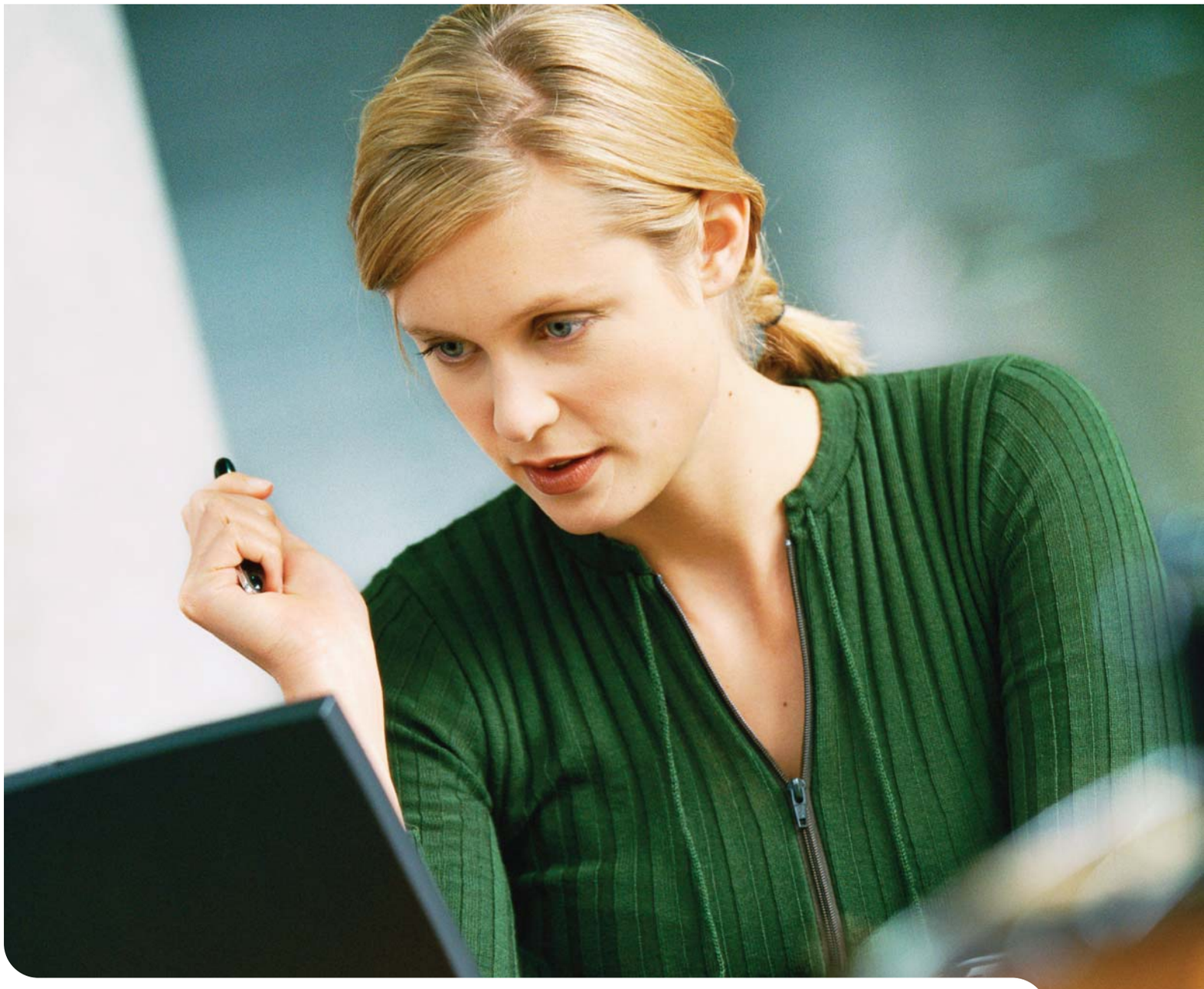
E-assessment

Guide to effective practice



QCA Qualifications and Curriculum Authority

Llywodraeth Cynulliad Cymru
Welsh Assembly Government

CEA Rewarding Learning

SQA

The regulators of external qualifications wish to make their publications widely accessible. Please contact us if you have any specific accessibility requirements.

Acknowledgements

The Qualifications and Curriculum Authority (QCA), the Department for Children, Education, Lifelong Learning and Skills (DCELLS), the Council for the Curriculum, Examinations and Assessments (CCEA) and the Scottish Qualifications Authority (SQA) wish to thank a number of organisations for their contributions and support in the development of this guide: Advice NI; The CADCentre UK Ltd; Chartered Institute of Purchasing and Supply; CITB Construction Skills; EAGIT Ltd; Hyfforddiant Mon Training; Lambeth College; Northern Ireland Civil Service Centre for Applied Learning; Northumberland County Council Adult Learning Service; North West Institute of Further and Higher Education; Open College Network London Region; Stockton Riverside College; and Ystrad Mynach College.

Our thanks go also to Paul Ellis and Kate Shoesmith from the Federation of Awarding Bodies; to Angela Joyce and Liz Hall from Lifelong Learning UK; and to Sally-Anne Saull from the Association of Colleges for their support in the process of consultation on various versions of the guide.

The qualifications regulators would also like to express our thanks to Patrick Coates, Martyn Roads and Paula Taylor, consultants to the project, who did so much of the practical work in producing the guide.

First published in 2007

Publication code: FA4130

Scottish Qualifications Authority
The Optima Building, 58 Robertson Street, Glasgow G2 8QD
Ironmills Road, Dalkeith, Midlothian EH22 1LE

www.sqa.org.uk

About this publication

Who's it for?
Anyone involved in the management and delivery of e-assessment in awarding centres where accredited qualifications are delivered.

What's it about?
This guide promotes and supports effective practice in e-assessment in an advisory capacity. It also provides information and advice on the use of e-portfolios for e-assessment.

What's next?
Updated information and advice will be available on an on-going basis on SQA's website:
http://www.sqa.org.uk/sqa/5606.html

Related materials
Regulatory principles for e-assessment (2007)

Copies are available for download from:
http://www.sqa.org.uk/sqa/5606.html

For more information:
SQA Customer Contact Centre
Tel: 0845 279 1000
Fax: 0845 213 5000
E-mail: **customer@sqa.org.uk**

Publication code: FA4130

QCA
83 Piccadilly
London W1J 8QA
Tel: 020-7509 5556
Minicom: 020-7509 6546
E-mail: **info@qca.org.uk**
Website: **www.qca.org.uk**

DCELLS
Castle Buildings
Womanby Street
Cardiff CF10 1SX
Tel: 029-2037 5400
Website: **www.wales.gov.uk**

CCEA
29 Clarendon Road
Belfast BT1 3BG
Tel: 028-9026 1200
Fax: 028-9026 1234
E-mail: **info@ccea.org.uk**
Website: **www.ccea.org.uk**

SQA
The Optima Building
58 Robertson Street
Glasgow G2 8DQ
Tel: 0845 279 1000
Fax: 0845 213 5000
E-mail: **customer@sqa.org.uk**
Website: **www.sqa.org.uk**

1. Introduction

1.1 About this guide

This guide has been developed by the qualifications regulators for England, Wales, Northern Ireland and Scotland as part of their commitment to support effective practice and quality improvement in the assessment of qualifications. It is intended to promote the use of e-assessment in an advisory rather than a regulatory capacity. It offers practical information and advice to people involved in the management and delivery of e-assessment within qualifications.

The guide has been developed by a team at the Qualifications and Curriculum Authority (QCA), supported by colleagues from the other qualifications regulators and by e-assessment practitioners across the post-school sector.

1.2 Who the guide is for

The guide is for people involved in the management and delivery of e-assessment in awarding centres delivering accredited qualifications. It will be relevant to those working in colleges, workplaces, training centres, community education centres, voluntary organisations and other types of provider in the post-school sector.

It will also be of value to staff offering e-assessment opportunities in schools and universities, and to those wishing to gain formal recognition of their skills and knowledge as assessors within the context of e-assessment.

The guide is linked to the new Level 3 Award, in England, Wales and Northern Ireland, in delivering e-testing. The units that make up the Award form part of the new Teacher Qualifications Framework for England being developed by Lifelong Learning UK (LLUK), and are integrated directly with the key e-testing roles that the guide sets out. In Scotland these units will be considered with a view to linking them, where appropriate, to existing qualifications in e-assessment already recognised within the Scottish Credit and Qualifications Framework (SCQF).

Although staff working in organisations offering e-assessment are the primary audience for this guide, it will also be of value to awarding bodies for centre recognition and monitoring, and to organisations involved in quality assurance and improvement in the post-school sector.

The guide is intended to be used alongside the specific guidance on the use of e-assessment systems issued by awarding bodies and other suppliers. This additional information is referred to at a number of points within the guide.

1.3 Scope of the guide

The guide covers two key aspects of e-assessment:

- the management and delivery of e-testing
- the use of e-portfolios for assessment

These concepts are summarised as ‘e-testing’ and ‘e-portfolios’. The guide focuses on the practical delivery of e-assessment to learners through e-tests and e-portfolios, and the knowledge and skills needed by people involved in the process. It is not a guide to the development or procurement of technology, nor to the technical design of the content of e-assessment opportunities. It excludes from its scope any references to e-marking of examination scripts, as these processes do not involve direct relationships with learners.

