This document builds on 'HEFCE strategy for e-learning' (HEFCE 2005/12) and focuses on enhancing learning, teaching and assessment through the use of technology.

Enhancing learning and teaching through the use of technology

A revised approach to HEFCE's strategy for e-learning

HIGHER EDUCATION FUNDING COUNCIL FOR ENGLAND

Enhancing learning and teaching through the use of technology: a revised approach to HEFCE's strategy for e-learning

To	Heads of HEFCE-funded higher education institutions
	Heads of HEFCE-funded further education colleges
Of interest to those responsible for	Learning, teaching and assessment; Information and communications technologies
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Executive summary

Purpose

1.   This document builds on 'HEFCE strategy for e-learning' (HEFCE 2005/12), published in March 2005[1], and focuses on enhancing learning, teaching and assessment through the use of technology. Some of it draws on that strategy, but we also reflect on how technology can support individual institutions in achieving some of their key strategic aims.

Key points

2.   We will continue working with partners, particularly the Joint Information Systems Committee (the JISC) and the Higher Education Academy (the Academy), to support institutions in enhancing learning, teaching and assessment through the use of technology. The first edition of our strategy talked about e-learning, but in the past three years, terminology, practice and contexts have developed. The term 'e-learning' can now sometimes be too narrowly defined to describe fully the widespread use of learning technology in institutions. We think it is more appropriate to consider how institutions can enhance learning, teaching and assessment using appropriate technology. We wish to focus on the benefits and the outcomes from using technology to support learning and related processes, which will be different in each institution. Underpinning infrastructures, management practices, architectures and services have an impact on learning, teaching and assessment, as do services for learners more generally.

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[1] All HEFCE publications can be read at www.hefce.ac.uk under Publications.

3.   This work is part of our original commitment to conduct a review of the strategy after three years[2]. It reflects the findings of that review, discussions with key stakeholders, and the implications of the revised Harnessing Technology strategy[3] developed by Becta. This organisation is developing and co-ordinating strategic approaches to the use of technology across the entire education system, on behalf of the two government departments with a remit for education[4].

4.   Enhancing learning, teaching and assessment through the use of technology is one of a number of ways in which institutions can address their own strategic missions. The HEFCE strategy for e-learning focuses on some key activities for agencies; here we put forward our view of the overall context and rationale for work in this area. Our emphasis is on recognising that technology has a fundamental part to play in higher education, but that institutional contexts and strategies are key, with the implication that institutions need to consider how to invest block grant appropriately. The main partner agencies can and will continue to offer support, but institutions should identify where they wish to focus attention.

5.   Benefits may be felt at three different levels, depending on the type of intervention:

- efficiency (existing processes carried out in a more cost-effective, time-effective, sustainable or scalable manner)

- enhancement (improving existing processes and the outcomes)

- transformation (radical, positive change in existing processes or introducing new processes).

6.   We comment on the review of HEFCE's strategy for e-learning. We also consider some other evidence that has been published, looking at how institutions and learners are using and adapting to new and emerging technology. We suggest that technology can make a valuable contribution to the achievement of institutional strategic goals and priorities.

Action required

7.   This document is for information and guidance. Institutions can use it to develop their own approaches to enhancing learning, teaching and assessment through the use of technology, and to reflect on where they may wish to prioritise investment over the next few years. It can also be used to identify where support is available from the Higher Education Academy (the Academy) and the Joint Information Systems Committee (JISC).

8.   Institutions will need to consider how the use of learning technology is reflected in learning, teaching and assessment strategies. This document may be helpful in identifying where learning technology can be used more effectively to enhance learning, teaching and assessment, and to achieve strategic goals.

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[2] 'Review of the 2005 HEFCE strategy for e-learning: a report to HEFCE by Glenaffric Ltd' can be read at www.hefce.ac.uk under Publications/Research & evaluation.

[3] 'Harnessing Technology: Next Generation Learning 2008-14' is available at www.becta.org.uk under Publications.

[4] Becta formally reports to ministers via the Department for Children, Schools and Families but also works with the Department for Innovation, Universities and Skills.

9.   All institutions will need to use technology effectively to support their wider institutional aims and so should take a strategic approach to this. Information and guidance in this document can be used to inform institutional strategic planning.

