

Towards a Unified e-Learning Strategy

Consultation Document

July 2003

FOREWORD

E-learning has the potential to revolutionise the way we teach and how we learn.

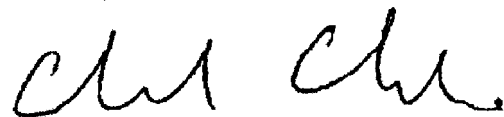
A great deal of progress has been made so far, but there is much more to do. E-learning can take us a further step forward. This is about embedding and exploiting technologies in everything we do, and getting ICT embedded across the curriculum for all subjects and in all pedagogies. E-learning has the power to transform the way we learn, and to bring high quality, accessible learning to everyone - so that every learner can achieve his or her full potential.

Many players need to contribute to this learning revolution - education providers, employers, local authorities and the e-learning industry. Government has a role too. We must share the best of this experience across the education and workplace communities, so that learners can make a seamless transition as they progress.

It is also about the skills we increasingly need for everyday life and work. In the changing world of the knowledge economy, ICT skills will help to boost productivity and competitiveness. Young people expect to use leading edge technologies at school, in college or university.

The actions proposed here are challenging, and rightly so. I want all children and adults, all teachers and lecturers, all trainers and mentors, to experience the fantastic excitement of these new ways of learning and teaching. Our current actions are documented in *Fulfilling the Potential: Transforming teaching and learning through ICT in schools*. Similar developments are under way in further and higher education. I want us to take that next step forward that will turn the pockets of e-learning excellence we already have into standard features of learning and teaching.

There is one word that for me sums it all up. That word is 'unified'. I believe the point of this consultation is to be clear about what actions we all need to take, so we all work together to make e-learning at the heart of the way we all work.

A handwritten signature in black ink, appearing to read 'CH Clarke', with a stylized, cursive script.

CHARLES CLARKE

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EXECUTIVE SUMMARY

What is e-learning?

1. If someone is learning in a way that uses information and communication technologies (ICTs), they are using e-learning. They could be a pre-school child playing an interactive game; they could be a group of pupils collaborating on a history project with pupils in another country via the Internet; they could be geography students watching an animated diagram of a volcanic eruption their lecturer has just downloaded; they could be a nurse taking her driving theory test online with a reading aid to help her dyslexia – it all counts as e-learning.

Why is it important?

2. There is e-learning already around us in schools, colleges, universities, community centres, in the workplace, and in the home. It is important because people are finding that e-learning can make a significant difference: to how quickly they master a skill; how easy it is to study; and, of course, how much they enjoy learning. It is important because it can contribute to all the Government's objectives for education – to raising standards; improving quality; removing barriers to learning and participation in learning; preparing for employment; upskilling in the workplace; and ultimately, ensuring that every learner achieves their full potential.

Why do we need a strategy?

3. The problem is that although there is a lot of e-learning going on already (and the UK is doing relatively well in international terms) it is not the kind of development that individuals or organisations can progress on their own. Just as there is no point in being the only person with a mobile phone, you cannot achieve the real potential of e-learning until most people are using it. Only then can teachers share digital diagrams, or students link into their college website from their work placement, or pupils practise a foreign language through Internet twinning with schools overseas. All these benefits are possible with e-learning, and are already happening. But they are not commonplace. E-learning is not *embedded* in our teaching and learning, at any level. We need an e-learning strategy that touches the life of every single learner.

4. The time has come to recognise the benefits that these technologies can bring to the way we teach and learn. It is not enough now to have pockets of brilliant innovation here and there. All learners, from pre-school to lifelong learning, can benefit from mixing these new technologies with their other forms of study. Government has a responsibility to ensure that the benefits

are universal. It also has a role in facilitating change, and tackling those areas where public services need to present a united front to the lifelong learner.

What is the vision?

5. Imagine what our education system could do, fuelled by e-learning:
 - Empower learners – With more active learning, people of all ages could take responsibility for what and how they learn, achieving their personal goals as self-directed lifelong learners
 - Be creative and innovative – Teaching could be more creative and innovative, in preparation for the 21st century global knowledge society
 - Offer flexibility – A more responsive education system would adapt to the needs of all learners, wherever and however they need to learn
 - Achieve better value – Education leaders could develop innovative ways of deploying their resources, exploiting e-learning alongside other teaching methods, to improve quality and economies of scale
 - Generate a professional workforce and fulfilled citizens – A community and a workforce for the knowledge society would have a high proportion of people capable of continually updating their knowledge and skills, of managing knowledge transfer, and contributing to practitioner knowledge in all its forms

What is the strategy?

6. The main points of the strategy consultation document are a set of proposals for how education leaders, teachers, learners, employers, and commercial suppliers might contribute to the process of change. The strategy considers:
 - For education leaders – how they might turn a traditional educational institution, whether school, college, or university, into one that blends the best of old and new
 - For teachers – what it would mean for their professional role to mix e-learning with more traditional methods, enabling them to offer more active and creative ways of learning in all subjects, disciplines and skills
 - For learners – how we make sure that their personal learning needs are met, and that the way they are assessed keeps pace with these new kinds of learning
 - For the commercial suppliers of ICT systems, software publishers and service providers – how they might support these new approaches that should, after all, give them graduates from the education system with highly employable skills
7. There are seven action areas, proposed as initial ideas for consultation. To build on our strengths and tackle the weaknesses, we propose to:

- Help education leaders tackle the funding models that restrict innovation (Leading sustainable e-learning implementation)
- Support people who want to be innovative in the way they teach (Supporting innovation in teaching and learning)
- Give teachers and lecturers career incentives and training for e-learning (Developing the education workforce)
- Give learners better e-learning support for meeting their personal learning goals (Unifying learner support)
- Make assessment a driver of innovation, not a barrier (Aligning assessment)
- Build a better market for quality assured e-learning resources (Building a better e-learning market)
- Work out the technical standards we should all adopt for e-learning (Assuring technical and quality standards)

8. Each action area applies to every education sector and together will create a system that fully embeds e-learning, and makes it work.

9. Embedding e-learning will not happen fast. This is a long-term strategy that looks ahead to years when the technology will probably have evolved further. That is all part of the strategy – how we prepare ourselves, through our education system, to cope with an ever-changing world.

10. Most importantly, this is a unified e-learning strategy for the whole of England. There are e-learning strategies being developed at every level – in the four countries of the UK, in local authorities, organisations, agencies, and departments, as well as in private sector organisations. E-learning does not recognise these physical boundaries. Coming together to consider how best to blend e-learning with our existing systems will benefit all partners.

11. The consultation process runs for several months, until 30 January 2004, to allow all members of the education and training professions, learners, and suppliers to engage in the debate to the full. We have learned a lot from the experience that is now widespread in all sectors of education and training, both institutional and voluntary. There is enthusiasm, understanding and expertise in place to build on. We are well placed to make the next step change to a system-wide approach to embedding e-learning in ways that will benefit all learners and teachers.

**The achievement of their potential for all learners.
An education workforce empowered to change.**

What is e-learning?

12. E-learning exploits interactive technologies and communication systems to improve the learning experience. It has the potential to transform the way we teach and learn across the board. It can raise standards, and widen participation in lifelong learning. It cannot replace teachers and lecturers, but alongside existing methods it can enhance the quality and reach of their teaching, and reduce the time spent on administration. It can enable every learner to achieve his or her potential, and help to build an educational workforce empowered to change. It makes possible a truly ambitious education system for a future learning society.

Why is e-learning important?

13. Essentially, e-learning is about improving the quality of learning through using interactive computers, online communications, and information systems in ways that other teaching methods cannot match. It is relevant to all subjects and to learners at every stage of learning or training. E-learning can even reach out and re-engage people who are currently not involved in education because it is interactive, and can adapt to their needs.

14. The importance of e-learning has been recognised in all the Department's recently published age-related strategies – primary, secondary, and further and higher education, as well as the forthcoming skills strategy. E-learning can contribute to some of the most challenging objectives included in these strategies:

- Raising standards and improving attainment – by using self-paced, individualised and interactive materials to improve individual support to learners as they move up the system
- Increasing retention and improving outcomes – by using personalised online guidance and support to allow learners to take greater responsibility for their own learning at the pace and level appropriate to them
- Broadening choice – by making available new subject options and new learning methods to meet individual needs, including where learners are geographically isolated, for example in small rural schools
- Providing support for children at risk – by enabling carers and public services to link together in online communities of mutual support and expertise
- Increasing access to learning for disadvantaged communities – by using intelligent tools and aids for personalising the Internet, linking them to other learners, and reducing isolation
- Removing barriers to achievement – by providing new and creative ways of

motivating and engaging pupils and learners of all abilities, enabling and inspiring every one to attain their educational potential

- Reducing the number of adults without level 2 qualifications – by offering private and individualised feedback on their literacy, numeracy, and ICT skills
- Ensuring wider participation and fairer access to higher education – by creating the opportunity to start learning and choose courses and support according to the learners' needs

CASE STUDY: Flexible Study for T&GWU workers

The partnership between the T&GWU and Manchester City College offers a range of accredited courses for shop stewards, senior union representatives, branch officers and family members.

The courses are flexible enough for learning at home, online, at the T&GWU education department or at the City College premises.

Over 1,000 adults have achieved qualifications. Many have gone on to develop their careers further as union shop stewards or health and safety representatives, or just become more computer literate: "I don't think I would have done a degree if it wasn't for the support I received..."; "With the help of the T&G I've passed my A level in Government and Politics".

The value of e-learning

15. There is emerging evidence that e-learning can help to improve attainment and raise standards. Survey data is being collected year on year, as the impact of the National Grid for Learning programme begins to take effect. The best evidence will come from localised, intensive evaluation studies that are able to link the nature of the e-learning contribution with its related effect on learning outcomes.

16. The evaluation of the National Learning Network (NLN) in Further Education uses qualitative data to show that learners are becoming more sophisticated in their e-learning expectations and that ICT is increasingly permeating college life. Ufi's surveys, market research and tracking are building evidence of what makes learning effective.

CASE STUDY: The Polymer Industry Project

Thanks to the Polymer Industry NTO, up to 100,000 machine operatives could gain access to level 2 qualifications – at a time when their role is becoming increasingly demanding, complex and multi-skilled.

Levels of training are low for the 400,000 workforce, because of the dispersed nature of the industry and barriers of time and cost. Independent evaluation has shown that a tutor-supported online package has been successful, and it has won the World of Learning Conference and Exhibition (WOLCE) award for online learning.

17. Research programmes in e-learning are undertaken by Government agencies and university research groups. The strategy website will have links

to many of these studies, which can show the variety of ways in which e-learning makes a difference (see Chapter 12).

The benefits: empowering learners and teachers

18. The benefits of e-learning connect with the changing world of work. Increasingly, online services are part of everyday life. It makes sense for education and training to mirror these changes and to build the skills needed for employability and the UK's international competitiveness, as well as quality of life and citizenship.