The guide takes into account the current UK developments towards the reformation of vocational qualifications, particularly the development of a jointly regulated Qualifications and Credit Framework (QCF) for England, Wales and Northern Ireland which is currently being tested across the three countries. Work is also underway to explore relationships between the QCF and the Scottish Qualifications and Credit Framework (SCQF). It also takes account of the new *Regulatory principles for e-assessment* (2007) by the qualification regulators for England, Wales, Northern Ireland and Scotland. These principles represent a new approach to regulatory intervention that is intended to ensure flexibility and encourage innovation in e-assessment.

1.4 Format and terminology

The issues and processes involved in conducting effective e-testing are different in many respects from those needed to facilitate the use of e-portfolios for assessment. This is why the guidelines are divided into two sections (3 and 4). It is possible that people will make use of only one of these two sections in their practical e-assessment work. However, the underlying skills and knowledge required have some areas in common. For this reason, and for ease of reference, roles and responsibilities are covered in a separate section (2) to help centres identify the skills that staff will need either to have, or have access to.

The body of the guide is followed by a series of annexes. These annexes include detailed documents designed to support the use of e-testing and/or e-portfolios. They contain tables, checklists, process guides and other resources that may be copied and used in e-assessment centres.

Section 5 offers a collection of e-assessment case studies, drawn primarily from centres involved in piloting the guide in its draft form. These illustrate not only examples of effective practice in the delivery of e-assessment, but also different ways in which the guide itself can be used.

Section 6 provides an overview of the Level 3 Award in delivering e-testing. Further details can be found in part 1.7 of this introduction.

There is also a glossary of key terms (section 7), drawn primarily from the larger e-assessment glossary produced by the Joint Information Systems Committee (JISC), to whom thanks are due.

Section 8 refers users to other sources of information that may be useful in the continuing development of e-assessment opportunities.

To ensure that terminology is applied consistently, specific terms and definitions are used as follows:

- ‘Centre’ is used in a broad context, encompassing temporary and permanent venues used for e-assessment as well as ‘virtual’ assessment centres.
- ‘Learner’ is used throughout, apart from where the guide refers to the conduct of the e-test, or to that part of the process, where the term ‘candidate’ is used.
- The term ‘teacher’ is used throughout the document, although it is recognised that a wide range of titles may be used to describe this role.

The only departures from these rules are in the case studies, where centres’ terminology has been followed.

1.5 Critical success factors

The guide assumes that a senior manager within the organisation will be responsible for development of the e-assessment strategy, and for successful implementation of the strategy.

It is intended to be of value to a wide range of people and organisations offering e-assessment opportunities to learners in the post-school sector. This range may include small organisations offering occasional e-assessment opportunities to individual learners, as well as large centres offering frequent opportunities for learners to undertake assessment for a wide range of qualifications.

Given this range, the guide does not assume a single operational model of e-assessment, nor a predictable range of job roles and responsibilities within centres offering e-assessment. It assumes that, within a single centre, there may be quite different arrangements for the management and delivery of e-testing, and for the use of e-portfolios for assessment.

However, there are critical success factors that need to be present in all centres:

- Processes must have demonstrable consistency and reliability.
- Staff must have the appropriate skills to manage and deliver these processes.
- Centres must be able to demonstrate their accountability for the quality of these processes to external agencies.
- A degree of flexibility needs to be maintained so that these processes and skills are able to evolve in response to technological improvements.

The guide seeks to address these critical success factors for both e-testing and e-portfolios. In so doing, it seeks to balance the potential impact of rapidly changing technology with the right of learners to be offered high-quality e-assessment opportunities.

1.6 Further information

The guidelines for e-testing and e-portfolios have been developed in different ways. These differences reflect not only the different technologies involved, but also the different assessment processes that these technologies have been designed to deliver. The facility to support both these processes through the application of technologies should not blur the distinctions between these approaches to assessment.

The e-testing guidelines are based on existing national and international standards developed over the past decade and continuously updated in response to technical changes. Foremost of these is the British Standards Institution code of practice for the use of information technology (IT) in the delivery of assessments (BS 7988:2002), which has now become an international standard (ISO/IEC 23988:2007). A representative of the group developing this international standard has been a member of the QCA project team.

The e-portfolios section of the guide has no such authoritative process standards on which to draw. The majority of existing guidance on the use of e-portfolios focuses on their use in the process of learning and formative assessment, rather than in formal assessment leading to credits or a qualification. This section therefore seeks to build on case studies and proprietary guidance documents issued by awarding bodies and technology suppliers. Sources of information used in its development are listed in section 8.

1.7 The Level 3 Award in delivering e-testing

In parallel with the development of this guide, the project team has been working closely with LLUK to develop units and an award within the new QCF that will recognise the skills and knowledge of people involved in the delivery of e-testing. As the use of e-portfolios for assessment develops, further units may be developed to recognise the different skills and knowledge needed to deliver these.

Details of the award are included in section 6. The units that make up the award are linked directly to the key roles in e-testing identified in section 2. The particular skills and knowledge that are recognised through the units of the award are identified in the text.

The award and units have been developed in collaboration with the Federation of Awarding Bodies (FAB) and have been approved by LLUK as part of its Teacher Qualifications Framework for England. The award is available for any awarding body to offer, and the units that make up the award may be offered as stand-alone units leading to the award of credit within the QCF. In Scotland these units will be considered with a view to linking them, where appropriate, to existing qualifications in e-assessment already recognised within the Scottish Credit and Qualifications Framework (SCQF).

2. Roles and responsibilities

2.1 Organising for e-assessment

This guide does not assume either a single operational model for delivering e-assessment, or a predictable range of job structures and responsibilities within organisations that offer e-assessment. Organisations need to consider what approach is most suited to the type and scale of e-assessment they propose to implement (e-testing and/or e-portfolios), given that an increasing number of qualifications are likely to include elements of e-assessment over time.

Recommendations in this document relate to staff available to the centre for e-assessment purposes; it is not assumed that any or all of them will necessarily be involved or employed full-time in an e-assessment role.

Staffing options may include:

- designating one dedicated e-assessment person per centre, or across a number of centres and/or locations
- dividing responsibility for e-assessment between a number of designated staff
- developing e-assessment skills as part of the skills set of all teachers, tutors or trainers in a team
- organising access to specific expertise, such as technical support, when needed

2.2 Key areas of responsibility

This guide assumes that a senior manager within the organisation will have overall responsibility for development of the e-assessment strategy, and for successful implementation of that strategy.

The balance of the key areas of responsibility in e-testing and e-portfolio contexts will vary considerably, and it should be emphasised that these are roles, not necessarily job titles. It is recognised that in some organisations all the roles may be undertaken by a single individual, while in others each role may be undertaken by a different person. The guide therefore supports a range of possible relationships between roles and people.

It should also be emphasised that, in many instances, these roles may form part of a number of responsibilities that are not focused exclusively on either the use of technology, or even on the process of assessment itself. For example:

- Technical support for e-testing may be part of a wider set of responsibilities for information and communication technology (ICT) systems.

- Support for learners using e-portfolios for assessment may be part of a wider set of learner support or teaching responsibilities.

The roles have been separated out for the purposes of this guide, and to assist in the identification of the individuals who will perform them.

The key areas of responsibility in the management and delivery of assessments through both e-testing and e-portfolios are:

- senior management (responsibility for developing and supporting an e-assessment strategy for the organisation)
- co-ordination/operational management (implementation of the e-assessment strategy and policies, and accountability for the e-assessment process)
- administration (responsibility for operational systems and processes)
- technical support (responsibility for the technology), whether provided in-house or via a third party
- working with the learner (maximising the potential for success through the e-assessment process)

In addition, a number of other existing roles will be changed by the use of e-assessment. These include:

- invigilation
- internal and external verification
- examination administration

The specific allocation of responsibilities may vary according to the organisation, and this should be taken into account when looking both at processes and training needs.

2.3 Generic skills and knowledge in e-assessment

All staff involved in e-assessment should have (or be trained to have) the following skills and knowledge, irrespective of their role in the e-assessment process:

- a general understanding of the principles of fair assessment
- an understanding of the importance of security in the conduct of assessment and a knowledge of the security measures required for e-assessment, especially those applicable to their own centre
- a general familiarity with the e-assessment systems and delivery platform(s) in use at their centre
- an awareness of possible malpractice in e-assessment and the precautions needed to prevent and detect it

- an awareness of legislation and codes of practice relevant to the operation of the centre (see section 8 for examples of such guidelines)
- the general regulations of relevant awarding bodies, and regulatory authority guidelines and codes of practice

Detailed information on staff knowledge and skills related to e-testing and e-portfolios follows in sections 2.4 and 2.5. The two aspects have been kept separate because the responsibilities within e-testing may not be the same as for e-portfolios, or carried out by the same staff.

These key roles and responsibilities also form the basis on which the formal recognition of e-assessment skills and knowledge is structured in the units developed through LLUK. The relationship between these roles and wider sets of skills and knowledge is reflected in the different ways in which credits achieved through these units may be included within LLUK's new Teacher Qualifications Framework for England.

