriers. The authors added a fourth category of 'enabling conditions' to encompass the more organisationally unique barriers. Across these four categories the authors identified 68 implementation barriers. Below we discuss some of the more commonly highlighted barriers across the literature.

### Technological barriers

The technological barriers identified by Ali et al ([2018](#)) potentially affect all types of stakeholders and are confirmed by many research studies and examples. They include:

- the lack of availability of technology infrastructure, for example, network capabilities, including persistent disparities in access to appropriate computers or devices among learners ([Ali et al 2018](#), [ILO 2020](#),<sup>78</sup> [CIPD 2017](#)<sup>79</sup>)
- the unavailability of technical support, for example for installation, operation, maintenance, and so on ([Ali et al 2018](#))
- bandwidth and connectivity issues ([Ali et al 2018](#), [ILO 2020](#), [CIPD 2017](#))
- poor user-friendliness of software ([Ali et al 2018](#)) and platforms
- low-quality computers or devices ([Ali et al 2018](#), [ILO 2020](#))
- increasingly important cybersecurity concerns ([Ali et al 2018](#)).

Specifically within the employer market, a quarter of L&D professionals are concerned about unreliable ICT infrastructure, low bandwidth and corporate firewalls presenting barriers to individuals' engagement in online learning. A fifth (21%) also expressed concern with the cost of establishing, developing and maintaining learning platforms ([Towards Maturity 2019](#)), especially an issue if this requires the modernisation of equipment ([Belaya 2018](#)).

Delivery costs may be lower with digital compared with traditional learning forms, but the initial capital investment may be much greater. The increased use of cloud-based LMS should, however, work to reduce this barrier.

The provision of learning solutions that follow accepted best practice and provide interactivity/communication with other learners, as well as the need to regularly update systems and applications, often also appear to enhance this cost barrier to growth that many studies highlight ([Belaya 2018](#)). Limited budgets were, indeed, cited as a top barrier to learning of all types by 40% of organisations in the recent CIPD/Accenture survey ([CIPD 2020b](#)).

Paradoxically, therefore, low budgets and excessive costs are both driving and limiting the spread of digital and online learning.

## Instructional barriers

The instructional category includes barriers for facilitators such as designing learning content and materials that are high-quality, effective, engaging, interactive, creative and user-friendly ([Belaya 2018](#), [Ali et al 2018](#), [Universities UK 2018](#)). For example, among vocational providers, instructors report having limited time to develop new materials, which has slowed developments in some subject areas ([Zaidi et al 2018](#)). O'Doherty et al ([2018<sup>80</sup>](#)) also found (in the context of medical education) that a lack of incentives to engage in the development and implementation of digital learning also represent challenges from the perspective of instructors.

Furthermore, facilitators' behaviours and attitudes towards online learning can pose a challenge to its wider implementation ([Belaya 2018](#)), with Ali et al ([2018](#)) finding that a lack of acceptance of digital learning technologies and a lack of ownership among instructors for the successful implementation of digital learning technologies were key instructional barriers among employers.

A lack of training and development of facilitators to deliver digital learning effectively is also a common theme in the literature. Clearly, very different skills and instructional and learning engagement techniques are required for digital learning compared with traditional in-person and classroom delivery. Before the pandemic, research studies have shown that the pace of online learning development and expansion of digital offers had definitely been inhibited due to this lack of facilitator skills in using digital learning methods and wider resistance to learning and using them ([Belaya 2018](#), [O'Doherty et al 2018](#), [Zaidi et al 2018](#)).

Research conducted by the German Federal Institute for Vocational Education and Training (BIBB) found that the increased use of learning platforms, technical tools and applications, collaborative learning, and virtual classrooms has all required novel and different methods of instruction. It requires, for example, facilitators to have increased IT and digital media skills, including the ability to adapt training content to digital changes (cited in [Huisman 2020<sup>81</sup>](#)).

The lack of facilitator training and preparedness to deliver digital learning has been particularly highlighted by the rapid and unanticipated shift to digital learning caused by the pandemic ([ILO 2020](#)). In the context of vocational education and training (VET) and apprenticeship delivery, Cedefop observed that in the current crisis, *'learning continuity may only be ensured thanks to teachers and trainers' digital skills, flexibility and creativity to develop and use creative solutions with online resources.... The online learning environments require them to demonstrate high quality digital delivery skills'* ([Cedefop 2020a](#), p13).

However, Cedefop also observed a challenge in that some instructors face a *'lack of digital skills and competences to make efficient use of the platforms'*, have *'poor experience in creating digital teaching content'* and a *'lack of experience of e-learning and other distance learning-effective pedagogies in VET, especially for teaching practical components'* ([Cedefop 2020, p13](#)). Vocational education, it should be said, often presents particular barriers to being moved online given the importance of practical skills.

Within the workplace, the instructional barriers experienced are similarly linked to the development of engaging, high-quality digital content, cited as a barrier to online learning by 21% of L&D professionals ([Towards Maturity 2019](#)). Practitioners lacking the skills to create and manage digital content is also a barrier, with less than a third (31%) of L&D teams possessing these skills, despite 45% of them already delivering digital content created in-house ([Towards Maturity 2019](#)).

Shifts and trends in digital learning, such as the move to embrace social and collaborative learning, also place pressures on the skills and adaptability of L&D professionals. For example, research conducted in 2019 revealed that only around half of L&D teams currently believed they had the skills to facilitate social learning online ([CIPD 2020b](#)).

## Learner barriers

It is important to understand the barriers facing individual digital learners themselves; without consideration of learners' needs, the design and implementation of any type of learning, including that delivered online, is likely to fall flat. While some of the barriers facing digital learners are also experienced in a traditional learning context, there are those that are a direct result of online delivery models. These are discussed separately below.

### Barriers to learning in both digital and traditional contexts

Research has shown that the cost of learning or financial difficulty of engaging in learning can present barriers to access and engagement, particularly among learners from disadvantaged backgrounds, as highlighted by Ali et al (2018) and [Choudhury and Pattnaik \(2020\)](#). Similarly, the academic confidence of learners, for example, their academic experience and the qualification level of the learner can also present a barrier for the individual learner ([Ali et al 2018](#)).

In addition, lack of time for learning or conflicting priorities can often present a real barrier to engagement in learning and development activities, research has shown, especially in the rapidly changing contexts of organisations in recent years ([CIPD 2017](#); [Ali et al 2018](#); [Montgomerie et al 2016](#)<sup>82</sup>). Within the home, family pressures can also make it difficult to find time for learning ([Montgomerie et al 2016](#)), and during the pandemic, shared home workspaces have also posed difficulties in allocating adequate time for study ([ILO 2020](#)).

In the workplace, between 41% ([CIPD 2020b](#)) and 49% of employees ([LinkedIn Learning 2020a](#)) state they do not have time to learn. Bersin, writing in 2017, commented that research has shown employees on average only have about 20 minutes each week in which to learn, time which is also often interrupted ([Bersin 2017](#)<sup>83</sup>).

Both sets of studies highlight the basic need to have a conducive environment for learning, which is without distraction ([Ali et al 2018](#)). Almost half of managers (45%) cite the inability to avoid distractions from learning ([Scott-Jackson et al 2015](#)) as a barrier to engagement in it and its effectiveness.

Almost a third (29%) of L&D professionals also express concern that a barrier to learning is a reluctance by line managers to make time for their staff to undertake it ([Towards Maturity 2019](#)). Related to this, a lack of management support to undertake learning was identified by 29% of organisations as a barrier. This may be encouraged by the lack of senior-level understanding, commitment or buy-in, which were identified as learning barriers by over a fifth (22%) of organisations in the CIPD/Accenture survey ([CIPD 2020b](#)).

Over half (65%) of managers also report learning at home in their own time, a proportion which prompted Scott-Jackson et al ([2015, p5](#)) to suggest that '*learning is being squeezed out of the workplace*'.

A compounding factor linked to lack of time for learning experienced in the workplace is that employees often state an inability to find learning content relevant to their job as a significant barrier to their engagement ([Towards Maturity 2019](#), [Fosway Group 2020b](#)). Only 36% of L&D professionals believe that staff can access learning that is directly relevant to their job ([Towards Maturity 2019](#)).

Within the digital context, almost two-thirds (64%) of managers find the information offered through workplace learning technologies irrelevant to them ([Ferguson et al 2017](#)), and the use of open resource technologies and MOOCs can magnify this problem – if the content is too generic and not directly applicable nor sufficiently tailored and curated to suit the learner ([CIPD 2017](#)).

## Learner barriers as a result of online delivery models

Throughout all evolutions of digital learning, lack of learner motivation and poor retention of learners have been persistent barriers to wider application and usage ([Choudhury and Pattnaik 2020](#), [Panigrahi 2017](#),<sup>84</sup> [ILO 2020](#), [Ali et al 2018](#)). The dropout rates in online learning environments, whatever the country or context, have been and remain higher than in traditional learning environments. Studies over recent years have generally found completion rates to be 10–20% lower than traditional classroom-taught courses ([Muljana and Luo 2019](#)<sup>85</sup>), and global estimates are of around 40% of adult online learners failing to complete online programmes ([Burns 2016](#)<sup>86</sup>). Completion rates of MOOCs, in contrast to their often massive reach, are particularly low – below 10% in some instances (Jordan 2014, cited in [Banks and Meinert 2016](#)<sup>87</sup>).

The poor retention and course completion rates of learners in online learning appear from the research to be linked to such factors as:

- Learners' unfamiliarity with digital learning platforms ([ILO 2020](#)), or a lack of experience in using electronic media ([Belaya 2018](#), [Choudhury and Pattnaik 2020](#), [Ali et al 2018](#)), particularly for synchronous learning, which can be more complex to navigate ([Cleveland-Innes and Wilton 2018](#)). Belaya ([2018](#)) highlighted that these barriers may be particularly acute among employees in SMEs.
- Digital learning requires learners to engage in self-directed learning, as many online courses are controlled by the learner with little input from an instructor ([CIPD 2017](#)). This requires the learner to assume more responsibility for their own learning and understanding, which may not suit everyone ([Cleveland-Innes and Wilton 2018](#), [Ali et al 2018](#)).
- Online learners must also demonstrate effective self-management skills, such as self-discipline, self-direction and time management ([Belaya 2018](#), [Cleveland-Innes and Wilton 2018](#)), 'in order to independently control the learning process, as disturbances and distractions can occur more frequently than in the training room' ([Belaya 2018](#), p96).
- Asynchronous learners can also experience personal barriers, such as feelings of isolation ([Ali et al 2018](#), [Belaya 2018](#), [Open Learn no date](#)), if the online programme lacks any interaction with other learners or facilitators, which can impact on the learner's motivation ([Belaya 2018](#), [Ali et al 2018](#)). The DfE-commissioned study partly attributes the low completion rate of MOOCs to the lack of personal contact, which makes learners feel less committed to online learning ([Zaidi et al 2018](#)).
- The suitability of digital learning to different individual learning styles has also been found to be a problem, with 61% of managers citing this as a barrier to engagement in digital learning ([Scott-Jackson et al 2015](#)). Montgomerie et al ([2016](#)) also found that learning style was a significant factor influencing learning success in corporate online development programmes.