19. E-learning is important for education because it can improve the quality of the learning experience, and extend the reach of every teacher and lecturer:

- Individualised learning – e-learning can provide an individualised learning experience for all learners, including those who are disadvantaged, disabled, exceptionally gifted, have special curriculum or learning needs, or who are remote, or away from their usual organisation
- Personalised learning support – personalised information, advice, and guidance services help learners find the course they need, with seamless transition to the next stage of their learning, including online application or enrolment and an electronic portfolio of their learning to take with them
- Collaborative learning – e-learning offers a wide range of online environments from school, college, home or work, to work with and learn from other individuals or groups of learners as well as tutors, and develop the cognitive and social skills of communicating and collaborating
- Tools for teachers and learners to innovate – e-learning offers a wide range of design tools to enable teachers and learners to be innovative, creating and sharing ideas, or customising digital learning resources for their own use
- Virtual learning worlds – learners can take part in active and creative learning with others through simulations, role-play, remote control of real-world tools and devices, online master classes, or collaboration with other schools or organisations
- Flexible study – e-learning can offer flexible learning on demand, anytime or anywhere, blending traditional and innovative methods to meet learners' needs on or off campus, at home and school, at work or in a community leisure venue
- Online communities of practice – the Internet can bring learners, teachers, specialist communities, experts, practitioners and interest groups together to share ideas and good practice, contributing to new knowledge and learning
- Quality at scale – e-learning achieves economy of scale through wide access to digital resources and information systems, combined with quality through shared tools and resources, and common standards of design and effectiveness

20. If we learn how to exploit all these capabilities, then it will be possible to

achieve the overarching aims of a unified e-learning strategy: the achievement of their potential for all learners; and an education workforce empowered to change.

Consultation question

Q1: What are your views on our description of e-learning and its benefits?

The current position

21. As we look ahead to an e-learning strategy for the future, we need to evaluate where we are now. We have already made substantial investment in ICT and e-learning across all sectors. By 2006 we will spend £1 billion in that year through central funding in addition to expenditure by institutions. In December 2002 the Prime Minister announced that all schools in England will have broadband connectivity by the end of 2006.

22. The benefits of this investment can already be seen in schools, colleges, post-16 providers, higher education and the community – they form a running commentary throughout this document, along the bottom of each page, with detailed examples in the case studies. These achievements are the strong foundation on which we can build a strategy for future development.

23. The role of e-learning in education and training will grow substantially in the next decade. The drivers are partly economic, although there have been several failures of online learning organisations. There is increasing demand from learners, who want more flexible forms of study and learning programmes better tailored to their needs. The role of the market outside education is not yet clear. Will the private sector learn how to use e-learning before the public sector? That depends in part on the ability of the public sector to innovate and be responsive to its learners. The DfES is using e-learning in its own staff development, and is learning from this directly.

24. There is widespread understanding in the public sector that e-learning is important for education. Many organisations are developing an e-learning strategy, alongside the e-delivery strategies in other Government departments. On UK-wide issues, such as technical standards, we continue to work closely with the devolved administrations and to build on their work: the National Assembly for Wales has just concluded a consultation on an e-learning strategy; the Scottish Executive is encouraging a range of developments through a variety of initiatives; a Northern Ireland discussion paper on 'e-learning futures' was launched in 2002.

International context

25. The UK is ranked seventh out of 82 nations in the Network Readiness Index, which assesses "the degree of preparation of a nation or community to participate in and benefit from ICT developments" (*The Global Information Technology Report 2001-2002: Readiness for the Networked World, Harvard University*). The international e-economy benchmarking report (*The World's Most Effective Policies for the e-Economy Booz Allen Hamilton, 2002*), supported by the e-Envoy, ranks the UK second to the US for e-commerce against the benchmark group of nine countries. The market environment

section identifies ICT in education as a key theme, with the National Grid for Learning as an exemplary programme. The report states that ‘the strongest brainpools’ are the UK and Canada, driven by their deeply embedded use of ICT in education. However, for the community as a whole, the UK is well below the OECD average for broadband access.

26. The OECD forum on ‘Schooling for Tomorrow’ (2003) identifies two key problems from its 24 countries: (i) “... a great deal of educational policy and practice continues to be dominated by the short term, leaving them ill-equipped to deal with complexity and change. The necessary “tools”, even the vocabulary, for long-term thinking are largely lacking”; (ii) “... despite education being overtly about knowledge itself, its own knowledge base remains largely tacit, fragmented and underdeveloped”. An NCSL forum is following up with work on a “toolkit” designed especially for the English context.

27. Over the past few years, ICT has moved to being an integral part of EU programme activity. The Lisbon Summit in 2000 recognised that ICT would be crucial to the achievement of a dynamic economy by 2010 and declared it to be a new basic skill.

28. The UK’s wider role in global education will mature as we realise that e-learning acknowledges no national boundaries. If we develop a leading role in global e-learning, we will also be able to contribute to UNESCO’s target to bring primary education to every child by 2015.

29. Overall the UK’s profile is consistent with a nation making steady progress towards e-maturity. The emerging consensus of international benchmarking studies is that our main barrier to successful e-learning is low uptake and usage rather than infrastructure.

Weaknesses and barriers

30. There are many examples of e-learning successes in our schools, colleges and universities, but they are not universal. We estimate, for example, that around 15% of schools are reaping the benefits in a comprehensive way. Teachers’ access to technology is limited, and yet we know from Ofsted reports that personal access has a strong influence on quality of ICT teaching. We have not yet achieved the conditions that carry success to all parts of the system. We know also from NIACE (A Sharp Reverse – NIACE survey on adult participation 2003) that adults are twice as likely to participate in learning if they have Internet access.

31. There are systemic weaknesses that we must tackle:

- Educational leaders are not yet fully engaged in exploiting e-learning and e-systems in their institutions – they need more support to enable them to lead and manage the challenging change processes involved

- Technology is leading change at a fast pace, with the result that there is too little attention to exploring the new forms of pedagogy made possible by e-learning – teachers and researchers need more time and support if they are to keep pace
- There is too little training or reward for teachers and lecturers who wish to adopt or develop e-learning – we need to offer more courses and more incentives, such as qualifications, career promotion, and access to technology
- Assessment is an important driver in education, and can easily be a barrier to innovation – learners want to be sure their assessment captures the new skills and capabilities they are acquiring through using e-learning to study their subjects in new ways
- There is too little cross-sector collaboration in supporting learners as they move through the education system – we need a greater focus on linking our public sector systems to provide unified support for learners throughout life
- We have an under-developed digital teaching and learning resources market at present, which is a concern for both consumers and suppliers – we need to improve education-industry partnerships to achieve innovative, effective and sustainable e-learning resources
- E-learning resources present educators with new kinds of problems for technical and quality standards – we need common standards to ensure that e-learning software is both shareable and affordable

32. Government has a responsibility to ensure that the benefits of e-learning are universal. It also has a role in facilitating the process of change, and working with partners to build a co-ordinated system-wide approach to exploiting the potential that e-learning offers.

Consultation questions

Q2: Do you think we have identified the main weaknesses and barriers to the use of e-learning?

Q3: Is a unified strategy appropriate?

CHAPTER 3 WHAT IS THE STRATEGY?

Vision for the future: capabilities of a learning society

33. This will be an evolving and responsive strategy. We need to imagine the education system we aim for over the next decade, and the capabilities it should have, fuelled by e-learning:

- Empower learners – With more active learning, people of all ages could take more responsibility for what and how they learn, achieving their personal learning goals as self-directed lifelong learners
- Be creative and innovative – Teaching could be more creative, developing new ways of teaching and learning for the 21st- century global knowledge society
- Offer flexibility – An increasingly responsive education system would adapt to the needs of all learners, wherever and however they need to learn, on campus, at home, or in the workplace
- Achieve better value – Education leaders could develop innovative ways of deploying their resources, exploiting e-learning alongside other teaching methods, to achieve improved quality and economies of scale
- Generate a professional workforce and fulfilled citizens – A community and a workforce for the knowledge society would have a high proportion of people capable of continually updating their knowledge and skills, of managing knowledge transfer, and contributing to practitioner knowledge

Principles for the strategy

34. The e-learning strategy should help to shape a vision of future learning, and suggest how the vision can be realised. By focusing on a unified e-learning strategy we aim to take a co-ordinated approach to joining up all DfES strategies and objectives, and share good practice across all sectors. The action areas we identify as critical for an e-learning strategy should be those where progress will only be made with Government action.

35. The strategy is founded on a basic principle of universal excellence for learners and teachers in all sectors and organisations. We have to work towards reducing variation, and enable all organisations to embed e-learning in the mainstream of their educational practice.

36. Universal excellence will not happen without co-ordination across the public sector, as new technology needs to operate at scale, to specified standards, in order to be economical. A second principle, therefore, is to establish national standards of the kind that allow the local innovation needed to continue to improve the quality of e-learning.

37. A third principle is to make sure that we balance e-learning with traditional

methods, recognising their value, and using e-learning only where appropriate to suit individual learning and teaching styles.

Realising the vision

38. At the heart of the strategy will be the aim to realise the full potential of digital technology through its effective use and embed it in all our learning and teaching processes. The strategy is to address the areas of weakness identified in Chapter 2, and create both push and pull forces across the system.

39. There are seven proposed action areas, set out in the following chapters as initial ideas for consultation. They are designed to build on the strengths and tackle the weaknesses identified earlier in a fundamental way. Each can be applied to every education sector, to achieve real improvements and benefits. The action areas, as a whole, should provide a unified, systemic and sustainable strategy for e-learning, addressing the needs of education leaders, the education and training workforce, learners, and suppliers, as in Table 1.

Table 1: The strategic action areas

LEADERSHIP AND MANAGEMENT

- Education leaders at all levels must make e-learning affordable and sustainable, so they will need support for developing and leading a vision for e-learning in their organisation, and in managing sustainable resource planning for e-learning → **Leading sustainable e-learning**

TRANSFORMING TEACHING AND LEARNING

- Teachers need to be able to innovate and take the lead in pedagogical developments, using, creating and sharing e-learning resources to offer more active and creative ways of learning in their subject area, working with a wider range of support staff → **Supporting innovation in teaching and learning**
- To be able to do that, they need training, qualifications, and a clear career path to invite them to engage in e-learning and e-teaching → **Developing the education workforce**

LEARNERS' NEEDS AND LEARNING OUTCOMES

- Learners will be better supported in meeting their personal learning goals if organisational e-systems help them make a smooth transition from school to college, work, university and lifelong learning → **Unifying learner support**
- Learners need an assessment system that captures their achievements, assesses the e-skills they are learning, and supports teachers in using assessment to determine their learning needs → **Aligning assessment**

ENABLING E-LEARNING TO WORK BETTER FOR USERS AND SUPPLIERS

- A more innovative and creative approach to teaching is not possible without the tools and resources to do it, so we need to create the conditions for a thriving

digital resources market in support of teachers and learners → **Building a better e-learning market**

- Teachers need technical standards to enable them to share and build on each others' ideas, and learners need to be assured of the quality of e-learning materials → **Assuring the technical and quality standards**

40. The chapters that follow discuss each action area and propose the kinds of actions that will be needed. Each one suggests the main partners who will decide how to take them forward, and the extent to which they can direct existing funding towards the actions proposed.

What will the strategy mean for me?

41. The strategy consultation process should engage all stakeholders in debating what e-learning can offer them, what role they can play in embedding e-learning, and what kind of support they need to do it. The proposed strategic actions will impact in different ways – we consider how it might look from some of the stakeholders' perspectives:

- For a Head Teacher – The strategy makes it clear that e-learning is here to stay, as it offers more creative ways of teaching, and engages young people in more active learning. The strategy recognises the barriers that exist, and shows how Heads might be supported in the difficult transition to embedded e-learning. A coherent procurement process would save staff time, along with advice on investment planning over the long term
- For a Principal or Vice Chancellor – The support for leaders in planning and managing e-learning would enable colleges to cover a broader curriculum by linking up with other colleges to provide access to minority subjects. The focus on moving to more e-enabled assessment on demand would be responsive to what young people want, and help with retention and inclusion
- For the Head of a Modern Foreign Languages Department – The strategy puts an emphasis on the education workforce innovating and taking a lead in pedagogical developments in their own subjects and sharing resources. It suggests a focus on shortage areas such as Modern Foreign Languages. Common technical standards will make it easier for the Department to have access to online resources developed by other teachers and lecturers so they could share the scarce expertise in their area. The proposals to use e-assessment for specific subjects will mean that staff can use the interactive features of e-learning to keep up students' engagement in languages; and the online administration should help to reduce staff workload
- For the Community Learning Mentor – The focus on joining up public sector systems will make it easier for people working in UK online centres to support prospective adult learners. Centres should be able to offer the immediate reward of an individualised online learning package tailored to the individual's needs

CASE STUDY: The Sheffield College GCSE English Online
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The GCSE English Online course at the Sheffield College achieved a 100% pass rate and 55% with A or A* compared with the national averages of 59% and 13%, respectively. Staff developed the course to widen access to learners unable or unwilling to attend the campus. Among the 41 students who completed the course were two excluded from schools, a 47- year old who felt let down by formal education and who was diagnosed as dyslexic, and several learners from outside the South Yorkshire region who could not get the education they needed locally.