Introduction

10. This document builds on 'HEFCE strategy for e-learning' (HEFCE 2005/12), published in March 2005[5], and focuses on enhancing learning, teaching and assessment through the use of technology. Some of it draws on that strategy and will be recognised by those familiar with the publication. However, we have also taken the opportunity to reflect on how technology can support individual institutions in achieving some of their key strategic aims.

11. Running parallel to our work has been the revised Harnessing Technology strategy, managed by Becta on behalf of the Department for Children, Schools and Families (DCSF) and the Department for Innovation, Universities and Skills (DIUS). That has highlighted some important areas where higher education can more fully respond to changing competencies and expectations of students and contribute to overall government priorities.

12. These areas of work have all informed our revised approach to enhancing learning, teaching and assessment through the use of technology. This includes some reflections on investing in learning technology, and a framework that institutions may find useful when considering their own strategies.

Review of HEFCE's strategy for e-learning

13. When we published HEFCE's strategy for e-learning in 2005, we stated that we intended to review and evaluate it after three years. In December 2007 we commissioned Glenaffric Ltd to conduct that review. This was not scoped as an evaluation of the overall success of the strategy, but a reflection on progress and continued relevance – a formative, rather than a summative view. We specifically asked Glenaffric to comment on:

   a. How successful has the implementation plan been in achieving the aims and objectives of the strategy, and meeting the measures of success set out in the strategy?

   b. What particular successes can be identified?

   c. What difficulties have been encountered? Are the measures of success still appropriate (are they measurable)? Does a sufficient baseline or benchmark exist to measure progress?

   d. Do the aims and objectives of the strategy remain valid, appropriate and fit for purpose for the next period of implementation, in the light of:

      i. advances in technology and particularly in user-centred approaches

      ii. changes in HEFCE's learning and teaching policy objectives

      iii. developments in strategies relating to e-learning in other relevant bodies?

   e. How effective has the support offered by the Higher Education Academy (HEA), HEFCE and the Joint Information Systems Committee (JISC) been in enabling institutions to develop e-learning, in terms of information, evidence and funding opportunities?

   f. How might we continue to ensure ongoing monitoring and feedback on the implementation of the strategy?

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[5] All HEFCE publications can be read at www.hefce.ac.uk under Publications.

14.   We intended the review to be part of a wider process of considering the direction, aims and objectives of a revised approach to the enhancement of learning, teaching and assessment using technology. The review was published in October 2008[6].

15.   The review reported that we should take this opportunity to reflect a more general, problem-based approach to institutional change as opposed to a technologically determined approach. This is in line with our belief that the focus should be on the enhancement of learning, teaching and assessment, and how technology might be able to support that focus.

16.   The review suggested that the strands within the strategy were useful and valid, providing institutions with areas of focus, but also that some re-emphasis might be required to address new priorities and concerns.

17.   We previously focused attention on the activities of partner agencies (mainly JISC and the Academy) in the implementation framework. The review confirmed our belief that the next phase should focus much more on what institutions might do to address particular challenges.

18.   Some of those consulted as part of the review felt that the strategy was somewhat dated, even if broadly valid. A bolder, more visionary approach was called for: one that reflected the transformative potential of technology, recognised changing student needs and expectations, and emphasised connections between higher education and the workplace.

Benefits of learning technology: a summary of evidence

The transformative potential of technology

19.   Evidence suggests that the use of technology can improve recruitment and retention. The JISC InfoNet report 'Exploring the Tangible Benefits of e-Learning'[7] found that the appropriate use of technology is leading to significant improvements in learning, teaching and assessment across the sector and that this is translating into improved satisfaction, retention and achievement.

20.   The 2008 survey of technology-enhanced learning for higher education in the UK by the Universities and Colleges Information Systems Association (UCISA)[8] found that enhancing the quality of teaching and learning, and meeting student expectations, are the two most significant drivers for institutions to invest in new technologies. Improving access to learning for students off campus and for part-time students was also cited as important factors. The survey also identified that attracting new markets was one of the areas becoming more important for some institutions.

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[6] 'Review of the 2005 HEFCE strategy for e-learning: a report to HEFCE by Glenaffric Ltd' can be read at www.hefce.ac.uk under Publications/Research & evaluation.