A role matrix for e-testing has been developed to support the link between the guide and the units, and has been included in annex A2. The units themselves can be found in section 6, 'The Level 3 Award in delivering e-testing'.

A staffing requirements checklist can be found in annex A1, and this can be used both for establishing links to essential skills and knowledge and for identifying gaps and recruitment/training requirements.

2.4 Roles and responsibilities related to e-testing

Co-ordinating the e-testing process

This role requires the knowledge, skills and authority to:

- assist the development and implementation of strategies and policies relating to the use of e-testing in the organisation
- provide appropriate facilities and resources
- liaise with awarding bodies and/or technical suppliers
- agree operational processes and procedures to enable e-testing to meet specified quality standards consistent with awarding body and regulatory requirements
- ensure that sufficient and appropriate equipment is available for e-testing to be managed and conducted effectively
- identify and allocate appropriate staff to specific roles and responsibilities, and have a working understanding of what is involved and any likely key issues

- ensure availability of appropriately trained staff at each stage of the e-testing process
- ensure that agreed processes are followed and any issues are resolved in conjunction with awarding bodies, technical suppliers and other staff as required
- provide or arrange appropriate staff development (including their own) to ensure the centre's continuing capability to support e-testing consistently, reliably and effectively

E-testing administration

This role requires the knowledge, skills and authority to:

- set up and maintain the facilities and environment to required quality standards, including a basic understanding of the technologies involved
- set up and maintain agreed operational processes and procedures to ensure that e-testing meets specified quality standards consistent with awarding body and regulatory requirements
- help other staff to identify suitable e-testing opportunities related to units and qualifications
- set up the location and equipment to specified quality standards for an e-test session, including workstation layout, e-testing hardware, software, peripherals and communications links
- support the preparation of learners for e-testing, for example, registering them with an awarding body or assisting others in the running of practice e-test sessions
- run e-test sessions, including authentication of candidates, making final checks related to the centre, equipment and materials, and starting and concluding the session
- transmit candidate details and responses to the awarding body, store response files, communicate any automatic scoring and results, and obtain awarding body certificates when available
- deliver first-line resolution of administrative issues, liaising with other staff and contacts as appropriate
- report and/or escalate issues as necessary
- remain up to date with processes and procedures related to e-testing (through training or other staff development, and contacts with awarding bodies, for example)

Note: Some of the above activities may require technical support and troubleshooting on occasions.

Technical support

This role requires the knowledge, skills and authority to:

- provide technical support for any e-testing process or application offered by the centre, consistent with awarding body requirements and the centre's needs
- maintain the equipment in good working order
- in conjunction with management and other staff, identify appropriate hardware and software to enable the centre to deliver the volume and type of e-assessments required, including those delivered away from the centre
- identify the equipment and/or applications required to meet specific accessibility requirements of candidates
- follow agreed processes and procedures to ensure that e-testing is performed to the specified quality standards
- deliver first-line technical problem resolution
- liaise with other staff and any help desk provided by the awarding body or technical supplier
- report and/or escalate issues as necessary
- remain up to date with technical and general processes, and procedures related to e-testing (for example, through training or other staff development)

Note: The technical role noted in this guide (and the related e-assessor units) does not indicate that the role holder is capable of setting up an e-testing system without assistance. However, it does assume a suitable level of technical knowledge and experience to support the activities listed.

Working with learners

This role requires the knowledge, skills and authority to:

- ensure that learners are up to date with relevant centre processes and regulations related to taking e-tests
- provide information and guidance relating to e-testing, including (where necessary) identifying suitable e-testing opportunities related to units and qualifications that meet learners' needs
- be responsive to the principles of testing on demand
- prepare learners for e-testing, to ensure that they are not disadvantaged by taking e-tests rather than paper-based testing. This may include ensuring that learners:
  - understand how to use the technology effectively and appropriately

  - are able to identify any specific needs related to e-testing that they may have, and are provided with appropriate assistive technology and know how to use it
  - understand the regulations and procedures related to e-testing
  - are at an adequate stage of readiness before they are entered for any assessment leading to the award of credits or a qualification
- resolve and/or escalate issues that arise, and liaise with other staff as appropriate
- supplement automated feedback and learner results with additional feedback and guidance on next steps, counselling facilities should be made available if necessary
- remain up to date with general and relevant technical processes and procedures related to e-testing (through training or other staff development, for example)

Invigilation of e-tests

This role requires the knowledge, skills and authority to:

- verify that the environmental conditions of the e-testing location are suitable
- check that candidates have been authenticated to take the e-test
- check that candidates are familiar with the procedures and regulations for the e-test, and that they are logged on
- invigilate the e-test session according to the requirements of the awarding body
- supervise any planned and unplanned breaks
- report any emergencies, technical failures and irregularities to the centre manager, and ensure that these are resolved appropriately for the candidate
- document any such event, and notify the awarding body of the details if necessary
- supervise the conclusion of the e-test session, and ensure that the candidate's responses and associated information have been submitted to the awarding body

2.5 Roles and responsibilities related to e-portfolios

Managing the use of e-portfolios

This role requires the knowledge, skills and authority to:

- assist in the development and implementation of strategies and policies relating to the use of e-portfolios in the organisation
- provide appropriate facilities and resources
- agree operational processes and procedures to enable e-portfolios to be accessed and used effectively by all authorised parties, and ensure that these are followed
- liaise with awarding bodies and/or technical suppliers
- ensure that sufficient and appropriate ancillary equipment is available for the use of e-portfolios by authorised staff
- have a working understanding of what is involved in using e-portfolios and any likely key issues
- ensure reasonable availability of appropriately trained staff to assist with the use of e-portfolios
- provide or arrange appropriate staff development (including their own) to ensure continuing capability to support the effective use of e-portfolios

E-portfolio administration

This role requires the knowledge, skills and authority to:

- manage reports, for example:
  - generating a range of reports, both generic and those applying to learners, assessors and employers
  - customising reports to meet the specific requirements of the centre or the system's users
  - maintaining auditable online records of learner progress
- facilitate access to e-portfolios by others, for example:
  - setting up and managing access by authorised users, to enable them to access both the e-portfolio system and designated learners and evidence, remotely if necessary. Tasks may include sampling learner evidence, confirming the audit trail, and providing reports to internal verifiers and other assessment team members
  - providing access to standards and reports online
  - enabling others to view comments from assessors, and determining who views what data (access rights)

- facilitate use of the e-portfolio system, for example:
  - providing on-going advice and coaching staff and learners in the use of the e-portfolio system as appropriate
  - performing first-line resolution of any issues that arise, and reporting/escalating as necessary
- deliver first line resolution of administrative issues, liaising with other staff and contacts as appropriate
- report and/or escalate issues as necessary
- remain up to date with processes and procedures related to e-portfolios (for example, through training or other staff development, and contact with awarding bodies)

Technical support

Training and support for users to optimise the use of e-portfolios will be required regardless of which system is adopted.

Most systems are web-based and therefore do not require additional specialist centre-based technical support. However, it should be noted that where virtual learning environment (VLE) or intranet-based systems are used for e-portfolio purposes, these will require in-house specialist support, which is outside the scope of this guide due to the wide range of systems and processes that may be involved.

Working with learners

This role requires the knowledge, skills and authority to assist learners to:

- manage their progress online, for example:
  - planning, monitoring and reviewing learner progress towards assessment online, including action planning online with the learner and selecting appropriate additional courses for/with them
  - looking at draft evidence and giving online feedback to learners
- manage online information, standards and evidence, for example:
  - supporting learners in the collection, uploading and storage of a range of types and formats of evidence that recognises the potential of the technology (for example, the inclusion of multimedia evidence), including signposting materials that are held remotely from the assessment area of the e-portfolio

    Note: Any remotely held materials required for inclusion in the assessment must be demonstrably secure from amendment.
  - supporting learners in using the technology to produce the most appropriate, valid, authentic and sufficient evidence in line with qualifications standards
  - supporting learners in the effective cross-referencing of electronic evidence files to assessment criteria

Note: One evidence file (which may contain more than one piece of evidence) may need to link to more than one assessment criterion.

Assessment and verification of evidence in e-portfolios

Key messages (regulatory authorities)

'External and internal verifiers should focus on the accuracy and consistency of assessors' judgements against the requirements of the national standards.

The term 'collecting evidence' may have been interpreted too literally in the past and this has led to the notion of the portfolio as a means of collecting evidence.

The primary role of assessors is to make accurate decisions about the competence of candidates against the national standards, and they must be able to justify their decisions.'

Principles (regulatory authorities)

'Assessors must be able to make sound and consistent judgements about the acceptability of evidence. Centres have a responsibility for ensuring the competence of the assessors they employ, so that trust can be placed in the assessment decisions of assessors without the need to insist on paper evidence to back up every assessment decision.

When planning assessment, assessors should make use of a combination of assessment methods. Candidates should be encouraged to cross-reference and avoid an element by element or pc by pc [piece by piece] approach to collecting evidence, whether or not a paper portfolio is used for presenting evidence. 'Evidence rich' activities, 'project' or 'event' approaches to collecting evidence can contribute to a reduction in the overall amount of evidence collected. The presentation of evidence should not be confined to paper-based portfolios, but assessors must keep auditable assessment records.'