- For the Disabled Employee – The intention to make the Internet more accessible means that it will be easier for a blind employee, for example, to link into a college website to obtain just-in-time training through interactive materials, and online tutoring through devices that read out text as audio. For disabled learners, e-learning can make the difference between being able to study and being entirely excluded. The strategy emphasises the importance of e-learning for inclusion

Consultation questions

Q4: Do you agree with our vision for e-learning?

Q5: Will the proposed action areas enable the vision to be realised?

CHAPTER 4 LEADING SUSTAINABLE E-LEARNING IMPLEMENTATION

The vision

42. The long-term development of e-learning requires a complex mix of leadership and management skills for planning new ways of working in response to new technology. Education leaders will develop the vision that is appropriate for their organisation, and will need support for the management of change that follows. The e-learning strategy should provide a consistent framework within which education leaders can debate the direction and pace of change, as they develop their own e-learning strategies.

Managing embedded e-learning

43. Good management of e-learning will optimise investment and procurement. In the well-managed e-learning organisation managers will need to take a strategic approach right across systems, networks, equipment, e-learning materials and support services, and staff development. The twin aims are to support staff in their teaching innovations, and to reduce bureaucracy.

44. Education leaders will need to introduce electronic administration and services for their staff and students. A well-planned shift to full e-administration for an organisation is likely to take several years, and will entail significant leadership and management skills and resources.

45. The Government's e-delivery programme will provide data from a range of public sector bodies. The extensive work done by the Information Management Strategy with LEAs is a good basis on which to build for the school sector. Extending management information systems to communicate with other organisations and Government services, and utilising those links, will become part of a leader's professional role.

46. Some educational institutions have already made significant progress towards embedding e-learning. We can learn from these examples by analysing what works in the funding and management frameworks at local, regional, and national levels. Transition requires short-term investment, to release staff time for training and innovation, and to pilot new ways of working. Such investment must result in clear improvement and value for learners.

Collaborative partnerships

47. E-learning is not effective in isolation. Education leaders will wish to create networked partnerships with other organisations, so that it becomes easier to share e-learning tools and resources, and to develop and adopt good practice. E-learning makes it easier to establish partnerships with local

industry and SMEs, building on the experience of Centres of Vocational Excellence (COVEs), and Union Learning Fund projects, for example. This would give learners online access to work-based learning, and employees' online access to educational opportunities. The LSC Strategic Area Reviews will lead this work in the post-16 sector.

CASE STUDY: Partnership in action

The strength of the Islington ICT Partnership is its emphasis on collaboration between public, private and voluntary sectors. This has encouraged further contribution from local community groups. The Partnership is present in over 30 venues including Arsenal football ground, local schools and colleges, Citizens' Advice Bureau, small businesses and neighbourhood buildings across Islington. A local drop-in facility helps to test and stimulate interest in ICT.

Quality is maintained by a common content platform called Learneasy.net and the materials reflect local interests and aspirations. (From Becta ICT in Practice Awards 2003)

Management for sustainability

48. At present, access to broadband connectivity and ICT equipment is provided by educational institutions. In the future, increasing numbers of individual learners will have home Internet access. Access to broadband is important: Ofsted reports that it correlates with better teaching and learning on ICT in a school, for example. The principle of combined public and private provision will be fundamental to encouraging access for all.

49. The goal of long-term affordability of universal e-learning is not achievable through the current means of short-term top-slicing and central capital funding. In the longer term, educational institutions will take responsibility for e-learning planning and provision within their overall expenditure. For the benefits to be fully realised we must improve resource planning, procurement and collaboration to reduce the costs of e-learning. We must also improve quality, achieve economies of scale, and increase value for money. An understanding of the costs of sustainability, including maintenance, technical support, upgrading, and replacement, is essential.

50. Funding bodies will play an important role in supporting institutions in the initial stages of investment to improve value for money. DfES will continue to model and evaluate the long-term costs to institutions of embedding and sustaining e-learning, including migration strategies to new technologies and platforms. We will look at good practice around the world.

Supporting education leaders

51. Education leaders will need support in planning the direction and pace of change in their organisation. They will need long-term transitional investment strategies as well as human resource strategies to help staff change to new ways of working, supported by technology. Funding bodies should both

support and promote more of this kind of institutional strategic planning over the medium-to-long term, to help leaders plan sustainable e-learning within a unified framework.

52. Leadership training is already under way for schools and colleges through NCSL and the new leadership college for the learning and skills sector, and a Leadership Foundation for higher education is planned. Training will need to incorporate a greater focus on supporting a leader's vision for e-learning, and the management of skills peculiar to e-learning.

CASE STUDY: Supporting collaboration among school leaders

The *Talking Heads* online community was initially set up to support newly qualified Heads but has been so popular that it has been extended to support all Head Teachers.

The National College of School Leadership has established a number of online communities to support greater communication and collaboration among school leaders. This innovative approach allows them to share good practice, engage in their own learning online, discuss issues of common interest and access experts and policy makers.

53. To summarise: there are some impressive successes, but they are not universal. Collaboration and embedding are similarly patchy. The NCSL has identified the characteristics of an 'e-confident school' as covering all the leadership, management and sustainability issues outlined here. Sustainability has not been a specific focus in these early stages, but we are now entering a new phase in which we recognise that e-learning is here to stay and must be managed. The proposed actions are designed to address that.

Proposed actions over the medium term

Support education leaders

1. Promote and support organisational planning for the use of e-learning.
2. Include within leadership training for all sectors strategic planning for e-learning.
3. Plan to develop e-administration for educational institutions in support of learning and teaching, building on existing good practice.

Build collaborative partnerships

4. Use 14-19 pathfinder projects to develop productive collaboration and identify the optimal conditions for cross-organisational and cross-sector partnerships.

Sustainable e-learning

5. Develop an understanding of how to adapt institutional funding models to take account of e-learning delivery, and the costs and benefits for all stakeholders.
6. Develop the resource planning, cost-modelling, and benefit-analysis tools to enable leaders to invest in and redistribute human, physical, and digital resources to improve learning flexibility and effectiveness.

Standards for baseline provision

7. Develop a standard to assure the pedagogic quality of e-learning provision, and mechanisms for monitoring and updating the standard in the light of changing technologies and access requirements.

Proposed actions over the longer term

Broadband connectivity

8. Work with industry and other Government departments to ensure effective unified provision, i.e. the development of broadband connectivity for all educational organisations, the workplace, and the community.

Accessibility for all

9. Improve Internet accessibility for disadvantaged learners, to assist in the transition from informal to formal e-learning opportunities.

Universal access

10. Maintain appropriate public/private funding models to ensure universal personal access to e-learning for all learners and teachers.

Integrate e-learning and e-administration

11. Advise and support education organisations in establishing and maintaining complete, coherent, non-proprietary and expandable long-term network-based managed learning systems, linking their Management Information System to a Virtual Learning Environment within their local infrastructure, to track and support learners, to assist teachers in guiding their students, and to reduce teachers' time on bureaucracy.

Consultation question

Q6: Are the proposed actions for leading sustainable development feasible and appropriate?

Partners

54. The partners we will be working with to take forward these proposals include: Becta, BESA, BSG, the new leadership college for the Learning and Skills Sector, HEFCE, Leadership Foundation, Industry Club, JISC, LEAs, LSC, NCSL, SSCs, Unions and Ufi/**learndirect**, and UUK

CHAPTER 5 SUPPORTING INNOVATION IN TEACHING AND LEARNING

The vision

55. E-learning offers a wide range of pedagogies and teaching and learning practices, but teachers and lecturers have had little opportunity to engage in its development. We must create the conditions that allow the teaching profession to take more responsibility for the way teaching and learning is carried out, rather than being tied by the physical constraints of the classroom, the book and the timetable. E-learning should enable teachers and lecturers to be innovators in the teaching of their subject.

Pedagogic design tools

56. Teachers and lecturers are best placed to understand and discover how to use e-learning in their field, but they need the tools and the means to discover and innovate. At present, the focus is not on design tools for teachers, but on learning content, teaching materials, and resources. Engaging teachers and lecturers through simple e-learning design tools would bring them closer to experimenting with pedagogical design. Such tools could be created through collaborations between teaching practitioners, learning technology researchers, and industry partners (see Chapter 9).

57. Likewise, learners should have easy access to interactive design tools enabling them to be creative and more active in their learning. E-learning creates opportunities for learners to take part in new kinds of learning-oriented social activities, such as the e-mentoring and buddying schemes being explored in the 14-19 pathfinder projects.

Removing barriers to learning

58. Because of the individual support that an adaptive e-learning program can offer, it makes the most impact on those learners who have difficulty accessing education. There are many impressive examples of this, such as, learners with dyslexia who have improved their reading age by many months, adult learners with mobility difficulties who can overcome isolation through online environments, pupils who cannot attend school but can access online materials and support, and many others.

CASE STUDY: A route back to learning

The Notschool.net pilot project led by Ultralab has helped young people disengaged from learning to re-establish interest and develop self-esteem.

Working within a protected online environment, the young people or 'researchers' were able to take control of their learning by developing their own style and pace. They had the support of content targeted to their needs and interests, plus online mentors to facilitate their learning and provide additional support and encouragement.

59. The current strategies for improving support for disadvantaged learners could exploit e-learning even further. E-learning has been shown to make a significant difference to these learners, sometimes bringing them in from the margins to full participation.

60. E-learning makes a vital contribution to widening access to education and preventing discrimination against disabled learners. Developments targeted on disabled or disaffected learners invariably offer significant benefits to all other learners as well. Audio versions of materials for learners with visual impairments provide greater choice in mode of study for sighted students. Simpler interfaces for physically disabled learners are easier for others to use as well. One proposal, therefore, is to target funding on those who are experiencing barriers to learning and participation, with the expectation of delivering significant educational benefits for all.

Shortage subject areas

61. Science, Engineering, Mathematics, English as a second language, and Modern Foreign Languages are all examples of shortage specialist areas that have not attracted sufficient teaching staff to supply the needs of the school curriculum, despite a range of incentive measures. There are similar problems in FE, being tackled through the Success for All strategy, and in HE through cross-university collaborations. Through e-learning a wider range of course options can be generated by collecting enough learners to create a viable course in specialist subjects.

62. We need to direct more development funding towards specialist areas, for digital teaching resources and experimentation with remote classrooms, webcast master classes, video conferencing and online tutoring. This can be especially valuable for gifted learners who wish to pursue their subject beyond the resource of their school or college.

63. Exploiting e-learning means taking a collaborative approach to building resource materials and organising online communities linking subject experts and teaching practitioners. One proposed action is to establish pathfinder projects to explore how this might work.

CASE STUDY: Early development of Modern Foreign Languages skills using e-learning

Liverpool children from as early as nursery age are participating in an exciting project. E-learning is being used to introduce lessons in French, German and Spanish across 90 schools and six Centres of Excellence. E-mail links and video conferencing have been established with bilingual schools in the target countries.

