RESEARCH INTO THE USE OF ICT AND E-LEARNING FOR WORK-BASED LEARNING IN THE SKILLS SECTOR

Literature review

November 2004

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Introduction

1. This research, funded by the Learning and Skills Council (LSC), has been commissioned by the British Educational Communications and Technology Agency (Becta) to provide an objective, evidence-based overview of the current use and effectiveness of work-based e-learning and its integration with more traditional learning methods. The overall aim of the project is to inform future policy and the activities of Becta and its partners. Its specific objectives are to:

    - investigate the known impact of information and communications technology (ICT) and e-learning on the skills sector
    - establish and describe the ways in which ICT and e-learning can support key workforce development issues such as addressing skills gaps and achieving sustainability in training and development
    - report how ICT and e-learning can and is helping particular industry sectors
    - identify gaps in provision
    - identify where further work is needed to promote and embed the effective use of ICT and e-learning.

2. The research will be undertaken in three stages:

    - a literature review on the use of ICT and e-learning in work-based learning, covering government strategic and research publications, research by the LSC and other agencies, academic journals, industry-related websites and publications, specific project reports and evaluations
    - desk research including interviews with experts, partners and stakeholders to identify relevant unpublished evidence and investigate gaps in knowledge identified by the literature review
    - five in-depth case studies to illustrate good practice and the challenges that need to be addressed to use ICT effectively to support learning in the workplace.

3. This report presents the initial findings of Stage 1.

Main findings

4. The focus of this study is the overlap between learning and skills strategies and ICT and e-learning strategies. Skills strategies tend to focus on skill provision for new entrants, adults with low-level skills and addressing specific skills shortages. They recognise the need to engage with employers and the value that e-learning can play in meeting skills-related objectives, but are only starting to come to terms with how this may happen. There is an increasing expectation that funders and providers will systematically consider how e-learning could be used in any learning provision, even if it is not eventually considered appropriate.

5. More broadly e-learning is being used in two ways:

    - to increase the level of ICT skills
    - for broader skills and learning objectives.

6. ICT and e-learning strategies have until recently focused on establishing infrastructure or on delivering e-learning in schools or further education (FE) colleges. They are only just starting to think about addressing e-learning in the workplace and any implications that may arise.

7. A similar situation is true in relation to funding, with funding for work-based learning being provided on a different basis to FE-college and sixth-form funding, although there is an intention to bring the mechanisms together. Currently, most e-learning is being supported through one-off funding for specific projects or through specific pots of funding. It is likely that, in future, it will increasingly be funded through the same formula funding as all other learning, with continued one-off support for development activities. The move towards a credit-based qualifications framework should also help overcome some of the funding difficulties associated with the delivery of bite-sized chunks of e-learning.

8. This approach underlies the expectation that e-learning will be used as a tool to improve a learner's experience, but that it will only be used where appropriate and is likely to be incorporated with other delivery methods. There is still a lack of understanding of how e-learning can best be used in various workplace settings, but some trends are becoming clear:

    - High-quality content that is linked closely to an employee's work tasks and can be accessed when the learner wants are important success factors.
    - e-Learning is becoming more important, particularly in larger companies, and some believe it will replace the classroom as the main method of delivering learning. However, most commentators agree that there is a requirement for a blended approach, including tutor support or mentoring.
    - Increasing access to learning and greater flexibility are the major benefits of e-learning, not necessarily reduced costs.
    - Internet connectivity is becoming increasingly vital, and mobile technology may increase the flexibility of e-learning in the future. There is some indication that, despite a poor image, computer game technology will be increasingly used within e-learning solutions.

9. The University for Industry (Ufi) is delivering the largest amount of work-based e-learning activity and is seen as a crucial partner in expanding work-based e-learning. A recent evaluation suggests that Ufi has primarily focused its activities on the individual rather than the business. Employer engagement strategies for Ufi and others are being refined, and it is increasingly being recognised that the first step is to work with employers, and particularly SMEs, to identify their overall learning needs. Our review identified three barriers to SME take-up of e-learning:

    - lack of awareness of provision
    - the financial and opportunity cost of training – a barrier to any type of learning activity, not just e-learning
    - limited access to computers for learning and limited access to broadband.

10. Any employer engagement strategy needs to take into account some of the challenges identified for providers working with employers, and with SMEs in particular. These include a need to:

    - build effective relationships with employers to understand their needs. Changes within businesses influence the skills needed by the workforce and are thus key drivers for training needs.
    - interest and engage both employers and employees. This includes helping to overcome barriers such as time availability, ensuring the learning meets specific needs and is not necessarily qualification led, and demonstrating the return on investment to employers.
    - develop provider staff so that they are able to relate to and work with businesses.

11. As a result, strategies are being developed that include undertaking training needs analysis activities with employers and particularly SMEs.

12. The Skills for Business network is also envisaged as a crucial partner in identifying skill needs within sectors. It is working with Ufi to develop e-learning that meets these sector needs and delivers them in the appropriate context.

13. Our review of provider activity identified a great deal of e-learning activity being undertaken and reported. The main findings were:

    - Work-based e-learning is being used in a wide range of settings by a wide range of providers – including higher education institutions (HEIs), FE colleges, work-based learning providers, sector skills councils (SSCs), the adult and community sector, voluntary sector and public sector – and by unions and large corporations. We came across no examples of SMEs taking on e-learning by themselves.
    - There are benefits in public sector providers teaming up with good private sector companies to develop high-quality e-learning provision.
    - Some universities and colleges found it useful to have a central resource for developing e-learning rather than relying on individual departments that may not have the resources or expertise.
    - Good targeting and marketing of e-learning materials to specific sectors in specific locations can provide good results, with high uptake among local companies.
    - Providers should not be too quick to use new technology, before it is reliable and accessible. In focusing on the technology, providers can lose sight of learning goals and of more straightforward, but effective delivery methods using tried and trusted technology.
    - Auditing and administration systems associated with public funding can negate the benefit of e-learning and, particularly, electronic enrolment, by requiring paper-based signatures.
    - Private LSC-funded work-based learning providers are much less likely to be using e-learning than FE colleges; over half that do only use it for internet research. Reasons include:
      – lack of awareness
      – poor accessibility to computers by learners
      – lack of staff training
      – lack of finance, particularly among small providers
      – no demand from employers.

14. Our most striking finding was that, with the exception of some case studies with large corporations there is very little published evaluation of work-based e-learning or evidence of its impact. Without this information, it is very difficult to identify the benefits of e-learning and discover what works in what circumstances. It is unclear whether this lack of evidence is because evaluation and impact assessment is:

    - being undertaken, but not published
    - not being undertaken because it is not being included in project plans
    - not being undertaken because it is perceived as too difficult to undertake.

1 Introduction

1.1 This research, funded by the Learning and Skills Council (LSC), has been commissioned by the British Educational Communications and Technology Agency (Becta) to provide an objective, evidence-based overview of the current use and effectiveness of work-based e-learning and its integration with more traditional learning methods. It is primarily focused on activities related to publicly funded work-based training, SMEs, or occupations that typically undertake less training. Our interest in larger organisations is limited to identifying how the lessons learned from their activity might be translated to these environments.

1.2 By 'e-learning' we mean: 'The delivery and administration of learning opportunities and support via computer, networked and web-based technology to help individual performance and development' (Pollard and Hillage, 2001).

1.3 By 'work-based learning', we mean 'learning that is undertaken in or linked to the workplace'.

1.4 The overall aim of the project is to inform future policy and the activities of Becta and its partners. Its specific objectives are to:

- investigate the known impact of ICT and e-learning on the skills sector
- establish and describe the ways in which ICT and e-learning can support key workforce development issues, such as addressing skills gaps and achieving sustainability in training and development
- report how ICT and e-learning can and are helping particular industry sectors
- identify gaps in provision
- identify where further work is needed to promote and embed the effective use of ICT and e-learning.

1.5 The research will be undertaken in three stages:

- a literature review on the use of ICT and e-learning in work-based learning, covering government strategic and research publications, research by the LSC and other agencies, academic journals, industry-related websites and publications, specific project reports and evaluations
- desk research including interviews with experts, partners and stakeholders, to identify relevant unpublished evidence and investigate gaps in knowledge identified by the literature review
- five in-depth case studies to illustrate good practice and the challenges that need to be addressed to use ICT effectively to support learning in the workplace.

1.6 This interim report presents the initial findings of Stage 1, using the following three headings as the basis for our literature review:

- the strategic and funding context for e-learning and work-based learning
- evidence of current and potential demand for e-learning in the work-based context
- an overview of the supply of work-based e-learning activities delivered by different types of learning suppliers.

1.7 In addition, we provide a section setting out a brief overview of the situation in other parts of the world, including the rest of Europe, North America and Australia.

2 Strategic and funding context

Introduction

2.1 This section sets out the strategic context for work-based learning and e-learning activity and discusses some of the funding issues. Although the focus of the research is work-based e-learning, we present some of the relevant strategic thinking in relation to the discrete areas of work-based learning and e-learning. While we present the strategies and policies relating to each organisation independently. it is important to point out that most relate to two broader strategic documents:

- *Skills Strategy White Paper: 21st-century skills – realising our potential* (DfES, 2003b)
- *Success for All: Reforming further and higher education and training* (DfES, 2002a).

2.2 The primary focus for the strategic review is England, but we have taken into account devolution and that government strategies and funding contexts may differ between the four nations that make up the UK. We have also reviewed regional strategies and the strategies of relevant UK-wide organisations such as the University for Industry (Ufi).

Work-based learning context

2.3 In 2003, the Government published its Skills Strategy White Paper, *21st Century Skills: Realising our potential*. Primarily covering England, it aims to 'ensure that employers have the right skills to support the success of their businesses, and individuals have the skills they need to be both employable and personally fulfilled'.

2.4 The strategy proposes both supply and demand-led solutions to the skills gap. The effective implementation of the strategy is being overseen by the Skills Alliance, which brings together four government departments, the Confederation of British Industry (CBI), the Trades Union Congress (TUC), the Small Business Council and the key delivery organisations led by the Learning and Skills Council (LSC).

2.5 The strategy sets out a number of proposals to increase the demand and relevance of work-based learning, each of which will have subsequent implications for the demand for e-learning. These include:

- giving employers greater information, choice and control over the publicly funded training that is available and how it is delivered – for example, through extending adult learning pilots and by removing the age cap on funding for apprentices
- creating free access to a full Level 2 NVQ equivalent qualification (representing the foundation skills for employability) for any adult in the workforce
- increasing support for higher level skills at Level 3 NVQ equivalent qualification in areas of sectoral or regional skill priority
- reforming the qualifications framework to increase the level of unitisation in learning courses and introduce a credits framework, which would provide greater flexibility for learning and greater opportunity for incorporating e-learning
- providing better information, advice and guidance on skills, training and qualifications.

2.6 The strategy also seeks to undertake action to reform the supply and delivery of publicly funded education and training, building on the vision set out by the Department for Education and Skills (DfES) in *Success for All: Reforming further and higher education and training* (2002a). These include:

- incorporating information and communications technology (ICT) skills into the 'skills for life' (in addition to basic numeracy and literacy skills). There is a commitment to make e-learning an integral part of the Skills for Life programme. e-Assessment National Certificates in Adult Literacy have been made available for the first time this year, and the new Level 2 Information Technology Qualification (ITQ), which demonstrates competence in workplace ICT skills, has now been created.
- reforming the funding arrangements for adult learning and skills, to encourage training providers to work with employers while reducing bureaucracy
- supporting the development of e-learning across further education, with more online learning materials and assessment
- supporting colleges so that they can offer a wider range of business support for local employers
- bringing within the scope of public funding private providers that have something distinctive and high quality to offer.

2.7 The Skills Strategy proposes that e-learning should have an important role in increasing the supply of post-16 skills because new technology 'can transform the way colleges and training providers deliver their services'. It makes a clear commitment to developing e-learning across the education–business spectrum.

2.8 It proposes the establishment of regional skills partnerships as a key mechanism for implementing the strategy's proposals at regional level. These partnerships are being established by the regional development agencies (RDAs) with the local learning and skills councils (LLSCs), the Small Business Service (SBS), Jobcentre Plus and the Sector Skills Development Agency (SSDA), supported by the relevant government office.

2.9 The Skills Alliance has recently produced its first progress report (DfES, 2004b) which details the ways in which some objectives are being met – for example, through an increase in modern apprenticeship take-up, the growing Centre of Vocational Excellence (CoVE) network, and high employer satisfaction with further education (FE) training provision. In relation to e-learning, the report states that:

- 11 sector skills councils (SSCs) are working with the University for Industry/learndirect to deliver e-learning
- a programme of support, information and training for the FE workforce is being run. e-Learning content and resources are being developed for use in teaching and learning – over 600 hours of materials across 13 curriculum areas are now available and another 400 hours have been commissioned.

e-Learning

2.10 In England, the DfES e-Learning Strategy Unit is leading the national strategic direction of e-learning. The unit's objective is to achieve coherence in government approaches to e-learning initiatives.

2.11 The DfES is seeking to embed e-learning objectives across all of its skills and education strategies. It intends to make ICT and e-learning an integral part of delivering the skills and education needs of the country. There is a double objective in this: increasing the nation's ICT skills in themselves, and capitalising on the intrinsic advantages of e-learning methods to achieve broader skills and education objectives such as widening participation, removing barriers to achievement and improving quality.

2.12 The DfES has published its full e-learning vision in the consultation document *Towards a Unified e-Learning Strategy* (2003a). The publication of the post-consultation e-learning strategy is expected in 2005.

2.13 It is a cross-cutting and long-term strategy, although first steps will build on existing programmes, strategies and partnerships. Therefore, some actions from the consultation document are already being rolled out.

2.14 The strategy's key aim is to ensure that e-learning is widespread and integrated and no longer takes place in pockets of good practice in different educational sectors. The strategy proposes seven action areas to achieve this:

- ***Ensure the sustainability of e-learning*** by tackling the funding models that restrict innovation. This will be achieved by providing support for education leaders to develop a vision for e-learning for their organisations and manage its sustainability, and by establishing partnerships with local industry and small and medium-sized enterprises (SMEs) – for example, through the CoVEs and Union Learning Fund project. The strategic area reviews (StARs) set out in the *Success for All* vision are currently being undertaken by LLSCs and will lead this work for the post-16 sector.
- ***Support innovation in the education workforce*** that will actually deliver the e-learning. This should allow teachers to lead pedagogical development and share resources. The National Online Databank (National Learning Network portal) has now been established linking all sectors and publicly funded organisations through intelligent search mechanisms.
- ***Develop the education workforce*** to ensure that the professionals who facilitate e-learning are well trained to do so. The proposed post-16 education sector skills council – Lifelong Learning UK – will lead here.
- ***Unify learner support*** by creating 'a seamless transition between school, college, work-based learning, community-based learning, university and lifelong learning'. learndirect has key role in this and has set up e-portfolios to give personalised support to learners. This is seen as the beginning of the process of joining up all public sector services.
- ***Align assessmen***t, especially between public and private sector qualifications. Accreditation needs to be standardised and more employee-focused in response to the increasing propensity for people to change jobs in today's economy. Online assessment can help overcome barriers to e-learning such as time, location and cost, by providing assessment on demand.
- ***Build a better e-learning market.*** Addressing intellectual property rights issues and giving guidance on best practice will help facilitate a better digital resources market.
- ***Ensure high technical and quality standards.*** The vision is of content and

platforms interoperating across programmes and sectors.