Scott-Jackson et al ([2015](#)) observed:

*It does not seem to be the technology skills, infrastructure or design of digital learning methods which are the main barriers to digital learning in these current times, rather it is the more sophisticated, and sometimes intangible factors of digital learning that are difficult to get right – things like its suitability for certain learning styles and lack of support ([2015](#), p17).*

The level of support for digital learning remains a key barrier ([Ali et al 2018](#), [Scott-Jackson et al 2015](#)), whether this be within the home or work learning context. [Choudhury and Pattnaik \(2020\)](#) noted that a lack of management support and cultural resistance to digital learning within

organisations is a barrier, and the Towards Maturity (2019) benchmarking report stated business leaders' traditional expectations of organisational learning have made a shift away from traditional forms of training challenging (pre-pandemic).

Similarly, the survey by Good Practice/ComRes of managers' views of learning technologies found that managers *perceived* face-to-face learning to be more useful than digital approaches (Ferguson et al 2017, p6<sup>88</sup>), stating that *'even with evidence to support the effectiveness of many digital methods for learning, managers' familiarity with, and preference for, face-to-face learning remains a challenge for L&D to overcome'*.

- Within higher education, traditional and perhaps somewhat elitist approaches to education have also proved to be barriers, with *The Economist* (2020, p7<sup>89</sup>) noting in August 2020 in the context of the scope for digital technology to improve education that *'universities are rightly proud of their centuries-old traditions, but their ancient pedigrees have too often been used as an excuse for resisting change'*.
- Linked to a lack of support is the degree of employer scepticism or lack of acceptance of digital learning that is evident in the UK (Choudhury and Pattnaik 2020, Universities UK 2018), and which is also commonly raised as a barrier in the research literature (CIPD 2020b). This is also particularly relevant in the discussion of MOOCs. While some organisations have embraced MOOCs for widening and enhancing their employee training – including AT&T, GE, L'Oreal and Marks & Spencer, which have partnered with MOOC providers to deliver employee training – (Hamori 2018<sup>90</sup>), many employers do not regard MOOCs as an effective substitute for formal training (ibid), although more recently, there has also been faster growth in the number of traditional MOOC courses that lead to micro credentials<sup>91</sup> (ICEF Monitor 2020<sup>92</sup>).

There is, however, some evidence of a steady shift towards more favourable employer attitudes. For example, research by FutureLearn, the Open University's online social learning platform, finds that almost three-quarters (73%) of employers find online courses valuable when considering the promotion of an existing employee, and over two-thirds of employers report that evidence of a candidate taking an online course is a 'differentiating factor' when hiring mid-management and junior staff (FutureLearn 2018<sup>93</sup>).

Gallagher at Northeastern University also stated that *'employer acceptance of credentials earned online has been slowly and steadily increasing'* and cites his survey of 750 US HR leaders in 2018, which found that almost two-thirds (61%) now believe that credentials earned online are of equal quality to those completed in person (Gallagher 2018<sup>94</sup>). However, he states that it is *'notable that for well over one-third of employers (39%), the notion that online credentials are second-class still remains'*. Gallagher, however, also observed that employer experience of job candidates possessing micro credentials is still fairly low, although this is perceived to be *'evolving rapidly in a growing market shaped by MOOCs and new credential offerings'* and, as Professor Hickey at Indiana University observes, only a relatively short time has passed in the evolution of corporate learning *'to transform entrenched practices for accrediting, credentialing, admitting, and hiring'* (Hickey 2017<sup>95</sup>).

The ILO also forecast that the pandemic will go some way to *'help accelerate the validation and recognition of online learning as a legitimate path for capacity building and upskilling'* (ILO 2020) as employers and providers have had little choice but to move online.

## Summary of barriers

Table 1 summarises the main barriers to more widespread delivery of and engagement in digital learning. The learning context is likely to determine which of these barriers are most impactful and these are likely to shift over time.

Scott-Jackson et al (2015) comment that technological barriers may be having increasingly less impact through improved access and increasing familiarity. This has been pushed even further through people's increased use of technology during the pandemic, for example millions have turned to Zoom for the first time.<sup>96</sup> Disparity of access is still an important barrier to wider engagement. However, despite some progress on the technological front, the research suggests that it is the cultural barriers to digital learning that remain almost as persistent as ever.

**Table 1: Summary of barriers identified by research studies<sup>97</sup> to the growth and application of online learning**

Technological barriers	Instructional barriers	Learner barriers
Reliability and limits of existing technology infrastructure	Instructors' behaviours and attitudes	Lack of motivation
Costs of investments in online learning and limited budgets	Design of engaging and user-friendly learning content	Cultural resistance within organisations, for example regarded as low level and generally unrecognised
Lack of availability of technical support	Requirement to adapt learning content to suit different learning styles and digital delivery	Unfamiliarity/lack of experience with digital learning platforms
Disparities in access to computers/necessary bandwidth/technology issues	Digital competence levels of instructors/lack of instructor training and support	Requirement for self-management skills (time management, avoidance of distractions, self-discipline)
Cybersecurity concerns/risks	Reluctance of learners to assume responsibility for own digital learning	Feelings of isolation
	Suitability of learning topic to online delivery	Lack of support (instructor/management)
		Poor fit with individual learning style
		Lack of time for learning
		Inability to find relevant learning content
		Low academic attainment/confidence levels
		Financial cost of engagement/access

## 5 Employer and government-led digital learning approaches in practice

As we have described, even before the COVID-19 pandemic there was already increasing interest in the use of digital learning within the employer market. Increasing awareness of skill gaps and the need to upskill or reskill employees has placed greater importance on on-demand learning ([Santandreu Calonge et al 2019<sup>98</sup>](#)), with predictions that *'regular upskilling will become the new norm of the professionalised workforce'* ([Santandreu Calonge et al 2019, p3](#)).

As part of this review, we have sought to identify examples of employer-led upskilling and reskilling initiatives delivered online, in order to capture learning from the approaches as to how to improve the provision and the uptake of digital learning. The DfE-commissioned rapid evidence assessment ([Higton et al 2019<sup>99</sup>](#)) of online adult learning initiatives, conducted by CFE Research, identified several successful international examples of business-led digital upskilling/reskilling programmes, which we include here, alongside some other examples. We also use material from some of these examples when considering the effectiveness of digital learning in Section 6.

### Employer upskilling/reskilling initiatives

#### United Kingdom

In the UK, in 2018, Lloyds Banking Group, after conducting a **strategic workforce planning exercise**, identified that the majority of the group's employees would require new skills over the next three years. The group identified ten core skill needs, including new skills such as agile project management and artificial intelligence, alongside more traditional customer service, relationship management and leadership skills. The group made a public commitment to deliver 4.4 million hours of learning and development for employees through mixed delivery models to help develop these skills and, among other initiatives,<sup>100</sup> launched new online learning hubs ([WEF 2019<sup>101</sup>](#)).

Incorporating an online learning approach was not new to the group, with its learning management system (LMS) 'Discover Learning' offering training across a range of media since 2014. The group had also **sought employee feedback** on the LMS, which resulted in **easier access to relevant learning** and development, including making learning easier to find, which resulted in increased take-up.<sup>102</sup>

Alongside these initiatives, the group also launched a campaign to encourage employees to learn based around four common drivers for self-development: change, curiosity, challenge and career. This campaign was supported by a network of 300 learning champions and a dedicated social media site<sup>103</sup> ([WEF 2019](#)).

#### United States

In the United States, the telecommunications company AT&T runs the employee reskilling programme 'Future Ready' to meet the changing skill needs of the organisation ([Higton et al 2019](#)). Future Ready, which has run since 2013 (under different brandings), includes online master's level courses in computing and data science, designed in collaboration with universities. Training is delivered using 'interactive virtual learning systems' ([Higton et al 2019, p10](#)), including **two-way communications** with instructors broadcasting live online to learners. Most courses and credentials are funded by the company, but employees undertake the learning mostly in their own time ([Weber 2019<sup>104</sup>](#)).

The Future Ready platform also enables employees to search for details about available roles and the prospects of the role to understand its **future demand** ([Higton et al 2019](#)). The DfE-commissioned report stated that the Future Ready *'online portal is perceived to be a critical tool in*



encouraging employees to take up training ... it empowers members of the workforce and encourages them to **take ownership** of their retraining and upskilling needs' ([Higton et al 2019, p43](#)). By 2019, some 180,000 employees had participated in the Future Ready programme ([Weber 2019](#)) and the programme has reduced the level of external hiring in recent years (ibid).

Similarly, in February 2020, the US insurer Nationwide launched a five-year programme to reskill and upskill employees through its online 'Future of Work' centre. Annually, every employee is provided with a **personalised** learning curriculum focused on **skills needed for the future**. Reskilling opportunities are business-unit-specific and include **targeted career paths** ([Nationwide 2020](#)<sup>105</sup>). Employees who participate in the programme are also eligible for **bonus increases** ([Mercer 2020](#)<sup>106</sup>) to incentivise participation.

## France

In France, the professional services firm ManpowerGroup operates FuturSkill, a programme aimed at supporting redundant workers with career transitions by **developing in-demand skills** in sectors such as IT and call centres ([WEF 2017](#)<sup>107</sup>). The four-month-long programmes involve an online learning management system in both hard and soft skills, skills assessments and training ([WEF 2017](#)). In 2017, it was cited by the World Economic Forum that some 60,700 workers across France had been assisted by the programme.

Following programme completion, ManpowerGroup's 'Bridge to Work' programme **redeploys the unemployed into 'in-demand' positions**. In 2017, the programme had achieved a 90% placement rate of candidates into roles such as IT help-desk technicians, developers, customer service representatives and production workers (ibid). The World Economic Forum stated that this placement rate is 'double the placement rate of publicly funded programs in France that do not link training to direct employment opportunities' ([2017, p8](#)).

## Government-led approaches

In addition to the consideration of employer-led upskilling/reskilling online initiatives, we have also reviewed the available evidence of relevant national and international government-led approaches. Again, we also include the examples presented in the DfE-commissioned rapid evidence review of adult online initiatives ([Higton et al 2019](#)).

## United Kingdom

In April 2020, the UK Department for Education launched the 'Skills Toolkit' – a new online learning platform providing free access to digital, numeracy and employability courses to help people build skills, progress in work and, during lockdown, to maintain skills development during furlough ([DfE 2020a](#)<sup>108</sup>). The platform provides introductory, intermediate and advanced courses through providers such as the Open University, FutureLearn, Google Digital Garage, Lloyds Bank, Microsoft and the Good Things Foundation.