Improvements have also been noted across the curriculum in English, Maths and Science. Pupils with SEN and ESOL requirements have also benefited from the project. Pupils leaving Year 6 are achieving good standards in their newfound skills (on average level 4). The ability to link directly with partnering schools abroad has encouraged an active interest in other cultures.

A practice-based research environment

64. Our best understanding of how to improve practice comes through learning from others – from experimentation, collaboration, and dissemination. We need an active, practice-oriented R&D forum to bring together teachers, lecturers, researchers, and industry to develop the leading edge applications. It would combine the practitioner knowledge of teachers and lecturers with the specialist knowledge of learning technologists and industry suppliers. It should help to build the evidence-base for the value and impact of e-learning.

65. The R&D community has to explore and experiment with new techniques that require expert development, for example, customisable design tools, interactive gaming models, techniques for reliable and labour-saving assessment, and intelligent support tools for teachers/lecturers. One proposed action is to foster a collaborative programme of research and evaluation by creating online support through a virtual gateway for research groups and projects.

66. Research has to be very close to practice. Public funding for research in this area should ensure that teaching professionals play an essential part in the design ideas, the rapid testing of prototypes, and implementation. In this way, teachers and lecturers can themselves be ‘action-researchers’ in the teaching of their subject.

67. Linking research on e-learning to more general research on learning, and to fundamental research on human cognition, is essential. A clearer link between research and practice will make the best case for research funding, and that is the focus of the proposed actions.

Establish the appropriate evaluation methodologies

68. To be effective, e-learning needs more challenging standards of evaluation. The inspectorate and quality-assurance mechanisms in the three education sectors play a part in this. We must develop a better understanding of what counts as effective e-learning, and the conditions for successful local

implementation.

69. We also need better cost-benefit studies, appropriate for each sector and type of study, to establish value for money. An early action here is to establish a community of practice for teachers, lecturers, learning technologists, researchers, and industry designers, to ensure we build robust methodologies.

Proposed actions over the medium term

Embracing the new pedagogies

12. Engage the professional associations in debating their role in supporting teachers and lecturers in the development of new pedagogies.
13. Co-ordinate the networks of subject-based centres of excellence across the sectors, to debate and articulate the principles of pedagogy and practice for e-learning.
14. Capture and share the new forms of e-learning pedagogy being developed as a result of Curriculum Online, the National Learning Network, and UK eUniversities, and by innovators in schools, colleges, and universities.

Focus on shortage subject areas

15. Unify shareable e-learning resources and digital assets, through a national online databank, linking all sectors and publicly-funded organisations through intelligent search mechanisms.
16. Use the Gifted and Talented Managed Learning Environment project as a pathfinder for testing ways of balancing local and central support for specialist learners.

Establish the appropriate evaluation methodologies

17. Focus on intensive evaluation of learning experiences to balance large-scale studies.
18. Test new approaches to cost-benefit analyses for e-learning.
19. Build a community of practice on e-learning research and evaluation methodology.

Proposed actions over the longer term

Focus on removing barriers to learning

20. Include within development funding on e-learning a focus on learners with special needs, to ensure greatest impact.
21. Use existing project funding to develop and disseminate more

interactive diagnostic tests and remediation for learners with disabilities in literacy, numeracy, and communication.

Build a practice-oriented research environment

22. Encourage higher education and industry to collaborate on a cross-sector research programme that will develop and test new designs for e-learning activities.

23. Use R&D projects to exploit the value of every teacher's and lecturer's use of e-learning in their subject as an opportunity for action research, by linking R&D to their reflective practice.

24. Create an informal federation of research groups, observatories, and research support agencies, via a virtual gateway to a national practice-based research programme.

Consultation question

Q7: Are the proposed action areas for supporting innovation in teaching and learning feasible and appropriate?

Partners

70. The partners we will be working with to take forward these proposals include: ALI, ALT, Becta, British Library, British Museum, Curriculum Online, Education Departments, FEEdS, HEFCE, DfES Industry Club, JISC, LEAs, LSC, LTSN, DfES national strategies' field force, NIACE, NLN, OeE, Ofsted, Professional Associations, Research Councils, Subject Associations, Ufi/**learn**direct, Unions, and university research groups.

The vision

71. The vision is to enable the educational workforce to gain the skills, qualifications and career paths they need if e-learning and e-teaching are to succeed. To empower learners we need an education workforce that can adapt to change, and has the skills and confidence to exploit e-learning to the full in an ever-changing environment.

Engaging the educational workforce

72. The whole of the education and training workforce must be fully engaged in order to lead change and deliver effective e-learning. This means high-quality initial training and professional development. We include in this all teachers, lecturers, tutors, part-time teaching staff and enablers and also pre-school carers, teaching assistants, learning support assistants, adult and community support staff, mentors, trainers – all professionals and voluntary workers coming into contact with learners. This also includes Industry trainers are also using e-learning to improve workforce development.

73. Initial training and professional development providers will need to respond by ensuring that courses include the knowledge and skills needed. The requirements will increase in both volume and complexity as e-learning develops. The education workforce will probably become differentiated with a small cadre of lead teachers and lecturers wishing to lead innovation in e-learning, while all will be likely to want to use and develop e-learning materials and online tutoring, as well as support learners in traditional ways. There could be new types of qualification, career rewards, and career trajectories for educators to choose.

Content-specific developments

74. The role of professional and subject associations will be important for investigating what is needed in their specialist areas. We are likely to need new working practices and partnerships to support teachers and lecturers in e-learning, and ways of accrediting learning technologists. The proposed Sector Skills Council for the post-16 education workforce will be crucially important to taking these developments forward.

75. The education workforce will need to ensure wide first-hand experience of e-learning among key decision-makers. Flexible delivery through e-learning will help to meet the needs of part-time and work-based educators and trainers. Departments in higher education institutions could play a pivotal role in leading by example.

CASE STUDY: Extending the Learning Environment

At Netherhall School, Cambridge, the Think.com software has been developed into a Managed Learning Environment that enables links with school, home and the wider community.

The MLE is used to share resources and good practice among staff and to encourage autonomous learning in pupils. Group work is loaded on to a bulletin board so that pupils can learn from each other. Facilities such as online conferencing and mentoring effectively support learning.

The MLE ensures that continuity of experience is maintained for pupils and staff.

76. In schools, colleges and universities there are programmes of staff development already under way, for example, to support ICT in subject teaching at Key Stage 3, to include ILT standards in FE staff training, and to establish national professional standards for lecturers in HE. From this basis, we need strategic actions to work towards realising the ambition of an education workforce who feel empowered to adapt themselves to the new challenges of technology, as well as the continual change in social, economic and political pressures.

Workforce reform

77. ICT has a critical role to play in workforce reforms in education, as envisaged in schools, for example, in the *Raising Standards and Tackling Workload*; a national agreement. ICT has the capacity to automate processes and save time. However e-learning can also open up a range of more flexible options for the deployment of teachers, lecturers and support staff, enabling them to respond more effectively to the needs of all their learners.

Proposed actions over the medium term

Initial qualifications

25. Provide guidance on e-learning for the professional teaching force across all sectors, encouraging subject and professional associations to help define the e-learning and e-teaching contexts and skills appropriate to each subject discipline.
26. Explore alternative ways of improving access to ICT equipment and resources for trainee teachers and their training providers.
27. Provide guidance in e-learning for support staff across all sectors.

Professional development

28. Ensure availability of training, development and on-going support to update education and training professionals, including support staff.

29. Provide training and development for teachers, lecturers and support staff to become skilled in the use and evaluation of e-learning in their subject

30. Use e-learning for professional development of the education and training workforce, with special provision for those who work part-time.

Proposed actions over the longer term

Higher level qualifications

31. Work towards optional higher level qualifications to link teachers' and lecturers' career development to their academic leadership in the specialist skills of learning design, e-learning practice, formative evaluation and research on e-learning pedagogy.

Career and workload

32. Consult with teachers, lectures, and support staff, and their representatives and employers, to establish standards of professional competence, career paths and incentives for those who wish to develop particular expertise in the innovative use of e-learning, with the aim of strengthening the professional community of practice across all sectors.

Consultation question

Q8: Are the proposed action areas for developing the education workforce feasible and appropriate?

Partners

78. The partners we will be working with to take forward these proposals include: ALT, Becta, Education Departments, FENTO/HESDA, Academy for the Advancement of Learning and Teaching in Higher Education, HEFCE, JISC, the new leadership college for the learning and skills sector, the Leadership Foundation, LEAs, LSC, LSDA, NCSL, NIACE, QCA, SSC, Subject Associations, TTA, and Ufi, and NILTA.

CHAPTER 7 UNIFYING LEARNER SUPPORT

The vision

79. The vision is to offer learners advice and guidance in a supportive environment that provides a seamless transition between school, college, work-based learning, community-based learning, university and lifelong learning. Educational organisations, agencies and services will need to focus on linking with each other to meet personal learning needs at every stage.

Knowledge management for learner support

80. E-learning and e-delivery have the potential to offer complete and personalised support for learners' needs throughout the learning process, from information, advice and diagnostics through to an electronic learning log at the completion of a course. Examples of support are already found in **learnirect** and in the learning platforms used by individual organisations. Such systems support learners in the personal management of their learning. When linked to management information systems they can also support the relationship between the learner, teacher and educational institution in all aspects of administration. A unified approach is particularly beneficial for learners with special educational needs.

CASE STUDY: Sainsbury's Lifelong Learning Project

E-Learning is making a difference to employees at the Sainsbury's distribution centre in Hertfordshire. More than 140 employees have started courses at local colleges or at the local **learnirect** centre. Many are learning 'Skills for Life' such as reading, spelling or number skills.

The Project identified the need for accessible and flexible training to improve staff morale, reduce staff turnover and achieve quality of service. As part of their commitment to staff development, Sainsbury's have pledged to provide learning facilities in every one of their distribution centres. Indeed, their aim is to make learning an integral part of their employment package.

Smooth transition for learners

81. Transitions impact on all learners at every stage of their education, the move from a primary to a secondary school, moving to college or into part-time work-based learning, or moving into advanced study at college or university. Supporting and enabling progression is important, particularly for disabled learners and those with learning difficulties, where continuity in meeting their individual needs appropriately is essential. The JISC has funded regional pilots for seamless progression but a wider roll-out would enable a truly seamless country-wide solution.

82. If we can support learners better as they move up the education ladder, we may be able to reverse the trend of poorer levels of attainment at

successive stages. For example, electronic portfolios give learners easy access to their next stage of learning through websites offering information and advice, and transactions such as electronic application, enrolment and registration. A portfolio would allow both summative assessment and information about personal aspirations and interests to be owned by the learner.

83. The post-16 sector is keen to improve the support offered to individuals by linking learning episodes and creating a complete record of every individual's learning engagement throughout their life. A feasibility study on the idea of a Unique Learner Number (ULN) in the FE sector will report in July 2003, with possible implementation in 2004.

84. A Unique Learner Number could facilitate online assessment on demand. It could enable publishers to track the use of small chunks of online learning materials and draw down royalties. This development has implications for technical standards, and will require cross-sector agreement on the specification of learner data.

85. Seamless transition requires a unified approach to learner data and systems across sectors and Government services, including the devolved administrations. There are many complex challenges and sensitive issues to address, such as privacy, authentication, data protection, and legacy systems. Work on e-government and e-delivery, and on the possibility of a unique learner identifier will support the approach.

CASE STUDY: Flexible Study at Coopers School

Learning need not be interrupted if students spend time away from school.