2.15 The consultation document is underpinned by the intention to generate a professional workforce and build the skills needed for employability, and in this respect it ties in closely with the objectives of the Skills Strategy. The bulk of the focus in the strategy, however, is on e-learning within schools and colleges. On-site work-based learning for businesses and SMEs gets little specific mention, and a business representative is not included in the list of example stakeholders. The focus is much more on user continuity from education to work-based learning.

Devolved administrations

2.16 The previous discussion has been based on the strategies produced by the DfES, which is responsible for England. Devolution has meant that Scotland, Wales and Northern Ireland now have their own skills and e-learning strategies.

Wales

2.17 In 2004 the Welsh Assembly Government (WAG) published its *Consultation on the Skills and Employment Action Plan for Wales*. The document builds on previous WAG strategies such as:

- the Welsh Assembly's overall vision: *Wales: A better country* (2003b)
- *The Learning Country* (2001b): the learning strategy
- *Winning Wales* (2001c): the economic strategy
- *Cymru Ar-lein* (2001a): the ICT strategy for Wales
- *An e-Learning Strategy for Wales* (2003a).

2.18 In addition, Education and Learning Wales (ELWa) is currently undertaking a review of workplace learning. The action plan's aims are to:

- improve the mechanisms for workforce development
- supply new entrants to the labour market with the skills needed for employment
- work with employers and employees to improve skills
- help more people into sustained employment.

2.19 The action plan recognises that using e-learning can overcome barriers to learning in terms of cost and time, as well as extending and enriching learning opportunities, but it also recognises that a large proportion of firms in Wales are SMEs, which do not have the capacity that larger firms have for developing e-learning solutions. Its recommendations include:

- investigating how an integrated e-learning network should be structured so as to enable universal access to learning, including the technical implications of this in terms of infrastructure and technical support
- working with the SSCs to support innovative approaches to enabling access to workplace e-learning in Wales, and to identify how the benefits of such approaches can be applied and embedded throughout education, training and workforce development
- investigate, as part of the review of vocational qualifications, how e-assessment can support learning in the workplace.

2.20 In 2001 the WAG published *Cymru Ar-lein*, its ICT strategy for Wales, which aims to ensure that ICT is used to make life better for people in Wales. Its objectives include 'using ICT to become more prosperous, well-educated, skilled, healthy,

environmentally and culturally rich'.

2.21 In 2003, an e-learning strategy was produced in partnership with ELWa and others. The strategy is similar to the DfES strategy in that it sees e-learning as a way to close its skills and knowledge gaps. It also highlights the e-learning industry itself as a potential stimulus to the Welsh economy. The strategy's main objectives are to:

- promote *connectivity* through the creation of a national e-learning network and high-quality infrastructure, such as broadband access. The strategy specifically states the intention to include workforce development in this network, as part of a drive to promote lifelong learning through e-learning.
- develop high-quality *content* in terms of learning programs that are interoperable
- support and develop the *confidence* of both learners and teachers using e-learning
- develop *competence* in e-learning by establishing a Welsh Observatory for research into good practice, tapping the wider benefits to Wales of the potential bilingual element of learning materials, and improving ICT skills in general.

2.22 The strategy is now being implemented with the support of £2.97 million. This includes the establishment of local e-learning consortia in each region, which will help Welsh SMEs to engage with e-learning by harnessing the experience and resources of FE and higher education (HE) institutions. These consortia are networks targeted at SMEs, which will share research and innovation on e-learning, and are supported by the Knowledge Innovation Fund.

Scotland

2.23 In February 2003, the Scottish Executive published its five-year Lifelong Learning Strategy, which includes a vision for workforce development and work-based learning to support Scotland's business growth. This includes:

- piloting business learning accounts with small businesses, to provide them with the tools to link training needs with business growth
- working with trade unions to promote the benefits of up-skilling to employees and employers, and to tackle skills gaps
- working with Scotland's Enterprise Networks to strengthen the skills base.

2.24 e-Learning, through learndirect, is identified as having a clear role to play in these workforce development goals. The Scottish Executive is responsible for the funding of learndirect in Scotland, with budgets of £8–9 million allocated for each financial year between 2003 and 2006.

2.25 In its operating plan for 2004–07, Scottish Enterprise – Scotland's economic development agency – identifies e-learning and work-based learning as 'key operational activities'. It promises £20–25 million for high-quality in-work training for 2004–05 from part of its £185–195 million skills and learning budget. It is providing a focus for work-based e-learning delivery through its 'services to businesses' website. This offers:

- a website that presents e-learning as a business development solution and offers information and advice on implementing it
- an e-learning guide
- its own online e-learning course, e-softskills, which is a free course for graduates aimed at improving their soft skills
- a link to the 'learndirect Scotland for Business' site <www.lds4b.com>.

Northern Ireland

2.26 Northern Ireland's e-learning direction is currently being led by the Department of Education and Learning (DELNI), mainly through its funding of the learndirect network (£3.2 million in 2002–03). Although there is a well-focused partnership and e-learning strategy for the schools sector (the Northern Ireland E-learning Partnership), there is currently no strategy for the post-16 sector.

2.27 We now discuss some of the relevant strategies and activities of agencies in the work-based learning field that either work UK-wide or within individual countries.

Learning and Skills Council

National context

2.28 The LSC was set up in April 2001 as the single source of funding for post-16 learning in England, with the responsibility of meeting the skills and education needs of the post-16 population. It funds over 2,000 work-based training providers with 280,000 learners, as well as the workforce development of thousands of firms. The LSC *Corporate Plan* (LSC, 2003a) has two goals:

- improving participation in learning by young people
- raising the level of skills.

2.29 It aims to meet these goals through activities in six strategic areas:

- changing the learning culture, including extending the role of e-learning
- engaging employers in shaping learning, including the recognition that e-learning is an integral part of business and individual development
- improving the quality of training and education
- reshaping local provision
- reviewing the funding of learning
- managing the LSC excellently.

2.30 The LSC established the Distributed and Electronic Learning Group (DELG) to provide recommendations to help it shape and deliver national strategic leadership in e-learning developments. The group's report (DELG, 2002) identified a number of themes, including:

- a shift in perspective from technology and systems to a focus on the requirements of the learner
- planning by the LSC to facilitate effective e-learning provision and giving it support and investment
- an understanding of where e-learning can make its greatest contribution, and a move to target effort and resources there
- standards to be set by the LSC to rationalise the provision of e-learning facilities
- investment in the workforce that provides teaching and learning support throughout the sector
- the establishment of mechanisms to ensure that the current progress and momentum in e-learning development are sustained.

2.31 The DELG report emphasises a number of points:

- e-Learning should not be seen as a panacea to solve all the challenges faced in the learning sector, nor should it be viewed as a replacement for existing successful learning activity. It should be accepted as a useful addition to learning provision.

- As with all learning, e-learning should be well planned and supported and appropriate for the needs and circumstances of the learners in question. The DELG advocates a 'well-balanced, rigorous, firmly grounded approach, purposefully and professionally led by the LSC'.
- The LSC's formula funding should not treat e-learning any differently to other forms of learning. However, non-formula funding should build capacity, target resources most effectively, encourage e-learning development and fill gaps.
- e-Learning should be integrated into the education and skills landscape. The LSC's Workforce Development Strategy should specifically identify the contribution to be made by e-learning, and LLSCs should, as part of their normal planning, integrate e-learning and ICT into strategies specific to their areas. The latter recommendation is being taken forward as part of each LLSC's strategic area review (StAR).

2.32 The Joint Implementation Group (JIG) was established to implement the recommendations of the DELG, the DfES' Post-16 E-Learning Strategy Task Force and the e-learning elements of *Success for All*. It has turned the broad ambitions set out in these reports into objectives and targets. One of its aims is to enable e-learning to be an important facilitator of highly focused, work-based, occupational learning.

2.33 The National Learning Network (NLN) Transformation Board has started to take forward the objectives highlighted by the JIG. These have included extending the role of the network to incorporate adult and community learning and work-based learning, including e-learning in the workplace. It is currently proposed that this board be superseded by the post-16 e-Learning Policies and Programmes Board (EPPB), another joint LSC/DfES body, which aims to produce and implement e-learning strategies specifically in the skills sector and is designed to replace the various groups and sub-groups of the NLN Transformation Board with a more coherent policy focus (Thompson, 2004).

Local context

2.34 Each LLSC is currently undertaking a StAR. Each local LSC must review and plan for post-16 skills and training needs in terms of both sector and local geographical needs. It is intended to be a comprehensive process covering every LSC-funded provider in every local area. The aim is to ensure that the needs of learners and their communities are met by a mix of provision, responsive infrastructure and more choice of opportunities. The StARs need to be completed, with actions well in place, by 31 March 2005.

2.35 The LSC requires that StARs specifically address the role of e-learning in each of its strategic areas: employer skills and workforce development, basic skills, progression to higher education, 14–19 and adult learning. The StAR guidance notes for e-learning (Ferl, 2003) demonstrate the LSC's commitment to take forward and embed e-learning in the work-based learning environment. For example, they suggest that each LLSC:

- requires all work-based learning providers to assess the roles that e-learning can play in the delivery of their targets or the fulfilment of their objectives, and to evaluate the benefits and risks of using e-learning
- identifies opportunities for wider exploitation of learndirect and National Learning Network materials in workforce development
- addresses the issues of continuity in e-learning transition from further education to work-based learning
- ensures that the implications of e-portfolios for workplace assessment are known and appreciated by work-based learning providers and incorporated into workforce development programmes and providers' e-learning strategies.

2.36 LLSCs are not required to produce a separate e-learning strategy, but several have done so (for example, Coventry and Warwickshire, Humberside, Bournemouth, Dorset and Poole, South Yorkshire and West Yorkshire).

Funding context

2.37 The LSC is funded by the DfES with a budget of £8.6 billion for 2004–05 and £9.2 billion for 2005–06. The LSC has budgeted £3.2 billion for 2005–06 for adult learning, which includes work-based learners. The three target groups for whom the LSC will fund free courses are:

- adults without a Level 2 NVQ equivalent qualification
- 19–30-year-olds without a Level 3 NVQ equivalent qualification
- adults 30 years old and older, wanting to gain a qualification in a skill shortage area.

2.38 The LLSCs are now the main funding source for learndirect, having taken this role from the DfES.

2.39 The StAR process being undertaken by each LLSC will involve decisions on the funding allocations to be made to providers by each LSC office. The year 2004–05 saw the implementation of a new funding system designed to make the relationship between funding, planning and strategic reviews more responsive to skills needs. The LSC will now fund colleges on the basis of the provision that they have planned in their three-year development plans. The latter are agreed with their LLSCs in the light of national, regional, sectoral and local priorities.

2.40 This new plan-led funding system is expected to include work-based learning from 2005–06. *Success for All* promises that the rules that designate lower funding for courses defined as dedicated to a single employer will be scrapped, as this has artificially suppressed the supply of customised provision for employers.

2.41 The new EPPB is an attempt to bring coherence to the funding aspect of e-learning, as well as to the strategic vision. It will consider the funding of all the services that its members control within a single budgeting process. It is hoped that this will minimise overlap between the provision of services.

2.42 The funding of e-learning is still being finalised. The EPPB's vision for the funding of e-learning is that it will become less centrally directed: 'Over time … e-learning would no longer require special programmes or funding arrangements, with decisions about the place and role of e-learning being made by providers.'

University for Industry (Ufi)/learndirect

Current and planned objectives

2.43 The Ufi was created in 1998. It set up the consumer brand learndirect with the objective of taking a lead in delivering vocational e-learning and to become the provider of choice in England, Wales and Northern Ireland and a household name (Ufi, 2002: strategic objective 2). Ufi/learndirect is a key delivery organisation and also plays an important strategic role through its double agenda of increasing individual adults' employability and helping businesses become more productive and competitive. It also contributes research into the pedagogy of learning with new technologies.

2.44 The Ufi originally had two strategic roles as both a public service and a company. Since August 2004, it has had a new structure that separates these functions. The learndirect/UK online network is the largest government supported e-learning organisation in the world.

2.45 As a government-funded body, the Ufi's strategic aims and directions closely reflect the Skills Strategy and Unified E-learning Strategy. learndirect has been identified as a key facilitator of the changes proposed in these strategies, especially by catering to the sector-specific training needs of SMEs.

2.46 Given this remit, the Ufi has produced an employer engagement plan in which it outlines two objectives for its employer market:

- to develop profitable commercial revenue
- to support the policy objective of reducing the UK workforce skills gap.

2.47 Although the Ufi caters to a mass educational market, its strategic vision is to meet the skills gap by providing differentiated, sector-specific products appropriate for various market segments and different Skills for Life user groups. It is gradually extending its links with the sector skills councils (SSCs) to fulfil this aim and now has contractual agreements with 14 SSCs who use learndirect as part of their training and development infrastructure.

2.48 This approach is being led by learndirect's specialised network of Premier Business Centres (across England, Wales and Northern Ireland), in which SMEs can access a business-focused online portfolio, business advice and diagnostic support.

2.49 A major partnership set up with the TUC has also helped learndirect respond more directly to sector skills needs, through the creation of a network of sector hubs called 'trade union hubs' (TUC, 2004b). These are based in workplaces and colleges and in union offices across England. By July 2004, there were 83 hubs, with a further 33 applications in process (TUC, 2004a), and these are facilitated by a network of about 7,000 union learning representatives. The TUC aims to increase this network to 22,000 union learning representatives by 2010. The hubs' priorities for 2004–06 are:

- numeracy and literacy qualifications
- Level 2 NVQ equivalent qualifications
- overcoming the digital divide
- workforce development.

2.50 The trade union hubs are funded by a mixture of LSC, Ufi and Union Learning Funds. They have been allocated £1.3 million by Ufi for 2004–05 and £425,000 from the Union Learning Fund (TUC, 2004a).

2.51 As part of the LSC's vision for responding to local skills demand, learndirect's planning arrangements are in the process of becoming more closely aligned with those of the LSC and RDAs.