In view of these key messages and principles, in addition to existing knowledge and skills, the introduction of e-portfolio evidence will require assessors and verifiers to have the knowledge and skills to:

- understand how the use of e-portfolios will impact on the process of ensuring the validity, authenticity and sufficiency of evidence produced by learners
- incorporate the use of e-portfolios into the assessment planning process
- understand how e-portfolios may be used to improve the quality of evidence through the use of, for example, video, audio and other non-traditional evidence formats

- gain appropriate access to, and make appropriate use of, the facilities within an e-portfolio system, for example, the generation of reports and annotation of evidence with assessor comments
- support learners in the collection of evidence for e-portfolios
- sample learner evidence and monitor progress online

3. E-testing guidelines

3.1 Introduction

There are a number of influences on current thinking related to e-testing. These influences derive from technological developments, as well as from demands for more flexibility and innovation in the offer and conduct of assessment, as appropriate to 21st-century approaches to learning and employment. This section of the guide reflects these influences.

As the variety and flexibility of different assessment technologies and applications have developed in recent years, there has been a parallel demand to standardise some aspects of the conditions for e-testing in order to stabilise systems management and present user-friendly and accessible e-assessment opportunities to learners. Some of the pressures for standardisation of test conditions include:

- the increased ability of technologies to deliver more complex and flexible types of test
- the rapid rise in the number of tests being taken and the pressure on resources that this can cause
- the issues associated with on-demand testing
- the increasing range of settings/locations where tests are being undertaken when compared to paper-based testing

There are also some issues which relate specifically to e-testing as opposed to paper-based tests, such as:

- setting up the testing location to minimise distractions that may occur, for example, when it is also being used for e-learning or other purposes
- ensuring that the centre is capable of dealing with the technological aspects of e-testing, and that technical staff understand the wider issues involved in e-testing
- understanding the issues associated with candidates who may be undertaking the same tests at different times, or taking different tests at the same time
- where there is a choice of paper-based testing or e-testing, understanding the relative issues and benefits and discussing these with learners

These and other specific issues are covered within the guide.

In some instances, and for some types of qualification, e-testing arrangements (such as layout and procedures) have been well developed by some awarding bodies. Centres should refer to any specific guidelines produced by awarding bodies by whom they are approved (or intend to become approved) to offer e-testing, as well as the recommendations contained in this guide.

For information on centre organisation and the roles and responsibilities of staff involved in e-testing, please see section 2 ‘Roles and responsibilities’.

3.2 E-testing process guidelines and checklists

This section (3) of the guide covers recommendations and guidance for the different stages of the e-testing process. There are associated pro forma templates in annex A3, which can be used as checklists to ensure that all steps have been covered. The templates can also be used as an audit trail for problem identification and resolution, and could be used as evidence of having clear processes in place for inspection purposes. Signature boxes have been included on the templates.

3.3 The e-testing environment

General environment

Some aspects of good design, such as clearly legible screens and consistent positioning of seats, benefit all users, not only those with disabilities.

There are a number of principles that need to be followed to make sure that the general environment is suitable for conducting e-testing. These may be supplemented by specific regulations required by the awarding body.

It is not assumed that the e-testing environment is a dedicated test centre. Facilities used as test centres may also be used for other purposes at other times, or in some instances, at the same time as tests are being conducted. E-tests may also be conducted remotely from the centre.

Therefore, the following points apply to any location where e-testing sessions are held, as e-testing may be conducted away from the centre provided that all requirements are met. Any non-standard arrangements should have prior approval of the awarding body.

Preparation of the e-test location and equipment should be carried out well in advance of any e-testing session, so that there is time to correct any problems (see annex A5 for a checklist).

Candidates with disabilities should be advised to discuss their needs with the centre well in advance of taking the test to ensure that adequate provision is made.

Workstation design and layout

Note: According to ISO/IEC 23988:2007 (‘Code of practice for the use of information technology (IT) in the delivery of assessments’) the definition

of a ‘workstation’ in this context is ‘equipment provided for an individual candidate at an appropriate location, including IT hardware, seating and desk or table space’.

- To ensure a comfortable e-testing environment, attention should be given to the effects of computer use, especially the likely need for:
  - — increased ventilation, because of the heat generated by equipment
  - — adaptations to lighting to suit work both on and off screen
- The layout within a work space should take into account access for the learner/candidate — the workspace should not restrict or hamper access to the equipment.
- Each workstation should include the following features:
  - — a chair with adjustable seat height and a stable base
  - — an adjustable monitor, such that the input lines are situated between 20 and 45 degrees below the test subject’s horizontal line of sight
  - — a foot rest (if requested)
  - — freedom from glare
  - — sufficient depth of workstation surface to allow space for optimum positioning of keyboard, mouse and screen, including for left-handed users
  - — space for any printed or other materials or equipment that may be needed for the e-test, with a document holder if requested
  - — facility for making rough notes, if permitted. The paper used to make such notes should not be allowed to leave the testing environment, to ensure that the integrity of the test questions is maintained
- Space between workstations should be sufficient for comfortable working.
- If adjacent candidates are taking the same e-test (see note below), there should be measures to ensure that they cannot see each other’s screen, by providing either of the following:
  - — sufficient distance between workstations (a minimum distance of 1.25m is recommended)
  - — partitions between workstations

  Note: If arrangements have been made by the awarding body and technology provider to ensure that candidates do not receive the same e-test, for example, through the use of item pools or test forms, these specific restrictions need not apply.
  - — Centres should consider the need for some workstations to have additional space or facilities to cater for candidates with disabilities (for example, wheelchair access, extra equipment, larger monitor, and links to assistive technologies)

Hardware, software, peripherals and communications links

(See annex A4 for additional technical information and checklist)

- Where e-tests are delivered **on a network or intranet**, the server and connections should be adequate to give an acceptable response time at the candidate's computer or terminal, taking account of:
  - the average amount of traffic between candidate and server in one e-test (both frequency and size of transactions)
  - the likely maximum number of candidates at any one time
- Where e-tests are delivered **via the internet**, or in any other situation where speed of connections cannot be guaranteed, measures should be taken to ensure that candidates are not disadvantaged by inappropriate equipment or slow connections. It is therefore important that the centre:
  - monitors their infrastructure and/or equipment, particularly if changes are made to it
  - takes appropriate compensatory action if connection speeds become detrimental to e-testing, if necessary considering annulling the test in the event of problems
- The technology provider and/or awarding body should be involved as appropriate in discussing changes and issues of this sort.
- Each workstation should be equipped with hardware, software, peripherals and communications links to the standard specified for the e-test(s) being taken, and conforming to appropriate BSI standards (see section 8 and annexes A4 and A5).
- If sound output is required, either as part of the e-test or to assist candidates with special needs, headphones or separate areas should be provided to avoid disturbing other candidates. This may also apply to sound recording.
- Centres should consider the need for a range of assistive technologies, depending upon the expected needs of candidates and the provisions of the relevant legislation and guidance (see section 7).
- There should be adequate back-up provision in case of equipment failure. Provision can include:
  - spare workstations (of the required specification)
  - spares of easily replaced items (such as a mouse, or screen)
  - a back-up server if e-tests are delivered over the test centre's own network
- Hardware should be well maintained, with back-up equipment where possible to minimise the likelihood of failure during an e-test.
- Virus protection measures should be in place and kept up to date.

Other facilities and areas

- Some e-tests or candidates may require access to areas separate from the main area in which e-tests are taken. The reasons for this may include:
  - candidates needing special assistance or facilities that could distract others (for example, a helper or use of sound output and recording)
  - facilitating opportunities for practice e-tests

Security

- The arrangement of the workstations, and presence and position of the invigilator (and of video monitoring if used) should facilitate detection of any unauthorised activity by candidates, such as communication with others or use of unauthorised reference material.
- There should be appropriate security facilities to keep e-test content, correct responses, candidate responses and candidate details secure at the test location before or after the session, including:
  - physical security measures (normally including a safe) for any paper or removable electronic media
  - electronic protection for any information held on networks
  - securing the e-testing location and any related server/communication room(s) after confidential material has been loaded onto the network
- E-test content should be protected from unauthorised access until immediately before, during and after the e-test takes place. Candidate details and responses should be kept secure at all times.
- Consideration should be given to the need to remove all confidential data (including e-test content, responses and candidates' personal details) from generally accessible networks immediately after each e-testing session.
- If records of candidate responses are retained at centres, there should be measures to protect their security, including:
  - prevention of unauthorised access
  - prevention of tampering and substitution
  - destruction of files in accordance with the agreed timescale, for example, when receipt of the information has been confirmed by the awarding body or at the expiry of the period for external verification and possible appeals
- Security measures may include the following, as appropriate:
  - user ID and password protection of access to computers or networks
  - encryption of data
  - removal of records from networks as soon as practicable after the end of the e-testing session
  - storage of removable computer media in a safe
  - procedures for identifying records for destruction

- If responses are not intended to be stored at the centre, there should be measures to ensure that they are not inadvertently cached on the candidate's machine.

Note: Storage of data that includes personal details is subject to the provisions of the Data Protection Act 1998.