The DfE stated that the courses available were selected to **meet the current and future skill needs of employers** ([DfE 2020a](#)). All courses are offered entirely online; they **do not require any time-limited support** such as seminars or online lessons; and offer a free record of completion (for example a digital certificate) to demonstrate the participant has completed a course – a requirement thought to help participants searching for employment by offering **evidence of newly developed skills** ([DfE 2020a](#)).

In July 2020, the Government announced it wished to expand the Skills Toolkit by adding more courses to the 17 already offered on the platform. They expressed a particular interest in courses that would be useful for apprentices, graduates and those recently unemployed, as well as those that can provide useful **skills for growing sectors and occupations** in the UK economy ([DfE](#)

[2020a](#)). In September 2020, it was confirmed that the Skills Toolkit was being expanded to include a further 62 courses.

Since its April launch and as of the end of September 2020, there have been over 1 million visits to the site and almost 98,000 course starts, although only around 16,000 course completions ([HM Government 2020](#),<sup>109</sup> [UK Parliament 2020](#)<sup>110</sup>). While employers have been encouraged to use the Skills Toolkit to support and develop furloughed employees, for the courses to have real impact, we suggest that the model needs to go further, with greater levels of employer engagement and job brokerage activities through links to employment opportunities.

As part of the initial rollout of the UK National Retraining Scheme,<sup>111</sup> one of the pilot areas – the West Midlands Combined Authority (WMCA) – is providing a range of **online learning opportunities in priority sectors**, such as digital and construction, for unemployed or low-income (earnings under £17,500 per annum), low-skilled adults.

As part of the pilot, in April 2020, the WMCA announced it was funding online construction training courses for unemployed or low-skilled people in the West Midlands to start new careers in the construction sector. The WMCA also partnered with a training provider – RMF Construction Training Academy – to create new tutor-led online courses in an innovative pilot scheme for the Construction Gateway programme. The Construction Gateway offers unemployed people a free introduction to construction skills – providing them with the **qualifications needed** to be ‘site-ready’ for work (for example Construction Skills Certification Scheme (CSCS) card) – and **guarantees a job interview** on completion of the course. The online courses include drone-captured video demonstrations and a mixture of group and one-to-one sessions ([WMCA no date](#)<sup>112</sup>).

### International examples

The 2019 DfE-commissioned review of online adult learning initiatives concluded that *‘there is a very limited amount of information publicly available regarding international examples of government-led online adult learning initiatives focused on upskilling or retraining’* ([Higton et al 2019, p44](#)). It was, however, able to identify examples in France, Singapore and Ireland, and found that most of the government-led online provision was linked to developing skills *‘broadly described as digital skills, such as IT, digital marketing, online publishing, etc’* ([Higton et al 2019, p44](#)). We discuss the main features of these initiatives below.

**In France**, the France Université Numérique (FUN), which was established by the French Government in 2013, provides a MOOC platform giving free access to online learning. Over time, FUN has developed subsidiary organisations that provide MOOC content for a fee to meet wider needs such as for university students (FUN Campus) or for companies wishing to access employee training (FUN Corporate). Provision has grown to over 350 MOOCs covering more than 40 different subjects ([Higton et al 2019](#)) and the review noted that the age profile of learners suggests that FUN is being used by adults wishing to upskill or retrain.

The review also found that FUN has **increased employer awareness** about online training courses provided by universities, resulting in more employers working with these institutions to generate bespoke training for employees. In addition, FUN is **collaborating with universities and sectors facing recruitment challenges** to develop online courses to raise awareness of opportunities in these sectors for potential employees ([Higton et al 2019](#)).

The review also identified ‘OpenClassrooms’ in France. This private distance learning organisation has been partnering with the French Government since 2015 to provide free access to online courses for jobseekers (with a monthly charge for other learners) to help them **develop in-demand skills**. The organisation grants its own qualifications as well as qualifications on behalf of partners. Over 1,000 online courses, at various levels, are available, focusing on digital skills to **meet labour market needs**. Courses use a range of online tools for independent study and **mentors provide**

**support** through videoconferencing. Virtual discussion forums are also available ([Higton et al 2019](#)).

'Learning Pathways', which are OpenClassrooms' bachelor's and master's level programmes and attract monthly fees, are designed to enable learners to follow multiple courses in order to train for a specific job (in design, development or product). These Learning Pathway courses are developed with **consideration of the jobs in high demand**, determination of the skills required for these jobs and integrating project-based activities into courses so **learners can apply and demonstrate required skills**. The Learning Pathway courses include a **job guarantee** under which graduates who do not secure employment within six months of completing the course are refunded the cost of the course, providing a **financial incentive** for learners to enrol on these courses ([Higton et al 2019](#)).

Also in France, a new initiative – 'Mon Compte Formation' – has been launched in collaboration with the Ministry of Labour. It is described by the World Economic Forum as being '*the first-of-a-kind individual skills account with an integrated mobile application dedicated to vocational training and lifelong learning*'.<sup>113</sup>

**In Singapore**, SkillsFuture Singapore (SSG) is a statutory board under the Ministry of Education that promotes the value of lifelong learning. The programme is supported by a joint council of government, union and industry stakeholders. The programme delivers **skills training to meet labour market needs**, offers **financial subsidies** to incentivise individuals' investment in their lifelong learning, and provides an online portal – 'MySkillsFuture' – a one-stop shop for job vacancies, careers advice and training ([Higton et al 2019](#)), which is primarily targeted at adults already in employment.

Courses are delivered online but (pre-COVID-19) also through classroom and workplace training. Courses cover a range of subjects, levels and course durations. SSG delivered a month-long programme of **roadshow events** (SkillsFuture Festival) to increase engagement in the SkillsFuture initiatives and **increase awareness** of the types of online training available. SSG is government-funded, with SSG subsidising up to 70% of the course fee (with higher subsidies available for mature and lower-income workers), with learners covering the remaining cost. Individuals can receive a further funding contribution through the SkillsFuture Credit, which is a government contribution of S\$500 made available to all Singaporeans aged 25 and above to use on training courses in order to encourage participation in lifelong learning ([Higton et al 2019](#)). A one-off SkillsFuture Credit top-up of \$500 is also to be provided to every Singapore citizen aged 25 years and above as at 31 December 2020, in addition to a mid-career support credit for those aged 40 to 60 years to improve access to career transition programmes and encourage individuals to '*learn, reskill, and seize new career opportunities*' ([SkillsFuture no date](#)<sup>114</sup>).

**In Ireland**, eCollege was another government-led approach identified by the review. This is a SOLAS-funded<sup>115</sup> online training platform that provides interactive online learning courses in business, project management, information technology, graphic design, web design, digital marketing, software development and basic computer literacy. Content is delivered through online tutorials, videos and e-books, with **eTutor support** offered ([Higton et al 2019](#)). All courses lead to **industry-recognised certification** after assessment at approved test centres.

The online courses are free to jobseekers and '*are designed to give a flexible response to the specific skills needs of individuals who require training interventions with certification to assist them to re-enter or upskill in the labour market*' ([eCollege no date](#)<sup>116</sup>). Courses are also available, for a fee, to employed people wishing to upskill or reskill ([Higton et al 2019](#)). However, following COVID-19, eCollege courses were made temporarily free of charge to support those impacted by the pandemic (*ibid*). Since the online learning service became free of charge, there has been significant take-up of the offering, with some 12,851 'public referrals' being made to eCollege between 24 March 2020 and 14 May 2020 ([ReferNet Ireland 2020](#)<sup>117</sup>).

## 6 A tipping point? COVID-19, lockdown and the impact on digital learning

### Lockdown and digital learning growth

The COVID-19 pandemic has forced a faster and far more widespread shift to digital learning. It appears to have rapidly increased the number of digital learning opportunities and provisions ([ILO 2020](#)), driven initially by the speed of the requirement as it struck to prioritise safety and reduce risk ([McKinsey 2020](#)), and then maintained by the extensive homeworking that it has engendered and the new requirements for learning and support in that environment.

CIPD research (unpublished) found that 54% of more than 1,000 employers reported using digital and online learning channels for their employees during lockdown. Moreover, the continuing requirements for social distancing will most likely maintain this stimulus for months to come. Some 80% of those employers able to use digital learning also reported being likely to increase their use of digital/online learning over the next 12 months. The appropriateness of this channel for homeworking, cost-effectiveness and employee preference for flexible learning were all cited as reasons for the growth by more than 50% of these employers, while lack of budgets and in-house capability to design/deliver such learning were the most commonly-cited barriers.

Initial results from a [May 2020 survey by the Fosway Group](#)<sup>118</sup> into the impact of the pandemic on corporate L&D across Europe found that 82% of L&D professionals reported that demand for digital learning had increased among senior stakeholders, and 71% had seen increased demand for digital learning content from learners.

The survey also found that 21% had implemented a 'new' digital learning solution during the pandemic. Video content had been most successful in supporting learning throughout this time, followed by curated content, mobile learning and microlearning. In addition, virtual classrooms, learning experience platforms (LXPs) and collaborative learning platforms were rated as the most 'successful systems' for learning delivery during the pandemic (ibid).

In September 2020, Jane Hart of the Centre for Learning and Performance Technologies published her annual global survey of the [Top 200 Tools for Learning](#),<sup>119</sup> based on 2,369 votes across 45 countries. The survey was conducted during lockdown and therefore provided additional insights into how learning was being 'enabled and supported' during the pandemic. It found that in workplace learning and in further, higher and adult education, collaboration platforms, for example online white boards, and video meetings platforms were dominating.

In the workplace, these tools were being used for both formal and informal learning at work, with Hart observing that *'we are [therefore] beginning to see integration of work and learning on the same platform'*. Hart also stated that due to the pandemic, in the workplace there has been a shift away from content development towards live training, to enable training to be delivered quickly ([Hart 2020](#)).

In response to the pandemic, many further education and higher education institutions attempted to fully digitalise all of their programmes, with the University of Cambridge being the first UK university to announce it would offer all of its courses online for the entire 2020–21 academic year. Other institutions have plans to offer a hybrid blend of face-to-face and remote learning for the forthcoming year, requiring faculty to balance asynchronous learning with synchronous *'small curated working groups'* ([Financial Times 2020](#)<sup>120</sup>).

The demand for online learning among new learners has significantly increased during the pandemic. The recession and forecast significant rise in unemployment as the Government's furlough scheme winds down should add to and prolong this growth in customers. Historically, economic recessions have stimulated demand for particular types of further and higher education.

For example, the Open University (OU) reported that its OpenLearn platform received over 950,000 course enrolments during lockdown ([Open University 2020b](#)<sup>121</sup>). Specialist work-focused courses, such as leadership and followership (the latter being how leaders can develop subordinates to create more productive relationships), were particularly popular, in addition to modules designed to boost professional skills such as workplace communications (ibid).