[7] The Tangible Benefits of e-Learning project aimed to collate and share the tangible and real benefits to staff, learners and institutions of e-learning, through a discipline and academic department focus. It used the CAMEL model devised by JISC InfoNet and the Association for Learning Technology and first used in a project involving the Academy and the JISC. The report is available at www.jiscinfonet.ac.uk under Publications.

[8] '2008 survey of Technology Enhanced Learning For Higher Education in the UK' is available at www.ucisa.ac.uk under Publications/Technology enhanced learning survey.

21.   The survey is useful in demonstrating how far the sector has come in its use of learning technologies. A wide range of centrally supported software is used, but institutions are aware of students using many others, particularly social software. It is clear that technology is used for a variety of purposes: e-assessment, e-portfolios, podcasting, blogs and wikis were all highlighted as tools supporting learning and teaching.

22.   The Phase 2 evaluation report of the Benchmarking Exercise[9] (two phases, 77 institutions in total) highlights several areas of key importance for institutions to enhance learning and teaching through technology. In particular, it highlights the need for a periodic and in-depth institutional review of the use of technology, senior management support and strong central planning to align technology-enhanced learning with institutional policies and processes, a better understanding of costs and workload requirements (academic and support staff); and the challenge for institutions to move beyond pockets of innovative practice carried out by enthusiasts.

Changing student needs and expectations

23.   A 2008 report commissioned by JISC and the British Library[10] has countered the common assumption that the 'Google generation' – young people born or brought up in the internet age – is naturally adept at using the web effectively. The report by the Centre for Information Behaviour and the Evaluation of Research team at University College London claims that, although young people demonstrate an ease and familiarity with computers, they rely on the most basic search tools and do not possess the critical and analytical skills to assess the information that they find on the web. Higher education, therefore, continues to have a unique role in providing learners with the higher-order skills of evaluation, critical analysis and reflection, synthesis, problem-solving, creativity and thinking across discipline boundaries.

24.   Evidence from the 2008 survey of first-year student expectations of information and communication technologies (ICT) in higher education institutions[11] shows that learners are using technology to engage with learning, largely with their own equipment. However, there is an opportunity for institutions to engage further with technologies with the intention of supporting learners in building knowledge collaboratively and engaging in social learning. Staff require support so they can effectively exploit the potential of these new technologies.

25.   Learners want and expect to be able to use their own devices in institutional contexts, and to personalise institutional services to meet their own requirements. This places new demands on ICT services. The 2008 UCISA survey also identified demands emerging over the last few years that are likely to impact on the provision of support for ICT, including streaming media, mobile computing and podcasting.

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[9] The Benchmarking Exercise was conducted by the Academy to support institutions in identifying what they were doing to develop learning technology. Information on the benchmarking and pathfinder projects is available on www.heacademy.ac.uk under Our work/Supporting learning.

[10] 'Information Behaviour of the Researcher of the Future' (January 2008), CIBER research team, University College London, available at www.jisc.ac.uk under What we do/Google Generation.

[11] Part of the 2007-08 JISC/MORI surveys of student expectations, all available on www.jisc.ac.uk.

26.   An increasing appetite for lifelong learning will lead to more and more learners needing to manage a lifelong learning record. Effective use of technology will help learners do this – providing links to formal qualifications, as well as the capacity to support reflection and help them in identifying appropriate new learning opportunities.

A developing role for higher education in the workplace

27.   The Leitch review of skills[12] further emphasises the responsibility that higher education has to provide high-level skills for the information economy, and to equip learners as workers and citizens in an information society. Increasingly, employers are demanding a real stake in curricula that may be delivered wholly or partly while learners are at work. Institutions need to initiate more agile processes of curriculum design and delivery, and are discovering that technology can provide the efficiencies and flexibility they need.

Raising the international profile of UK higher education

28.   Effective use of technology is vital if we are to maintain the world-class provision of UK higher education. It can also help institutions in enhancing curriculum development and delivery, attracting overseas students, establishing campuses in other countries and in engaging with the Bologna process[13]. Staff teaching an increasingly diverse student body will benefit from access to relevant information and resources. In addition, more flexible approaches offered by distance learning and open educational resources will give international learners access to better course information, and assist with the recruitment and retention of these learners.