Evaluation

2.52 A strategic evaluation of Ufi (Tamkin *et al*., 2003) found that there is little hard evidence to demonstrate that the Ufi has had a positive impact on organisations' competitiveness and productivity. Ufi has been found to focus more on the individual rather than the needs of the business. Indeed the university segments the employer market by company size so that a 'personal solution' is the official approach to all organisations with fewer than 20 employees (which cover 11 million employees):

Table 2.1: Ufi's segmented market approach

No. of employees per employer	Total no. of employers	Total no. of employees	Key channels	Lead proposition
1–19	3.3 milliion	11 million	Learning centres	Personal solution
20–49	50,000	1.5 million	Premier Business Centres Sector hubs	Subsidised business solution
50–2,999	30,000	5 million	Premier Business Centres Sector hubs	Full-price business solution
Over 3,000	600	6 million	Direct sales force	Tailored business solution

Source: Tamkin *et al.* (2003)

2.53 The table below shows the planned and achieved targets of learndirect with regard to SME engagement in e-learning

Table 2.2: learndirect targets for SME engagement

Year	2002–03 Target	2002–03 Achieved	2003–04 Target	2004–05 Strategic plan target
Number of SMEs using learndirect	40,000	64,000	70,000	70,000
Number of course enrolments from SMEs	100,000	106,336	200,000	*

Source: *Ufi Annual Review 2002–03*

2.54 The Ufi evaluation found that employer engagement increases with company size. learndirect is now exploring new methods to reach the fragmented SME market, such as working in partnership with Business Link to encourage more SMEs. It also found that, in 2002–03, about 10 per cent of learndirect's employee courses were funded directly by the user/employer (i.e. they do not rely on government funding), especially in Wales where learner funding is more limited.

learndirect Scotland

2.55 learndirect Scotland is run by the Scottish University for Industry (SUfI) and is funded by the Scottish Executive. It has a particular focus on engaging small businesses, which account for 95 per cent of Scotland's companies. This is a key part of the SUfI's *Corporate Plan* (2002), which involves addressing SME needs and raising awareness of training provision. In the last financial year, It has supported 466 SMEs to develop a planned approach to staff training, against an original target of 175 (SUfI, 2004). There are now a total of 452 learndirect centres across Scotland.

2.56 To supports its plans, learndirect Scotland has developed a specialised website for businesses – learndirect Scotland for Business' <www.lds4b.com> – which provides direct access to the National Learning Opportunities Database and the E-Learning Catalogue. It also has a field-based network of training partners, whom it deploys to address and organise businesses' needs through individualised company assessments.

learndirect Wales

2.57 Ufi Cymru has developed a 'Made in Wales' model for delivering learndirect, to reflect the needs of Welsh learners and businesses. It is working towards a similar sector skills model as learndirect across the rest of the UK.

2.58 It works in close partnership with ELWa, as well as the Welsh Assembly, Careers Wales and the Basic Skills Agency for Wales.

learndirect Northern Ireland

2.59 learndirect Northern Ireland has a number of strategic aims related to work-based learning and SMEs. It aims to:

- support the development of a Workplace Learning Fund in Northern Ireland
- give all learndirect centres targets for SME and workplace delivery
- develop a connectivity strategy for providers, including for workplace business streams.

2.60 learndirect Northern Ireland has worked in partnership with the Department of Employment and Learning (DELNI) to formulate a small firms growth plan, designed to encourage micro-businesses across Northern Ireland to partake in work-based e-learning. The initiative makes available £300 per employee for e-learning training. It is being financed by the DELNI and supported by the Federation of Small Businesses.

Skills for Business network

2.61 The Skills for Business network comprises the Sector Skills Development Agency (SSDA) and sector skills councils (SSCs). The SSCs are tasked with identifying and developing the skills of the workforce to meet sector needs.

2.62 The SSDA has agreed a protocol with Ufi and SSDA (2004), which agrees a close working relationship between the Skills for Business network and Ufi at a national level (across England, Northern Ireland and Wales). It outlines the ways in which the Ufi and the SSDA will work together to promote e-learning as part of the skills solution for each sector. It agrees that:

- learndirect will be promoted as an effective business solution for the UK workforce.
- Ufi will work closely with each SSC during its initial market assessment to help each one assess and address the demand for e-learning within each sector.
- Good practice in learndirect engagement will be promulgated throughout the Skills for Business network.
- Learning through learndirect will be a key way to help meet the skills needs identified by SSCs.

Regional development agencies (RDAs)

2.63 There are nine RDAs in the England, which are non-departmental public bodies established to strategically drive and co-ordinate sustainable economic development and regeneration in their region. Part of this involves developing the skills of the region to meet employment needs.

2.64 In July 2001, the Department for Work and Pensions, Department for Education and Skills and Department of Trade and Industry requested that RDAs develop Frameworks for Regional Employment and Skills Action (FRESAs). The objective of these strategies is to address labour market dynamics in each region in terms of supply and demand for skills. Although the FRESAs are produced by the RDAs, they are agreed in partnership with a range of regional partners, including the LSC, JobCentre Plus, local authorities, government offices, the TUC and employers' representatives.

2.65 The FRESAs cover a wide range of issues to meet this objective, but a key strand of each strategy focuses on workforce development in terms of skills and business performance. e-Learning and work-based learning are addressed in terms of the contribution they could make to these workforce development issues.

2.66 Table 2.3 below summarises the actions, proposed across the different FRESAs, which are relevant to e-learning and work-based learning.

Table 2.3: Actions proposed in FRESAs with implications for work-based e-learning

SUPERTHEMES	THEMES	SUB-THEMES	East Mids	East	London	North East	North West	South East	South West	West Mids	Yorks & Humber
Supporting growth sectors	ICT skills (some integrate e-learning here)	Raising user and professional level	✓	✓		✓	✓	✓		✓	✓
	Intermediate and technical	Requirement to meet Levels 2 and 3 national targets			✓	✓		✓		✓	✓
Quality and responsiveness of supply side of learning provision	Review qualifications available, particularly for SME and flexibly employed		✓		✓						
	Take-up of SME training	Improving coherence	✓	✓	✓						
		Higher-level skills in SMEs	✓		✓				✓		
		Management and leadership training for SMEs	✓	✓					✓		
		Refocus of mentoring and support programmes for SME owner managers on product market strategies	✓								
		learndirect sector specific hubs			✓						
	Stimulating the individual's commitment to and engagement with learning	Work-based and vocationally related higher education		✓	✓						
Articulating employer demand for sector skills	Sustainable supply of workers	Sector skills needs for region identified	✓	✓	✓	✓	✓	✓	✓	✓	✓
		Integrate and promote									

SUPERTHEMES	THEMES	SUB-THEMES	East Mids	East	London	North East	North West	South East	South West	West Mids	Yorks & Humber
		sector skills activities at regional level, including sector skills action plans	✓	✓				✓	✓		✓
	Increase ICT and new technologies in business use (skills levels, investment and connectivity) – include online learning		✓	✓			✓	✓	✓		✓
Strengthening links between supply and demand	Making certain that the employer voice is heard.	Workplace learning representatives	✓	✓				✓			✓
	Employer engagement and participation, employer commitment										
Strengthening FRESA process	Data collection and market intelligence arrangements	Improve knowledge of models of delivery in work-based training and level of activity in work-based basic skills training			✓		✓	✓			✓
	Employment and skills action groups	Develop ICT and connectivity regional strategy		✓							

Source: Schofield Associates, 2003

Business Link/Small Business Service (SBS)

2.67 The network of 45 Business Links is managed and partly funded by the DTI's Small Business Service (SBS). From 2005, Business Links will come under the control of the RDAs to enable a national framework of support for SMEs, and to ensure that regional business support services reflect the objectives of the RDA's regional economic strategies.

2.68 Business Link has no strategy in relation to e-learning and neither is it mentioned in its action plan for small businesses (DTI, 2004a), although workforce and management training are highlighted as one of the main factors influencing the growth of small business. According to this report, however, only 20 per cent of small businesses currently have an HR strategy.

2.69 Despite its lack of an e-learning strategy, Business Link has applied a coherent approach to embedding e-learning into its operations through its Business Link Training Directory. This is available on Business Link's website (launched April 2004) and provides, in partnership with learndirect, a facility for SMEs to search for and purchase a range of suitable courses to support the skills needs of their businesses. e-Learning is presented to businesses as an alternative and flexible way of training the workforce.

Higher Education Funding Council for England (HEFCE)

2.70 HEFCE distributes money for teaching and research to universities and colleges in England, with the aim of promoting high-quality teaching and research, as well as contributing to economic prosperity. Higher education overlaps with the workplace in the context of foundation degrees and partnerships with businesses and as part of its objective to support knowledge transfer with the business community. Third-stream funding, which supports HE-business interaction, has recently been given several funding boosts by government through such bidding opportunities as the Higher Education Innovation Fund (December 2003) for England and Northern Ireland.

2.71 As part of the DfES e-learning consultation strategy, HEFCE was asked to bring forward plans to embed e-learning into higher education in a full and sustainable way within the next 10 years. HEFCE produced an e-learning strategy for consultation in July 2003 and responses were published in May 2004.

2.72 Although HEFCE's e-learning strategy is mainly concerned with university-based learning, it does propose a number of objectives in relation to workplace e-learning. These, however, are mostly preparatory in nature:

- to research the needs of employers and the effectiveness of e-learning
- to develop a concordat between the HE Academy, Universities UK/Standing College of Principals (UUK/SCOP) and SSCs to 'assist in articulating employer perspectives on e-learning needs in the curriculum'.

2.73 This contrasts with the more action-based proposals outlined for the rest of the HE sector. This disparity has been picked up in the consultation process, with suggestions that more action is developed for work-based e-learning under Strand 3 of the strategy: Curriculum design, development and pedagogy, and human resources.

2.74 e-Learning and work-based learning also feature in HEFCE's overall *Strategic Plan 2003-2008* (HEFCE, 2004b). This proposes to support the development and evaluation of both of these as part of its quality enhancement in teaching objectives.

2.75 HEFCE is considering taking these work-based learning strands further in a workplace learning strategy focusing on innovation, which it intends will be closely linked to its e-learning strategy.

3 Demand for work-based e-learning

Introduction

3.1 In this section, we draw on the available evidence to illustrate current aspects of demand across various sectors. We first review existing demand for information and communications technology (ICT) skills before looking at the likely trends for future developments in e-learning and specifically examine issues and barriers relating to small and medium-sized enterprises (SMEs).

3.2 It should initially be stated that evidence of demand for e-learning is fragmented and patchy, particularly that emerging from SMEs themselves. Much of the available literature comes from e-learning providers and developers (see, for example, the Epic and Factiva reports below), who tend to report progress (almost invariably in large companies) to practitioner audiences in the online 'trade press'. Although e-learning vendors are well placed to comment on the small business market, they have a vested interest in promoting demand for e-learning and so are not unbiased sources. The same applies to case studies of SME demand by Ufi, which have been selected by Ufi to illustrate successful examples rather than those that are more widely representative of the market. There is currently little balanced evidence in the academic literature to suggest a widespread independent move among UK businesses to adopt e-learning.

3.3 When providers identify factors that will enable SMEs to take up e-learning, these factors tend to be idealised and assume that – all other issues being equal – SMEs will be prepared to adopt technology-based learning. The actual picture is much more dependent on SMEs' perceptions of such things as adequate return on investment for any type of training, to which e-learning itself can present an insurmountable barrier to small firms already reluctant to train in any sphere. In recent years, however, the sheer pervasiveness of computerised technology even in the smallest business requires at least one member of staff to possess a minimum level of ICT skills. At the same time, the spread of e-commerce and e-government in the UK has also combined with European Union (EU) legislation to provide more requirements for the workplace to come to grips with computerisation. We may, therefore, expect the pressures on firms to upgrade and refresh their ICT skills to continue to grow and create a more favourable environment generally for e-learning to become embedded in UK businesses.

ICT user skills

3.4 e-skills UK, the e-skills sector skills council (SSC), issues regular updates charting the growth of information technology (IT) user skills for the UK marketplace to address employers' needs in both the current and potential workforce. It refers to the DTI's Technology Initiative to drive uptake of technology by small firms, which provides £150 million over the next three years for business ICT investment, citing an estimated loss of £6,000 a year in turnover by small firms because of poor spending on ICT. According to the DTI (2004b):

> Basic computers and technology skills are now regarded as essential for the majority of jobs. At the same time, computer-based education and e-learning are vital as they help to develop a broader skills base for all employees, not just those with regular access at work.

3.5 e-skills UK consider that the pervasiveness of computer-based applications is currently the main driver of new skills acquisition. The continued uptake of computers is due in part to the revolution in access spearheaded by mobile operators, but is equally fuelled by new users who view technology as part of the 'norm' instead of an

intrusive 'other'. This new attitude typifies younger generations in the UK, a large majority of whom would be unfamiliar with a world stripped of its technological backdrop. The age divide in adoption of computers is reflected in low usage levels recorded by the Office for National Statistics among the 55–64 age group, who tend to be among the 42 per cent of the UK public who have not accessed the internet.

3.6 With a view to contributing towards emerging workforce skills frameworks in other industry sectors, e-skills UK has developed an IT skills 'passport' that acts as a self-assessment tool and can map competencies across occupational levels. The e-skills SSC also measures types and levels of training undertaken in other SSCs including, but not limited to, IT skills. This gives a most useful breakdown of the extent of training and development in SSCs and highlights which are more active in business investment. Further mapping work covers levels of IT skills required across a range of occupations, revealing a growing demand for advanced and intermediate skills particularly for professionals in senior positions.

3.7 European commentators look forward to a time when ICT is fully embedded in adult learning:

> The proposal for the new 'integrated' European programme for lifelong learning after 2007 sees ICT (note that eLearning as a term is no longer used) as part of a 'transversal programme' … In our view, this approach of aiming at society as a whole is important because ICT-supported learning is not an objective in itself but indispensable for bringing about the socio-economical changes in which the European Union has engaged itself.
> (European Open and Distance Learning Liaison Committee, 2004)

Trends in e-learning

3.8 In a recent survey of practitioners in the public and private sectors (Clark and Hooley, 2003), the Epic Group, an e-learning company, compiled a list of trends in e-learning anticipated across a wide spread of industries and sectors. Key findings, which mirror those found in the US and Australia, include:

- Good content is king.
- Change will be the primary driver of e-learning in organisations, at both strategic and tactical levels.
- e-Learning will happen *despite* rather than *because* of top management.
- Greater access to learning and greater flexibility are the chief benefits that organisations will look to e-learning to provide, rather than just cost reductions.
- In the very near future, the classroom will be challenged as the dominant form of learning delivery.
- e-Learning will be most effectively supported in blends of tutoring/ coaching/mentoring activities, whether on or offline.
- Asynchronous media will continue to be preferred to synchronous media (e.g. virtual classroom) – no one wants a reintroduction of classroom timetabling.
- Internet connectivity will be a primary requirement for any new learning media.
- Games consoles have an image problem in learning.

3.9 According to the survey, the greatest growth in e-learning in the coming years is expected to be in further education, for which sector the National Learning Network has already made a significant contribution in opening up access. Further education providers were closely followed by large corporations and then public sector employers, with e-learning already piloted in government departments such as the Cabinet Office, Department for Work and Pensions, Inland Revenue and the Environment Agency. The survey concluded that lifelong learning currently remains the least buoyant market for e-learning in the UK.

3.10 Respondents identified that the management of change in increasingly uncertain commercial environments – with new regulations, processes and products – was a key driver of promoting uptake in e-learning in organisations. Learner support was cited as nearly as important as that of senior management to embed e-learning in enterprise training, and availability of both e-tutoring and face-to-face mentoring were key success criteria. Sensitive 'blending' of learning and support to harmonise human and technical aspects of e-learning to meet individuals' needs was thought especially significant. Most respondents felt that the workplace would be the dominant setting for e-learning to take place, followed by home-based learning and then by learning centres.