OU research also found a quarter of employees have taken on additional learning opportunities to boost their employability (ibid) during the pandemic, and data from LinkedIn Learning found that employees were spending 130% more time learning (January/February 2020 vs March/April 2020) ([LinkedIn Learning 2020b](#)<sup>122</sup>).

Many VET and apprenticeship providers have also been rapidly incorporating online platforms to facilitate learning, online on-the-job delivery and virtual assessments ([Cedefop 2020a](#)). In the UK, a snapshot survey conducted by the Association of Employment and Learning Providers (AELP) in April 2020 of 150 training providers, colleges and universities found that more than three-quarters had moved learning provision for apprentices and other learners to remote delivery ([AELP 2020](#)<sup>123</sup>).

But the disruption and negative financial impact of the lockdown has led to reductions in overall learning provision, even if a higher proportion of that is being delivered online. Over half (57%) of providers training apprentices and other learners were at that point working at less than 80% of capacity, and only 43% of those training apprentices were operating at 80–100% of pre-pandemic capacity ([AELP 2020](#)). UK apprenticeship starts in May 2020 were 60% down on a year earlier, prompting the Government to introduce new cash bonuses for employers taking on younger workers and apprentices ([Moules 2020](#),<sup>124</sup> [DfE 2020b](#)<sup>125</sup>).

## Learning from growth and change

Corporate learning more broadly may have experienced a similar impact, through a combination of disruption to traditional training programme delivery and the financial hit of the resulting economic recession. Research by the CIPD (unpublished) found that 22% of employers forecast a reduction in their learning budgets over the next year, with 17% citing budgets as a barrier to digital provision, although 18% forecast a further increase in their learning budget, with the focus on digital channels.

VET institutions were rapidly required to reorganise their delivery to digital education and training, and online provision is very different from traditional VET learning, which is strongly rooted on the physical presence of the learner in a specific VET establishment ([Cedefop 2020a](#)). A forum hosted by the Global Skills for Employment Knowledge Sharing Platform,<sup>126</sup> *Continuing online learning and skills development in times of the COVID-19 crisis*, gained insights on how the COVID-19 pandemic has affected skills development, from representatives of civil society organisations, training institutions, government ministries and international organisations. Apprenticeships, especially in engineering, IT, finance and insurance, are making use of online learning solutions, particularly through digital learning platforms, with video and learning management system tools, for example Zoom, Google Classroom, Moodle, and so on, being widely used in the transition to digital learning ([ILO 2020](#)). But this is harder to achieve with manual and craft skills and non-desk-based jobs and occupations.

Other VET providers are exploring options for innovative, digital teaching approaches such as simulators, augmented/virtual reality or artificial intelligence to train specific practical sectoral skills ([Cedefop 2020a](#)). For example, in the UK, the West Midlands Combined Authority has, through its Construction Gateway programme, funded the installation of four virtual reality simulators at the Solihull College and University Centre to train local unemployed people in construction skills ([WMCMA 2020](#)).<sup>127</sup>

New strategies to keep learners engaged in digital learning during the pandemic were also highlighted by the forum, such as the use of individualised learning plans, creating challenges and competitions among learners, and the use of online tools or platforms already familiar to learners (for example Facebook, Twitter, and so on) ([ILO 2020, p10](#)).

A survey conducted by People Management during the pandemic (with a sample size of 210 respondents) found that within workplaces, three-quarters of respondents (75%) have altered the way training is delivered, with half making training courses available online ([Howlett 2020<sup>128</sup>](#)). As only 15% stated they offered training courses online before the pandemic hit, this highlights a rapid shift in approach. Some 60% of organisations have made training courses shorter and more 'bite-sized' as a result of going online; 60% have also created virtual classrooms; and 40% have now included more video content in their training approaches (ibid).

'Content curation' – the process of collating and filtering the most relevant learning resources for dissemination to learners – as opposed to 'content creation' (producing new content) is also being prioritised, to help employees navigate and identify pre-existing content most suited to employee needs (Dublin City University research, cited in [Howlett 2020](#)).

Online learning has also been used by employers to train furloughed workers in preparation for their return to work and to maintain employee engagement, with 40% of employers in the CIPD's survey using it for some or all of their furloughed employees. It has also offered opportunities for continual professional development during the lockdown. For example, the hospitality sector has organised digital refresher courses in food safety and hygiene, and some 79% of organisations here are still conducting health and safety compliance training, but now completely online ([iHASCO 2020](#)).

McKinsey ([Kshirsagar et al 2020<sup>129</sup>](#)) observe that alongside promoting existing digital learning provisions, some organisations are attempting to shift their existing in-person training onto fully digital platforms, stating:

*'Such efforts go beyond merely applying existing technology solutions to offer virtual classrooms. Rather, they represent a more fundamental rethinking of the learning experience to enable collaborative, interactive social-learning experiences for groups of learners'* ([Kshirsagar et al 2020](#)).

## Examples of L&D changes in practice

**L'Oreal** shifted its learning and development focus to full online provision during lockdown, as part of a much wider shift in the organisation and its approach to learning. Prior to the pandemic, about 90% of internal training at L'Oreal was in-person, with about 10% conducted online ([Jacquet 2020<sup>130</sup>](#)). With a new focus on online learning, it has:

- developed a programme called 'Learning Never Stops', in recognition of the need to upskill its employees – this highlights the '*criticality of continuous learning*' ([Jacquet 2020](#)) and focuses on e-commerce and change in consumer habits following the pandemic
- promoted a new programme – 'One One One' – which prompts employees to spend one hour learning every week, every month
- implemented a 'MyLearning Platform', which includes a variety of short learning modules and live webinars with experts, with regularly updated content
- plans to create online classrooms, with future learning programmes using a blend of in-person training and the new online platform

- shifted how the L&D department is organised, identifying four separate roles for L&D: architects (to create learning paths); curators (to find and create the best content for individual employees); producers (to develop online learning events); and activators (to engage employees in the content) ([Jacquet 2020](#)).

**Nielsen**, the global information, data and measurement firm, has also reported a fundamental shift to digital learning prompted by the pandemic. It is rewarding employees for participating in online learning by offering learning challenges and completion badges as motivators. Leaders have also been hosting short lectures ([Jacquet 2020](#)).

Many organisations have also made innovative efforts to develop online/remote work placements so as to continue to offer professional learning experiences to VET learners and also recent graduates, despite the lack of ability to meet in person, although these opportunities have not been possible in all sectors ([ILO 2020](#)). There appears to have been widespread cancellation of summer internship schemes in many organisations in 2020, including at large employers such as Lloyds, BDO and Santander ([Jolly 2020](#)<sup>131</sup>). But efforts have been made to provide remote learning opportunities, including hosting virtual sessions, as at PwC and Microsoft.

**Microsoft** announced in April 2020 that it was shifting to a virtual internship programme for more than 4,000 interns, stating it would host *'remote events that focus on building connections, fostering learning, and empowering interns to achieve their goals and uncover their passions. Participants in the program will connect with one another, build community within their teams, and engage with senior leaders across the company through a variety of virtual events'* ([Hogan 2020](#),<sup>132</sup> [Christie 2020](#)<sup>133</sup>).

**JP Morgan Chase** reports that its new virtual internship programme *'encouraged us to be more globally co-ordinated'* and to break down geographic barriers, with internship remaining as the major means of selecting their graduate hires. Employers also report the benefits of widening social mobility, with **Clifford Chance**, for example, launching a global internship programme on the digital platform InsideSherpa in summer 2020, stating that *'opening up access to our learning opportunities to everyone was a top priority – people can join for free from anywhere in the world'*.<sup>134</sup>

Other companies have provided virtual interns with the technology they need or have set learners up with the required software on their own personal devices ([Van Deuren and Seehra 2020](#)) in order to continue with on-the-job learning. Some companies are also moving away from setting discrete, individual tasks for learners on work placements towards more group-based online projects in order to replicate normal interactions with employees and their peers in the workplace ([Van Deuren and Seehra 2020](#)<sup>135</sup>).

Some employers have also shared their existing online learning content with a wider public audience, in recognition of a social need for upskilling and retraining, with the pandemic highlighting the important social role and responsibilities of business.

For example, in the UK, in May 2020, **Rolls-Royce** opened up wider public access to its own online Digital Academy and provided free access to its digital skills online training programmes, targeting school-leavers and those wishing to upskill, in order to *'help people and businesses around the world prepare for a potentially digital-centric recovery from COVID-19'* ([Rolls-Royce 2020](#)<sup>136</sup>). The courses, supported by multiple partners including Google for Education, IBM and Learning Tree, include introductions to data science, artificial intelligence, machine learning, coding and digital culture, and range from 'bitesize' 20-minute sessions to extended fully certified training programmes ([Rolls-Royce 2020](#)).

The Rolls-Royce Digital Academy has trained 20,000 of its own employees since 2018 (ibid) and in normal circumstances uses a blended approach to learning and development, stating that it takes a *'digital-first approach to learning, complemented by classroom-based time and on-the-job*

*coaching and mentoring*' ([Rolls Royce no date](#)). This year it also developed a new learning approach allowing its employees to access online Rolls-Royce learning resources and courses via an app at their convenience, including personalised learning recommendations (ibid).

**IBM** has also recently developed an online programme to assist job seekers and other learners build skills through free online courses, offering badge credentials. The '[SkillsBuild Reignite](#)' programme offers free courses to gain digital and professional skills and involves at least 30 hours of online learning, which leads to a Professional Skills badge. Once this badge has been obtained, learners become eligible to access more content, including job role learning paths in web development, cybersecurity, cloud system administration, data management or customer support, and one-on-one coaching on technology, professional and job search skills.<sup>137</sup>

There is also some evidence that the pandemic has led to the forging of new partnerships between government agencies and private/public sector partnerships in order to effectively deliver digital learning ([ILO 2020, p5](#)). For example, in the United States, a partnership between an online vocational training provider – 180 Skills – which provides online technical and employability skills training for the manufacturing, logistics/distribution, retail, and industrial safety industries – and the federal and state governments is aiming to create rapid reskilling programmes to transition displaced vocational and technical workers into jobs currently in demand. More than 700 competency-based online and interactive courses are available on the platform in 38 competency topic areas. Partnerships between states, academic partners and employers in need of skilled workers have been established to support the programme (cited in [ILO 2020, 180Skills.com no date](#)).