3.4 Preparing for e-testing

This section looks at the processes that should be completed prior to conducting an e-test session.

Registering with an awarding body

Candidates will normally be registered with an awarding body and entered to take their e-test at the centre where they undertake their learning programme. However, the test may be taken at a different centre or location, or indeed a test may be offered completely independently of any particular learning programme. In all instances it will be the responsibility of the centre conducting the test to ensure that all necessary candidate registration requirements have been fulfilled with the relevant awarding body.

- Learners should be assisted in making the appropriate selection of unit or qualification by:
  - explaining the specific e-testing options available
  - helping the learner to select the appropriate option(s) to meet their needs
  - explaining what support will be available to them at each stage of the e-testing process
- Learners should be registered and entered for assessment for the particular qualification or unit selected, in accordance with the specific requirements and arrangements defined by the relevant awarding body.
- Learners should be scheduled to take their e-test on a date that meets their own, the centre's and the awarding body's requirements, ensuring that sufficient time is allowed for preparation of the test location, equipment, materials and the candidate (see later sections of this guide for details on each of these aspects).

E-test location and equipment preparation

The location in which the e-test is to be conducted and its layout and associated equipment should be set up in accordance with the guidelines detailed in section 3.3, 'The e-testing environment'. See annex A5 for an accompanying checklist.

Centres should ensure that they have the relevant information about hardware, software and communication requirements from the awarding body well in advance of the e-test session.

This should include any assessment-specific information such as special fonts or character sets, or any reference materials or aids, like calculators, that need to be provided by the centre.

- The following technical checks should be performed before the start of an e-test, particularly if the location is also used for other purposes.
  - All necessary computers and peripherals (including spares, if available) are in working order.
  - The centre's server and connections (including communications links) meet the requirements of the e-test.
  - The computer date and time are correct.
  - Specific e-test software, if necessary, has been loaded, together with any other required software.
  - The assessment software works correctly on all the equipment to be used for the assessment, using material supplied by the awarding body.
  - If necessary, software has been configured to the requirements of the specific e-test. This may, for example, involve disabling help screens and spell-checks.
  - E-test software and storage of results are working correctly (if practicable).
- Centres should be aware of the following features of any assessment, so that they can be checked, and ensure that they are explained to candidates prior to taking the e-test including:
  - any fail-safe features that have been used in the assessment, for instance, to prevent the candidate from quitting the test by accident
  - what access the assessment allows to on-screen data and aids, such as calculators
- Any additional equipment or facilities required (either by the assessment or by the candidate) should be identified in advance, made available and checked to ensure that they work with the assessment software and centre equipment, so that candidates are not disadvantaged when taking an e-test.

Centres should obtain any necessary authorisation from the awarding body for the use of any particular assistive technology or device and, where appropriate, discuss with the awarding body any additional requirements, such as a relaxation of the time limit for a candidate with particular needs.

Materials preparation

Problems or issues that arise at this stage of the process should be fed back to the awarding body or allocated representatives for immediate resolution, as they may affect the feasibility or validity of the e-test.

Centres should have sufficient information (through the awarding body) to enable them to run the assessment smoothly and to answer candidates' questions.

The conditions relating to reverting to paper-based testing, should the need arise, should be agreed in advance with the awarding body

- The awarding body should provide clear instructions on use of the assessment materials. Centres should ensure that everything is valid and working correctly by performing the following checks on the assessment materials:
  - logging on or starting the e-test (and identifying how to end the test)
  - verifying that it is the correct and most up-to-date version of the e-test, if necessary
  - knowing how the particular assessment operates, in order to recognise any problems that arise, and know how to deal with them
  - ensuring that any necessary additional materials (such as calculators) and paper for rough notes, if permitted, are available if they are to be provided by the centre
- Centres should also check the awarding body's procedures for safeguarding the security of assessment content during transmission, and the centre's involvement in that process, such as procedures for covering:
  - notification of despatch and receipt
  - security measures (comparable to those for paper-based assessment, where physical transport is used)
  - any use of cryptographic techniques
  - the transmission process
  - ensuring the integrity of records
  - ensuring the integrity of assessment content received

Preparing learners for e-testing

Learners need to become familiar with undertaking e-tests, and to understand the differences between traditional paper-based assessment and e-testing to ensure that they are not disadvantaged by taking an on-screen assessment. This is particularly important where the learner is not familiar with using PCs or has not been exposed to any of the specific item types that can be used with e-testing, such as 'drag and drop' or 'hot spots'.

The centre is responsible for ensuring that learners are offered practice e-tests, ideally for the test system they will be using; that they understand that the purpose is familiarisation; and that they are aware of any differences between the practice tests and the actual e-test they will be taking that may have an impact on their success in completing the test.

- Centre staff need to understand the different types of practice e-test material that may be available, and be able to give appropriate explanation and support to learners in using these practice materials (both before and during the session if necessary), in order to help them prepare for formal assessment.
- Wherever possible, a learner should be offered a practice e-test linked to the qualification or unit they are undertaking.
- Practice material similar to the actual e-test should be provided, and should be made available in the appropriate format (for example, via the internet or on disk), taking into account any specific needs of the candidate(s).
- Two sources of practice e-test may be used: either an awarding body's own practice assessments, or generic practice assessments that mirror the feel and format of real e-tests. Guidance should be available from awarding bodies on the availability and use of such practice tests.

Running a practice e-test session

Note: As these practice tests do not lead directly to certification, they may be offered by any learning centre, whether or not it is an approved e-assessment centre. For practice e-tests, adhering to the strict e-test environment conditions is less critical.

- Centres should explain that a practice assessment does not 'count' towards credits or a qualification, and that its purpose is to provide an experience of the format, process, pace and pressure of a particular e-test, and to provide feedback on preparedness to succeed in a real test situation.
- Centres should draw attention to the help and fail-safe features of the software, and provide an opportunity to become familiar with navigation.
- A practice test should show:
  - all the relevant features of the software, particularly navigation, and any data protection or waivers, rules of conduct or similar content that the candidate may have to agree to
  - all item types used in the actual test
  - a sample of items similar in content, style and difficulty to those used in the actual test (not necessarily a full-scale mock test)
  - a sample of results and/or feedback

It is essential that centre staff can answer questions about navigation and the types of question used within e-tests, in order to help prepare candidates for taking a formal e-test. They may also need to answer navigation questions during the actual e-test.

- The aspects of navigation that should be covered can be summarised as follows:
  - how to navigate forwards and backwards through the e-test
  - whether it is possible to 'jump' to a different point in the e-test, and if so, how
  - the method for leaving items unanswered initially, and returning to them, if this is possible
  - whether it is possible to change responses to items, and if so how
- Learners should be given feedback on the results of any practice e-test they have undertaken, together with advice and guidance on their readiness to go on to formal assessment. They should be given additional practice opportunities if necessary, and support in the use of e-tests if this would be beneficial.
- The centre should ensure that learners are given advance information and guidance on taking an e-test:
  - any requirements to bring proof of identity with them when they come to take the e-test
  - any general centre procedures related to the e-test session that may affect the learner
  - any specific security features of the assessment that the learner needs to know
  - how to use any additional equipment and/or assistive technology
- As with paper-based tests, learners should be made aware of the following:
  - how the assessment will be conducted
  - any invigilation rules and regulations they need to understand, including the procedure for supervising breaks
  - when and how they should ask for assistance during the e-test
  - how the e-test will be scored (at least in general terms), and any relevant best practice in relation to completing the test, for example, not spending too long on any one question, and attempting all questions

  Note: Where scoring and result determination are fully automated and used for an assessment where the result 'significantly affects' the candidate, they will fall within the scope of the Data Protection Act 1998, and making the rules known to the candidate is then a legal requirement.

3.5 Running an e-test session

This section looks at the procedures for running and invigilating an e-test session.

Final checks relating to e-test location, equipment and materials

Before the designated start time for the formal e-test, the centre should check that:

- the e-test location and equipment meet the required assessment conditions
- all candidates have been registered correctly (otherwise they may be unable to take the e-test)
- any test-specific instructions (those provided by the relevant awarding body, for example) have been followed
- any agreed assistive technology is in place and any time extensions agreed and allowed for
- any issues identified have been resolved
- any individual logon passwords for the candidate(s) have been obtained — these may be supplied either by the awarding body or the e-test distributor

Authentication/confidentiality

The centre should also check that:

- candidates have been identified/authenticated according to centre regulations as agreed with the awarding body
- a seating plan has been made (if required by the awarding body), linking candidates' personal data to a specific workstation
- records of attendance have been completed and processed according to awarding body requirements
- candidates have been asked to sign a confidential disclosure agreement (if required by the awarding body)
- there are processes in place to ensure that confidentiality of candidate data is maintained

Final checks relating to candidates

Before starting the test, the centre should ensure that candidates:

- are comfortably seated (in the designated place on the seating plan, if there is one) with access to any agreed assistive technology if relevant

- are familiar with the e-test instructions, procedures and regulations, including how to navigate and answer items
- know the time limit (if any) and how the e-test will be terminated
- know how to request technical or emergency assistance
- have logged on successfully (or been logged on by the centre)

Planned and unplanned breaks

- For e-tests longer than 1.5 hours and where the candidate works entirely or almost entirely at the screen, there should be provision for them to take a break. This extended time should be known and approved in advance by the awarding body.