Through the use of a Managed Learning Environment, a Year 12 pupil at Coopers School, who was forced to spend time in Australia during his A-level course, was able to continue his studies with assignments being set by the teacher, marked and returned with feedback via the Internet. As a result the student was able to keep up with his studies and the rest of the class.

Online advice, guidance and diagnostics

86. Support for learners can start from the point at which they first engage with learning, in finding the course they need. Online advice, guidance and diagnostics can support learners at every stage. We need to ensure that all learners are able to access such services, especially those whose special needs span different public sector services. Many services are now in place – **learnirect**, Connexions, and UCAS, offer support to particular groups. We will look at how these can work most effectively together, at local and national levels. We have a long way to go in joining up all our public sector services. The proposed actions are designed to begin that process.

Proposed actions over the medium term

E-portfolios for lifelong learning

33. Establish the principle that all education and training organisations have the responsibility to contribute to a learner's e-portfolio for lifelong learning and support their development and progression.

Proposed actions over the longer term

Knowledge management for learner support

34. Facilitate unified e-systems, as an aspect of e-government, within and between educational institutions, Government and its agencies, and the devolved administrations, building on good practice currently in place, to ensure appropriate support for individual learners and employees across all sectors.
35. Investigate the feasibility of a wider rollout of a unique learner number.

Online advice, guidance and diagnostics

36. Establish the principle of universal lifelong learning online advice, guidance and self-diagnostics for learning, assessment, learning support, qualifications, competencies, employment opportunities and citizenship, to be available for all.

Consultation question

Q9: Are the proposed action areas for unifying learner support feasible and appropriate?

Partners

87. The partners we will be working with to take forward these proposals include: Becta, Connexions, devolved administrations, HEFCE, Home Office, JISC, LEAs, LSC, NIACE, other Government departments, providers, Ufi, UK online, UCAS and Worktrain.

CHAPTER 8 ALIGNING ASSESSMENT

The vision

88. Assessment is one of the most powerful drivers of innovation and change in education, as it defines the goals for both learners and teachers. E-learning systems could greatly enhance the value of assessment through data analysis for the teacher, and interactive feedback for the learner. Such systems can offer 'assessment for learning', and personalised support. E-learning will also provide the means to assess the new kinds of e-learning skills needed for life and work.

Developing formative assessment

89. E-learning can help to provide individualised feedback to help learners progress. It can help teachers track learners' achievement and review their teaching strategies. With adaptive formative assessment and diagnostic tools learners and teachers have the opportunity to gain immediate feedback on progress, identify areas of weakness and thereby focus support. This can be a motivating factor that keeps learners of all ages engaged in their own learning. For teachers, it has the potential to reduce time spent marking and increase time spent directing and supporting learning activities and improving the quality of their contact with learners.

90. In adult learning and workforce development, online assessment has the potential to widen participation by overcoming barriers such as time, location and cost through 'on demand' testing. This can be especially beneficial for basic skills such as literacy, numeracy and ICT, for which learners need to progress at their own pace, or to demonstrate knowledge specific to a task in the workplace.

CASE STUDY: Getting ready to learn through online diagnostic tools

It is estimated that over 7 million people in the UK have some form of basic skills need. But revealing these requirements remains a sensitive issue for the learner. ICT can help to unmask these needs by providing a non-threatening, personalised environment in which learners can develop their skills.

learnirect has commissioned a set of adaptive online tools which diagnose the learner's capabilities in a non-threatening way. The tools provide a comprehensive learner profile across five levels of basic skills showing their strengths and weaknesses. This is accompanied by an interactive learning map, which helps the learner to chart his or her own course through modular learning materials.

Assessment aligned to pedagogy and the needs of subjects

91. One size will not fit all. Each subject and course has differing requirements, and will benefit from interactive or online assessment in

different ways. History, mathematics, design and technology, geography, medicine and other areas will exploit different aspects of e-learning – e.g. for simulations, information gathering, data presentation, or modelling. Such methods offer far more challenging and interesting ways of assessing learners than the pervasive ‘multiple-choice question’ format. An early action for the school sector could be to explore with QCA and subject associations which subjects are in greatest need of innovation in assessment, and might form the basis for research and piloting.

92. For the longer term, online or ICT-based assessment has the potential to transform the way in which we examine learners’ attainment. This does not mean that all public examinations would be online, or on demand – that would probably be both undesirable and impractical. We would need to take a flexible approach, to ensure fitness for purpose and to maintain standards. We need to evaluate and learn from pilot studies, and to debate how far and how fast such developments could be spread more widely.

E-learning skills for life

93. E-learning offers a new range of e-skills which are needed for every discipline at every level, and for life and work, enabling people to contribute and benefit fully as citizens. Those without these skills are at a serious disadvantage – over 90% of all new jobs now demand ICT skills. Young people can be assessed at KS3, and progress to advanced knowledge and skills in their 14-19 programmes. They can develop practitioner skills, for example through COVEs, New Technology Institutes and ICT Academies, leading to nationally recognised qualifications. e-skills UK is mapping user skills to identify a ‘passport’ that can demonstrate skills to employers. ICT is a priority for the new *Skills Strategy*.

94. E-learning skills contribute to a broader range of learning outcomes than are normally assessed within the current system. As learners make use of digital environments, they acquire and practise a wide range of e-oriented skills, such as information literacy, online collaboration, data analysis, modelling, presentation, knowledge management, and creative design – all of them important life skills, which could contribute to an assessment of their achievements.

A credit framework to fit e-learning

95. For the longer term, we need to ensure that whatever form of unitisation or credit framework may be developed, this has synergy with the potential of online assessment. The LSC has a unitisation pilot project under way to test this concept.

CASE STUDY: ICT Skills

Surfdirect is proving to be one of the most popular **learndirect** courses, teaching people basic computer skills. People can often hide or compensate for a gap in their computer knowledge, and ICT can be a way of unlocking this. This lifelong learning project is deemed a great success with a steady stream of new recruits: "People who have done courses are finding their jobs easier, and even more rewarding..."; "...Having confidence in their skills really makes a difference both to their performance at work and lives at home..." (Ufi case study)

96. Corporate training and e-learning in the private sector operates largely outside the national qualifications framework. The trend towards a more flexible workforce will continue, so employees are likely to change employment several times during their working life. The individual will therefore need to be responsible for his or her personal development, not relying wholly on the employer. If they are to be supported in self-development over the long term, we will need to explore the relationship needed between the two sectors with respect to accreditation and qualifications.

Efficient and effective assessment

97. The use of ICT in assessment offers the potential to increase efficiency and streamline and safeguard data transfer processes. Assessment and administration are highly labour intensive, both for educational providers and for awarding bodies. It is therefore important that online and ICT-based formative and summative assessment methods are developed to improve efficiency. Already some awarding bodies, including City & Guilds and Edexcel, are incorporating ICT in their processes, and the British Standards Institution has published a code of practice for the use of IT in the delivery of assessments (BS7988). For further development, we must look across sectors to include the infrastructure, software and common technical standards that will be needed to realise the benefits of more efficient assessment.

98. There are already good examples of ICT-based assessment in all sectors, including an onscreen ICT test for Key Stage 3, onscreen tests for adult literacy and numeracy from Edexcel, and online assessment at **learndirect** centres. We need to learn from all these examples, and extend the effective practice and innovation, so that assessment acts as a driver and not a barrier to e-learning development.

Proposed actions over the medium term

Develop formative assessment

37. Promote the use of ICT in formative assessment for all sectors and in all publicly-funded materials.

38. Support action research pilots to test appropriate use of formative assessment, and improve assessment techniques.

Align assessment to the needs of pedagogy and subjects

39. Explore the alignment of e-assessment methods to specific subjects.

E-learning skills for life

40. Define e-learning skills, and align them with assessment methods for individual subjects, as appropriate.
41. Ensure the e-learning strategy supports the skills strategy and schools strategies through assessment of e-learning skills.
42. Include within staff development programmes for the educational workforce a focus on e-assessment.

Proposed actions over the longer term

A credit framework to fit e-learning

43. Include e-learning and e-assessment in considerations of unitisation and credit in all sectors.

Efficient assessment

44. Work towards online administration for public examinations, and align infrastructure with the needs of e-assessment.

Consultation question

Q10: Are the proposed action areas for aligning assessment feasible and appropriate?

Partners

99. The partners we will be working with to take forward these proposals include: Awarding bodies, Becta, e-skills UK, HEFCE, JISC, LSC, LEAs, providers and developers, QCA, Ufi, Subject associations, SSCs, TTA, UCLES, and universities.

The vision

100. The vision is to enable teachers and learners to access, use, create, and share high-quality learning materials by ensuring that the conditions for a thriving market and for innovation are in place.

Innovative pedagogy

101. It is essential that the new pedagogies for e-learning are developed with the education workforce in the lead. Teachers and lecturers need the creative digital environments that will engage them in using, designing and experimenting with learning and teaching ideas. Commercial suppliers usually employ teachers at some stage in the design process, but unless the partnership is close, and educational requirements lead the development, there is little chance of achieving either good pedagogy or profitable products.

102. We cannot rely on the consumer market mechanism to improve quality. Products are often selected on behalf of end-users (learners and teachers) by intermediaries (parents, teachers, lecturers, department heads, Government agencies, local advisers, etc). We have no 'kitemarking' system and this makes it difficult for parents, teachers and advisers to make appropriate judgments of quality. The lack of a direct relationship between the users and the suppliers means that the products developed are less likely to meet learners' and teachers' real needs. We have not yet found the right mechanisms for the partnerships we need between developers and users. We have to create the conditions in which innovative ideas for e-learning pedagogy will flourish.

Exploiting the technology

103. At present, the majority of educational software under-exploits the opportunities offered by the technology. It is rare to find materials and interactive programs that make use of the full range of learning technology capabilities, such as automated language analysis, artificial intelligence, adaptive feedback, automated test generation and scoring, virtual environments, remote-control devices, interactive or online gaming models, data capture and analysis, group collaboration facilities, design wizards, etc. There are so many ways in which learners could be engaged, either as individuals or in small groups, in exciting and challenging learning activities of the kind that are impossible without the technology.

Quality standards

104. In a relatively immature digital resources market we have yet to

establish the monitoring of technical and quality standards. We need to engage all publicly-funded developers, both commercial and educational, in agreeing the technical standards to be met, so that e-learning tools, assets, learning objects, and virtual environments can be shared and re-used across organisations.

105. Digital materials create problems that educators have never had to worry about before – resources that work in one place but not in another (the ‘interoperability’ problem); complex development and delivery standards (the ‘quality assurance’ problem); ownership of teaching materials (the ‘intellectual property rights’ –IPR – problem).

106. Work has begun on ensuring that the UK e-learning development market is aligned with technical developments internationally, but we are a long way from establishing the complete set of specifications that will ensure both interoperability and good pedagogy. The conditions under which developers currently operate rarely allow for the highest standards of quality assurance, with the result that e-learning does not achieve its potential benefits.

Encouraging innovation

107. If e-learning is to be genuinely innovative, offering learners at all stages something that no other form of teaching can match, then we have to be much cleverer about the way we develop it. We need a thriving market in educational software, which exploits every existing and new technological capability, and which is responsive, flexible and innovative.

108. We have a good basis for this. We have several years of development, both public and private, to build on, and an educational content industry that is willing to collaborate closely with teachers and lecturers. We have an educational workforce that has already demonstrated its ability to innovate – from primary school teaching to post-graduate courses, there are some wonderful examples of genuine pedagogic innovation. But they are few in number and lost to the rest of the community because opportunity to innovate, access to the tools for design, and the means to build on each others’ work, are all still lacking.

109. If we recognise that most people are in the education workforce precisely because they have a vocation to teach, then we should offer teachers and lecturers the activity-based design tools that enable them to generate their own new methods of teaching through e-learning.