## Summary

- The COVID-19 pandemic has forced a faster and far more widespread shift to digital learning, driven in particular by the widespread shift to homeworking and the urgent need for new forms of training and support, for example in health and safety procedures and to support employees' mental health.
- In the employer market, there has been a huge and rapid shift in how learning and development is delivered, with attempts to adapt and move learning online, with some organisations attempting to move to fully online provision.
- CIPD research conducted in summer 2020 ([CIPD 2020c](#))<sup>138</sup> found 54% of more than 1,000 employers surveyed had been using digital and online learning during lockdown and 80% plan to increase this provision over the next 12 months. Research from the Open University found a quarter of employees have taken on additional learning opportunities to boost their employability ([Open University 2020b](#)).
- Throughout the pandemic, some employers have used digital learning to provide and maintain access to training and to provide opportunities for continual professional development. Some employers have also trained, and attempted to maintain the engagement of, furloughed workers through offering online opportunities for learning and social support.
- The focus has also been on 'content curation'<sup>139</sup> as opposed to just creating new content, in order to make digital learning relevant to employee needs and better suited to online delivery.
- Some employers have also shared their existing online learning content with a wider public audience in recognition of a social need for upskilling and retraining.



- In vocational training, some providers have rapidly incorporated digital platforms to facilitate learning, online on-the-job delivery and remote assessments, despite online provision being very different from traditional VET learning.
- There is also some evidence of the pandemic leading to the forging of new partnerships between government and private/public sector organisations in order to effectively deliver digital learning within reskilling programmes ([ILO 2020](#)).
- However, the disruption and recession caused by the pandemic has led to overall reductions in learning provision and spending in around a quarter of employers, even if a higher proportion of that is being delivered online.

## 7 ‘What works’ in digital learning?

### How effective is digital learning?

Despite the long-standing nature of theoretical frameworks for measuring and assessing the effectiveness of corporate learning and development activity,<sup>140</sup> the application of these frameworks in digital learning (as in the whole learning and development field) continues to be frustratingly limited. Much of the evidence about ‘what works’ in digital learning and its effectiveness, especially within the workplace, shows mixed results, with inconclusive findings in the academic research, and recommended supposed ‘best’ practice dominating in the management literature, which often does not appear to have been robustly tested nor taken enough account of variations in contexts.

However, below we present some key findings from the academic and practitioner literature on what has been learned about digital learning effectiveness. These key findings are not intended to be exhaustive but include what we consider to be the main ‘take-aways’ from the literature. Here we consider the main findings on the levels and dimensions of effectiveness before describing in the second part of the section the factors associated with higher levels of effectiveness:

- Good-quality **digital learning can be just as effective as traditional in-person learning** ([Nguyen 2015](#),<sup>141</sup> [Colvin et al 2014](#)<sup>142</sup>). There is a good volume of literature comparing traditional classroom learning with the use of digital or online learning, including several meta-studies (Tamim et al 2011, Means et al 2010, Barnard et al 2014, cited in [Bates 2015](#)<sup>143</sup>). The majority find little or no significant difference in the learning outcomes achieved ([Bates 2015](#)), although research has shown that learners with ‘*weak academic preparation and those from low-income and under-represented backgrounds*’ typically underperform and experience poorer outcomes in fully online learning environments (cited in [Protopsaltis and Baum 2019, p2](#)<sup>144</sup>).
- Studies that have compared the effectiveness of different learning delivery methods have found that **blended or hybrid learning** (using both online and offline learning interventions) **is generally the most effective** and therefore a preferable method of delivery ([Means et al 2010](#),<sup>145</sup> [CIPD 2017](#), [Towards Maturity 2019](#)). Although Means et al, in a meta-analysis and review of online learning studies for the US Department of Education, did note that ‘*in many of the studies showing an advantage for blended learning, the online and classroom conditions differed in terms of time spent, curriculum and pedagogy*’ ([Means et al 2010](#)). A blend of both synchronous and asynchronous learning can also improve the quality of peer and learner-to-instructor interactions, which can increase learner engagement and improve learning outcomes (Hastie et al 2010, cited in [Cleveland-Innes and Wilton 2018, p57](#)).
- Digital learning has been shown to **require less time for learning**, with a study by the Brandon Hall Group revealing that digital learning required 40–60% less time to learn than

traditional classroom learning, because learners can study at their own pace (Brandon Hall 2017, cited in [eLearning 2019](#)<sup>146</sup> and [Li and Lalani 2020](#)<sup>147</sup>).

- **Retention of learning is improved** in a digital setting, with a study by the Research Institute of America showing that retention rates from digital learning were between 25% and 60% compared with only 8–10% in a traditional classroom setting. This is attributed to learners having more control over the learning process (Research Institute of America 2001, cited in [Li and Lalani 2020](#)), allowing them to focus on the most relevant personal material. So, if digital learners can be carried through to completion of the learning – which is harder and less likely than with traditional formats – their learning retention rates are likely to be higher.
- Although there are still gaps in the evidence linked to the effectiveness of digital learning in the corporate context and its impact on performance ([Okano et al 2018](#)<sup>148</sup>), there is evidence that the adoption of **digital learning can generate significant returns on investment**. For example, in 2018 the University of Maryland conducted one of the first in-depth studies of whether people learn better through virtual immersive environments compared with traditional platforms and found an 8.8% improvement in overall recall accuracy using VR ([University of Maryland 2018](#)<sup>149</sup>).
- Walmart also found that using VR to train employees in new technology, soft skills (such as empathy and customer service) and compliance resulted in 30% higher training satisfaction compared with other training methods, and outperformance of groups trained through other methods by 70% ([Rogers 2019](#)<sup>150</sup>). In addition, a study by the US Navy compared the cost-effectiveness of VR training and found that immersive learning realised \$4.24 million in avoided costs, yielding an ROI of \$2.96 million against a \$1.28 million investment (cited in [Beck 2020](#)<sup>151</sup>).
- The research literature, however, does indicate that it is critical to appropriately **align the digital delivery method (or use of technologies) with the learning content** to achieve effective learning outcomes. In a world where digital technologies are used to deliver learning across vastly different topics, from online compliance courses to training UPS delivery drivers ([UPS no date](#)<sup>152</sup>) or delivering complex surgical training via virtual reality, there seems to be no boundaries to the use of digital learning, but matching content, tools and learners appears to be critical, as indeed research shows it to be with more traditional methods.

While the digital learning industry often suggests that specific and concise training topics are a best fit with digital delivery, other commentators, such as Accenture, have suggested that *‘no type of technical or employability skills are more or less suited to the digital medium than others’* ([Accenture 2015, p5](#)<sup>153</sup>).

However, they caveat that, crucially, there must be *‘alignment between the type of skill taught and the structure by which it is taught’* ([Accenture 2015, p5](#)). This echoes the caution by commentators such as [Cleveland-Innes and Wilton \(2018\)](#), [Ferguson \(2019\)](#) and [Montgomerie et al \(2016\)](#) that incorporation of technologies without consideration as to how they support learning does not lead to effective outcomes.

The CIPD similarly observes that *‘regardless of any digital platform, the first consideration is the needs of the organisation and how digital solutions will best meet that need’* ([CIPD 2020a](#)).

### Success factors for effective digital learning

Across the literature there are numerous recommended practices for implementers of digital learning, although robust impact assessments of organisational initiatives in particular are limited. [Choudhury and Pattnaik’s \(2020\)](#) recent literature review of emerging themes in e-learning

identified a mind-blowing 92 different critical success factors for ensuring the effectiveness of digital learning.

Some practices recommended for effective digital learning stem from practices in traditional learning contexts, while others are more explicitly connected to the digital delivery method. For example, provision of timely feedback on learning activities or progress ([CIPD 2017](#), [Montgomerie et al 2016](#), [Ali et al 2018](#)) is a key success factor evident in many studies, whether learning is undertaken through digital or traditional methods.

The Department for Education's 2019 commissioned review ([Higton et al 2019](#)) also stated a key lesson from research and practice was ensuring online learning opportunities support the skills required to meet future labour market needs. While this is notoriously difficult to do, the study highlighted examples such as OpenClassrooms and AT&T, which have both delivered online courses designed to meet employer skill needs, and FUN in France, which has begun collaborating with universities and sectors with skill gaps to develop relevant online courses ([Higton et al 2019](#)). While the study highlights this factor as a key element for digital learning initiatives, tailoring to employer needs is also required for effective outcomes within traditional learning contexts, as many prior studies have found.

The CIPD's *The Future of Technology and Learning* report also highlighted that *'interactivity, opportunity to practise, instructional method and learner characteristics are important factors that determine whether digital learning will be successful'* ([2017, p27](#)), although again, these factors are just as relevant to more traditional learning methods.

We have summarised success factors more explicitly linked to learning delivered through digital medias below. These factors are based on the research literature and case examples of employer and government-led digital learning initiatives that we have profiled and reviewed. We categorise these factors in respect of:

- the design of online learning programmes
- the level and nature of support provided within online programmes
- observations linked more directly to boosting learner engagement.

No one action or area on its own appears likely to have a significant impact, and while many of these factors are applicable to all stakeholders, some are of particular relevance to employers using online learning to upskill or reskill employees. Actions in all three of these areas, our review suggests, can enhance the overall effectiveness of online learning provision.

### Online learning design

- Ensuring that **social or 'human interaction in some form'** ([Higton et al 2019, p10](#)) is designed into the online training is a critical element of effective online learning. Examples identified include online forums for interaction with peers and e-messaging with tutors ([Higton et al 2019](#)).

The Towards Maturity report also highlighted that creating spaces where users can connect during the learning process is a *'design tactic that can help build digital success'* ([2019, p19](#)). Indeed, the earlier DfE-commissioned study of the online and blended learning market found that *'quality of online learning courses can be comparable or better than classroom-based learning, but only if it incorporates effective learner-learner and learner-teacher communication'* ([Zaidi et al 2018](#)). The CIPD's *The Future of Technology and Learning* report also advised that digital learning should enable social interaction where possible ([2017](#)), with a recent *People Management* insight report ([2020](#)) also highlighting the need for creativity in how online interactions are generated, for example through

enabling participants to have dialogue with experts or steer panel discussions during webinars.

- Provide **practical learning experiences** within online courses, so learners have an opportunity to apply newly developed skills ([Higton et al 2019](#)). The CIPD also advises that digital learning should include opportunities to practise and ‘real-life’ activities, to provide opportunities to reinforce learning and allow learners to apply their new knowledge ([CIPD 2017](#)). Linked to this, alignment with ‘real-world’ work is reported to be a key factor in determining the quality and value of an online credential by employers when hiring ([Gallagher 2018](#)).
- Provide an easy-to-use and accessible platform or technology ([Bersin 2017](#)), ensure content works on all types of devices, for example has smartphone compatibility, and ensure resources are easy to find through searchable content (outside of learning platforms) and effective tagging ([Fosway Group 2020b](#)). Some 91% of organisations with high-impact learning cultures are focusing on ease of use, compared with only 28% of organisations on average ([Daly and Ahmetaj 2020](#)<sup>154</sup>), and the usefulness of particular learning technologies is heavily influenced by how easy the technology is to access and use ([Ferguson et al 2017](#)). Some of the most basic environmental requirements for any form of learning appear to have in too many cases been forgotten, with the priority focus being on the technology.