DIUS/DCFS Harnessing Technology strategy

29.   Becta, the organisation responsible for co-ordinating strategic approaches to the use of technology across the whole education system, recently consulted on a new Harnessing Technology strategy[14]. This strategy highlights the government's overall priorities for enhancing education through the use of technology. Becta is formally responsible to the DCSF, but has worked closely with DIUS and HEFCE to ensure that our work complements that of the Harnessing Technology strategy.

30.   Through the revised Harnessing Technology strategy, Becta has highlighted the system-wide priorities that should underpin the work of other agencies. Harnessing Technology acknowledges the independence and autonomy of the higher education sector, while ensuring that attention is paid to a number of shared challenges. The detail and delivery mechanisms in higher education may well be different, but these challenges have relevance for the sector.

31.   One central aspect of the Harnessing Technology strategy is a focus on learner entitlement. Higher education institutions may wish to consider learner entitlement in the context of their existing commitments to equality of access, inclusion, flexible lifelong learning,

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[12] 'Prosperity for all in a global economy: world-class skills' (December 2006), Sandy Leitch's review of the UK's long-term skills needs, is available at www.hm-treasury.gov.uk under Independent Reviews.

[13] For more information on the Bologna Process, see www.europeunit.ac.uk under Bologna Process.

[14] 'Harnessing Technology: Next Generation Learning 2008-14' is available at.www.becta.org.uk under Publications.

international mobility, and other strategic goals. The aim should be that all students can benefit from everything the institution has to offer. We will continue to support and encourage institutions to use all available resources, including technology, to widen access and opportunity, but it remains institutions' responsibility to identify the specific directions to follow.

Our revised approach

Enhancing learning and teaching through the use of technology

32.   It is widely recognised that there is a great diversity of uses of ICT. New and emerging technologies clearly provide exciting opportunities for enhancement and innovation in learning opportunities on the campus, within the workplace or at home. It is therefore appropriate for our revised framework to focus on the broader opportunities offered through the use of technology, rather than concentrating on issues such as distance learning, although creating a wholly e-based learning experience remains an interesting challenge, and may open up a greater understanding of the full potential of certain aspects of learning technology. Within this broad framework it is important not to create fixed definitions, but instead to look to encompass the many uses of ICT that individual universities and colleges decide to adopt in their learning and teaching missions. For this reason, our strategy in 2005 did not attempt to define 'e-learning'.

33.   This view remains valid. Our primary focus on the enhancement of learning and teaching drives our approach. Technology can support this enhancement goal, and is therefore a factor in development of effective learning, teaching and assessment strategies. Innovative developments in technology will only be relevant if the enhancement of learning and teaching is the core purpose.

34.   The challenge to this approach is that 'e-learning' is used as shorthand to describe the array of technological developments and approaches throughout the sector. However it can sometimes be too narrowly defined – for example with an over-emphasis on distance learning. Developments such as the use of mobile devices to support portfolio development in work-based learning, developing and reusing educational content, learning space design, standardising course information for different purposes, and virtual research environments are all about using technology to enhance teaching and learning, but tend to fall outside the traditional, non-expert, perception of e-learning. We promote and support this diversity.

Investing in technology to enhance learning and teaching[15]

35.   Investment by HEFCE – in institutions, in the Academy, and in JISC – has been vital in encouraging developments in e-learning and learning technologies. A key principle of our approach is that we emphasise the enhancement of learning and teaching through technology in the context of our existing strategic investments in higher education. We continue to provide core funding to JISC and to ensure that the Academy focuses some of its HEFCE grant on learning technology as part of its overall support to institutions. Previously, we have made available

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[15] As part of the development of a framework policy for higher education for the next 10 to 15 years, Professor Sir Ron Cooke was asked to provide the Government with advice and recommendations on how the country (in this case the UK) can be one of the leading – if not the leading – centres of online higher education learning in the world. His advice, 'On-line Innovation in Higher Education' is available on the 'HE Debate' blog at http://hedebate.jiscinvolve.org under Issues for discussion/Online higher education learning (E-learning).

residual capital funding from the e-University initiative[16] to support developments, notably the substantial capital investment in institutional infrastructure and the successful benchmarking and pathfinder programmes facilitated by the Academy.