A thriving market

110. A thriving market means creating value for suppliers and value for money for consumers. Suppliers need to perceive that the market will give them a return on investment and development. Equally, we need to ensure that funding models and procurement mechanisms achieve economies of

scale. Affordable, scalable and sustainable e-learning, based on generic activity-based design tools for teachers and learners, would benefit all stakeholders.

CASE STUDY: An e-learning design tool for teachers

Kemnal Technology College is trialling a design tool is enabling teachers to experiment with pedagogical design in an online, easy-to-use environment.

The Learning Activity Management System (LAMS) is based on collaborative learning environments in which teachers can create, store and re-use learning sequences of activities. Teachers can share them with colleagues, adapting them to another context, thereby creating a library of sequences based on good practice.

Collaborative activities include discussion boards, live chat, web page sharing, file sharing, and assessment tasks. Learners can work together as a whole class, in sub-groups or individually. Early feedback is very positive: "LAMS will revolutionise teaching and learning, it has so much potential for both teachers and learners alike..." (John Atkins, Headmaster, Kemnal Technology College)

111. Early actions in this area will build on the extensive materials generated through programmes such as Curriculum Online, the National Learning Network, Ufi, the Digital Libraries project, the JISC's model licences and agreements with publishers and other suppliers, and the KS3 offer on ICT across all subject areas. We will work with national agencies and industry forums to develop better quality standards, funding models, and partnership mechanisms to build a thriving and innovative e-learning software market.

Proposed actions over the medium term

Successful educational software

45. Promote collaboration between the digital resources (education and games) industries, and the inclusion of teachers in development and testing.

46. Promote an understanding in the digital resources industry of user requirements for active, interactive, and creative learning and interoperability.

A thriving market

47. Investigate tendering processes, business models and procurement mechanisms that stimulate market development for both large and small companies, while providing for affordable and sustainable e-learning and protecting public investment.

48. Promote dialogue with the digital resources industry to engage small companies as well as larger organisations.

Proposed actions over the longer term

Intellectual Property Rights (IPR) best practice and support

49. Provide advice for organisations and companies in agreeing best practice for IPR, and in negotiating copyright.

50. Explore the use of technical solutions to IPR protection and resolution

51. Identify IPR and licensing arrangements across sectors.

Innovation

52. Ensure that educators can lead and engage in innovation, by developing generic e-learning design tools for learners and teachers.

Consultation question

Q11: Are the proposed action areas for building a better e-learning market feasible and appropriate?

Partners

112. The partners we will be working with to take forward these proposals include: Becta, BESA, broadcasters, BSG, Content Advisory Board, Digital Content Forum, DTI, HEFCE, ICT industry bodies and forums, JISC, LSC, media organisations, NLN, publishers, and Ufi.

CHAPTER 10 ASSURING TECHNICAL AND QUALITY STANDARDS

The vision

113. The vision is one of common and localised open standards and specifications to ensure that high-quality e-learning materials and services interoperate and work effectively for all learners, teachers and providers.

E-learning technical, pedagogical, process and quality standards

114. Learners and teachers need to be confident that e-learning materials will work reliably and be robust. Teachers need to be able to find, access, create, use and adapt the resources they require to build lessons that will suit their teaching methods and the learning styles of their learners. Adult learners need to be able to study at home, at centres in libraries, or in the workplace. All need a common approach to technical, pedagogical and quality standards.

CASE STUDY: ICT skills for adult learners

Get Connected! Studying with a computer is a short computing course at the Open University. Learning is done through print and an interactive website with a personalized 'workspace'. Students take part in e-tutorials and use multi-media to explore the cultural and historical connections between members of the Bloomsbury Group.

Nearly 70% of the students are female, which is unusual for computing courses: "I was a complete technophobe until I started but I've completely changed now!"

115. Technical standards can enable suppliers to reach a wider national market, give users greater choice, and allow teachers to share good practice. International standards enable schools to engage in twinning, educational institutions and industry to reach educational export markets, and learners to access learning around the world.

116. E-learning materials and tools must also be effective in terms of good pedagogical design. An open approach to e-learning architecture will help to promote good pedagogy in e-learning by enabling greater flexibility of use and re-use across all sectors.

117. E-learning software and delivery must be of a high quality, with well-managed e-support systems, responsive to learners' needs. We need to build quality assurance of e-learning into systems across all sectors, and to ensure that inspectors and assessors have the associated training and development.

Public funding and procurement

118. The challenges of technical standards also impact on the balance

between central and local procurement. Government is making a huge investment in e-learning through programmes in all sectors – Curriculum Online, NLN, JISC products and services, **learnirect**, UKeUniversities, and the emerging NHSU. As the needs of learners and teachers become more diverse, we need to ensure that the content and platforms can interoperate across programmes and sectors, to enable sharing of content and value for money. This calls for common standards and collaboration.

CASE STUDY: Shared resources for a Foundation Degree

Bournemouth University and the University of Plymouth, together with nine partner colleges, collaborated in the curriculum design of two pilot Foundation Degrees – in Tourism and in Creative Digital Arts – to be delivered at further education colleges across the South West. A website has been developed to enhance the range of shared learning materials available to students enrolled on those programmes. Resources include: learning skills guides, specially commissioned resources to support particular modules, work placement materials, links to useful websites, a students' work showcase and an online student survival guide. The website helps form a direct connection with the University for the student studying in a further education college.

Agreeing appropriate standards

119. Technical standards impact on the ability to progress many of the action areas in this document, including assessment, unified learner support, and efficient staff development. They are crucial to distribution and delivery of e-learning in a variety of settings, to allow flexible learning on campus or at school, in the workplace, in libraries, in the community, and to ensure Internet safety.

120. We need to agree the respective roles of Government, standards bodies, education and industry, and to debate a range of issues. Who should be responsible for setting and choosing standards? Should publicly funded e-learning adopt open standards? How can we ensure that open source systems are affordable in terms of support? How will conformance be measured?

121. Expert bodies in consultation with users and industry are developing technical, pedagogical and process standards nationally and internationally. DfES and educational bodies are closely involved. Detailed work on standards by DfES and suppliers has enabled the Curriculum Online materials to be mapped to the National Curriculum so that the portal can be used more effectively.

122. The NLN has published technical and pedagogical standards for design of learning materials, and Ufi publishes specifications for **learnirect** suppliers and users. The British Standards Institution (BSI) has developed a draft standard for e-support (BS8426), and the current e-GIF (e-Government Interoperability Framework) includes e-learning specifications based on international standards for e-learning.

Proposed actions over the medium term

Public funding and procurement

- 53. Co-ordinate development and procurement of publicly funded work on managed learning platforms with affordable technical support, and provide guidance to organisations to ensure value for money and interoperability.
- 54. Explore where central procurement would be appropriate

Quality standards

- 55. Develop a way of defining a quality standard for e-learning resources for parents, teachers, lecturers and advisers.

Proposed actions over the longer term

Technical and quality standards for pedagogy and process

- 56. Stimulate and encourage the debate on educational requirements for the pedagogical design of content, and the design of e-learning architectures, including open architecture.
- 57. Define quality assurance standards and processes for e-learning support and delivery and Internet safety, embed these in quality systems, and provide staff development for quality inspectors and assessors.
- 58. Work towards a common core of technical standards for all publicly and privately funded e-learning.
- 59. Develop sector-specific profiles of common standards and guidelines for extending and updating e-learning architectures.
- 60. Understand and explain the issues associated with conformance measurement.
- 61. Engage with the wider commercial training sector to achieve a consensus on technical and quality standards for e-learning development and delivery.
- 62. Clarify the ongoing role of Government, including the devolved administrations, in the development of technical standards for interoperability, and the scope and process of setting standards within the e-GIF.

Consultation question

Q12: Are the proposed action areas for assuring technical and quality standards feasible and appropriate?

Partners

123. The partners we will be working with to take forward these proposals include: ALI, Becta, BSI, CETIS, Curriculum Online, DTI, HEFCE, JISC, LEAs, LSC, NSSF, NLN, OeE, Ofsted, OGC, QAA, and QCA.

CHAPTER 11 HOW WILL WE GET THERE?

124. This chapter looks at how the e-learning strategy will be developed in collaboration with Government services and agencies and other players. The aim is to ensure that it supports other DfES strategies, so that over time, e-learning will be fully embedded. We will have succeeded when e-learning is being exploited to enable every learner to achieve their educational potential, and playing its part in making our educational system innovative and flexible, capable of generating a community and workforce for the 21st century.

A dynamic strategy

125. The strategy will evolve during and after consultation through dialogues among Government, education and industry, through conferences and formal responses. The strategy website (see chapter 12) will enable us to exchange more information, ideas and evidence than are possible in a document. In this way we hope to build an online community of knowledge and practice for e-learning across all sectors and all stakeholders. The strategy document, which will be published during 2004.

Implementing the strategy

126. The actions needed to deliver the strategy will for the most part fall to educational partners and agencies, providers, and the industry. We expect that DfES will also have a strong role in implementing the strategy, not least in providing a direction of travel, and a framework for action. There may also be areas of new policy that emerge from the consultation and the development of the strategy. It may be appropriate for DfES to use its leverage to give partners a steer on future action.

127. The Annexes show the implications of the strategy for embedding e-learning across the early years, schools, post-16 and higher education sectors, and for learners with barriers, whether disabled or disadvantaged.

Supporting other DfES strategies

128. While the e-learning strategy is for the longer term, its first steps will build on the ICT in Schools programme and the NLN programme for post-16, and link closely with delivery of the medium-term strategies published in each sector. E-learning will also support other cross-cutting strategies such as the *London Challenge*, the *Behaviour Strategy*, and the *Government's strategy for e-delivery*. We will oversee the support of e-learning for other strategies through a Programme Board and the e-learning Strategy Unit.

Timescales for implementation

129. Existing DfES strategies have a range of timescales for delivery. Some, like *Success for All*, are linked to funding and targets for 2006. Others, like the *Higher Education Strategy*, *School Workforce Reform*, and the *School Buildings Strategy*, have a ten-year timescale. It is important that the e-learning strategy can relate to the DfES objectives, that can be realised from 2004, as well as longer term goals and outcomes.

Funding

130. The e-learning strategy is about making the best use of all the resources we have available, through effective procurement, value for money, cost modelling, and management for sustainability. The Government already provides significant sums for e-learning which will increase to around £1 billion by 2005-06, and further funds are invested by organisations from their own resources. The cross-cutting nature of the strategy offers potential economies of scale in combining approaches across organisations, sectors and communities.

131. The priorities that emerge from the strategy may lead to some re-direction of existing revenue and development funding. They could also point to gaps where some carefully targeted additional funding could be needed.

Evaluating the strategy

132. Most of the actions are for our partners to take forward, but it will be important to evaluate the strategy, capture the evidence of success, and build on areas for improvement. We will define measures to evaluate its success. In many education sectors, and in corporate e-learning, expertise is building on the quantitative and qualitative benefits and outcomes of e-learning. We will capitalise on this expertise and evidence in agreeing the feedback mechanisms.

133. The progress and outcomes of the strategy will be judged against existing targets, such as those for improved retention, or the number of young people and adults brought back into learning. However, the starting point for the framework of evaluation will be the twin aims with which we began this document:

- The achievement of their potential for all learners.
- An education workforce empowered to change.

Consultation questions

Q13: Have we identified the correct partners for the actions?

Q14: Which actions do you see as the priorities?

Q15: In your experience, what are the most significant achievements of e-learning?
(We would welcome your case studies.)

Q16: What do you think should be the respective roles of education leaders,
Government and its agencies and the ICT industry in taking the strategy forward?