  Note: This may also apply where a candidate is allowed an extended test time due to a disability. In certain instances awarding bodies may permit an extension of this time limit for particular qualifications.
- There should be measures to ensure that there is no unauthorised access to the e-test during any break.
- The invigilator should control access to the e-test after the break.
- To restart an e-test after an unplanned break (that is, an emergency or a technical failure) the invigilator should:
  - control the restart in the same way as at the start of the test
  - ensure that candidates can re-access their previous responses where this is technically feasible and permitted by the regulations

Invigilating the e-test session

Note: In addition to the IT-specific recommendations, centres need to comply with the more general requirements of the regulatory authorities, awarding bodies and e-test suppliers. Centres also need to comply with any health and safety requirements, and safeguard the confidentiality of any personal data, including information relating to health and disability.

Unless specifically permitted by the regulations, candidates should not be given any help in understanding or answering e-test items. However, they can and should be given technical support if necessary.

General rules

- If the e-test has a time limit, timing should not begin until the candidate has had an opportunity to read the initial instructions and information relating to the test.
- If there is an option to revert to paper-based testing, the conditions relating to this should be agreed in advance with the awarding body and explained to the candidate.

- At least one invigilator should be present in the room or be able to monitor all the candidates throughout the e-test session.

  Note: In certain instances awarding bodies may set requirements for a specific ratio of candidates to invigilator.
- To fulfil their role the invigilator(s) will normally need to observe candidates' screens by patrolling the room.
- The invigilator(s) should ensure that general assessment regulations are observed.
- The invigilator(s) should ensure that candidates do not have access to outside information.

Candidate support

Candidate support needs to be available regardless of where the e-test session is being held, and suitable arrangements and processes should be determined for remote locations.

- Technical support in relation to navigation and usage should be available throughout the e-test.
- The centre should have agreed processes in place regarding access to technical help to resolve issues related to malfunction of equipment, software or the e-test itself, with the potential to re-book the session if this option is the least disruptive to the candidate.
- Other assistance to candidates may be available throughout the e-test session in accordance with the regulations for the e-test.

Emergencies, technical failures and irregularities

Invigilators should log all technical failures, delays and candidate complaints in case of appeal.

- There should be procedures for dealing with hardware, software and communication failures.
- Invigilators should record and report any candidate complaints of system delays or other unusual occurrences.
- If there are any situations where the candidate is thought to have cheated, formalised processes need to be followed for reporting to avoid conflict. All automated test results are only provisional to allow for any investigation.

Concluding the e-test session

It may be necessary for centre staff to check with candidates to confirm formally that they have completed the e-test and are ready to have their responses submitted, particularly if some items remain unanswered.

At the end of the e-test, centre staff should ensure that:

- the e-test software is closed as necessary (some may close automatically)
- any necessary back-ups are made and stored securely
- no unauthorised materials (for example, printouts) are taken from the e-testing location by candidates

3.6 After the e-test session

As these procedures will vary according to the specific e-test and awarding body concerned, there are no accompanying checklists. Centres may wish to develop documentation that reflects this aspect of the process.

Transmitting candidate details and responses

Centres need to ensure that they are aware of the relevant awarding body procedures for any e-test they administer, and can meet the required conditions for maintaining security and integrity of the associated information.

Depending upon circumstances, these procedures may include:

- notification of dispatch and receipt
- use of security measures comparable to those for paper-based assessments if physical transport is used (by disk, for example)
- use of cryptographic techniques for material sent electronically, especially via public systems
- use of transmission protocols to check integrity of records
- procedures for enabling awarding body staff to verify the authenticity and integrity of records received
- procedures for a back-up to be held at the centre, in secure conditions, at least until receipt has been confirmed

Storing response files at centres

On rare occasions records of candidate responses may need to be retained at a centre. If this is required by the awarding body, the section related to the e-testing assessment environment provides details of how these records should be held.

Equally, if responses are not intended to be stored at the centre, there should be measures to ensure that they are not inadvertently cached on the candidate's machine.

Feedback to candidates

Centre staff should be prepared (and if necessary trained) to supplement any automated feedback and results with additional feedback and guidance on next steps. If necessary they should be able to make counselling facilities available, particularly if the feedback is likely to be distressing.

This may involve the use of additional staff skills over and above the scope of this guidance.

- The level of feedback provided to the candidate by staff at the centre should be consistent with pedagogical decisions and the aims of the e-test, and this should also influence who is nominated to give the feedback.
- The level of feedback provided by the test system may consist of:
  - the overall result only
  - the score for the whole assessment, with sub-scores or results for sub-sections of assessment
  - the score for individual items
  - feedback on correct responses, together with reasons or explanations
  - hints for further study and reference to relevant learning material or information sources

  Note: Under the provisions of the Data Protection Act 1998, a candidate may request details of all his/her scores and sub-scores if they are stored separately.
- The following principles should be borne in mind when providing any feedback to the candidate:
  - presentation of feedback (whether on screen or on paper, in text, graphically or otherwise) should be clear, easy to interpret and supported by any necessary explanations
  - feedback from any assessment should maintain the confidentiality of the items
  - feedback from tests related to individual units should be designed to support candidates in making appropriate choices about routes to the achievement of whole qualifications

Awarding body certification

The processes and procedures involved in the provision of certificates are likely to vary between awarding bodies, so centres will need to ensure that they are aware of these in order to keep candidates informed of the arrangements.

4. Use of e-portfolios in assessment

4.1 Introduction

Using portfolios of evidence has long been part of the traditional assessment process for a range of qualifications. The use of e-portfolios in assessment has now also been adopted by many awarding bodies and accepted by the qualifications regulators. In the context of this document, an e-portfolio is defined as an electronic version of a 'traditional' evidence portfolio, not a wider learning portfolio. It consists of a system and process that enables secure, computer-based verification and assessment of evidence.

This guide is intended to assist staff in centres to:

- understand the key issues involved in using e-portfolios for assessment
- put in place appropriate systems and supporting processes
- ensure that people have, or acquire, the requisite skills to manage and use systems and processes efficiently and effectively

'Awarding bodies are moving quickly towards acceptance of electronic scripts. Paper-based systems will simply not be sufficiently scaleable, and e-portfolios will therefore be needed to support the formal qualifications system.'

(Source: British Educational Communications and Technology Agency (Becta) 'E-portfolios — Definitions and directions paper')

Terminology note: In this section of the guide, the word 'learner' is used to define the person developing the e-portfolio for submission to an awarding body, although it is recognised that at some point in the process, the learner might equally be described as a 'candidate'.

The term 'teacher' has also been used throughout but is intended to encompass other terms such as 'tutor' or 'trainer'.

As shown in the following table (from Becta's 'E-portfolios — Definitions and directions paper') e-portfolios can be used in a variety of ways. This guide will concentrate on the final assessment element of e-portfolios for qualification and evidence purposes, and will not include analysis of other aspects of e-portfolios.

A more detailed description of the different types of e-portfolios can be found in annex A7.

E-portfolio modes of usage

Assessment	Transition
For assessing or matching against specified criteria as in a qualification or job specification, for example, evidence for a key skill or NVQ	For providing evidence and records at transition points for transfer of pupil information from, for example, primary to secondary school
Presentation	**Learning**
For presenting information or achievements, often to particular audiences, for example, selected design drawings to show to a client or prospective employer	For personal and group information, often related to learning, reflection and self assessment, a record of learning goals, for example, achievements towards them and teacher feedback

(Source: Becta, 2006)

When used for assessment purposes:

- the information must be in a format capable of validation
- there must be a secure area to hold the evidence, to ensure its validity
- it must form part of an auditable trail (conformance to a defined process will aid this objective)
- evidence can be added over time to aid successful completion, provided that a valid, auditable process for this is adhered to

4.2 Scope

The scope of what can be submitted via an e-portfolio for assessment purposes may be anything from a small part of the evidence for a single unit, up to the complete evidence for a whole qualification, depending on the specific awarding body, sector or subject. In this sense, it reflects a 'blended assessment' approach similar to the now established concept of 'blended learning'.

The generic skills required for using e-portfolios for assessment will be basically the same regardless of which e-portfolio system is in use, although the intricacies of working with different e-portfolio products may vary. These generic skills are covered in more detail in section 2, 'Roles and responsibilities'.

As e-portfolios perform the same function as paper-based portfolios, the assumption is made within these guidelines that centres are already familiar with the use of portfolios within the overall assessment process.

A typical e-portfolio

E-portfolio systems range from a secure file storage function within a stand-alone system, to more sophisticated web-based products, or they may be part of a VLE. Centres may also choose to develop their own system. Whichever approach is selected, centres looking at introducing e-portfolios into their offer should consider how well the system supports the assessment process. A typical e-portfolio may include assessment evidence in the following types of format:

- text
- documents (for example, Word, PowerPoint, PDF)
- sound
- images/pictures
- multimedia, such as video

Awarding bodies have a part to play in this process as well. They should make centres aware of any specific technical requirements or constraints, such as file size, that may affect how evidence is provided. For example, it is perfectly acceptable (and often desirable) to provide compressed video clips, so that the capability of the system to store and transport evidence is not compromised.