### Support structures

- Provide **regular support to the learner** from the facilitator, such as regular emails, comprehensive instructions on how to use online learning platforms, and provide opportunities for consultation online or offline ([Gillet-Swan 2017](#)<sup>155</sup>).
- The use of online collaboration tools can provide opportunities for peer-based learning and **peer support** ([Montgomerie et al 2016](#)) and help to create a sense of community online ([Cleveland-Innes and Wilton 2018](#)), which can be a ‘*strong influencing factor in terms of participants’ perceptions of learning success*’ ([Montgomerie et al 2016, p1317](#)). Positive peer support is also found to overcome issues with motivation and discipline (ibid).
- Demonstrate that **senior management/leadership support and value digital learning** ([Choudhury and Pattnaik 2020](#), [Montgomerie et al 2016](#)). This can be through engaging leaders/executives in championing online programmes to drive wider employee uptake and engagement, for example through recommendations from leaders of particular online courses, or senior leaders modelling desired behaviours through participation in online courses ([Kshirsagar et al 2020](#)). See Box 1 for a case example.

During the pandemic, data from LinkedIn Learning showed that L&D professionals globally reported a 159% increase in CEOs championing learning and development in their organisations. Some 68% of L&D leaders also stated that managers were actively promoting more learning resources to their teams than before the pandemic ([LinkedIn Learning 2020b](#)).

### Box 1: LinkedIn Learning Challenge

The 'LinkedIn Learning Challenge', first held in October 2018 for LinkedIn employees, was aimed at increasing learner engagement in online learning. The challenge involved a week-long competition of learning in which each division at LinkedIn competed to see which team spent the most time learning. By dedicating a week for all employees at the company to learn at the same time and introducing a competitive element between divisions, engagement in online learning at LinkedIn trebled.

It also found that executive championship of particular online courses drove engagement, with nine out of the top ten courses viewed during the week being those that had been recommended by the executive team. Supporting this, the LinkedIn Workplace Survey 2020 found that 54% of employees said they would spend more time learning if they had specific course recommendations to help them reach their career goals.

In addition, setting achievable learning goals was also found to drive engagement during the Learning Challenge. Achievable learning completion goals of 15 minutes were set as a benchmark for learner evaluation during the event. However, average viewership time per learner was found to be almost four times this level, at 57 minutes. The following year's (2019) challenge doubled the learning goal for each employee to 30 minutes and, compared with the previous year, resulted in 44% more engaged learners and 50% more courses viewed.

Source: Zlatkov (2019),<sup>156</sup> [LinkedIn Learning \(2020a\)](#)<sup>157</sup>

- **Support learning professionals to develop and build skills to enable them to create and manage relevant digital content.** We identified government-led examples from both Germany and Sweden, where funding has been directed towards building the skill levels of instructors in delivering online learning.

For example, in Germany, the German Federal Ministry of Education and Research (BMBF) in collaboration with BIBB, the German Economic Institute, and training providers have been funding the development and testing of further training for teachers and in-company trainers through the qualification initiative 'Digital Change – Q 4.0' (*Digitaler Wandel Q 4.0*) ([Huisman 2019](#), [ReferNet Germany 2020](#)<sup>158</sup>).

This initiative is planned to continue until 2022, after which it will be determined how the qualifications will operate longer term, for example becoming nationwide recognised additional qualifications, further training modules, or as part of the German Trainer Aptitude Ordinance (AEVO) ([ReferNet Germany 2020](#)). BMBF is also funding a sub-programme of the qualification initiative ('MIKA Seminars' – Media and IT Competence for Training Personnel), focusing specifically on the promotion of digital skills among training personnel. These seminars enable participants to learn which digital technologies can be appropriately applied in in-company training, practise the use of digital tools, and create individual 'digital tool boxes' that they can use in their daily in-company training ([Foraus.de no date](#)<sup>159</sup>).

Similarly, in Sweden, the National Agency for Education (Skolverket) launched an online 'training of trainers' programme for workplaces engaged in initial vocational education and training (IVET). The programme is free and includes the equivalent of two days of training covering four introductory general modules and an additional module that addresses apprenticeship. The programme allows trainers to comment and share experiences with other trainers, and modules are also offered in a blended way, combining e-learning with workshops or seminars. Since 2016, enterprises that participate may receive state-funded grants if their workplace trainers have participated in the programme ([Cedefop 2020b](#)<sup>160</sup>).

Cedefop observed that the provision of professional learning opportunities for VET instructors and trainers has become fairly commonplace in Europe, with countries such as Portugal, Germany and Greece training teachers, trainers, coaches and mentors to acquire knowledge on effective e-learning methodologies and to carry out virtual evaluation ([Cedefop 2020a](#)).

- Enable learners to make **informed choices** to identify digital learning provisions that will help develop skills that are in demand by employers ([Higton et al 2019](#)). In the corporate context, AT&T's Future Ready platform is a good practical example of this and, more broadly, courses offered under the UK Government's Skills Toolkit have been selected based on current and future skill needs of employers. However, overall, this highlights a need for improved careers advice and support to ensure learners are pursuing education or training that meets the needs of a changing workforce.

### Learner engagement

- The DfE study stated that the value and benefits of online learning need to be more widely promoted, as digital learning may be less familiar to potential participants than traditional training methods ([Higton et al 2019](#)).
- **Enable and empower learners** to take personal responsibility for their learning ([Higton et al 2019](#)). Autonomy was identified as a critical success factor by Choudhury and Pattnaik (2020), stating *'learning effectiveness thrives on an interactive, customized course that promotes learners' control'* ([Choudhury and Pattnaik 2020, p8](#)), with the recent [People Management insight report](#) also stating that *'self-driven and self-motivated learning will always be more successful than company-mandated courses'*, with a commentator expressing hope that *'companies will continue to allow employees to explore some self-determined learning'* in future. Jane Hart also observes that in the context of the pandemic, *'flexible and responsive options need to be considered, particularly as autonomy has been a key feature of working from home. In fact, now is the time to consider a move towards a strategy focused around self-directed learning with appropriate support from L&D'* ([Hart 2020](#)).
- **Establish achievable goals** for online learners, for example setting achievable benchmarks for learning time or providing opportunities for microlearning. Microlearning is also served well through the growing trend of using mobile technology to support digital learning.
- Apply a **dedicated brand** to the organisation's approach to online learning, launching it organisation-wide with a supporting internal marketing campaign – see Box 2 for a case example from LinkedIn Learning.

## Box 2: Kellogg's

Kellogg's has moved from a traditional approach to learning, described as *'classroom heavy, resource heavy, and events-driven'*, towards more online learning to upskill employees. Its learning culture has also shifted from 'one-size-fits-all', where learning was mandated to employees, to 'one-size-fits-one', with employees independently seeking out relevant learning through the LinkedIn Learning platform.

Kellogg's used its business leaders to advocate the new learning approach and created an internal marketing campaign around the hashtag #IgotThis – emphasising that employees are in control of their own development. Kellogg's has also fostered collaboration through its online learning approach, using department competitions centred around usage of online learning, prizes and formal recognition of employees' course completion or for sharing a course to support a colleague.

Source: [LinkedIn Learning \(2020a\)](#), [LinkedIn Learning \(no date\)](#)<sup>161</sup>

- **Recognise the learning** in a way that is valued by learners and provides a sense of achievement in a timely fashion (see Box 3). Over half (59%) of employees want their online learning to be recognised ([Towards Maturity 2019](#)). Yet digital learning is recognised in only 28% of employers (ibid). So, the opportunity to recognise progression and provide validation is being missed ([Scott-Jackson et al 2015](#)).

Recognition could be in the form of provision of micro-credentials such as digital badges. Historically, there has been relatively little known about employers' perceptions of these, although a growing body of research suggests that employer acceptance is slowly increasing ([Gallagher 2018](#)).

For example, between 25% and 50% of HR leaders surveyed by Northeastern University have encountered certain types of micro-credentials on CVs during the recruitment process and about 10–15% have recruited an individual who has earned a micro-credential ([Gallagher 2018](#)). In addition, over half (55%) of the HR leaders surveyed agreed that micro-credentials are *'likely to diminish the emphasis on degrees in hiring over the next 5–10 years'*. However, half (53%) believed that *'the proliferation of new types of educational certificates, credentials, and badges makes it harder to sort out quality'*.

In terms of the effectiveness of micro-credentials, the DfE-commissioned review ([2019](#)) found evidence from the Open University's OpenLearn platform indicating that digital badges enhanced learners' motivation to complete an online unsupported course in comparison with completion rates of a similar non-badged course (Law 2015, cited in [Higton et al 2019](#)). Similarly, at IBM the launch of digital badges increased enrolments, completions, pass rates and engagement in its online courses (see Box 4).

However, the DfE study also highlighted the results of a randomised control study of a MOOC course at the University of Notre Dame, which found the potential to earn a digital badge did not significantly impact learners' pass rates (Ambrose et al 2016, cited in [Higton et al 2019](#)), although it did find that the pass rate of learners with an interest in digital badges was increased (ibid). The DfE suggests this finding could *'help learning providers identify learners most likely to complete a course, if interest in badges is used as a proxy for commitment to complete a course'* ([Higton et al 2019, p56](#)).

### Box 3: IBM

In 2015, the pilot introduction of digital badges as an incentive to encourage engagement in IBM's data science and cognitive computing courses resulted in student enrolments increasing by 129% and the percentage of completions increasing by 226%. The pass rate also significantly increased – by 694%, compared with the six-week period prior to the introduction of the badges. The success of the pilot resulted in huge expansion of the digital badge programme at IBM, which now issues badges in every division in the organisation for employees, clients, students and partners. In 2019, it had issued nearly 2 million digital badges across 195 countries.

Among IBM badge recipients, 87% said they were more engaged because of the digital badge programme and 72% of IBM managers use badges to recognise employees for achievement. A survey of IBM business units found 76% said digital badges motivate employees and customers to develop current skills. Technical sales professionals who earned digital badges were more likely to achieve sales quotas than employees who had not earned badges. Some 92% also said IBM digital badges improve their employability.

Source: [Leaser \(2019\)](#)<sup>162</sup>

Recognition could also be in the form of opportunities for work experience ([Sheehan 2015](#)<sup>163</sup>), or in the form of a financial incentive.

This review sought to identify evidence for the **use and effectiveness of financial incentives** in promoting adult learner engagement in digital learning. However, we found no evidence in the academic literature and only very limited individual organisational examples in the grey literature, with little or no evidence of their effectiveness on learner outcomes. However, we did identify a relevant example within Unilever. Through a collaboration with Acumen, it hosted a virtual challenge that awarded seed funding and mentorship to the best ideas developed through a five-week online course. Completion rates for the course tripled as a result, from an average of 8% to 24% ([Ahearn 2019](#)<sup>164</sup>).