CHAPTER 12 HOW CAN YOU GET INVOLVED

Your Views

This strategy will involve a wide range of people from Head Teachers, College Principals and Vice Chancellors through teachers and lecturers to individual learners and would-be learners. Employers will be interested in how e-learning can improve the skills of their workforce, and the ICT industry has a close interest in the state of the digital learning resources market. Trade Unions will be involved through their Union Learning Representatives. In short, there are few people in this country who will be unaffected by the proposals in this document. We are therefore keen to hear all your views on the strategy and on what you see as the priorities. We would like to hear from you by **30 January 2004**.

We will consider all replies that reach us by the deadline – individuals' views are as important to us as those of organisations and institutions.

Events

During the consultation period we will be holding regional events involving a cross-section of educational leaders, managers, teachers, lecturers and others supporting learners and employers. We will also be attending conferences held by other organisations to discuss the strategy. Details of the conferences and events where we will be discussing the strategy are on our website.

Contact point

Further information about the strategy is available on our website:
www.dfes.gov.uk/elearningstrategy

If you have questions about the consultation please contact the e-Learning Strategy Unit on 020 7273 5451 or via email: e.learning@dfes.gsi.gov.uk

Responding to the consultation

You can send us your views via the website or through the post, or by fax, using the enclosed form, to:

**Consultation Unit
Level 1, Area B
Castle View House
East Lane
Runcorn
WA7 2GJ**

Telephone: **01928 794888**

Fax: **01928 794311**

Please ensure your comments reach us by **30 January 2004**

ANNEX 1 E-LEARNING CAN START EARLY

134. Sure Start supports families from pregnancy until children are 14 (including those with special educational needs) and up to 16 for those with disabilities. The Sure Start unit builds on the success of local Sure Start programmes, which will have helped 400,000 children living in disadvantaged areas by 2004; the early years programme which will have provided all 3 and 4 year olds with a free part-time early education place (where desired) by April 2004; and the National Childcare Strategy.

Contribution of e-learning

135. All services for children and parents aim at better outcomes for children. ICT and e-learning can support these outcomes, and can fit into the learning of even very young children. As in any learning environment, software can support a child's learning, but the role of the adult in planning and supporting learning is crucial.

136. Discovery-based software that matches the way young children learn can help foster social interaction and increase their social and language skills. It is essential that software is open-ended to promote creativity, encourage conversation and support the way children learn new vocabulary through play. Such software gives children the opportunity to explore and discover, make choices, and see the impact of their decisions. Children's drawing programs or visual reference materials need to be visually attractive, and allow children to be creative and work collaboratively.

137. Software that encourages shared use can successfully support language development. Computers and software can utilise spoken text to encourage children to talk about the story or information. Software can also provide simple ways to help children match sounds and letters.

E-learning supporting the childcare workforce

138. E-learning can support the delivery of continuing professional development for childminders and childcare professionals, as well as give advice and reassurance for parents. The development of both 'real' and 'virtual' childcare communities could strengthen professional collaboration, enhance the quality of childcare and parenting, and enable childminders to communicate, share experience, collaborate in building resources, and spread the good practice they develop. Ongoing professional development and support of teachers and staff can vary according to employment conditions and location. E-learning can help by improving consistency of advice and support.

ANNEX 2 E-LEARNING FOR SCHOOLS

139. The Department has recently published its strategies for schools - *A New Specialist System: Transforming Secondary Education* in February 2003 and *Excellence and Enjoyment: A Strategy for Primary Schools* in May 2003. The key areas in those strategies are Specialism and School character, Collaboration, Leadership, Teaching and Learning, and Partnerships Beyond the Classroom. E-learning underpins all of these areas and in May 2003 the Department published *Fulfilling Potential: Transforming Teaching and Learning through ICT in Schools*. This document sets out the directions in which all schools should be moving to advance the development of e-learning and describes what this might mean for both teachers and learners.

140. The aim is that every school should be making excellent use of ICT resources and electronic services for teaching and learning and for whole-school improvement.

Specialist and school character

141. E-learning allows innovation in all schools, including specialist schools. It enables them to share their expertise with other schools, both in the local area and nationally through the use of the Internet. It will be possible for staff to run master classes from their home or school for a wide audience and for Head Teachers to share their experience with other schools.

Collaborating and innovating

142. E-learning can support schools working together to raise standards by allowing collaboration between colleagues in different schools, allowing pupils to take minority subjects offered by another school without the need to travel.

143. E-learning will help to unlock innovation in teaching and learning at all levels. It will help to create the curriculum flexibilities suggested in *Transforming Secondary Education* by allowing more access to minority subjects so that pupils have more choice. It will also enable easier collaboration with colleges to provide the 14-19 phase of education. It will help with the logistical problems of pupils being able to learn at a pace appropriate to their needs rather than in line with age-related expectations.

144. ICT should enable the development of teaching communities that can be used by teachers to share resources, including online libraries, discussion boards, and synchronous communication tools, to help teachers to strengthen their curricular and teaching practices in professional collaborations to develop and review teaching materials. Teachernet has demonstrated the strength of this form of collaboration.

Developing leadership at all levels

145. The National College for School Leadership has e-learning at its heart and is committed to using it to develop leadership in schools. It has an online community of Head Teachers and has developed a Strategic Leadership in ICT programme to enable heads to take a strategic approach to e-learning in their schools. The e-learning strategy will also help Head Teachers to understand the costs and benefits of running e-learning systems and operate a more cost-effective procurement system (such as the scheme for procuring laptops for teachers).

Partnerships beyond the classroom

146. Managed learning environments in schools that parents and children can access from home provide an excellent home-school link. They also enable children who are unable to attend school through sickness to continue their learning.

Teaching and learning

147. When e-learning is properly integrated with other forms of teaching and learning it will offer students individual empowerment. Interactive learning and communication technologies bring a wealth of new opportunities within the range of teachers and we want schools to use ICT to develop more individualised learning and assessment programmes for every child, with specialist schools playing a leading role in this.

148. E-learning provides the opportunity to meet the individual needs of each child, from the use of early diagnostic software that can diagnose special education needs, through to increasing the availability of resources in music and modern foreign languages for gifted and talented children. Adaptive and assistive technologies used with multi-media products can enable a child with special education needs to demonstrate their abilities and communicate with their peers.

149. We expect that all school staff will receive the training and development needed to exploit e-learning to the full. Some teachers may become specialists in e-learning and be able to take higher level qualifications in order to develop their careers.

150. ICT will play a critical role in supporting the remodelling the school workforce and delivering the changes pledged in the *National Agreement on Raising Standards and Tackling Workload*. ICT will facilitate new ways of working with teachers and support staff operating more flexibly in teams.

151. ICT systems will help to reduce the burdens on teachers. Teachers will be able to download lesson plans and resources from the Internet, share materials that they have produced and have access to online communities to

share good practice and discuss problems. Support staff should also have access to materials online and receive the training necessary to use ICT with their students.

152. The use of e-learning across the curriculum will help to motivate pupils and raise standards. E-learning will be of equal value to enhancing reforms to the 14-19 phase of education and in the longer term will have an impact on the examinations system.

ANNEX 3 E-LEARNING FOR YOUNG PEOPLE AND ADULTS

153. A coherent e-learning strategy will support the Department's range of education and training strategies for young people and adults from 14 through to lifelong learning. The aim will be to embed high quality e-learning across the whole sector, so as to:

- Contribute to the achievement of PSA targets
- Improve the learning experience, engaging and empowering learners, increasing motivation, retention and attainment
- Provide seamless transition from school to further and higher education and lifelong learning, and support progression
- Meet the increasingly sophisticated expectations of school leavers who are used to high-quality e-learning at school and who regularly use technology in the home for learning or games
- Widen participation in learning by being accessible to all, including people with disabilities
- Meet the needs of employers by providing 'just in time' learning at a suitable time and place
- Support employees in their personal development
- Improve the quality of teaching, empowering staff and increasing motivation.

Links to the post-14 strategies

154. The **Skills Strategy** addresses skills needs for individuals and for employers and employees. **Success for All** aims to reform further education and training, backed by substantial investment. The **14-19** strategy aims to transform learning through greater choice of options, more coherence, clearer progression routes and higher quality provision overall. The **Skills for Life** strategy is tackling the large number of adults without the basic skills of literacy and numeracy. The common objectives are raising quality and standards, meeting diverse needs, widening participation, and building the skills for employability and for business success.

155. E-learning contributes to a range of objectives, such as achieving higher levels of skills for the labour market, targeting relevant learning for lower skilled adults, improving integration of existing forms of outreach, and motivating adults to develop new skills.

156. In the 14-19 strategy: e-learning can help to develop the practical skills young people need for life and work; widen the range of options through collaborative provision; and offer access to information and transfer of data. Connexions, Connexions Direct and the Young People's Portal will all help to

link young people into learning opportunities.

159. Success for All: e-learning can support the four key objectives:

- *Meeting needs and improving choice:* for example in minority and shortage skills subjects.
- *Putting teaching and learning at the heart of what we do:* The new Standards Unit will promote good practice materials for curriculum priorities, for example Science 'A' Level, where virtual worlds using simulation can enhance teaching and learning.
- *Developing the leaders, trainers and support staff of the future:* the new leadership college for the Learning and Skills sector will provide a basis for developing the knowledge and skills leaders need to plan their vision for e-learning and undertake strategic change management. The NLN development programme will include staff development, online communities of practice, and e-learning champions for specific subject areas.
- *A framework for quality and success:* planning, funding and accountability can take account of the blended use of e-learning.

160. For Skills for Life: e-learning can help adults in developing their literacy and numeracy skills, while also building ICT skills for life and work. Trainee teachers can use online assessment in literacy and numeracy to assess their skills and help learners.

161. The Skills Strategy aims at delivery of skills for employers and for individuals, emphasising the needs of different business sectors and local and regional dimensions. Its priorities are to improve the UK skills profile against that of other countries in four key areas:

- The general skills of literacy, numeracy and ICT in the workforce;
- Intermediate craft and technician skills;
- Mathematics, science and technology; and
- Management.

162. E-learning can support these priorities through learning materials and flexible delivery.

163. Ufi provides e-learning to small and large businesses, and the NHSU will use e-learning for all NHS staff. The *skillsforemployers* portal could promote access to formal and informal learning. Sector Skills Councils can give a strategic overview including e-learning for their sectors.

164. E-learning and individuals: e-learning can help to widen

participation in learning by adults. Most **learndirect** learners have not done any formal learning in the previous three years; UK online centres target Internet access for disadvantaged people to take early steps towards learning; the Cybrarian project will help to widen the range of independent and confident Internet users; and adults can access learning with face-to-face or online mentoring and support through community centres, libraries, drop-in or mobile centres, and other non-institutional and informal learning environments.

165. The Offenders Learning and Skills Delivery Plan will support prisoners and help them to develop skills as they return to the community.

Working with partners

166. Our strategic approach will be to work in partnership with LSC by building on the successful investment to date in Ufi, NLN, JISC, Becta and UK online centres and developing:

- A sustainable 21st- century infrastructure capable of delivering high-quality e-learning materials across the whole sector
- Engaging and quality-assured relevant materials that can be easily found and accessed by tutors and learners
- A highly trained and motivated workforce who are able to make efficient and effective use of the infrastructure and online materials
- Well-informed leaders and managers who are able to plan to make the best use of new technology
- Effective technical, pedagogical and other support for providers regardless of their size
- A healthy world-leading e-learning market
- A more coherent network of provision from first-rung UK online centres through **learndirect** to colleges and learning at work
- Learners who have the ICT and e-learning skills to realise their potential and get the most from online learning.