3.11 An article on professional development experiences of web-based e-learning by general practitioners in health and social care (Jamieson, 2004) noted that 'the single issue which stands out in relation to the distance learning that the interviewees have undertaken is the importance of either the presence or the absence of support, most of it online where it exists'. Available support, either by a peer group of learners or a tutor, confirmed for learners that they are getting the best from the courses they are doing. Not all enthusiastic computer users preferred using the computer screen for all tasks, and for some, the advantages of handling paper still outweighed the power and flexibility of the computer interface.

3.12 Centra (Finn, 2004), an e-learning provider, also offered their views on forthcoming trends in e-learning:

- ***e-learning as a business strategy*** – in which it becomes part of an organisational infrastructure and operating strategy, used for increasing sales effectiveness, improving organisational competency and building richer customer relationships
- ***integrated e-learning 'suites'*** – content, technology and services aimed at solving a particular business problem, in appropriate delivery formats
- ***blended learning*** – including the essential consideration of how people learn by offering options for learning that improve learner retention, increase completion rates for learning programmes and have been shown to produce measurable savings
- ***discrete-to-integrated learning*** – with seamless transition between applications and learning activities, including shifts between group work and individual self-paced learning
- ***moves away from overdependence on learning management systems*** (LMSs) to 'do everything' for e-learning – to improving linkages between internal and external systems, staff and clients within which LMS is one component.

3.13 Future areas for development include investigating the potential of mobile technologies and the use of games and simulations, sometimes in combination. Fuel Group (Dineen, 2004) reported on developing e-learning applications for large company clients with mobile field forces, such as BT, Cable & Wireless, Thus, Colt, NTL, Canon and BP. The convergence of mobile phone and personal digital assistant (PDA) technologies has made it possible to think beyond laptops when developing new e-learning interfaces. Videophones and voice activation systems also possess features that can act as powerful multimedia tools. At this stage of development, provision of new innovative content is well placed to drive demand for equipment acquisition forward, as was demonstrated by the uptake of satellite television.

3.14 A recent business briefing (FEDS Business Forum on Lifelong Learning, 2004) highlighted new directions for online courses in corporate training, which are beginning to adopt some of the latest technologies from the world of games. The research firm IDC estimates that 8–10 per cent of the US corporate e-learning market uses technology-based simulations, which it predicts will rise to 40 per cent by 2008.

3.15 There are two common types of game-based e-learning: branching, where users are presented with information and then engage in a simple game of matching question and answer, and simulations, which offer a 3D experience and resemble a modified video game. Training simulations can be customised for different groups, and have been enthusiastically embraced by the health market. Interest is demonstrated by such events as the Games for Health 2004 Conference: the first meeting of developers, researchers and health professionals in the area of training games.

3.16 SkillSoft, another e-learning provider, recently conducted a practitioner survey of 150 human resource and training professionals in large companies regarding their views on e-learning, and published in *Training Zone* (Anon 2004b). Nearly all the staff (96 per cent) from well-known organisations surveyed, including Xerox, Reuters, Sainsburys, Shell, O2, Deloitte, Nestle Purina and Marconi, agreed that the use of e-learning in overall training delivery was set to increase during the next two to three years. Of those who did expect to increase their e-learning provision, 58 per cent said that more than quarter of their training would be delivered by e-learning, and a large majority anticipated that a sizable proportion of their IT training would be online. Almost half expected to be blending most of their learning for staff, and most felt that the use of virtual classrooms looked set to continue.

3.17 The American Society for Training and Development co-sponsored a survey of blended learning among nearly 300 US and UK companies (Balance Learning, 2004). Blended learning was defined as learning programs that include multiple methods of delivery, such as instructor-led classes, online instruction, on-the-job activities and supplemental reading. The survey projected that blended learning will comprise nearly one third of all corporate training by 2006, as compared with instructor-led training, which was expected to fall to 38 per cent over the same period. Blended learning was seen as the most effective and cost-efficient form of e-learning by nearly 80 per cent of respondent businesses in the US. In the UK, blended learning was preferred by 55 per cent of companies, and ranked as the fourth most effective training approach (after instructor-led training, on-the-job training and coaching) and the third most efficient training method (after on-the-job training and coaching).

3.18 In the UK, blended learning is used by 55 per cent of organisations for:

- management and leadership training (67%)
- customer service training (41%)
- interpersonal skills training (52%).

3.19 In the US, blended learning is used by 77 per cent of organisations for:

- management and leadership training (44%)
- customer service and sales training (46%)
- interpersonal skills training (40%).

Lessons from current activity

3.20 Looking across industry sectors, one analyst (Levis, 2002b) confirms the mixed pattern of e-learning adoption, and concludes that the market drivers for adoption vary significantly in intensity between different market segments. Two distinct forms of adoption are identified: a radical, systematic approach, favoured by a few early adopters; and a more tactical approach, typical of the vast majority.

3.21 The evidence that derives from large corporate implementation of e-learning clusters round several key drivers reported by companies: the rapid growth in information that knowledge workers need to handle; the rapid rate of change in knowledge and skills; and the promise of savings in training costs. Sectors confirmed as early adopters

include IT and telecommunications, banking and financial services and the consulting industry, reflecting conditions in the services sector that are more likely to adopt e-learning than manufacturers. Such industries include those with:

- large dispersed field workers
- rapid rates of new product launches and frequent updates
- substantial automation in customer services operations
- systematic management of knowledge and intellectual capital.

3.22 The report notes a divide in practice between 'radical' and 'tactical' types of e-learning adoption. Tactical approaches tend to be introduced to solve specific problems related to operations or delivery of training. By contrast, radical adoption approaches link to systematic, strategic shifts in corporate thinking about learning and knowledge, where: information technology is mission-critical, and is used as a strategic weapon; knowledge sharing is critical to competitive success; and large numbers of people need frequent briefings on new products and processes. Early adopting businesses represent less than 10 per cent of the eventual estimated market for e-learning – perhaps a few hundred large companies. However, there is a yet-to-be-quantified but much broader, more diffuse market of companies that will make some use of e-learning, although all markets are still at an early stage of development.

3.23 In a recent report commissioned by Ufi (Hill and Kappler, 2004), market researchers analysed the self-assessed perceptions of 503 large companies of the impact that e-learning had had on their organisations. All respondents were actively using e-learning or planning to do so in future. Data were collected that identified methods and techniques associated with successful e-learning so that companies could be classified according to behaviour characteristics. Participants considered that top among the key drivers for e-learning was the desire to exploit new technology available within the company, followed by organisational change and new IT systems, processes, regulations and products. The most significant benefits from e-learning experienced by the companies related to greater flexibility and accessibility of learning, although these did not figure prominently as drivers.

3.24 Respondents thought that the greatest successes of e-learning were the change of attitudes towards learning and training and a reduction in the costs of training while increasing its use. Companies used a range of methods to measure effectiveness of e-learning, from quantitative (e.g. numbers of IT qualifications and examination passes gained, modules undertaken and completed, staff promoted) to qualitative – the latter particularly in relation to return on investment, where reduced travel costs, increased time spent at work and ease of delivery to a distributed workforce were all cited. There was an interesting divergence between current e-learning companies and those who were planning to use e-learning when looking at challenges and barriers to implementation. Existing users were more likely to feel that the greatest challenge to be overcome in successful implementation was user objections to effect cultural change.

3.25 A current trade union guide to supporting e-learning in the workplace (TUC, 2004a) advises union learning representatives (ULRs) on negotiation and implementation of employer-led e-learning programmes. It lists the results of a 'straw poll' of trade unionists and managers involved in e-learning of their most important issues for successful implementation:

- support during learning
- analysis of workforce's training needs
- information, advice and guidance prior to learning
- accessibility of learning to complete workforce (including those with special needs)
- suitable environment for learning
- implications for people with flexible working patterns (e.g. part-time, shift workers)
- paid time for workforce learning
- selection of off-the-shelf learning materials
- development process for bespoke e-learning materials
- health and safety implications
- use of home or mobile equipment for learning.

3.26 The guidance notes highlight the need for adequate, tailored learner support that draws on different levels and types of support skills, depending on course content and learners' familiarity with ICT. The help needed by learners can include support for working through the course itself, understanding the course concepts, hints for improving performance, and discussing learning points with others, including online communication skills.

3.27 Factiva, the e-learning company of Dow Jones and Reuters, described their experience of implementing e-learning at PricewaterhouseCoopers (PWC) via a business-to-extended-enterprise (B2E) portal (Sykes, 2002). Available on staff desktops, the environment provided critical information, software applications, infrastructure and products to improve efficiency, which enhanced best practice, job satisfaction, and team collaboration. Learning provision available via the portal for employees ranged widely and included commercial catalogues listing available courseware, internal and proprietary CD-ROM-based training, downloadable training programs, programs launched via the intranet, and live and archived webcasts.

3.28 Staff expertise gained through using the portal was instrumental in enabling PwC Consulting to develop external programs for suppliers and business partners and to create an e-learning advisory practice for clients. PwC found that the most successful learning programs were those that were tied directly to an individual's work. If the learning tool is well designed and the content is critical to helping someone prepare for an assignment or to do a specific task, the learning exercise is usually considered successful regardless of the format.

3.29 Factiva cited other global companies with a distributed international presence – for example, Hewlett Packard, Dow Chemical, BellSouth and Cisco – to have likewise benefited from e-learning. When designing their own programmes for workplace learning Factiva made the following observations, based on their learners' experience and preferences:

- Blended learning is critical.
- Learning objectives must be repeated frequently.
- Just-in-time access should be given to just enough information.
- Learners were more willing to use virtual learning tools than was originally predicted.

3.30 Factiva also noted that all of the savings and business benefits that result from delivering learning quickly and accurately via e-learning platforms must be balanced against the cost of developing and implementing e-learning programs. According to the American Society for Training and Development (ASTD, 2002), depending on the scale of the e-learning implementation, such costs can include:

- the courseware itself
- authoring software (if the courseware development is done in-house)
- learning management systems (for tracking enrolment, participation and completion rates)
- purchase/licensing of web-based software
- IT system enhancements or upgrades.

3.31 The Chartered Institute of Personnel and Development (CIPD) is the UK's 'professional body for those engaged in the management and development of people'. It has a membership of 118,000, 40,000 of whom are engaged in various roles relating to training and development. In its response to the Government's proposed e-learning strategy, the CIPD endorses e-learning as an effective approach to training, and one in which successes will be charted as good practice in small-scale interventions 'delivered in support of a recognised business need that commands attention throughout the organisation'.

3.32 e-Learning is much more likely to be effective where learners are motivated to learn, have good IT skills at the start and are properly supported – but these issues can only be identified and resolved by the organisation. The CIPD acknowledges a common message: that the best way forward is to seek out blended learning solutions that include varying levels of e-learning adapted to suit different learning contexts. It sees key roles for government in ensuring that all learners have basic IT skills and in supporting effective standard development.

3.33 Following consultation with its membership and based on their accumulated experience, the CIPD enumerated the following 'received wisdom' on e-learning (CIPD 2004):

- e-Learning should be regarded as a change initiative, not as a way of making short-term savings.
- e-Learning has to be driven by training, not technology. Training experts need to have faith in their own knowledge.
- There is a choice to be made between introducing e-learning as part of a significant shift in approach to learning and proceeding through a controlled pilot project.
- The proportion of staff who regularly use a computer at work is a critical factor in the design of any e-learning initiative. The sophistication of these computers and any restrictions on their use must also be taken into consideration.
- Appropriate strategies must be developed for employees who do not have the necessary skills to use computers, such as promoting the European Computer Driving Licence (ECDL).
- There may be merit in making an open facility for staff (and their families) to access e-learning, but this should be undertaken to demonstrate a commitment to learning rather than as a way of gaining immediate business benefits.
- Blended learning is seen by many as a process in which appropriate e-learning modules are a precursor to a training session in the classroom.
- Generic off-the-shelf material is most useful for IT end-users or in IT specialist applications.
- Generic soft-skills material will require careful selection and quality checks to test its relevance and appropriateness for the organisation. Even then it may be most effective in a blended solution involving face-to-face training.
- There is considerable interest in the generation of bespoke or customised material – either produced in-house through the use of an authoring system or commissioned from a specialist software supplier. Ease of updating content and monitoring of usage are critical factors.
- Bespoke material is often created to meet essential business needs (compulsory training). Other popular topics are performance appraisal, standard procedures and induction.
- Learners should be given the opportunity to carry out e-learning in chunks of time that suit them. Some people may like to work in a concentrated manner and complete a whole programme at one sitting, while others may wish to complete the programme over several sessions.
- Online learning is more easily accepted in a culture of trust and empowerment, rather than in a culture where managers react against the idea of people being allowed to organise their own time and work schedules.
- Smaller organisations should enter into partnership over the running of online learning programmes so as to achieve maximum economies of scale and other benefits.
- Learning resource centres are seen as useful facilities, especially where a significant number of employees do not regularly use a personal computer at work.
- If a learning resource centre is intended to serve a population that includes those who are not regular users of personal computers, on-site facilitation is essential.

3.34 *e-Learning: Progress and prospect*, the CIPD's 2004 survey into e-learning, confirms for the UK many of the issues highlighted in the ASTD report on blended learning in the US, cited above. According to the CIPD, more attention should be paid to implementation of e-learning programmes, including support from line managers and developing a structure that meets the needs of both employees and the organisation

itself. To ensure relevance in the workplace, 57 per cent of respondents were developing customised modules tailor-made for their organisation's business needs, rather than relying on generic, off-the-shelf packages. Some 90 per cent of respondents felt that e-learning demanded a new attitude to learning on the part of the learners. Other key findings included:

- Over 80 per cent believed that e-learning is more effective when combined/blended with more traditional forms of learning.
- CD-ROMs remained the most popular method of delivery of e-learning, with 73 per cent of respondents using them.
- 52 per cent used generic e-learning modules within their organisation.
- 58 per cent felt that the current generation of e-learning products did not demonstrate what the future would look like.
- 69 per cent believed that e-learning demands an entirely new skill set for people involved in training and development.
- 49 per cent believed that the contribution of e-learning so far has been over-hyped.
- e-learning usage will have doubled in three years time, with respondents on average estimating it will account for 19% of the training they use

SMEs and barriers

3.35 Between August 2003 and 2004, the Small Firms Enterprise Development Initiative (SFEDI) ran a series of workshops to gather the views of small businesses on e-learning (SFEDI, 2004). Respondents cited three main problems with e-learning:

- a lack of awareness about what provision is available to small businesses
- the financial and opportunity costs linked to training activities, including time spent away from work
- continuing limited access to broadband for many small firms.

3.36 The workshops invited participants to evaluate a range of websites and their features. Constructing e-learning so that it successfully motivates and interests individuals was seen as a crucial challenge, which might be achieved by:

- offering peer and tutor support to overcome isolation
- flexibility to ensure that the resource met the needs of learners and/or the business
- attractiveness, simplicity and efficiency while avoiding overuse of textual information.

3.37 Participants requested two resources they felt would greatly support investigating e-learning options. These were: a vetted directory of useful sites and resources, with embedded quality assurance, and a knowledge base of shared owner/manager experiences of e-learning that addressed common problems in appropriate language.