4.3 Preparing to introduce e-portfolios

Drivers

There are a number of reasons why a centre may be considering introducing e-portfolios.

- Increasing use of e-assessment for both formative (informal, supporting learning) and summative (formal, often external) assessment is making e-portfolios more appropriate.
- Qualifications are already offered that provide an e-portfolio system for learners to upload and share their evidence with assessors and tutors.
- There is increasing use of e-portfolios for learners with practical experience who may not go into the learning centre but are assessed in their workplace (remote, work-based learners).

Capacity to manage and skills required

While technical functionality is obviously an important aspect of choosing an e-portfolio system (and is covered in detail later in this section), it is equally important to consider the human aspect of using e-portfolios.

Once a centre has decided it wishes to offer learners access to e-portfolios, as part of the assessment offer, and has identified which e-portfolio system meets its requirements and which choice of qualifications to offer in this way, it also needs to determine whether it has the capacity currently to manage the process, and has access to appropriate staff skills.

For instance, depending on the types of qualification the centre is involved with, a number of different people may need to be familiar with, and work effectively with the e-portfolio and its associated processes, for example:

- learner
- teacher
- other support staff
- assessors and verifiers
- workplace supervisors/managers

This introduces a different perspective on requirements, based on the process of e-assessment as much as the product itself; it is essential that the e-portfolio system supports the way the centre works, and that staff have the appropriate skills to manage it effectively.

A summary of the skills and knowledge required to use e-portfolios effectively for assessment purposes can be found in section 2, ‘Roles and responsibilities’.

- The staffing requirements checklist in annex A1 can be used (in conjunction with the functionality checklist in annex A6) to ensure that the right expertise is identified (or developed) within the organisation, including ensuring that people are aware of the activities they need to support, and have sufficient knowledge and skills to perform the associated tasks effectively.
- These checklists can also be used to identify activities that will involve specific centre staff and to highlight areas for improvement, either in relation to understanding the activity or familiarity with how the e-portfolio works. This can be used as the basis for identifying training needs for staff, or workshops for learners.

4.4 Benefits of using e-portfolios in assessment

Although it is possible to achieve the assessment objectives for most qualifications without the use of an e-portfolio, there are benefits in using electronic means to collect and monitor a range of different types of information. This enables the information to be held in one place, and to be accessed, edited (where appropriate) and assessed more easily than disparate items that are not held electronically.

Some of the advantages of an e-portfolio over a paper-based version include:

- tracking and identifying skills, knowledge and evidence gaps that require further work
- storing (and/or sign-posting) all the evidence in one place, which makes for ease of access, and reduces the chances of loss or damage
- the capability to access the e-portfolio from any networked computer, so the user has no need to carry anything around
- sharing the portfolio on a named basis, which enables learners to allow tutors and assessors to review their evidence without the need to photocopy documents — thus saving time and ensuring confidentiality
- transferring e-portfolio content to other systems and organisations
- supporting accessibility at all levels, from reducing the amount of paperwork or easing the development of an audit trail, to enabling the preferences and needs of all users
- supporting individual and group-based learning and assessment
- supporting multiple languages and cultures
- scaleability (the capacity to deal efficiently with higher volumes of evidence and learners)
- the potential to include new evidence types, such as video, that would not be possible without an electronically-based portfolio

(Source: article by Julian Cook, LTSS learning adviser and IMS Global Learning Consortium)

Top ten benefits achieved with e-portfolios (as perceived by 95 City & Guilds centres):

1. improved assessment turnaround time
2. improved student motivation
3. improved consistency of quality assessment
4. improved quality standards
5. more transparent internal communication
6. reduced trainer workload
7. enhanced IT skills of learners/staff
8. improved staff morale
9. Improved security/confidentiality
10. saved money

There are also benefits for external verifiers (EVs). For example, City & Guilds views e-portfolios as giving EVs the potential to assess the readiness of centres and candidates for visits remotely.

'E-portfolios facilitate more face-to-face, assessment-focused time during centre visits rather than discovering that candidates aren't ready to be assessed and looking for paperwork etc. E-portfolios do not completely replace the face-to-face contact that centres have with EVs. By providing a communication medium between centres, candidates and EVs, remote assessment can reduce the need for as many centre visits and allow visits to focus on centre enquiries and assessment.'

(Source: City & Guilds)

Assisting the assessment process

The regulatory authorities advocate three main approaches to collecting evidence for N/SVQ assessment:

- an assessor-led approach
- a candidate-led approach
- a combination of the two

Collecting evidence (regulatory authorities)

'In an assessor-led approach the assessor could take some responsibility for collecting and structuring evidence, and collect evidence through observation of performance supplemented by questioning. The candidate-led approach may be particularly appropriate if it is difficult for the assessor to carry out direct observation.'

Where e-portfolios are used, much of the assessment can be conducted remotely, which can be of real assistance to the process.

4.5 Key issues related to e-portfolios

E-portfolio technology, particularly for assessment purposes, is still evolving, and this is why the approach at this stage is deliberately to guide rather than to constrain usage. Issues such as those summarised below continue to be debated, and solutions will be sought and developed over time. This is seen as the only practical way in which to enable evolution of the technology, encourage the participation of interested parties in developing effective practice, and share both effective practice and lessons learned.

Although awarding bodies are not currently stipulating which e-portfolio a centre uses, centres should check that the e-portfolio system they intend to select meets with awarding body approval.

Strategic issues

It is important that the introduction of e-portfolio assessment is seen by the organisation as a strategic move. There are a number of different reasons why the use of e-portfolios may be under consideration. Assessment may not be the primary focus at the time of introduction unless some debate takes place to ensure that an overall understanding of what is required from such a system is shared across different subject areas and disciplines and at all levels of management.

Although there are many reasons why this is important, and some of these are mentioned elsewhere in this guide, there are several major implications of not achieving general agreement (or at least an awareness of when and why an e-portfolio product is being considered for selection).

- It could result in more than one e-portfolio system being brought in, meaning that some users may be required both to access and effectively use more than one system (including external assessors).
- It could be seen as a simple option to introduce an e-portfolio system that integrates with the existing management information system (MIS) or VLE, but this does not necessarily mean that it is the most appropriate e-portfolio for assessment purposes.
- Some organisations are going down the route of developing an in-house e-portfolio system. In these cases, it is important that due consideration is given to the hidden costs of using open source and in-house solutions — not least to the need to ensure that specialist technical knowledge is available to the organisation, to provide sufficient and effective support to both the system itself, and to its users.

Staff commitment and training

In the experience of centres who have already introduced e-portfolios, a key success factor has been the 'buy-in' of staff, as the process will involve them in developing new skills and practices, as well as in supporting learners to use the technology effectively.

Staff commitment is an issue for awarding bodies as well. The success of using e-portfolios within the assessment process is partly dependent on assessors, verifiers and others becoming proficient in working with the different e-portfolio systems in use at awarding body centres.

- Part of the process of gaining commitment and involvement from staff will depend on there being sufficient and appropriate training for them in the use and inclusion of e-portfolios in the assessment process, particularly as there is still a tendency for issues to arise around the use of technology in general for some staff.

- Specific training will need to be provided for staff (including teachers, assessors and exams staff) newly involved in delivering courses where e-portfolios form part of the process of assessment. This training may be supplied in part by the chosen supplier of the e-portfolio system. However, it is also useful to look at how e-portfolios will sit within and work with the centre's existing assessment processes and to involve staff in related development activities.
- The staffing requirements checklist in annex A1 can be used to identify the most appropriate people to perform different roles, and where there are gaps in capacity or skills. It may be possible for centres to have access to expertise in certain areas (such as technical or learner support) rather than having all skills permanently available in the centre.
- It is equally important to ensure that learners understand the part that e-portfolios will play in providing evidence towards a unit or qualification, and acquire the skills to use the e-portfolio effectively. It is essential to remember that learners should be neither advantaged nor disadvantaged by the use of technology. To achieve this, any staff supporting learners need to be familiar with the particular system chosen, together with any specific requirements of the appropriate awarding body or the qualification involved, and any technical requirements or constraints.

Ownership of the e-portfolio and its content

The issue of ownership of an e-portfolio is important. There is a need to ensure that the interests of the learner are maintained (including the issues of data protection, security, integrity and back-up), while recognising that some of the content of the e-portfolio needs, on occasions, to be accessed by others involved in the assessment process.

To clarify, the learner is the owner of the e-portfolio and can determine the access rights of others to its contents. However, as part of the arrangement for e-portfolio content to be used as evidence towards a unit or award, learners must agree that awarding bodies and assessors can access the evidence area of the e-portfolio.

Ownership of the e-portfolio is linked to access rights and security.

- It must be possible to restrict and enable access appropriately.
- Any content flagged or submitted for formal assessment must remain unchanged.