36.   We believe that the importance of using technology to enhance learning and teaching is such that institutions will need to consider this a strategic priority when making investment decisions. Recurrent and capital funding in the block grant to institutions can be used to support these developments, and we would expect institutions to consider the ability of technology to support the enhancement of learning and teaching when considering how to allocate these funds.

37.   Assessment is central to all learning and teaching practice. Effective use of e-assessment technologies can provide efficiency and effectiveness improvements in this practice. E-assessment is now widely used for summative assessment such as end of module tests. Much current use of e-assessment employs computer-marked, objective questions, with the main benefits of the technology being the immediacy of feedback to students and the reduction of marking for tutors[17].

38.   A growing body of evidence[18] indicates that well-designed and well-deployed diagnostic and formative e-assessments can foster more effective learning for a wider diversity of learners. In addition, e-assessment offers a broader palette of digital tools for awarding bodies, developers and academic staff and enhances the process of reporting, storing and transferring data associated with public and internal assessments.

39.   We anticipate that institutions would wish to consider staff development to support investment in technology. Strong pedagogic skills will enable staff to make good use of ICT and other resources to support student learning, and to be better placed to revise approaches as technologies change. Senior management teams obviously play key roles – both in increasing their own knowledge and understanding of the direction and use of technology, and in championing this among staff.

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[16] More information is available at www.hefce.ac.uk under Learning and Teaching/Teaching initiatives/e-University

[17] The Academy responds to the support needs of managers and practitioners in the use of technology to enhance assessment and the provision of feedback by identifying and promoting evidence-based practice, synthesising current practice and helping build capacity. Subject Centres collaborate with their discipline communities to produce resources and advice on the use of technology in a way that is relevant to assessment *of* and *for* learning in the discipline. An overview of the wealth of resources, guidance and activities offered by the Academy and its Subject Centres in this area can be found at www.heacademy.ac.uk under Our work/Supporting learning.

[18] 'Increasing success in first-year courses: assessment re-design, self-regulation and learning technologies' by DJ Nicol (2006), a paper presented at ASCILITE Sydney Conference which can be read at www.ascilite.org.au under Conferences/Ascilite 2006, Sydney, NSW, December 2006/Conference Proceedings. See also 'The undergraduate experience of blended e-learning: a review of UK literature and practice undertaken for the Higher Education Academy' by R Sharpe, G Benfield, G Roberts and R Francis (2006), which can be read at www.heacademy.ac.uk under Our Work/Research and evaluation.

Supporting strategic investment

40.   The Academy and JISC will continue to offer support to institutions. The first phase of the HEFCE strategy for e-learning provided significant funding for the benchmarking and pathfinder programmes, which are now beginning to report on some of their successes. These programmes involved a diverse range of institutions using a number of different models. Other institutions will be able to draw on evidence from the programmes that will help them identify activities relevant for their own context. In addition, the Academy, including the individual subject centres, will continue to provide advice and guidance on maximising the benefits of using technology in learning, teaching and assessment, particularly with regards to enhancement, to help institutions identify how they can develop this agenda locally.

41.   Targeted investment in individual projects that provide benefits for the sector from the JISC e-learning programme will focus on how to exploit technology. JISC has prioritised five areas for development work: e-assessment; e-portfolios; learning resources and activities; technology to support the administration of learning, teaching and assessment; and technology-enhanced learning environments.

42.   JISC and the Academy will jointly develop a series of pilots investigating the impact of open educational content on the sector. These will focus on three levels – subject, learner and institution – looking at how these approaches can enhance learning and teaching, and how they might change cultures to ensure the development of flexible, learner-focused provision. The pilots will take place in 2009-10, supported by £5.7 million from HEFCE. The pilots will report on progress in autumn 2009, at which point further, longer-term investment will be considered[19].

43.   Work undertaken by the Academy will help to achieve a greater understanding of the evidence base in this area. This was a particular concern raised in the review of the HEFCE strategy for e-learning – that the array of evidence can sometimes be hard to navigate. Both the Academy and JISC will continue to support practitioners in understanding and using the evidence base. There are also a number of other organisations working in this area, all providing valuable research, evaluation and survey evidence.