3.38 Common problems associated with learning in SMEs, particularly with regard to time and workload pressures, were reflected in a case study of a work-based online module leading to a certificate in SME management, which was offered to 50 employees in a medium-sized engineering firm in Scotland (Brink *et al*., 2002). The case study demonstrated the importance of ensuring, when designing learning courses of any kind for employees, that staff see them as relevant, that they will help them to perform their jobs more effectively. Organisational culture and working environment can also shape the motivation and interests of employees.

3.39 The Association of Colleges and the University for Industry conducted a study into factors affecting small businesses' uptake of e-learning (AoC/Ufi, 2001). In the report

of the study, the following factors were seen as key challenges for local learning providers in engaging the SME market:

- understanding, analysing and meeting SME needs
- interesting and engaging SMEs and their employees
- making the most of management information
- developing and maintaining an effective relationship with SMEs
- developing provider staff to meet the challenge of the SME market
- identifying SME training needs and sourcing appropriate provision
- responding to time constraints within SMEs
- positioning learning as a business solution
- avoiding 'qualification led' provision
- developing a suitable curriculum for SMEs
- making learning a practical possibility
- demonstrating the return on investment.

3.40 In the report, recommendations that specifically included e-learning related to the collection of examples of good practice in the successful delivery of learndirect courses by college partners, including the use of innovative technology for site-based learning. The report also anticipated a greater role for work-based learning as published in the Skills Strategy by calling for raised awareness, in Learning and Skills Council funding, of the needs of SMEs for flexible training. A range of useful case studies were provided.

3.41 During the six months leading up to August 2003, learndirect in Northern Ireland piloted the Small Firms Growth Plan initiative with 502 micro-businesses, involving more than 640 owner/managers and their employees. Each employee involved in the pilot received funding of up to £300 for e-learning business courses, running over networks and on CD-ROMs, to be accessed in the workplace or at home. The offer included use by employers of the learndirect Business Snapshot, an interactive diagnostic tool provided by learndirect's Premier Business Centres. 90% of owner managers successfully completed learndirect training courses, and their participation led to a further 43% of their employees also completing courses.

3.42 Of those participants in the Small Firms Growth Plan initiative surveyed, almost 60 per cent considered that the flexibility of online learning was the most attractive aspect of learndirect provision. e-Learning provided learners with the means to develop skills and knowledge without having to return to a 'traditional' learning environment, which, for many, represented poor learning experiences. For the owner/managers, online learning reduced the disruption to business normally associated with traditional training. They agreed that their main motivations for involvement with the pilot project was to develop their business through employee training and to be able to make a direct connection between business growth and the agreed training plan.

3.43 All the owner/managers consulted in the survey were especially keen on the use of the Business Snapshot diagnostic tool, which they saw as fundamental to the development of the relationship between themselves and the business advisers. It ensured a standardised approach to assessing the training needs of the business and the subsequent training plan development. Over 40 per cent of owner/managers surveyed stated that the main reason they offered training to their employees was due to identification of training needs through the Business Snapshot.

3.44 An evaluation of the overall initiative concluded that was uniquely tailored to the needs of micro-businesses who had no other appropriate type of support available to:

- examine the needs of the business in relation to its overall growth
- address individual employee skills development
- offer an approach that is flexible and provides value for money, thus making it attractive to owner/managers.

3.45 The Small Firms Growth Plan model is a rare example of evidence for the use of e-assessment to foster e-learning in small businesses. e-Assessment is not as yet much used in work-based learning, although the expansion of employer training pilot schemes and associated Skills for Life provision for the lower-skilled provide greater opportunities to introduce innovative diagnostic techniques to the workplace. The current market for e-assessment technologies is primarily in higher education and other public training providers, which have a long tradition of using conventional testing methods and greater experience in managed learning environments. There is generally a lack of assessment *interpretation* skills, particularly within smaller businesses. Although some trainers in larger companies may possess these, they are often not considered part of mainstream personnel functions.

3.46 Lockitt (2004) recently surveyed the use of e-learning in the adult, community and work-based learning sectors, and identified four main barriers to e-learning in these sectors:

- ***physical resources*** – including accommodation, content, computer and other ICT-related resources, connectivity and access for those people with individual needs
- ***information, advice and guidance*** (IAG) – including initial advice to ensure learners are on the correct learning programme at the right level, appropriate accreditation, advice on progress into new learning programmes, monitoring, formative/summative assessment (including the introduction of a national credit framework) and on-programme support
- ***management of adult learning*** – including the management of the curriculum, staff and use of management information to improve the quality, content and delivery
- ***ACL/WBL funding methodology and audit processes***. It has been recognised that traditional funding models based on registers, physical location, time duration and more conventional methods of payment do not assist the development of more flexible approaches to delivery. If learners are to experience truly flexible and open 'anywhere, anytime' e-learning, the funding and audit models need to be redesigned and applied in a more focused and flexible manner.

3.47 The Lockitt paper provides a useful checklist that offers e-learning as a solution to overcoming challenges found within adult, community and work-based learning. These include:

- ***Past experience***: Making e-learning materials and support available in local libraries and community centres offers informal learning experiences that make the internet relevant to learners' needs. A number of free and informal courses are available on the internet and can be used to introduce potential learners to e-learning. Within the workplace, e-learning can be made available at the desktop or local learning environment, and can be used in a more flexible manner that reduces the amount of lost work time that the employee experiences.

- ***Lack of confidence and self esteem***: The flexibility offered by e-learning can

be used to overcome initial fears through the informality of the medium and the ability to restart learning without feeling 'exposed'. The assessment built into the learning materials and support processes also improves confidence and self-esteem. Positive reinforcement and support encourages completion and progression on to other levels/subjects. Self-paced e-learning materials of short duration with inbuilt feedback can be used successfully in the workplace to improve the basic skills of the workforce.

- ***Physical accessibility***. People can be offered flexible locations in which to undertake learning, including home environments where virtual support can be given through peer communication. Employers who do not have access to a learning venue within the workplace can identify a range of e-learning materials that can be used to develop their workforce's skills. Identified staff can support this.
- ***Accessibility to relevant learning programmes***: A wide range of e-learning materials are now available (of varying quality) in 'bite-size chunks'. Learners should be able to access 'tasters' to assess the full courses' relevance, level, quality and suitability. Online information, advice and guidance are available and can be used to ensure that learners undertake learning that is relevant to their individual aims and objectives. A 'blend' of work-related and other learning programmes with face-to-face and virtual support can be offered to employees to enhance the learning experience.
- ***Specific individual support/resource requirements***: The development of technology for special needs should be a standard requirement for all new e-learning materials, and it needs to be recognised that this will have an effect on the cost of production. Materials suitable for learners are particularly in short supply, and more research into the impact that e-learning can have on accessibility is still required. A 'blend' of on-the-job and community/college-based learning, supported by the flexibility offered by e-learning and virtual support mechanisms, could be used to provide quality learning to employees with individual learning requirements.
- ***Digital divide, resources, ICT, connectivity***: e-Learning initiatives including interactive satellite and mobile telephones are increasing the availability of e-learning materials. However, accessibility to broadband connection using up-to-date computer equipment is an issue and will take some time to resolve within ACL/WBL. The introduction of broadband into libraries and other community venues via UK online for business and learndirect is having a positive effect on the availability of broadband. Local initiatives by the LSC are also helping to improve the situation within the workplace.
- ***Learning to learn***: Using e-learning materials to highlight simple but effective learning techniques can be extremely useful. It is now acknowledged that 'learning how to learn' needs to be part of the initial structure when introducing people to e-learning.
- ***Funding***: e-Learning materials can be used in the home or at another convenient location, thus reducing transport and other related costs. However, unless it is publicly funded, the cost of the course/programme can initially be higher. A range of e-learning materials can be made available within the workplace, and if they are easily accessible, employees can pick and mix their learning to suit their individual and corporate needs.

4 Supply of work-based e-learning

Introduction

4.1 In this section, we provide an overview of the e-learning activity undertaken by different types of providers. We do not seek to provide a comprehensive list, but illustrate where and what type of activity is being undertaken and some of the lessons being learned. We present our findings by type of provider.

4.2 It should be noted that, in producing this overview, we identified a great deal of activity but very few publications that set out the impact or benefits of the activity being undertaken. Instead, much of the literature provided an outline of the activity being undertaken or, often, planned.

Higher education

4.3 The Dearing Report (National Committee of Inquiry into Higher Education, 1997) made it clear that the 'contribution of individual institutions to regions and localities is diverse. It includes … providing new sources of employment, meeting labour market needs, supporting lifelong learning …' Institutions are working towards this goal through the provision of work-based learning courses.

4.4 *The Business of Borderless Education: UK perspectives*, a July 2000 report from the Higher Education Funding Council for England (HEFCE), suggested that universities faced the risk of being overtaken by other providers now that learning could be offered to people in the UK from many other countries. The report concluded that 'doing nothing is not an option' for higher education (HE) in the UK. The examples below indicate that progress has been made in developing e-learning within the higher education sector.

4.5 Unfortunately, the most high-profile and potentially significant HE e-learning project, the UK e-University launched in 2000, has been wound down. This project aimed to establish a new way of providing HE programmes through web-based learning. The project was designed to give UK higher education the capacity to compete globally with the major virtual and corporate universities being developed in the United States and elsewhere. However, although it received £62 million of public funding, it was unable to attract more than 900 students.

4.6 Universities adopt different approaches to using e-learning and integrating it into their mainstream provision. Often the university will team up with a professional company that provides professional distance learning expertise. This organisation may have a range of roles including developing the software for the course and managing the online facilities to deliver it. Higher Education South East (HESE, 2001) believes that the good use of private companies with experience and expertise helps the institution to develop its e-learning provision faster than it could do so alone.

4.7 Hitch and MacBrayne (2003) claim that a university, or college, that wants to offer good e-learning provision needs three things:

- a flexible yet solid technological infrastructure
- one-stop student services that mirror those found on the campus but which are delivered more cohesively and conveniently
- creative faculty and academic development support that enhances learning.

4.8 Many universities have developed 'virtual campuses' – websites hosting various learning resources, ranging from electronic versions of course notes to fully online courses.

4.9 The University of Greenwich has an online campus that serves as a resource for all its students providing password-protected discussion forums and resource centres. With funding from the South East England Development Agency (SEEDA), the university hosted the Biopharm project, a website course for workers in the many pharmaceutical and biotechnology companies based in Kent Thames-side. This was designed to support the development of a cluster of these, mainly small, companies in the area.

4.10 The core products of the project, which ran until March 2002, were six online delivery courses, covering registry and regulatory affairs, skills in biotechnology, the drug development process, bio-informatics and pharmaceutical analysis. Good practice in the project, as identified by HESE (2001), included the identification of a demand for the courses and the development and marketing of a portfolio of courses targeting one industry, on the basis that learners may then choose to complete more than one relevant course.

4.11 Oxford Brookes University has been developing a virtual campus since July 1999. Unlike those of many other universities, this project has been developed centrally and is not specific to one university department. HESE recommends this approach as the complexity and expense of setting up e-learning provision requires 'the momentum and long-term view which individual departments cannot always offer'.

4.12 One part of Oxford Brookes that is currently taking advantage of the virtual campus is the Business School, which has produced the Online MBA. This includes e-learning seminars and tutorials, a virtual library giving access to journals and full-text articles, and mailboxes for a confidential link to tutors.

4.13 MBAs are natural courses to be offered online as they will often appeal to managers in businesses who may like to study but are unable to spare long periods at any one time. Some other notable e-MBAs include two projects funded by the European Social Fund (ESF) at the University of Luton: 'Enterprise development for SME managers', which ran from 2002 to 2004; and a current project, the 'MBA for owners and managers in developing businesses'. Herriot Watt University offers, through its Edinburgh Business School, the choice of studying entirely on campus, entirely online or a combination of the two, whatever suits the learner. Liverpool also offers an MBA online, as well as a number of other master's degree programmes. They claim to provide small virtual class sizes of 20 students or fewer and 24/7 technical support. They are also keen to emphasis the high level of potential interaction between participants and both staff and other students.

4.14 Many of these online MBA programmes are targeted at small and medium-sized enterprises (SMEs), since the flexibility of online learning can be quite appealing to a small busy business. Another SME-focused project, the IDEAL programme – run by Thames Valley University in association with ADAPT, DfES, West London TEC and Grey Interactive UK until the end of 2000 – was targeted at anyone working in any area of the media, from graphic design and photography to marketing, PR and journalism. It was, however, tailored for small and medium-sized businesses and unemployed media professionals.

4.15 The IDEAL courses were taught exclusively online and were free to eligible beneficiaries owing to part-funding from the European Social Fund and to commercial sponsorship. Beneficiaries had access to an interactive learning site with a programme of five linked modules in business planning (NVQ Level 3) and technical skills including digital imaging and internet and interactive design. Learners within the Thames Valley region who could not get access to appropriate hardware and software

had unlimited free access to facilities at the TVU Learning Resource Centre in Slough. HESE praised the project for delivering continuing professional development (CPD) in a sector that does not have a history of investment in training.

4.16 Work experience or work placements are an important strand of work-based learning on many university courses. Researchers at John Moores University and the University of Worcester surveyed higher education institutions (HEIs), students and placement providers to determine the current approaches to the delivery of work-based learning programmes (Vickerman, Nixon and Deane, 2003). They determined that HEIs prepare students for work-based learning in a wide variety of ways. Paper-based handbooks were the most favoured method used to disseminate information to students and placement providers, but there was some use of CD-ROMs and the web. The final output from the project was a CD-ROM that would act as an interactive learning aid to provide evidence of knowledge and skill developments prior, during, and following work-based learning experiences.

4.17 An innovative use of e-learning in the higher education sector can be seen in the UK Healthcare Education Partnership. This collaboration between City University, London, the University of Leicester, the Royal College of Nursing and the University of Ulster seeks to provide inter-professional and highly patient-centred online learning modules for post-registration healthcare professionals.

4.18 Students have access to a virtual learning environment (VLE) and can log on and study wherever they have access to the internet. Each learner is assigned to an e-tutor and tutorial group, and the learning approach includes digital learning games, virtual presentations and access to online journals. The modules offered are all at Level 3 NVQ equivalent qualification and include 'Clinical governance matters', 'Health informatics' and 'Research methodologies for practice'. If a learner already holds a diploma-level qualification, they can achieve a BSc in health sciences by completing six of the eight available modules. Each module costs £399 for a UK citizen.

Further education

4.19 Further education (FE) colleges may use e-learning in two main ways: to teach learners, and to help with their own staff development training.

4.20 In a survey of FE colleges on behalf of the Learning and Skills Council (LSC), questionnaires were sent to all 395 FE colleges in England. The questionnaire (LSC, 2004c) explored quantitative issues relating to infrastructure, management and practice. Just over half of the colleges (51 per cent, or 202 colleges) responded.

4.21 There is sparse information relating directly to work-based e-learning, but this survey did record that 12 per cent of respondent colleges saw information learning technology (ILT) as 'offering new skills and approaches to teaching, thereby allowing the development of the workforce'. learndirect accounted for most colleges' remote learning, with two thirds delivering learndirect courses. However, just over half of the colleges conducted some remote learning that was not delivered via learndirect; some of this might have been learning delivered in the workplace. Remote learning was widespread in only 10 per cent of the colleges.