In addition, some learning management systems incorporate 'digital wallets' that provide learners with vouchers after completing a course. IBM offered incentives, such as gift cards and products, to employees for completing online training courses linked to their products. Similarly, Specsavers have offered new starters completing an online induction training course a virtual coin that they can gift to a choice of Specsavers official charities ([Sponge 2016](#)<sup>165</sup>).

Research by LinkedIn found that some 59% of Generation Z would learn in order to get a bonus, yet two-thirds of L&D professionals surveyed did not realise that financial compensation would be a top motivating factor for this cohort ([Zlatkov 2019](#)<sup>166</sup>).



#### Box 4: The Scottish Social Services Council (SSSC)

The Scottish Social Services Council (SSSC) has reportedly achieved success in digital learning within social services. They have moved away from *‘old-fashioned, text-based and lengthy “click next” modules with a short quiz at the end’* to implementing SSSC open badges, which helped *‘create a place where people could learn and develop reflective learning techniques, discover learning is more than sitting down by yourself at a computer and where real evidence of the learning impact, not attendance or quiz scores, could eventually be gathered’*.

The SSSC trialled two approaches to recognition of learning in 2014 – ePortfolios and open badges. The key difference between the two approaches was that evidence submitted for open badges would be assessed by the SSSC before a badge was awarded, while entries added to the ePortfolio were not.

Open badges proved more popular with learners due to the *‘sense of achievement they got from earning a badge outweighed adding entries to an unassessed portfolio’* (ibid). Stewart states that learners returned to earn further badges, while those adding entries to ePortfolios lost motivation. The SSSC closed the ePortfolio platform in 2019, after achieving no more than 100 users in the five years of its operation, as opposed to the open badges platform, which has achieved 11,000 active users.

Source: Stewart (2019)<sup>167</sup>

- **Personalise content and adapt it** to employees’ specific learning styles and career goals ([LinkedIn Learning 2020a](#), [Scott-Jackson et al 2015](#), [Robinson 2017](#)<sup>168</sup>) in order to increase the relevance of learning by using data to profile and support learners ([Fosway Group 2020b](#)). Some 73% of managers state that they wanted digital learning to be more personal ([Scott-Jackson et al 2015](#)), and the LinkedIn Workplace Survey also stated that over three-quarters of learners value personalised course recommendations based on their own career goals and skills gaps ([LinkedIn Learning 2020a](#)). This approach addresses learners’ needs more effectively ([Robinson 2017](#), [Fosway Group 2020b](#)). Choudhury and Pattnaik ([2020](#)) also highlighted customisation as a critical success factor.

## 8 Actions for employers

All of the dozens of research studies and practical examples considered as part of this evidence review lead to one overarching and unshakeable conclusion: there are no universally successful methods or solutions to addressing employer and employee learning need through digital and online methods. It is very much a case of ‘best fit’ rather than universal ‘best practice’, whatever some providers of learning technology may claim. Tailoring and matching the technology and the learning methods to suit those needs is critical, whatever the learning setting or aims.

However, there are a number of reasonably sound conclusions that can safely and reliably be drawn from this research, in order to provide a measure of general advice to employers contemplating a move into or expansion of digital and online learning, and/or trying to improve its effectiveness.

These conclusions are as follows.

- Create a learning philosophy to ensure there is a common vision, understanding and expectation for learning provision within the organisation, including how technology will be used to support and engage employees in learning.
- Ensure this learning philosophy drives a clear learning and development strategy, with a clear aim and outcome, with digital learning likely to be a significant and increasingly important element of that strategy. As we have demonstrated, digital learning can be at least as effective as traditional formats, even in the absence of the current barriers to face-to-face learning.
- Identify the aspects of learning that are most suited to digital delivery and where it is likely to be most effective in any given setting. It still appears to suit and be more effective for some types of learning and some learners better than others. The incidence and patterns of growth in its application give some clues to this – digital learning appears to be particularly effective when applied to developing digital and technology skills and among those learners who are better academically prepared. But there are many exceptions and other settings in which it can be effective. The pandemic, for example, has forced its more widespread use for vocational and apprentice training as well as in internships.
- Set clear objectives and success criteria for digital learning, and regularly evaluate its impact and effectiveness and modify its use accordingly. This is important for all types of learning, of course, but with the speed of advances in technology and particular importance of learner engagement and motivation, it is especially relevant here.
- Recognise that digital technology can increase the reach/participation of, and engagement in, learning initiatives and also that it can be extremely cost-effective, but digital learning may not be any cheaper than traditional formats, particularly in terms of the up-front investment costs. As we have seen, a desire to reduce costs has been both a driver of and barrier to more widespread uptake of digital learning. A business case based on the business need, improved reach and effectiveness of digital solutions rather than straight cost savings may be more effective.
- Be bold. Big and rapid ‘jumps’ in the use of digital learning can, as the pandemic has shown, be achieved. But this is more likely to be effective where the growth strategy is clear and is targeted at specific types of learning, such as training in new technology.
- Don’t be blinded by the technology and the jargon. The people – the learners, instructors, corporate L&D leaders and senior management – are still key, despite the technology. In particular, support and train the people designing and delivering the training – train the trainers!
- And also focus very heavily on the learners themselves and their needs. The desire for more person-led and flexible learning to enable people working at home to combine learning with their jobs and personal lives is a key factor driving the growth in usage.
- But recognise this also increases the need to fully support and motivate individual learners. Designing a supporting environment and learning community and recognising and incentivising the learning, for example through ‘bite-sized’ designs, certification, tokens/rewards, group experiences, and so on, is vital.
- Digital learning has generally shown to be more effective in a blended format, in conjunction with other delivery channels, and with peer-to-peer/instructor interaction and curated content being key to successful applications.

- Some of the keys to success and effectiveness highlighted in research studies are common to any form of learning, such as having the right learning environment, ensuring good-quality content, meeting the needs of the learner, and so on. However, some are specific to digital learning and highlight the importance of getting the online learning design and the learning support structures right, and fostering learner engagement.

## 9 Actions for government

As part of this project, the CIPD hosted an online roundtable discussion in September 2020 to gather expert views and to specifically consider the implications of this research for the Government and its skills policies. The roundtable was attended by further and higher education representative organisations, education providers, employer bodies, local authorities, and trade union representatives. While the roundtable was conducted ahead of the publication of the [Skills for Jobs](#) white paper, the results of the discussion, alongside evidence presented in this paper, provide insights to support the implementation of the proposed reforms.

### Current government policy

The Government has already prioritised the digital learning and reskilling/upskilling agenda through the National Retraining Scheme, which was announced in the [UK Government's 2017 industrial strategy](#). This strategy would *'help people re-skill and upskill as the economy changes, including as a result of automation'*.<sup>169</sup> The scheme included provision of flexible online and blended learning to enable more adults to access training and included an initial investment of £30 million to test the use of AI and innovative education technology (edtech) in online digital skills courses.

Subsequently a number of associated funds and projects linked to promoting digital and online learning have emerged, including:

- A pilot Flexible Learning Fund, rolled out in 2018, to test the design and provision of flexible and accessible methods of learning for working adults with low or intermediate skills. Some 30 projects, led by a range of organisations including FE colleges and local authorities, are participating in the fund. Most projects are using technology and (pre-pandemic) offering blended learning, combining online and face-to-face learning. All projects have completed the development phase, including developing new course content and converting content to ensure it is suitable for online training ([DfE 2019](#)<sup>170</sup>).
- The Skills Toolkit – the online learning platform providing free access to digital, numeracy and employability courses to help people build skills and progress in work ([DfE 2020a](#)) (discussed in Section 4).
- A £4.6 million [EdTech Innovation Fund](#), effective from April 2019 to December 2021, delivered through a partnership between the Department for Education and innovation foundation Nesta, to support schools and colleges to make more effective use of technology.<sup>171</sup>
- A £5 million government fund, announced in June 2019, to drive innovation and improve the quality of adult online learning, especially through AI-driven solutions. The Adult Learning Technology Innovation Fund, launched in partnership with Nesta, provides funding to *'incentivise tech firms to harness new technologies to develop bespoke, flexible, inclusive, and engaging online training opportunities to support more people into skilled employment'* ([Gov.uk; 2019](#)<sup>172</sup>). At the launch of the fund, the then Education Secretary Damian Hinds said:

*'AI and other new technologies are transforming the way we live and work and have the potential to radically improve online learning and training ... Investing in cutting*

*edge technologies such as AI will mean we can future proof the online learning experience and ensure it better meets students' needs'.*

For apprentices in the UK, whose training has been significantly impacted by the pandemic, the Education and Skills Funding Agency (ESFA) encouraged employers to make use of digital or distance-learning tools where practical, and advised end-point assessments should take place remotely where possible ([DfE 2020d](#)<sup>173</sup>). However, the Federation of Awarding Bodies estimated that only 40% of current frameworks or standards could be assessed remotely ([Camden 2020](#)<sup>174</sup>).

In July 2020, the UK Education Secretary, Gavin Williamson, highlighted that the response by colleges and further education providers to enable learning to continue during the pandemic, including moving courses online, and the success with which it had been achieved, demonstrated the vast potential of digital learning ([DfE 2020c](#)<sup>175</sup>). He also stated that the Government intends to place more emphasis on opening up more flexible ways of learning, as the UK focuses on boosting further education and apprenticeships, in a shift away from Tony Blair's target of 50% of young people attending a university.

Indeed, in September 2020, the Government announced a major expansion of post-18 education and training in order to prepare workers for the post-COVID-19 economy ([Gov.uk 2020](#)<sup>176</sup>). This included a Lifetime Skills Guarantee, funded through the National Skills Fund and effective from April 2021, enabling all adults without an A-level or equivalent qualification to undertake free college courses valued by employers and offering flexibility of study. Flexible further and higher education loans were also announced, enabling learners to undertake study in segments and engage in shorter-term studies, with the aim of facilitating lifelong learning and increasing opportunities to retrain for new careers in a changing economy.

The [Skills for Jobs](#) white paper, released in January 2021, builds on these announcements.<sup>177</sup> It sets out an ambitious vision to '*build a world-class, German-style further education system in Britain, and level up skills and opportunities*' ([DfE 2020c](#)). The paper reveals plans for a post-16 education and training system which is centred upon high-quality further and technical qualifications, based on employer-led standards, with employers and colleges working together to develop skills in their local areas, in response to local economic need.

Alongside support to help adults retrain through the National Retraining Scheme and the National Skills Fund, in 2020 the Government also announced a number of measures to tackle rising youth unemployment. The measures, set out in [A Plan for Jobs 2020](#), include incentives to boost the provision of apprenticeship and traineeship and the Kickstart Scheme – a six-month job placement at 100% of the National Minimum Wage for a minimum of 25 hours a week for young people on Universal Credit at risk of long-term unemployment. Employers also receive a £1,500 payment per participant to support set up costs, support and training.<sup>178</sup>

Within the context of current government policy and the findings from our review and roundtable discussion, we outline what we consider to be the most important ways in which government can further harness the potential of digital learning to support reskilling in the post-COVID-19 economy.