44.   Other agencies will also contribute. The Quality Assurance Agency for Higher Education (QAA) will offer support through the Academic Infrastructure, in particular, the Code of Practice. Section 2 refers to the use of e-learning in the context of partnerships and distance learning. The QAA will continue to publish papers in its 'Outcomes from audit' series[20] that will reflect on progress in institutional practice and share this across the sector.

45.   The Leadership Foundation for Higher Education (LFHE) is working with JISC to investigate the extent of the integration of technology in institutional strategic planning and to raise the awareness of the role of technology in delivering strategy. This study forms part of a wider discussion on the strategic development of universities that looks primarily at the corporate level. However, the study is also considering the implications for technology in other institutional strategies, for example the learning, teaching and assessment strategy. JISC and the LFHE will

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[19] This was announced in October 2008. See www.hefce.ac.uk/news/hefce/2008/os.htm for more details.

[20] For more information see www.qaa.ac.uk under Publications

continue to work on case studies, reports and other areas with a view to presenting findings in October 2009[21].

A framework for institutions

46.   We published strategic objectives and an implementation framework in the 2005 HEFCE strategy for e-learning. These were primarily focused on areas of activity for HEFCE, the Academy and the JISC. Although they remain valid as areas of focus for the entire sector, we think it is more appropriate now to concentrate on where institutions might wish to direct their attention.

47.   We have developed a framework to assist institutions in maximising the strategic benefits of technology (see Table 1). Diverse institutional missions and strategic priorities mean that it would be counter-productive to prescribe institutional activities. Our intention is to highlight those strategic areas where institutions may see a benefit from investing in technology, and to help institutions map those benefits to specific institutional goals, strategic plans, or internal documents. Institutions may also wish to use evidence from the National Student Survey and internal evidence such as that from their own student feedback mechanisms or data on staff development needs, in identifying areas for action.

48.   The framework is designed to help identify priorities for development. The implementation framework is designed to be flexible, and we anticipate that institutions will adapt it to suit their own needs. In order to plan effectively for enhancement, institutions will need to translate these into specific goals, development pathways, and measures of success. We referred to the support from partner agencies available in paragraph 38, which will help institutions to use the framework to quickly identify resources that are relevant to their priorities. The partner agencies also have a wealth of evidence of tangible benefits to institutions from the strategic use of technologies, which can be used to define suitable measures of success.

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[21] Further information is available on a blog at http://strategictechnology.jiscinvolve.org under Findings from the JISC/Leadership Foundation study.

Table 1 Enhancing learning and teaching through the use of technology: a suggested framework for institutions

Activity area (from original strategy)	Strategic priorities	Harnessing technology for strategic gain – examples of development goals
1. Pedagogy, curriculum design and development	• Enhancing excellence and innovation in teaching and learning • Enhancing flexibility and choice for learners • Enhancing student achievement • Improving employability and skills • Attracting and retaining learners • Supporting research-based or enquiry-based learning • Engaging employers (or other stakeholders) in curriculum design and delivery • Improving efficiency of curriculum design and delivery processes	• Tutors have access to a wide range of tools to support teaching, and a wide range of high-quality resources to engage students • Innovative uses of technology for learning are supported by the curriculum design process • Technology is used to enhance the responsiveness and flexibility of curriculum offerings • Technology is used to help identify learners with specific aptitudes or needs • Information and information systems are used effectively to support curriculum planning • Web 2.0 technologies are harnessed to support communities of learning and research • E-assessment technologies are used to support innovative practices such as just-in-time assessment and peer review • Students are developing their digital and learning literacies throughout their studies • Technologies for teaching and research are joined up in ways that support scholarship across the institution