4.22 Nearly all (87%) of the colleges offered staff development programmes to support staff who wished to develop or adapt electronic learning materials. This could take a number of forms: 75 per cent of the colleges offered support from ILT 'champions'; 74 per cent offered support from technical staff; 32 per cent offered other support, including that from other members of staff (one-to-one or mentoring). Several colleges also mentioned the deployment of a dedicated materials development team. Others offered remission of time, the loan of laptops or other equipment and, sometimes, funding.

4.23 College involvement in work-based learning is often within the SME sector. Colleges are interested in SMEs for a number of reasons. First, they provide an opportunity to develop commercial activities and reduce reliance on government funding; and second, by helping SMEs with training they are making a contribution to the economy and prosperity of their sub-regions (AoC/Ufi, 2001). The average college is estimated to work with 250–300 local SMEs (AoC 1999).

4.24 The Association of Colleges (AoC) suggests that e-learning has the potential to overcome the common barrier of time constraint that SMEs face. Colleges can use ICT to offer focused, bite-size chunks of learning with just-in-time delivery.

4.25 This was the approach of the Surrey Flagship Project <www.surreyflagshipproject.co.uk>, one of several funded by SEEDA and the LSC designed to address the issue of basic skills in the workplace. This project takes an e-learning approach. Under the South East's FRESA (Framework for Regional Employment and Skills Action) Strategic Objective 2, SEEDA is committed to support the development of workplace learning, 'taking advantage of the opportunities afforded by e-learning'. Nine Surrey colleges provide the courses, plus learndirect.

4.26 The approach is straightforward. If a company wants to take advantage of the training, which is available free of charge, a tutor will help to identify and facilitate a tailor-made course to the employees on site.

4.27 Henley Management College (HMC) has been awarded funding by the European Commission, under the e-Learning Action Plan, to design, develop, pilot and evaluate an e-course for SME leaders and managers (Henley Management College, 2003), as part of the European SME E-learning Network (ESEN). The ESEN project initially involved establishing a network of partners – a mix of academic and corporate organisations from across six European countries – to review academic and practitioner knowledge on e-learning theory and the application of technology, including an empirical review of SME leader and manager training needs.

4.28 SME training and development needs were then identified in each country, and an e-learning roadmap was designed following a blended approach. The roadmap could be adapted to meet specific local SME needs in each country and enables the development of an innovative e-learning course for SME leaders and managers based on networked learning.

4.29 The course was designed to develop a set of skills to assist SMEs in the use of the resources available online. It includes electronic planning tools and management techniques to enable problem-solving, innovative thinking and effective communication.

4.30 HMC has also been involved in another European-funded e-learning project. Financed under the Leonardo da Vinci programme, this project sought to design, develop and pilot two e-courses on 'learning through e-learning'. One is a 20-hour course on e-learning skills for managers/adult learners; the other is an 80-hour course on e-learning for trainers/management developers. The project started in November 2002 and was set to run for two years.

4.31 Further information on the success of the projects is not currently available but evaluation reports are expected soon.

4.32 ADAPT, a human resource community initiative funded through the ESF, in turn funded a large number of projects designed to help people in the workforce, particularly those employed in SMEs, to adapt to industrial change. These projects were run largely through colleges but, in some cases, by other organisations such as universities or chambers of commerce. The third and final round of projects finished in

2001. ADAPT initiatives were required to meet Ufi objectives as well as the aims of ADAPT.

4.33 This programme included projects such as the Food Industry Training Network at Myerscough College. This provided flexible training – mixing online, multimedia and enhancement of traditional training – focused on SMEs in the food sector, and combined the provision of short, just-in-time training with NVQ training and business advisory services.

4.34 A key way of engaging with all employers, and especially with SMEs, is through the Centre of Vocational Excellence (CoVE) network. The concept of CoVEs was rolled out in 2000, and by July 2004, 260 were in existence. One of the aims of the CoVE approach is to make FE provision more responsive to the needs of employers, and a recent survey suggests that 30 per cent of employers engaging with CoVEs employ 10 or fewer members of staff (GHK, 2004). Employer satisfaction with CoVE provision is high, with 82 per cent of those surveyed rating the training as excellent or good.

4.35 Case studies of some existing CoVEs show that the use of e-learning to meet these goals has already begun (LSC, 2004b). At both Barnfield College and Truro College (CoVEs for, respectively, the care sector and motor vehicle engineering), the development of e-learning is seen as a key next step, with Barnfield intending to target SMEs in particular. Truro recognises the importance of CoVE funding, which has allowed some staff development work to go ahead, the knock-on effect of which has been the ability to deliver distance learning.

4.36 Hull College, a construction CoVE, has started using online delivery to meet the industry's demand for flexibility. This is also the main reason why ITS Felixstowe, a trade and logistics CoVE, uses e-learning extensively. CD-ROMs provide learners with materials, and the Electronic NVQ Remote Online Learning (ENROL) system has been developed to deliver the courses online. This allows both learners and tutors to avoid becoming bogged down in the administration of the programme. There are plans to roll out the system to several other sectors. Hull College states clearly that CoVE funding has allowed the necessary investment in IT for these e-learning developments.

4.37 Several colleges undertook interesting projects as part of the National Learning Network (NLN) Innovative ICT scheme in 2000. North West Kent College piloted a scheme delivering training and assessment to seafarers via satellite communication technology. Given the nature of their jobs, seafarers are a prime audience for distance learning, but until reliable satellite communication allowed broadband internet services to be provided onboard ship, it was difficult to maintain a direct link with a learner at sea.

4.38 The project discovered that there was significant scope for this method of delivery in maritime training, but that, at the time, the cost of the equipment that ships needed in order to participate was prohibitive. However, during the life of the project it became clear that the use of CD-ROM technology was a useful way forward, and many existing courses were transferred to this medium for use by learners at sea (NSTC, 2002).

4.39 Another project under this scheme was carried out by Hertford Regional College in association with the Construction Industry Training Board (CITB). This was originally envisaged as a project delivering NVQ-level training in subjects such as brickwork, carpentry and joinery, and painting and decorating, which, it was thought, would be delivered through technology such as palmtops and using WAP (wireless application protocol) on mobile phones. For various reasons, such as poor battery life and durability, simple PDAs and WAP were discounted. The delivery method settled on combined the functions of a PDA with a pocket PC notebook, which allowed users to connect to the internet, receive email and download files.

4.40 Crucially, the project discovered that, in wrestling with the IT issues to make the systems work, they were losing sight of the fact that the e-learning approach was adding nothing but inconvenience to the learner's experience. This prompted a change in approach, and the college turned to the CD-ROM route. They replaced the hardware that they were using to deliver the training with a more traditional notebook, and bought construction skills and key skills materials from a local software company. In a final evaluation, it was clear that this approach was much favoured by the students and employers involved (Hertford Regional College, 2002).

4.41 These case studies illustrate that there is a danger of moving too fast in trying to keep up with the available technology. E-learning should be about enhancing the learning experience, not providing change for change's sake.

Work-based learning providers

4.42 In a 2003 survey for South Yorkshire LSC (Shaw Associates, 2003), 36 work-based learning providers were interviewed about their use and plans for e-learning provision. The results showed that 25 per cent used e-learning in some form, while 28 per cent intended to start using it within one year. However, 42 per cent had no plans to make use of e-learning approaches, and one provider subcontracts all e-learning to the local college.

4.43 Of the e-learning that was taking place, 50 per cent involved using the internet for researching life skills and key skills. Only five organisations were using it for structured training, although using it to deliver key skills assessment was common.

4.44 The work-based learning (WBL) providers using e-learning had clear reasons for doing so: it was perceived as flexible, catering for a variety of learning styles and allowing multi-skilling. They anticipated that the benefits would be greater retention and achievement.

4.45 The providers who intended to use e-learning believed that the barriers to doing so were a lack of awareness of e-learning, poor levels of access for learners, financial restrictions and a lack of staff experience. Those providers *not* intending to use e-learning saw all the above as barriers, but they also felt that there was no need and no demand for this approach. This was often backed up by experience of unsuccessful pilots.

4.46 In the Milton Keynes, Oxfordshire and Buckinghamshire (MKOB) LSC area, the use of e-learning by work-based learning providers is largely dependent on size and sector (Mackinnon Partnership, 2004b). Local branches of national providers are more likely to have taken the decision to invest in establishing e-learning, while some providers specialising in specific occupational areas, such as hairdressing, have made a specific decision not to investigate e-learning. Some of the smaller providers felt that they did not have the resources to pilot e-learning and were waiting for a lead from the LSC.

4.47 Work-based learning providers particularly rely on commitment from employers to enable e-learning to take place. In some cases, providers have reported difficulties persuading employers of the benefits or to allow learners access to IT equipment. Often WBL providers have to overcome the problem that an employer's equipment is old and may slow down the learning software, another turn-off to learners. As a result, many tutors bring laptops with them to the workplace for learners to use.

4.48 CD-ROMs are also used by a number of providers in the area. The cost savings in transferring paper-based materials on to CD for despatch to the learner often motivates this.

4.49 Some WBL providers in the MKOB LSC area were experimenting with e-NVQs, a system whereby learners are able to keep an electronic portfolio of work. This allows learners to get a clear sense of their progress as the system shows clearly how much they have completed.

4.50 The use of email for keeping in touch with learners was quite common, but the reasons for doing so were not. There was a split in the providers between those who saw it as a cost-saving exercise, as it would mean fewer tutor visits to workplaces, and those who saw it as an additional service, which did not replace face-to-face visits. There were also providers who did not use it because tutors were not sitting in an office all day and email was therefore not an efficient way of getting in touch with them.

4.51 A review of e-learning in Hampshire and the Isle of Wight, Bournemouth, Dorset and Poole (Spirit, Inperspective and Education and Business, 2003) found that, while most WBL providers used very little e-learning, there was scope for future development. The reasons for this largely mirror the examples in both MKOB and South Yorkshire, and include a lack of equipment onsite (especially in sectors such as construction and hair and beauty), the preference for face-to-face contact, a lack of materials, technical knowledge and tutor enthusiasm, and some confusion over funding. However, there is some use, notably in developing a similar electronic portfolio option as in the MKOB area. No providers considered that they used e-learning ‘a lot’.

Adult education

4.52 The National Learning Network 2003 Adult and Community Learning (ACL) Information Learning Technology (ILT) Strategy covers all aspects of ACL learning. It makes clear that, although workplace learning was traditionally separated from ACL, there is a need to use workplaces where appropriate to deliver learning.

4.53 Staff development issues are important to this sub-sector, with both voluntary and paid staff identified as needing training in all aspects of ILT, from administration to online tutoring skills. The strategy recognises that the relevant staff are not all based at a central site and the training must reflect this. Online learning may solve this problem.

4.54 In the MKOB LSC area, adult learning providers are largely committed to developing e-learning through libraries and UK online centres. Buckinghamshire Adult Education has tried a different approach with its ‘Strengthening business links’ programme, which has since spread to Milton Keynes and Oxfordshire. Funded by the LSC and ESF, this involves the delivery of training courses in the workplace. Buckinghamshire is targeting SMEs, while Milton Keynes and Oxfordshire are concerned with voluntary and community organisations. Courses on offer include basic IT skills, newsletter writing, website design, internet and email use, financial management, volunteer management and desk-top publishing.

Public sector

4.55 We include here schemes run by the NHS, Jobcentre Plus, regional development agencies (RDAs), prisons, local government, and local learning and skills council (LLSCs). Workforce development is key to most of these public-sector organisations, and this can often be best achieved through work-based learning. The NHS is the largest single employer in western Europe and needs to be at the cutting edge of training provision to ensure efficiency and effectiveness. RDAs and LLSCs are interested in up-skilling the workforce for the ultimate aim of increasing prosperity, well-being and economic success.

NHS

4.56 The NHS has recently set up the NHS University (NHSU). This is intended to be fully operational in 2007 with a gradual scaling up of activities until then. This organisation is designed to provide training to employees at all levels within the NHS and to encourage greater participation in learning. e-Learning is one of the main methods by which this is to be achieved, with access to training and support through the online 'virtual campus'.

4.57 The campus is designed to enhance and complement traditional learning methods and to support the development of a NHS-wide e-learning strategy. Access to the campus will be through any computer linked to the internet – at work, in a library, at college or at home. In future, it is hoped learners will also be able to access the campus via mobile devices such as PDAs or mobile phones and through interactive digital TV.

4.58 For learners, the campus is designed to offer high-quality learning programmes and services alongside short 'bite size' learning modules that do not require formal enrolment. There will also be information and guidance about: learning opportunities; online and telephone support services, including e-tutoring and e-mentoring; learning centres; and learning kiosks. Users will also be able to access research and development through links with electronic libraries and other information resources, skills assessment tools and access to curriculum pathways that support the NHS skills escalator.

4.59 The NHS is committed to the use of e-learning to meet its training needs and has set up a database listing all the e-learning activity currently being undertaken across the service. This allows users to search for existing courses within a number of categories and gives details on each course, such as geographical coverage, the training provider responsible and the main aims. There are currently nearly 200 individual entries. A number of examples are listed below:

- ***Clinical Coding E-learning Module*** – to train coders in the four-step clinical coding process. Developed by the consultancy company Information Transfer for distribution on and offline, this course delivers the subject matter in around one-and-a-half hours of learning time.
- ***NVQ Level 2 Social Care Induction Programme*** – a blended course combining electronic delivery and assessment with tutor/facilitated activity, all managed via intranet.
- ***European Computer Driving Licence*** (ECDL). This seven-module course aims to deliver basic IT skills to enable the increase use of specific systems as well as to improve communications. It has a particular focus on supporting clinical staff in areas were new/next system roll-outs will be taking place – e.g. the National Care Record Service. Courses can be accessed from any computer, but the final exam needs to be taken in a test centre.

4.60 This database, alongside the national NHS e-learning strategy and consultation, is part of a project to promote a common approach to e-learning across the NHS.

4.61 The National Nursing Leadership Programme was named 'E-learning Project of the Year' by the Institute of IT Training in February 2002. The project began in 2001 as a pilot with 400 nurses. Previously, 38,000 nurses had been able to access training in face-to-face sessions, but many had been denied access due to the level of demand, working patterns, location and personal commitments. The e-learning approach helped to widen access.

4.62 Off-the-shelf products provide a basis for the courses, but they are substantially developed and customised in-house. The courses cover leadership, management and personal development. Each section is made up of 16 units and each unit represents three to four hours of training time. Take-up rates have greatly exceeded expectations (Work Foundation, 2002).

4.63 A consultation on the NHS e-learning strategy briefing paper held in 2004 received 88 responses from a variety of stakeholders, including strategic health authorities, NHSU staff from regional offices, NHS trusts, and education sector and commercial education providers. It found that one quarter of respondents supported the strategy because it would allow a more co-ordinated and coherent approach to learning across the health sector. A fifth of respondents felt it would make learning more readily available to the workforce. Some of the main perceived benefits of e-learning were improved flexibility in provision, greater access, financial savings, more up-to-date materials and increased learner participation across all staff levels.

4.64 Two fifths of those who responded to this consultation saw the limited IT infrastructure and lack of access as the main barriers to e-learning developing. One third saw difficulty in getting individual NHS trusts to integrate a general strategy into their own organisational plans.