## Recommendations

### Priorities for future investment and action

- This review of digital learning has highlighted that technological barriers to engagement in digital learning within higher education and vocational environments are still experienced by some groups of learners. Greater investment is therefore needed to **address the social divide in the access and availability of technology infrastructure**, including the rollout of 5G networks to support universal and low-cost broadband coverage in all parts of the country. Low-income and unemployed people should be prioritised to enable wider access

to digital devices to support digital learning, in addition to ensuring all individuals have access to the acquisition of adequate digital skills to engage in digital learning.

- The announcement of the new Lifetime Skills Guarantee is welcomed; however, countries such as Singapore and France, as discussed in this report, offer much wider free access to learning to all adults to overcome financial barriers experienced by learners and to improve access to career transitions and to enable reskilling. The Government should consider offering a broader model of **free or heavily subsidised digital or blended learning, through a 'skills wallet'**. This could be similar to the Skills Credit in Singapore, or a [renewed version of the previous Individual Learning Account provisions](#), in order to support upskilling and reskilling in the post-COVID-19 economy.
- Our research highlighted the importance of quality digital learning provisions, but also the challenges in developing and delivering them. While existing government funds are seeking to drive innovation and improve the quality of adult digital learning, we believe there is a need to stimulate the digital learning market further and to **incentivise providers**, through more generous funding, **especially in high-growth sectors, to capacity-build and rapidly develop new quality digital learning opportunities. The COVID-19 jobs crisis highlights the need to rapidly reskill potentially large numbers of displaced workers.**
- Our report profiles the growth in digital learning, in part driven by a need to upskill and reskill adults in the context of changing business models, digitalisation and automation. The impact of the pandemic has exacerbated this need for retraining as the job market is rapidly changing and unemployment increases. In recognition of the urgent need to support those workers who have lost their jobs, we believe the Government should **prioritise funding for the low-skilled or unemployed to undertake formal digital training that meets the skills requirements of employers in growth sectors and delivers industry-recognised certifications**, in order to facilitate career moves into growth sectors. This should be supported by investment in strong employer–provider partnerships, local job brokerage and enhanced information, advice and guidance.

### Recommendations to support the implementation of the Skills for Jobs white paper

- Our review has highlighted several instructional barriers to delivering high-quality digital learning. Among these is the lack of training, development and support provided to vocational instructors to deliver digital learning content effectively. In recognition of the different skills, instructional and learning engagement techniques required for digital learning compared with traditional classroom delivery, the [Skills for Jobs](#) white paper rightly identifies the need to support FE staff to build the skills needed to develop and deliver high-quality blended learning. The Government should ensure that sufficient funding is made available to support **the upskilling of FE staff linked to the delivery of high-quality digital learning**, especially in the context of accelerated use of digital learning or future demand for blended learning programmes. Consideration should be given to examples from Germany and Sweden, where government funding has been directed towards building the skill levels of instructors in delivering digital learning.
- Our review identified a trend towards more 'bite-sized' and certificated digital learning content to meet the needs of learners. The white paper also recognises the need for the FE sector to provide more flexible and modular learning, and the Government has committed to introducing pilots to incentivise its development. The results of our review suggest that this should focus on collaborating with employers and FE providers to **develop flexible digital learning opportunities that are bite-sized, certificated through micro-qualifications or credits** and which can be packaged up over time into more substantive and recognised learning journeys and underpinned by a common skills framework to support cross-sector moves.

## Employers

- As our review has shown, the pandemic has forced a wider and more rapid shift to digital learning among employers, to provide access to continuing professional development, to meet needs for compliance training, and to train furloughed workers ahead of their return to work. We believe the Government should support employers to invest further in digital training for their workforces at a time when all workforce costs are under scrutiny and pressure. This could be achieved by providing more flexibility in the Apprenticeship Levy, enabling employers to use their levy funding for other forms of accredited and digital training and skills development. This would allow employers to use levy funding to retrain and redeploy staff to new growing areas of the business, and enable them to support retraining opportunities for employees who are being made redundant.

Indeed, a CIPD survey of a representative sample of over 1,000 employers conducted in June 2020 asked about the effectiveness of a range of mechanisms to help cope with the impact of the COVID-19 pandemic. Amending the Apprenticeship Levy to a flexible training levy was considered the most effective measure, with 42% of employers reporting that it would be effective or very effective, compared with just 10% of respondents who reported that it would be ineffective/very ineffective.

- Our review indicated that countries such as Singapore and France have both focused on generating employer awareness of digital learning opportunities to increase engagement and effective collaborations with educational institutions. We therefore suggest that a **nationwide campaign should be launched by government that promotes the benefits of digital learning and increases awareness of the types of digital training opportunities available** to employers and potential learners.

## Young people

- The CIPD welcomed the September 2020 launch of the £2 billion Kickstart Scheme for young people, as part of the Government's Plan for Jobs. The scheme provides fully subsidised six-month work placements for 16–24-years-olds claiming Universal Credit and at risk of long-term unemployment. During the pandemic, we saw evidence of many organisations shifting to remote internships and providing remote learning opportunities for those on work placements. We would like to see such digital learning opportunities as an element within the Government's Kickstart Scheme, with requirements for work placements to include digital training and skills development activities to help young people move into sustained employment and support pay and create progression.

## 10 Notes

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<sup>1</sup> CIPD. (2020a) [Digital learning](#). Factsheet. London: Chartered Institute of Personnel and Development.

<sup>2</sup> Ibid.

<sup>3</sup> Towards Maturity. (2019) [The transformation journey](#). London: Towards Maturity.

<sup>4</sup> CIPD. (2020b) [Learning and skills at work 2020](#). London: Chartered Institute of Personnel and Development.

<sup>5</sup> Ibid.

<sup>6</sup> Wilson, D. and Perring, D. (2020) [Don't believe the hype: the realities of digital learning](#). Fosway Group.

<sup>7</sup> Ibid.

<sup>8</sup> Research and Markets. (2019) [Online education market and global forecast](#). December.

<sup>9</sup> Universities UK. (2018) [Flexible learning: the current state of play in UK higher education](#). Universities UK. October.

<sup>10</sup> McKinsey & Company. (2020) [Beyond hiring: how companies are reskilling to address talent gaps](#). McKinsey & Company.

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- <sup>11</sup> Ali, S., Uppal, M.A. and Gulliver, S.R. (2018) [A conceptual framework highlighting e-learning implementation barriers](#). *Information Technology and People*. Vol 31, No 1. pp156–80.
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- <sup>13</sup> Open University. (2020a) [Uncertainty driving surge in employees seeking out distance learning opportunities](#). Open University.
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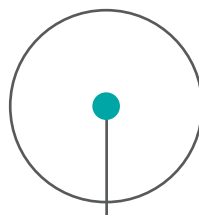
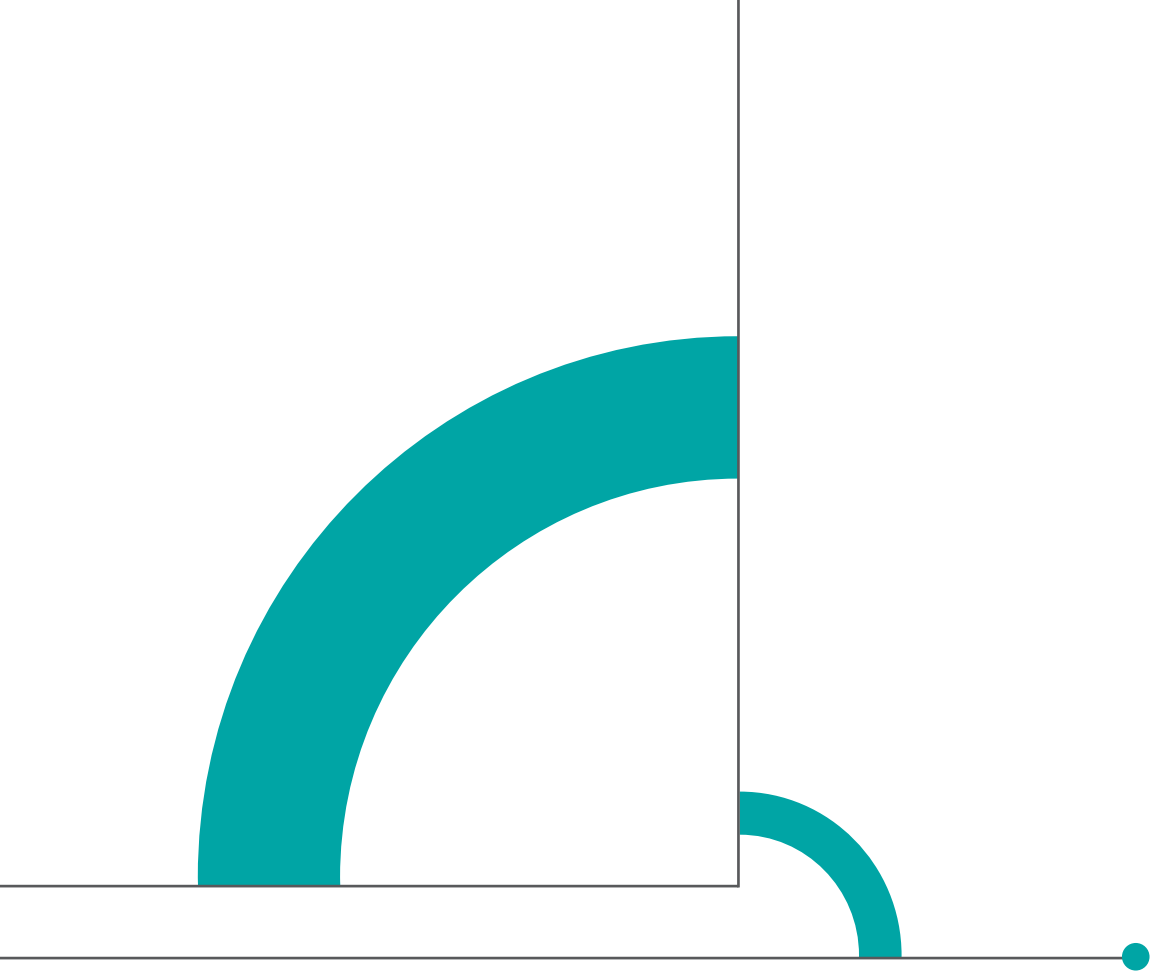
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# CIPD

Chartered Institute of Personnel and Development  
151 The Broadway London SW19 1JQ United Kingdom  
**T** +44 (0)20 8612 6200 **F** +44 (0)20 8612 6201  
**E** [cipd@cipd.co.uk](mailto:cipd@cipd.co.uk) **W** [cipd.co.uk](http://cipd.co.uk)

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