Activity area (from original strategy)	Strategic priorities	Harnessing technology for strategic gain – examples of development goals
2. Learning resources and environments (was 'Learning resources and networked learning')	• Enhancing flexibility and choice for learners • Enhancing student achievement • Improving employability and skills • Widening participation and improving access • Effective management of learning resources • Designing and maintaining effective environments for learning	• Students can access information, support, expertise and guidance, and communicate with each other, wherever they are studying • Students can access personalised services within institutional environments, and use personal tools to suit their individual needs • Tools for scholarly communication are widely used, for example for feedback, collaborative research and peer review • Tutors are collaborating in subject communities to produce high-quality, reusable learning resources • Tutors have access to relevant learning resources, and support for adapting, integrating and enhancing them • There is continuity across learning, teaching, research and administrative environments to support joined-up processes
3. Lifelong learning processes and practices (was 'Student support, progression and collaboration')	• Improving employability and skills • Enhancing flexibility and choice for learners • Widening participation and improving access to learning opportunities • Supporting diverse learners' needs • Retaining learners and meeting learners' expectations • Co-operating with other institutions, colleges and campuses	• Students can record, access, reflect on and present their achievements in ways appropriate to a variety of situations • Assistive and personal technologies are used effectively to support students with diverse needs and aptitudes • Local and regional communities are involved with the institution via electronically supported networks, for example through lifelong learning networks • Students can access information online to make informed choices about their programmes of study including choices about how and where to access learning • Technology is used to help students connect formal study with other aspects of life and work • Joined-up information systems support students in transition or while studying at more than one location or institution

Activity area (from original strategy)	Strategic priorities	Harnessing technology for strategic gain – examples of development goals
4. Strategic management, human resources and capacity development	• Enhancing excellence in teaching • Enhancing excellence in research • Workforce development • Business/community links • Improving efficiency and effectiveness of institutional processes	• All staff have opportunities to develop and practise skills for enhancing learning through the use of technology • Staff skills for technology-enhanced learning are recognised in their roles and responsibilities and in reward structures • Technology is being used to join up and make more efficient the administrative and information management processes of the institution • Content resources are managed in an integrated way, allowing institutional assets to be exploited effectively for learning, teaching and research • Institutional strategies (for example for learning, teaching and assessment, widening participation, learning spaces, information management and human resources) include consideration of potential enhancements through technology • Staff and student time is used effectively through appropriate technical interventions
5. Quality	• Institutional quality processes can support objectives and enhance benefits in all the other areas	• Institutional quality processes are agile enough to respond quickly to learner and employer needs • Streamlined quality processes allow institutions to feel confident in the quality of their provision at a reduced administrative burden • Enhancements through use of technology are taken into account in quality assurance arrangements

Activity area (from original strategy)	Strategic priorities	Harnessing technology for strategic gain – examples of development goals
6. Research and evaluation	• Enhancing excellence in learning and teaching • Enhancing excellence in research • Enhancing understanding of learning and teaching processes • Enhancing institutional processes (especially quality assurance and review)	• Staff have access to research, evidence and scholarship to inform curriculum development and research-based teaching • Staff engage actively with the scholarship of teaching and are involved in innovation in using technology for learning and teaching • Institutions have effective mechanisms for evaluating learners' experiences of learning, including learning with technology • Learners, and staff involved in teaching, participate actively in strategic decisions about technology in the learning environment
7. Infrastructure and technical standards	• Enhancing flexibility for learners • Supporting diverse learners' needs • Enhancing efficiency of institutional processes • Enhancing the technical infrastructure • Enhancing the information environment • Ensuring effective ICT investments and effective use of existing ICT resources • Sustainability ('green' computing)	• Technology is being used to join up and make more efficient the core administrative and information management processes of the institution • Due to more coherence and collaboration, technical issues have been addressed to give better value for money • Institutions are making good technology investments and finding the right balance of commercially developed, open source and bespoke solutions • Institutions are providing technical support at an appropriate level to staff and students as users • Institutions are taking an informed approach to adoption and implementation of standards to support system interoperability and coherence • Institutions are making effective use of the network services and resources invested in by the sector as a whole

List of abbreviations

The Academy   Higher Education Academy

DCSF   Department for Children, Schools and Families

DIUS   Department for Innovation, Universities and Skills

HEA   Higher Education Academy

HEFCE   Higher Education Funding Council for England

ICT   Information and communications technology

JISC   Joint Information Systems Committee

LFHE   Leadership Foundation for Higher Education

QAA   Quality Assurance Agency for Higher Education

UCISA   Universities and Colleges Information Systems Association