Prisons

4.65 The learndirect prisons pilot acknowledged the value of the prison education regime in delivering key skills to prepare prisoners for work. Linking education with employability not only improves learning outcomes inside the prison environment, but also stimulates prisoners' interest in external education and job opportunities once released.

4.66 The pilot in five prisons ran from March to December 2002, and is now awaiting wider rollout to other prisons around the country. The use of flexible technologies to encourage self-paced learning was significant in reaching a wider target audience of prisoners, particularly younger offenders with recent negative experiences of formal education. The review confirmed how well learndirect attracts prisoners whose previous education has been bypassed and who would not normally choose to pursue education within the prison regime.

Central government

4.67 The Department of Trade and Industry (DTI) makes use of e-learning in delivering some of its racial equality training, through a desktop tool including information on how to mainstream equality in policy-making, and setting out the DTI's statutory duties under both S75 Northern Ireland Act and the Race Relations (Amendment) Act. The training also contains sources of statistical information and links to useful websites.

4.68 The Department for Work and Pensions (DWP) is considering how it can make greater use of e-learning and other alternatives to traditional classroom-delivered training, to provide a more flexible, 'blended' approach to learning for staff. A feasibility study was undertaken by the DWP into the establishment of a 'leadership academy', and their recent HR strategy indicates e-learning and blended learning solutions will be fundamental components of the leadership and manager development strategy.

4.69 An example of this in practice is in Jobcentre Plus, where the DWP wanted to improve the interviewing skills of junior-grade frontline staff dealing with customers who claim to have lost or not received social security payments. Focused but sensitive interviewing is required in these circumstances. The Epic Group was asked to address the problem and help deliver a training solution. They came up with a simulation-driven programme in which learners practise questioning skills interactively with eight realistic 'virtual' customers. The interviews are preceded by a tutorial, which gives a context for the interviews.

4.70 Learners view a video clip of the customer, and decide an appropriate question that will take the interview further. Different question choices result in different simulation outcomes. If learners ask the wrong types of questions, or become too confrontational,

the interview is terminated. Learners' choices are evaluated within the programme and feedback given, whatever the outcome of the simulation.

4.71 The innovative in the programme is the tackling of learning in a medium that was previously seen as unsuitable for delivering soft skills training using role-play. The pilot has been extremely well received.

Local government

4.72 Local government is increasingly using e-learning techniques in a number of different ways. A scoping study for the Improvement and Development Agency (IDEA, 2002) by the Epic Group identified local government as ideally positioned to make use of e-learning due to the dispersed nature of the workforce, the high levels of internet usage, recruitment and retention difficulties and the potential economies of scale.

4.73 One of the key barriers to delivering e-learning in local government is getting the buy-in from learners and managers. Hampshire County Council addressed this problem by setting up discussion forums on the intranet and by avoiding a sole focus on high-level objectives, such as ‘changing the organisational culture to allow modernisation’. They started simply with a training course for 25 participants called ‘Developing an online community’. The results of this scheme were used to inform future planning for e-learning.

4.74 Somerset Council’s use of e-learning was driven by the need to address a 40 per cent drop-out rate among staff on an NVQ scheme. This rate was thought to be due to the bureaucracy of maintaining an evidence portfolio of work completed. Since much of the evidence that candidates produced was typed on computer and many of the documents they used were stored on the intranet, the idea of an ‘e-pigeon hole’ was developed. This would act as an electronic store for an individual’s work. The system was designed to map the posted evidence against the requirements of the NVQ and to determine if additional work was needed.

4.75 Despite the potential for savings that e-learning offers (after the initial set-up costs), Somerset Council is clear that any use of e-learning in the near future will be designed to supplement, not replace, traditional learning methods and to enhance the experience rather than to save money. The blended approach to learning is obviously approved elsewhere.

4.76 For example, when Surrey County Council received funding for an e-learning pilot in 2000, they initially looked into using CD-ROMs but were put off by the ‘loneliness of the long-distance learner’. The approach they settled on was based around classroom learning. Learners would work through the computer-based material together and it would be discussed face to face. Topics included performance management and customer service. Groups would consist of six to eight learners, and each session would last one-and-a-half to two hours.

4.77 However, there are also examples of e-learning designed to reduce the costs involved in training. Warwickshire Council recruited a project manager on a three-year secondment to develop a virtual staff college. The council provided £92,000 upfront for the project, with each department that benefits from the service required to pay back a proportion of this lump sum. Each of the nine departments involved have been encouraged to take ownership of the project through the development of specific learning environments.

4.78 The project manager acted to bridge the gap in employees’ ICT skills while the college was still in development, by securing old council PCs for them to take home free of charge. Content for the college comes from a range of sources such as off-the-shelf packages, learndirect, private-sector partners and bespoke materials. The college covers areas such as ECDL, basic skills, inductions and HR professional competencies.

4.79 The opportunity to save staff time with e-learning is also obvious. This is not only through learners having to travel around less but also in more innovative ways. In the case of Somerset Council, one planned use of e-learning in the future is a staff induction package that will replace the face-to-face meet-and-greet sessions that new staff normally have with the chief executive and the leader (Socitm Insight, 2002).

LLSCs

4.80 The LSC network funds much of the activity listed above – specifically that in further education colleges and work-based learning providers. However, there are other e-learning activities undertaken by individual LLSCs.

4.81 South Yorkshire LSC is planning on implementing a sub-regional VLE that will connect all the secondary and special schools in the area, all pupil referral units, hospital education units, football grounds, libraries, primary schools, homes, further education colleges and 370 SMEs. It will provide access to Curriculum Online and College Online. In addition, the VLE project will provide 300 'PODS' (dedicated learning modules) for businesses and 70 learning centres that will be located in SMEs.

4.82 This all comes under the South Yorkshire e-learning programme, branded e-sy.info. Businesses employing between 20 and 250 people are given the opportunity to have a dedicated e-learning computer terminal placed in their offices free of charge. Training materials covering IT skills and key business skills are then provided. The business is required to nominate a member of staff to act as a co-ordinator for the scheme, who will receive extra training that will allow them to offer advice and guidance to colleagues.

Sector skills councils

4.83 The Sector Skills Development Agency (SSDA) and the Skills for Business network of SSCs are designed to foster workforce development and the up-skilling of employees in different sectors. Many are beginning to use e-learning to meet these goals.

4.84 In one of many collaborations with Ufi/learndirect, the Science, Engineering and Manufacturing Technologies Alliance (SEMTA) has set up a sector learning hub. This helps to deliver training in a flexible way to employees in the engineering sector. The courses can be accessed in three ways: through open learning venues, which are attached to engineering training centres; through the Hub Virtual Learning Centre, which provides the same services as the open learning venues but remotely; and either via a companies' own learning resource centre or directly at an employee's desk.

4.85 e-skills into business (ESiB) is an online business improvement programme for SMEs. It has been designed to help businesses to become more competitive and to improve their 'bottom line' performance through the development and effective use of IT, e-business and management skills in-house.

4.86 The ESiB programme is completely online, delivered over the internet. It comprises three key elements:

- the Business Analysis Toolkit (BAT), a set of company business diagnostic tools that gives a business owner/manager a comprehensive business analysis report
- the Skills Assessment Toolkit (SAT), a skills assessment for employees, which identifies any skills gaps between their current skills and skills they need to do their jobs
- online learning, an e-learning library of over 200 courses.

4.87 Owner/managers of small to medium-sized enterprises can get access to the ESiB

website with programme support: practical help with access to internet and using the programme online, plus signposts to business advice.

4.88 By the end of December 2004, the programme aimed to have reached over 50,000 businesses in south-east England, with over 20,000 of them having received action plans and an extra 10,000 employees undergoing training as a direct result of the programme. See Appendix B for further details of this project.

4.89 In 2003, Cogent launched an innovative e-learning platform, hosted on its website *Evolvonline* <www.evolvonline.com>. This operates as a pay-as-you-go service, with charge made as individuals use different courses/training. It is designed as a cost-effective way of learning: employers save money as 'travel costs are reduced and time away from work is minimised.'

4.90 Courses available include 'Performance management', 'Process operations' and 'Storage and logistics'. When they complete a course, learners receive a skills development certificate, which can be printed off at any time from the learner's online account.

4.91 Cogent also runs Petroleum Open Learning courses in the form of modules that can be purchased from their online shop (where customers can also access a range of training manuals). These modules, once the final exam is completed, can lead to national qualifications such as City and Guilds. Each module costs, depending on subject, between £120 and £170.

Voluntary

4.92 The voluntary sectors involvement in work-based learning provision is smaller than many of the other sectors listed here. This sector is concerned with staff development, however, and faces many issues that e-learning may help to tackle. The Voluntary Sector *Skills Foresight* report (VSNTO, 2003) and the *Future Skills Strategy* (NCVO, 2004) both recognise that the sector has a significant training needs but faces problems such as an acute lack of time for training and a geographical distribution that places many rural organisations a great distance from learning resources.

4.93 Neither document makes explicit reference to e-learning, but the strategy references the DfES Skills Strategy and its commitment to making the best use of ICT to deliver and assess learning.

4.94 It is often the case that voluntary sector provision will reach audiences that other, more mainstream provision does not.

Unions

4.95 In the interest of widening participation and promoting social inclusion, the TUC has entered into a practical partnership with Ufi and established the Trade Union Hub – a network of 70 new learning centres located in trade union studies centres in colleges, union offices and workplaces. These offer hundreds of courses – mostly online for trade union learners. The courses provided – both short 'tasters' and longer programmes – are mainly concerned with IT skills and other essential skills for work, including report writing and communication. The rationale is clear: 'Online learning is enabling union members to take up courses at a time, place and pace which suit their needs' (TUC, 2001).

4.96 The number of union members signing up for courses in Hub centres has increased sharply, rising from 324 in 2001–02 to over 6,000 in 2003–04, and most of them have done more than one course. What marks out learning centres supported by the Trade Union Hub (as opposed to other hubs) is the unique role played by union learning

representatives (ULRs). Since they have the trust of their members, they're best able to promote the centre to them, help identify their learning needs and enrol them on to courses (TUC, 2004a).

4.97 One of these centres is the print union GPMU's CMS Learning Centre in Manchester, which opened in 2002. The most popular courses are the IT ones, but there is a clear demand for Skills for Life courses as well. The centre has developed strong links with the large printing company SunChemical – the company gives CMS members (all white-collar staff) four hours during work time for this training, which they have to match with four hours of their own time.

4.98 The centre is currently discussing with management and ULRs how to extend the scheme to include blue-collar workers – a less straightforward proposition because of the company's shift system and production requirements. There were also problems, so far insurmountable, when the centre tried to roll out Skills for Life training for several paper mills in the North West.

4.99 At another centre in Canary Wharf in London, construction workers are using similar facilities to address their IT skills needs and health and safety requirements. Taster sessions on laptops in canteens were used to attract learners after a more hands-off approach of explaining the benefits to workers onsite failed to stimulate interest. They have had a range of responses from companies, ranging from those who have dragged their feet to others that have offered employees paid time off to attend sessions. See Appendix B for further details of this project.

Private

4.100 British Airways (BA) has a corporate training department responsible for all training (excluding that concerning the flight crew and engineering). They need large volumes of tracked training and wanted to reduce costs by 30 per cent. The e-learning approach involved four steps: first, they selected content that would mirror their existing courses; this was then reviewed by experts, tested, and evaluated through user feedback.

4.101 BA now has a range of e-learning materials including 400 courses on their intranet, 30 Quest Open Learning Centres with full multimedia connectivity, learner support and access to the current range of 23 bespoke courses (including ones on dangerous goods and fire training). They also make use of their website, which hosts a learning directory and various learning resources.

4.102 BA's policy on developing courses is simple. If an existing off-the-shelf course meets 80 per cent of their needs, BA will not develop it themselves. By January 2002, they estimated that 400 courses had been accessed 1,354 times, representing 710 delivery days. They claimed that the e-learning approach had accounted for £224,000 in savings (Socitm Insight, 2002).

4.103 British Telecom has made a similar commitment to e-learning based on the need to increase training levels and to cut costs. The BT Academy is the central training group, with the company's other five lines of business (Retail, Wholesale, Global Services, Exact and Group) having their own training personnel and budgets. This complex system was presenting a barrier to increased use of e-learning, as each line had their own content licence and each had to pay a 'per user' fee. With managers being wary of increasing spending, these costs were having a negative effect. The solution was to create a single enterprise-wide content licence for the core e-learning programmes of IT, technical and professional skills courses. The single licence cost approximately the same as the five separate ones and applied to 100,000 employees, compared to just 15,000 under the separate systems.

4.104 This was also seen as a good opportunity to make the significant shift from primarily instructor-led training to online delivery. In November 2001, 70 per cent of courses were instructor-led and 30 per cent online. The goal was to reverse these figures. Simply making the courses available was not sufficient, and BT decided to drive the process. e-Learning 'roadshows' were held to increase awareness of what was available and what it could do for individual employees. CD-ROMs were also distributed to employees. These either contained relevant courses or an overview of the courses available online.

4.105 In less than one year, BT doubled the use of online courses but training costs have declined by $22 million. Course completions have risen from just over 3,000 to over 6,000 (Bersin and Associates, 2004).

5 International context

Introduction

5.1 This section provides an overview of work-based learning activity in other countries, including the rest of Europe, North America and Australia.

Europe

5.2 As we move into the 21st century, the strategic importance that the European Union currently attaches to e-learning and e-commerce is not in doubt. In 2000 and 2001, the EU adopted the e-Learning Initiative and Action Plan (EC, 2000; EC 2001) in a bid to make visible and promote the use of e-learning, to enhance quality and improve accessibility for education and training. A European Union Council Resolution (2001) confirmed these strategic position statements, encouraging member states to 'continue their efforts concerning the effective use of ICT in education and training systems'. This was followed up by an Education Council report confirming that ICT is 'of increasing importance in open learning environments and virtual teaching'. In parallel, new European employment guidelines committed member states to ensuring that:

> All education and training institutions have access to the internet and multimedia resources by the end of 2001 and that all the teachers and trainers concerned are skilled in the use of these technologies by the end of 2002 in order to provide all pupils with a broad digital literacy.

5.3 The Council Resolution (2001) requested a follow-up interim report (EC, 2002) which broadly covers progress made against EU-wide action plan objectives as set out in individual member states. One of its most striking features is the wide target group envisaged as stakeholders in the e-learning process. These include schoolteachers and their students, as well as community learners beyond school settings, in museums, libraries, and research centres where e-learning is seen 'as an important enabler for adult education, with increasing emphasis on the importance of informal and non-formal learning'. For these groups, e-learning enhances the professional development of teachers and fosters participation and involvement by students in activities outside the classroom. e-Learning similarly facilitates the growing role of universities in extending access to higher education, particularly with its ability to bridge the traditional public–private sector divide and promote innovative partnerships with industry.

5.4 Of special interest are the needs of learners and trainers in the workplace, as it is developments in business sectors that hold the key to future economic prosperity in the European knowledge-based society. Here, with a focus on cost savings and flexible, 'just-in-time' education and training, e-learning 'empowers the worker and provides the necessary skills and competence for rapidly changing business needs'. Corporate universities are key players in this sector (as witnessed by their participation in the 2001 e-Learning Summit), but e-learning is also on the increase among the European small to medium-sized enterprises (SMEs) that make up the great majority of businesses in the EU.