167. This transformational programme will balance centrally developed materials and tools with local innovation, and promote sharing of resources as well as expertise through portals and online communities. By engaging teachers and the software industry in a shared goal of excellent pedagogical design, NLN will assist in raising standards to embed e-learning and deliver high-quality learning for the sector.

ANNEX 4 E-LEARNING FOR HIGHER EDUCATION

168. In the White Paper *The future of higher education*, the Government set out a vision for a higher education system characterised by inclusion, excellence, flexibility and collaboration. In meeting this vision, e-learning has an ever-more important role to play.

169. In recent years, UK higher education has been a global leader in infrastructure development, and in academic and administrative application of online technologies. However, a more strategic approach is now needed to ensure the full value of e-learning is achieved and the right support is in place for universities. Consequently, we have asked the Higher Education Funding Council for England (HEFCE) to bring forward plans to embed e-learning in a full and sustainable way within the next ten years. To accompany this Departmental strategy, HEFCE will consult on its own provisional *E-Learning Strategy for Higher Education*.

What does a strategic approach to e-learning mean to higher education?

170. *For students*, e-learning offers individual empowerment with greater control over their own learning. It allows improved flexibility over the time, place and mode of study, and makes learning resources, peer and tutor group interaction, and universities themselves more accessible. Several universities already offer e-learning programmes to people in work. A coherent e-learning framework, with enhanced links between colleges and universities and online learning, can smooth the path of student progression and lifelong learners.

171. *For academic staff*, a strategic approach to e-learning helps keep them in touch with relevant technological advances, while identifying and sharing best practice in curriculum design, teaching, learning and assessment, helping to manage innovation and technological risk. Effective e-learning enables interactive, independent student learning and supports traditional teaching methods. Online technology offers unprecedented, and managed, access to learning materials and research resources, enabling sophisticated collaborations with a diverse range of partners.

172. *For university leaders*, an e-learning strategy engages effective support for staff development, change management, and sustainable resourcing to expand the network to keep up with user demands, improving organisational efficiency and enabling inter-operability. A managed approach offers support in understanding the true costs, benefits and potential of new technology. Online learning provides a means, moreover, to engage students at home or overseas, working through secure environments, maximising the benefits of distance learning.

The contribution of e-learning to the sector

173. In taking e-learning into the mainstream of institutional life, the UK has in place an extensive infrastructure of expertise on which to build. Through the efforts of the Joint Information Systems Committee (JISC) and the United Kingdom Education and Research Networking Association (UKERNA), UK higher education already has access to a world-class communications network – the Joint Academic Network (JANET) connecting all higher education institutions, further education colleges and Research Council sites.

174. JISC, moreover, working alongside partners such as the Association for Learning Technology, the Universities and Colleges Information Systems Association, the Learning and Teaching Support Network, and EduServ, among many others, plays a key role in offering guidance and advice to the higher education sector on the role that ICT can play to support learning, teaching, research, and administration.

175. The eUniversities project, operated by UKeUniversities Worldwide (UKeU), has been developed to support UK universities in delivering online courses to students overseas, also enabling increased access for UK students and providing a platform to share risks alongside expertise. To keep abreast of the global context, the Observatory on Borderless Higher Education monitors developments in the areas of e-learning and education provision, informing the strategic approaches of senior managers on the potential for new technologies to transform the higher education landscape.

Strategic Directions

176. Research shows that among the most cited barriers to embedding e-learning within higher education are the need for supported collaboration between independent institutions to help informed decisions to be made in introducing new technologies and undertaking programmes of change management; and the importance of equipping academic and support staff with the skills they need to take full advantage of online provision. A strategic approach addresses these challenges. In the following ways:

- **Leading sustainable e-learning** - a strategic approach will work with institutions, as they forge their own increasingly distinctive missions, to help leaders make informed decisions about the costs and benefits of innovative technologies, and ensure that funding mechanisms are a help, and not a hindrance, in taking forward e-learning.
- **Supporting innovation in teaching and learning** - a strategic approach will build on existing support for teaching excellence. It will explore and share an informed understanding, and clear demonstration, of the potential of e-learning across the different subject areas and the very different needs of teachers, researchers and suppliers, in partnerships between institutions, industry, SMEs, and the community.

- **Learner support** - a strategic approach will engage universities in offering new means of enhancing the learning process, through the development of Managed and Virtual Learning Environments and smoothing the links between universities, colleges and schools. As higher education provision expands, e-learning provides a platform for innovation and flexibility for learners and teaching staff alike.
- **Technical and quality standards** - a strategic approach will provide the investment in infrastructure needed to keep the UK's network among the most advanced in the world, engaging the challenge of inter-operability and providing support to guide and encourage the development of innovative online environments fit for diverse purposes.

ANNEX 5 REMOVING THE BARRIERS TO LEARNING

177. The aim of the e-learning strategy is to embed e-learning to meet the needs of all learners, including those for whom barriers exist. We must prevent a digital divide where those who cannot use or afford new technology are disadvantaged.

Unique learning styles

178. Diversity is represented in many ways within classrooms. All learners have their unique learning styles, but some have learning difficulties or face other barriers to learning and participation. These learners may include children in public care; Black or Minority Ethnic pupils; pupils who are disadvantaged or disaffected and those with special educational needs, such as dyslexia or dyscalculia. Embedding e-learning can help to remove barriers to learning and participation, meet individual needs and support all learners in reaching high standards.

179. Software and content needs to be developed with specific learners in mind. It is only by achieving the right blend of technology, content and support that we will enable individuals to progress, whatever the barriers.

Supportive Learning

180. We need to identify critical factors that ensure learning technologies assist students to access the curriculum and improve their learning. We need, for example, to develop more interactive diagnostic tests that will support disabled learners in developing communication, literacy and numeracy skills. E-learning technology can develop learners' confidence and self-esteem, increase their motivation and help make learning an enjoyable experience.

181. The benefits can be applied widely. Software designed specifically for learners with disabilities can impact positively on programs for all learners. When new technologies move beyond their initial stage of development, innovations in curriculum design, teaching strategies and policies will be driven by the needs of learners 'at the margin', those for whom, at present, technologies are the least effective. And the benefits of these innovations will be available for every learner.

182. For disabled learners new hardware such as expanded keyboards, head-mounted infra-red pointers, speech recognition software and word prediction are already having obvious benefits. Similarly, talking word processors, screen readers, screen enlargers, and tactile graphic pads offer great advantages. The flexibility of digital media enables change from one medium to another, such as text-to-speech, speech-to-text, text to touch (for example, Braille). The capacity to use multiple media enables the provider

to pick and mix resources to the needs of the individual to reach a broader set of students. Initiatives such as the Communication Aids Project (CAP) have been successful in providing specialised equipment to pupils experiencing significant difficulties in communicating. This has enabled children to express themselves and be included fully in school and social activities.

Case study: Making learning easier

Pupils in Norfolk with specific learning difficulties, such as dyslexia, have made significant progress in reading, some as much as 10 months, with the support of e-learning tools.

The Lexia Reading system has proved a success for older pupils in KS2/KS3 because of its structured, comprehensive phonics program with interactive exercises which encourages pupils to work independently and at their own pace: "Children who suffer from attention and concentration problems in the classroom, often find it easier to concentrate and focus their attention on a computer screen." (Jacqui Worsley, Advisory Support Teacher).

The in-built monitoring and assessment allows pupils and teachers to track progress and tailor teaching and learning accordingly.

Enabling independence

183. Very few online resources meet the standards of accessibility for disabled people, despite the tremendous capability of the Internet to help them overcome some of the challenges they face. Having access to, and the ability to use, online information (presented in ways that are accessible to the disabled) could open up valuable new ways for people with physical or mental difficulties to learn, work, or communicate with others. Internet resources should be for everyone. There is a clear and growing need for appropriate Internet information and applications for underserved communities. As the number of low-income users grows, the Internet audience diversifies. We are already considering such issues within the Cybrarian project, which will be developing a package of support mechanisms to make the Internet accessible for all. Cybrarian will enable people to acquire the e-learning skills and confidence to become regular users of the Internet.

Engagement at every stage of life

184. If we are to engage those who most require the benefits which lifelong learning can offer, we should encourage potential learners to take a more active role in the learning process. E-learning software should enable users to learn how to solve problems and collaborate with one another in various settings and using various resources.

185. Many people who have had negative experiences of formal education have become disenchanted with the concept of learning as a whole. E-learning provides a supportive and private return to education. It

can make a major difference to those with minority languages, disabilities or different preferred learning styles. If we are to succeed in motivating, inspiring and making people more confident, then we must recognise that learning is most effective when individuals have choices in their different learning experiences and environments.

Removing the barriers

186. We need to combine the best of human and virtual teaching and mentoring capabilities while providing access to resources not available locally. We will make more use of online learning communities and intelligent tutoring systems for individualised learning. To bring the hardest to reach into collaborative learning we should be looking at the multi-layer Internet video games sector. There is a need for more individualised approaches to learning, such as counselling in course selection, mentoring during courses, design of lessons and teacher-student interactions. Our e-learning strategy should touch the life of every single learner, and potential learner.

ANNEX 6 GLOSSARY

ALI	Adult Learning Inspectorate	LTSN	Agency Learning and Teaching Support Network
ALT	Association of Learning Technologies	MFL	Modern Foreign Languages
Becta	British Educational Technologies Agency	MIS	Management Information System
BESA	British Educational Software Association	MLE	Managed Learning Environment
BSG	Broadband Stakeholders Group	NCSL	National College for School Leadership
BSI	British Standards Institute	NHSU	National Health Service University
CAP	Communications Aid Project	NIACE	National Institute for Adult and Continuing Education
CETIS	Centre for Educational Technology Interoperability Standards	NILTA	National Information and Learning Technologies Association
Connexions	The Government's front line support service for all young people in England aged 13-19	NLN	National Learning Network
COVE	Centre of Vocational Excellence	NSSF	National Standardization Strategic Framework
DfES ICT Industry Club	A DfES run forum for dialogue between the Department, its agencies and members of the ICT Industry whose products or services support teaching and learning.	NTI	New Technology Institute
DTI	Department of Trade and Industry	NTO	National Training Organisation
e-GIF	e-Government Interoperability Framework	OECD	Organisation for Economic Co-operation and Development
e-skills UK	The UK Sector Skills Council for the IT, Telecoms and Call Centre sectors	OeE	Office of the e-Envoy
ESOL	English for Speakers of Other Languages	Ofsted	Office for Standards in Education
FEoS	Finance and Education Services	OGC	Office of Government Commerce
FENTO	Further Education National Training Organisation	PSA	Public Service Agreement
FERL	Further Education Resources for Learning	QAA	Quality Assurance Agency
HEFCE	Higher Education Funding Council for England	QCA	Qualifications and Curriculum Authority
HESDA	Higher Education Staff Development Agency	R & D	Research and Development
ILT	Information and Learning Technologies	SEN	Special Educational Needs
IPR	Intellectual Property Rights	SME	Small and Medium Enterprise
JANET	Joint Academic NETwork	SSC	Sector Skills Council
JISC	Joint Information Systems Committee	SuperJANET	A high speed, broadband backbone that forms the core of JANET
LAMS	Learning Activity Management System	T & GWU	Transport & General Workers Union
LEA	Local Education Authority	TTA	Teacher Training Agency
learnirect	Ufi's consumer facing brand offering a coherent package of learning and support to learners	UCAS	Universities and Colleges Admissions Service
LSC	Learning and Skills Council	UCLES	University of Cambridge Local Examinations Syndicate
LSDA	Learning Skills Development	Ufi	University for Industry
		UKERNA	UK Education and Research Networking Association
		UNESCO	United Nations Educational, Scientific and Cultural Organisation
		UUK	Universities UK is the representative body of the executive heads of universities
		Worktrain	The national jobs, learning and careers internet service