5.5 The GoDigital initiative, set up in 2001 to boost participation by SMEs in e-commerce, confirms that 'the digital economy is creating an ever-greater demand for qualified ICT specialists'. GoDigital identifies SMEs as 'critically important to efforts in bringing about e-Europe', and confirms that 'adapting education and labour market systems to the requirements of the new economy represents a major challenge for enterprise

policy at European and national level'. e-Commerce itself is represented as a major strand in the EU-funded Information Society Technologies programme, whose action line 2.1.5 reads: 'promotes the adoption and dissemination of solutions and practices for electronic commerce and hosts specific initiatives towards development of a framework' for acquiring ICT skills.

5.6 The e-Skills Forum (2004) has identified the following issues as of importance to the successful deployment of e-learning in Europe:

- the effectiveness, security, reliability and quality control of software products and services
- Intellectual Property Rights (IPR) and management of digital rights
- the production sharing of educational resources on co-operative basis and conformity to standards
- the nature of learner support in an e-learning environment
- the shortage of people with courseware authoring skills
- the training of teachers, trainers and tutors in using new e-learning tools
- the organisational change that is often required in education and training establishments to fully benefit from ICT
- the need to think beyond basic ICT skills and address the higher cognitive skills associated with using ICT for creativity, innovation and change
- the development and implementation of EU and national policies to foster successful e-learning throughout the European economy
- the use of ICT to pilot quality insurance in educational and training systems at regional level
- associated pedagogical issues, including research.

5.7 The European e-Skills Forum (2004) defined e-skills in line with the UK e-Skills Sector Skills Council, along the following three dimensions:

- ***ICT specialist skills***: the capabilities required for specifying, designing, developing, installing, operating, supporting, maintaining, managing, evaluating and researching ICT systems.
- ***ICT user skills***: the capabilities required for effective application of ICT systems and devices by the individual. ICT users apply systems as tools in support of their own work, which is, in most cases, not ICT. User skills cover the utilisation of common generic software tools and the use of specialised tools supporting business functions within industries other than the ICT industry.
- ***e-business skills***: the capabilities needed to exploit opportunities provided by ICT, notably the internet, to ensure more efficient and effective performance of different types of organisations, to explore possibilities for new ways of conducting business and organisational processes, and to establish new businesses.

5.8 The e-Skills Forum notes, in relation to learning ICT skills, that governments and public sector bodies including social partners have been exploring ways of linking their processes to national public sector education and training arrangements. They aim to provide effective learning systems with a broad coverage from the breadth of formal education, through training in the specific ICT specialist roles, to competence in the use of specific software tools. The forum calls for a new meta-framework of ICT skills within which different national and regional authorities could approve and validate formal and non-formal certifications and qualifications and enhance the e-skilled workforce across Europe. In this way, formal and non-formal e-skills education channels could be associated, and the most up-to-date and relevant e-skills be taught at schools and universities.

5.9 Among the report's recommendations are that European Commission support be made available to network learning centres at the European level and to promote role models. It affirms that the delivery of e-skills training implies the development of work-based training concepts and innovative new education and training channels including e-learning.

5.10 The European Centre for the Development of Vocational Training (CEDEFOP), the EU's reference centre for vocational education and training, conducted a survey into the use of e-learning in training and professional development in Europe (CEDEFOP, 2001). It recognises that:

> e-Learning has the potential to change education and training radically, to open new ways of teaching and to increase the ability of people to acquire new skills. Its development is important for governments looking to widen access to education and training and to increase the qualifications of those entering the labour market, and for companies seeking new business opportunities or to maintain or strengthen their competitiveness through continuously improving productivity.

5.11 The CEDEFOP study investigated the feasibility of collecting data on the use of e-learning methods in vocational education and training in the EU. It surveyed a sample of a wide range of training organisations throughout Europe as suppliers and users of e-learning. These included the following broad areas of interest:

- the use of e-learning in relation to other forms and methods of training in different subject areas
- the extent to which suppliers of e-learning tend also to be users
- the importance of e-learning as a source of income for training providers, and as an element of expenditure for users, compared with other training activities
- the growth of the e-learning market in terms of the revenue generated and the spending incurred.

5.12 A total of 800 completed questionnaires were received from the 15 European member states, candidate countries and elsewhere in Europe. Types of organisations surveyed included sector/industry training bodies, voluntary social organisations, private training companies, public vocational education and training organisations, universities and colleges, specialists producing tools and content, and private/public sector organisations with internal-only and internal and external training. Nearly 50 per cent of their respondents were drawn from organisations employing fewer than 50 staff.

5.13 In 2002, the Leonardo Supporting Online Learning and Teaching (SOLT) Project surveyed trainers actively involved in delivering e-learning to small businesses across six European partner countries: the UK, Germany, Denmark, Italy, Hungary and Slovakia. Almost 40 per cent of respondents came from the private sector, with clients drawn from public administration and ICT. The majority of participating e-learning contractors may be considered companies with a training orientation and, as 'early adopters', having already piloted certain e-learning applications. Their reasons for implementing e-learning related predominantly to quality of training, cost saving and ease of delivery, particularly where multiple sites are involved.

5.14 Private sector contractors reported the greatest use of e-learning using the internet, e-mail and audiovisual applications. Courses provided mainly covered use of e-learning, practical and general learning skills, technical facts and organisational and interpersonal skills. The use of learning management systems (LMSs) to track learners' progress in e-learning and for online tutoring was not widely reported and, at the time of the survey, had not yet made an overall impact on the European training market. e-Learning was delivered most widely within professional development programmes with use of in-company certification and professional qualifications.

5.15 Connectivity and ICT infrastructure development have been flagged up as critical areas to facilitate supply of e-learning within Europe, and have been the subject of study by other commentators. The rate of internet adoption is considered a key indicator of progress towards Europe-wide e-learning. Recent research has surveyed rates of internet adoption across Europe according to a range of parameters. The International Data Corporation (IDC, 2000) divides Europe into four main groups of countries in terms of internet consumption. According to IDC, 'early adopters' include the Nordic countries, the UK, Switzerland and the Netherlands, where there are many, but light internet users. 'Late adopters' comprise countries such as Italy, Spain, Austria and Belgium, where internet users are fewer but also more enthusiastic compared to the ones in the early adopter countries. France and Portugal show a low internet penetration, and Germany is placed very close to the European average.

5.16 The STAR (Socio-Economic Trends Assessment for the Digital Revolution) Project, managed by Databank Consulting of Italy (Corrocher, 2002), has also attempted to classify European internet development in a bid to get round a perceived North–South divide that has emerged in other studies. They state:

> It is worth underlining that, even in countries with similar levels of internet diffusion and even assuming a reduction of the digital divide from a technological perspective, the capability to exploit the available technological opportunities might differ because of factors related to the specific socio-economic context.

5.17 We may expect a shift in types of connectivity available as technological frameworks in the EU mature over time and, with it, a greater technical European capacity for e-learning in workplaces large and small.

Voices from Europe

5.18 In 2003, SOLT partners reported the progress in their countries of e-learning that bridges the North–South divide (SOLT, 2003):

Denmark

5.19 'Looking at the progress of e-learning in Denmark shows us that this kind of teaching/learning is still very new, though rapidly expanding. The national government generally favours and supports ICT in all kinds of learning, which can be seen in the increasing amount of e-learning courses offered. These are mainly developed in the private sector and primarily for higher education or further education for people already working. In Denmark, teaching and learning traditions very much favour face-to-face communication, and it is therefore our impression that, in general, offering courses with a combination of e-learning and traditional methods is the most successful way to go. Both teachers and students prefer a blend. The way ICT is then incorporated into learning is via electronic platforms, used in some counties by all public institutions including hospitals, primary schools, high schools, public training providers and business schools.'

Germany

1.20 ‘e-Learning is being offered to the management and staff of small and medium-sized companies and workshops. Two projects worth a total of £5 million are funded by the EU, the state and the Federal Ministry of Economy and Technology to support the development and testing of training services and software solutions for small and medium-sized companies as best practice to promote the internet as a medium for further training. Projects aim to integrate new learning and teaching methods into the day-to-day business and training in the trade. A consortium was established in order to develop a virtual learning service.’

5.21 ‘According to a survey carried out in 1998, 77.5 billion € were spent by companies on further training. Whereas large companies offered training and qualification courses, only one third of SME's actively offered qualifications for their staff; in the same year, annual turnover for web-based learning management systems was 100 million €. For 2004, a turnover of 1.2 billion € is expected. At present, there is lack of experience, as well as a lack of convincing solutions at reasonable prices. About 80 per cent of the SME's in our federal state consider e-learning useful, although at present only 19 per cent of them are making full use of its opportunities. There is no doubt that this is due to a lack of computer literacy in the staff.’

Spain

5.22 ‘Instead of widely discussing e-learning in Spain, 2003 has seen some conclusions to the debates. During the dot-com boom in the late 1990s, many e-learning companies were created, but their experience in this new training market was limited, and it caused some uncertainty in the training market. That situation was soon overcome when training professionals and ICT technicians started to work together.‘

5.23 ‘e-Learning is now regarded as just another step in the innovation of the training process. It is essential that persons involved in training are familiar with the online tools, methodologies, available software and other areas.’

5.24 ‘Currently it is the big companies and the technological corporations that are widely investing in online learning. The introduction of global e-learning corporate solutions is just starting and as yet only few companies have deployed and used this system. The most advanced organisations have included e-learning in their training strategy and daily process. Also, a new tendency has been observed, which is that more small companies are adopting an e-learning strategy. So, hopefully, during the next months we may reach higher levels of uptake. The most recent studies on e-learning show a low rate of uptake by companies with programmes that usually do not go beyond 8 per cent of the training hours based on information and communication technologies. But the studies also show the increasing interest of the companies to pilot e-learning experiences.‘

5.25 ‘So, looking at the future, we can state that the basic knowledge of online learning has been already created, and it will react to the demand of these kinds of training services. Then, the increase of resources available will increase investment in innovation. We are involved in an evolutionary process that must grow exponentially during the next months, and it will bring to new training experiences to training professionals and users, with more innovation and satisfaction defining a more value-added training process.’

North America

5.26 The corporate e-learning market in the US is projected by IDC to be worth £6 billion by 2007. Corporate training is big business in the US, where a well-established culture of training in large and small enterprises has given rise over the last 40 years to national organisations such as the American Society for Training and Development (ASTD). In recent years, think tanks such as the Masie Center (2004) have focused on the uptake of e-learning and championed its cause among smaller businesses. From its inception in the US, supply of e-learning has not been regarded as an essential element of training, but rather as an additional delivery mechanism facilitated by technology.

5.27 At this point, e-learning is at a crossroads in the US, where early predictions of a huge market that would revolutionise traditional face-to-face training have been disproved in recent years by blended patterns of uptake. The following assumptions have been dispelled (Mitchell, 2003):

- vendor-led moves for widespread installation of learning management systems – not now regarded as necessary
- technology-led approaches by management information systems personnel – now seen as learner-led
- primarily focused on learning content from off-the-shelf, externally sourced generic catalogues – now more tailored development, relevant to job and business
- a self-paced, 'do-it-yourself' approach for learners, with minimal support from either online tutors or other learners – now pro-active support from tutors and collaborative support from other learners regarded as crucial for success
- e-learning technology considered a 'cost saving' way of eliminating training personnel – now trainers considered essential, to create, support and implement e-learning components as part of the learning strategy for which they need new skills. Instructional design skills are a particular growth area.
- e-learning cutting development and delivery costs – early expectations of cheaper delivery now counterbalanced with the need for additional tutor support.

5.28 A stronger recognition and focus on informal learning patterns in the workplace, as compared with formal training, have led to moves to utilise e-learning environments to replicate these. In a two-year study conducted by the Massachusetts Center of Workforce Development (1998), researchers identified a range of work-related activities incorporating much informal learning. e-Learning using such electronic applications as chat-rooms, bulletin boards, discussion forums and virtual meetings could in turn encourage these:

- ***'teaming'*** – bringing together employees with different levels of skills and experience
- ***meetings*** – especially those that encourage participation by all
- ***mentoring*** – creating a relationship between a novice and a more experienced employee
- ***peer-to-peer communication*** – free interactions between employees at all levels.

5.29 Commentators, however, acknowledge that, even with a strong training culture, there is still much change in attitudes needed before e-learning is accepted as completely mainstream. Some developers are seeking to enhance individualisation of e-learning through more performance support, augmented reality and on-demand personalised instruction (Oehlert, 2003). Other shifts in perspective regarding potential applications for e-learning supply include the following:

- Economic models for selling e-learning will have to shift away from 'catalogue' shopping to a service-oriented model.

- Gaming and simulation are poised to make huge impacts in this market space.
- Copyright and other legal issues pose potentially great problems for the future of e-learning.
- The 'course', as a meaningful unit of instruction, may well be doomed.
- A continuation of the move toward 'pay as you go' could facilitate competition in the marketplace by smaller businesses by providing lower barriers to entry.
- Globalisation is forcing a hard focus on US-centric practices and content.

5.30 The mobile phone is now generally considered a learning device, and mobile learning (or m-learning) is gathering pace as the most flexible means of e-learning delivery. Devices of interest for mobile applications include not only mobile phones but also PDAs and laptops, which raises new questions about technical compatibilities across platforms, interfaces and features. The impact of 'multimodality' on design, the blurring boundaries between learning, training and performance support and how to handle security issues in mobile environments are all new areas for investigation.

Australia

5.31 In Australia, a well-established focus on distance learning and how flexible delivery can be tailored to overcome isolation has made e-learning a key area for development and study in recent years. The usefulness of e-learning has been amply demonstrated for a number of years in Australian higher education institutions. A report on the Australian Flexible Learning Framework (Eklund et al, 2003) describes a four-year initiative for the Australian National Vocational Education and Training System. According to the authors, e-learning has now entered a period of consolidation in Australia with a focus on quality and standards underpinning supply, and in which e-learning materials developers are seeking theoretical bases for their design choices.

5.32 In common with the US, Australian commentators also acknowledge a new emphasis on the critical role of the instructional designer and on personalised blended learning, and observe that changing demographic profiles of learners require a user-centred design process with a focus on new skills to be adopted for development projects. The contribution of e-learning to corporate training is demonstrating clear added value as technology matures:

> e-Learning is becoming an integrated and critical component of corporate knowledge management and performance enhancement, and return on investment is measured in that context. The success of e-learning can be electronically related to business successes, and more businesses will recognise e-learning's ability to build knowledge and develop skills while reducing training-related costs. Within corporate training, there is a sound understanding of how to exploit these linkages.

5.33 Continuous benchmarking and networking of e-learning into other educational technology communities, particularly corporate training, is seen as an essential part of sustaining a vision of e-learning in Australia that is anticipated to become an important strand of corporate culture. e-Learning is being seen as a means to modify or influence the behaviour of clients and hence to achieve corporate goals within the market. Its potential for partnership is also acknowledged, as demonstrated by the Canadian experience of successful investment in partnerships of federal and provincial governments, telecommunications industries and colleges and universities, with the purpose of advancing both economic and social prosperity.