Technology issues

There are a number of issues related to the current development of e-portfolio technology that continue to be addressed, including:

- the capability of the system to allow learners to transfer their portfolios between different e-portfolio products and systems
- ensuring that the system is secure and that access to its contents, including any materials signposted for assessment that are held remotely, can be controlled by the learner
- ensuring that the system enables those who are authorised to access it to do so in line with the requirements of the qualification
- enabling users to modify the way that information is displayed/presented, where they have specific accessibility needs
- ensuring that the material is stored in such a way that it can be accessed and/or downloaded using a standard broadband connection, or remotely if required
- establishing and maintaining the capability of centres to access the data for management information purposes
- ensuring that there is sufficient storage and back-up capability to enable data to be held for the future
- future-proofing for different access devices, such as PDAs and mobiles, as well as PCs

Organisations such as Becta and JISC are considering these issues at a regional and national level, and are working with suppliers to set standards and targets.

It is equally important that centres becoming involved with e-portfolios are aware of the requirement to work towards interoperable systems and transferable content, so that they can support this development through their selection of e-portfolio systems. They should ask pertinent questions of e-portfolio suppliers to ensure that their approach is compliant with national thinking and does not impede progress towards the long-term goal of interoperability.

Note: The checklist in annex A6, and referred to in sections 4.6 and 4.7, can be used to facilitate this process, and can help to present a consistent approach when dealing with e-portfolio suppliers.

Centres are encouraged to keep up to date on progress in this area (the JISC Regional Support Centres should be a good starting point for information). The main technical issues that are likely to affect centres are:

- connectivity
- hosting

- access devices
- access, authentication and security
- accessibility, including navigation
- technical standards and interoperability
- security
- data transfer

4.6 Selecting an e-portfolio system

Overall principles

Aims of an e-portfolio

'[The e-portfolio system] should, where appropriate:

1. Be accessible by the learner, and elements to their practitioners/mentors anytime, anywhere.
2. Be supported by… awarding bodies and statutory authorities (for example QCA).'

(Source: Becta 'E-portfolios — Definitions and directions paper')

E-portfolios are still at a relatively early stage of development, and the primary focus for suppliers may be on products and features. However, there is a growing range of e-portfolio systems on the market, and it is important to know how to identify the most appropriate product for a centre's assessment needs.

There is usually no compulsion from awarding bodies for a centre to use a single specific system for supporting assessment through e-portfolios. Choices about how to support the use of e-portfolios are generally left to the centre, based on its own requirements. These may include e-portfolio usage (for purposes other than assessment) outside the scope of this guide.

This situation may evolve over time, with awarding bodies specifying the use of a particular e-portfolio product for certain qualifications. This will make features such as interoperability all the more critical when a centre is selecting or developing its e-portfolio system. As mentioned earlier, this could also lead to centres needing to support more than one system, and users having to become familiar with their use. Therefore, this is an issue that should continue to be debated.

Awarding bodies may have selection criteria that the e-portfolio is required to meet, and will need to approve the choice made. The qualifications regulators are supporting the development of a set of protocols to cover general and vocational qualifications. The points covered in these guidelines are in line with the protocols.

Initial checks

For centres that are part of a larger organisation or institution, it is advisable to check whether there is an e-portfolio system already in use (as part of a VLE, for example). If so, centres should determine:

- whether it contains a suitable assessment component (see 'Detailed functional requirements and issues' later in this section)
- whether it meets the protocols being developed and has the approval of relevant awarding bodies

Equally, if there is a requirement elsewhere within the organisation to introduce e-portfolios for a purpose such as formative assessment or personal development, it makes sense to work collaboratively to ensure that the product is suitable (and approved) for formal assessment purposes as well.

This will help to ensure that future development of e-portfolio products builds towards a point where learners can be offered a consistent entitlement wherever they are based, supporting the assessment process effectively and efficiently.

The possibility, in future, of the development of common centre approval by awarding bodies may also mean recognition for centres offering e-portfolio assessment, through a single mutually-agreed process of approval. In this context the selection and development of e-portfolios for assessment needs to be based on these emerging shared protocols.

Potential issues in selecting an e-portfolio system:

- There may be a temptation to take on the same supplier as is already in place for the organisation's MIS/VLE, and this should only be considered provided the system is suitable for assessment purposes.
- It is important to include both senior and middle managers in the selection process/decision, as there are likely to be different perspectives involved, and all should be taken into consideration for an important purchase that may have far-reaching implications.
- Ideally there should be centre- or organisation-wide agreement. This avoids the risk of taking on more than one e-portfolio system, which could result in learners and assessors/verifiers having to become familiar with a number of different systems and processes.

Involving staff in the decision-making process

A primary requirement of any system is that it should satisfy users' needs first and foremost. However, it can help to involve technical and other staff in the process of selection from an early stage, both to ensure that a usable and appropriate system is put in place and to develop a sense of ownership of the system and process.

It is also important to manage expectations of staff around the capabilities and constraints involved in using e-portfolios and associated technologies.

4.7 Functionality and fitness for purpose

There are a number of functional requirements that any e-portfolio under consideration should be able to meet if it is to be used as part of formal assessment towards a recognised unit or qualification. It is also worth comparing the methodologies of different systems, as some may be more user-friendly or closely aligned with the centre's way of working than others.

Key functional requirements — summary

Desirable features and functionality that organisations look for when selecting an e-portfolio system will vary according to their requirements. However, some key attributes are reasonably generic, and should be taken into consideration during the selection process.

A centre's functional requirements for supporting assessment through e-portfolios should be discussed with any prospective e-portfolio supplier, and can be summarised as follows (based on information from a Centre for Reading Achievement (CRA) report commissioned by Becta):

- The system should meet the approval of relevant awarding bodies, and any protocols that are developed for the acceptance of e-portfolios.
- Key users (such as learners, teachers, assessors, and verifiers) should be able to readily access and use those parts of the e-portfolio necessary for the performance of their role (with appropriate 'views' of the data), and remotely if necessary.
- The system should support secure use and the authentication of user information. It should be possible to limit or control access in a variety of ways, from complete read/write access to all areas, to complete prevention of access.
- It should be easy to use (for learners, assessors, verifiers and others), including an appropriate level of accessibility for learners with special requirements. It should provide a user-friendly approach to collating a portfolio of evidence, which will need to contain definable work in progress and evidence ready for assessment.

- It should enable efficient transfer of data to other systems (for example, for registration of learners).
- It should enable good visual presentation of evidence.
- It should be capable of future interoperability/integration/portability (the supplier should be aware of the need to work towards interoperability of e-learning and e-assessment systems), for example:
  - between e-portfolio and e-learning environments
  - within one awarding body and across awarding bodies
  - with the learner achievement record (LAR), currently under development as part of the QCF, and other developments underway to recognise wider achievement (for example within the Curriculum for Excellence programme in Scotland)
- A suitable range of content formats should be supported, including multimedia.
- It should have bandwidth suitable to cope with the amount and type of traffic anticipated, and support both broadband and dial-up access, as users will not necessarily have broadband access under all circumstances. In addition, it should not require remote users such as assessors and verifiers to have specialist software in order to access the system.
- It should have commercial support and dedicated training for users (not just technical/navigation elements).

If a system falls short in any of these areas, it is worth checking with the relevant awarding body (or bodies) on how critical this area is to gaining approval for the system's use in e-assessment.

A more detailed look at these requirements and issues is provided below, and a checklist to assist the process of selection can be found in annex A6.

Detailed functional requirements and issues

This section looks in more detail at the main requirements and issues involved in selecting an e-portfolio, and the notes in this section match the accompanying checklist in annex A6.

The requirements (listed on the checklist and expanded here) can be used to document comparisons between different e-portfolio systems, and to help to determine whether they are appropriate for use as part of the assessment process.

The section is based on information used by organisations such as awarding bodies in determining whether a particular system is suitable, and looks at a wide range of functional criteria.

The checklist includes a ‘priority’ column, so that centres can document and refer to their priorities when checking the functionality of different systems.

1 Acceptability/suitability of system

It is important to check that the system you are considering is approved by the awarding body/bodies you wish to work with. Equally, it is worth looking at any existing e-portfolio system currently in use elsewhere in the organisation, to determine whether it is suitable for e-assessment purposes.

2 Scope

If the centre (or wider organisation) wishes to use the e-portfolio for other purposes (for example, personal development or diagnostic and/or formative assessment), it is important to establish in advance whether and how the system caters for these additional uses.

3 Accessibility

The e-portfolio needs to be easily accessible by appropriate staff, learners, assessors and verifiers, whether at the centre or remotely. Awarding bodies will also need to access the system for compliance checks and in the case of queries or complaints.

The system also needs to support any access devices appropriate to the centre’s users (learners or staff). Other aspects of accessibility should be considered, such as how simple the process is for transferring documents and/or evidence between relevant users.

Authorised users should also be able to access groups, individuals or learners on specific programmes, for the purpose of managing and/or monitoring progress.

4 Monitoring learner progress

It can be helpful to determine who needs to monitor learners’ progress, and how easy this is to do on each e-portfolio system you consider. For instance, apart from being user-friendly and efficient, there should be the facility to observe or be notified when a learner has completed a particular area, and for designated users to view comments from internal and external assessors. It should be possible to set appropriate access rights (for example, read-only) for all users.

5 Cross-referencing

A number of qualifications require evidence to be cross-referenced, so it is important to establish whether this is possible, and how intuitive and usable the process is.

6 Reports

Centres need to establish how flexible and easy it is to use the e-portfolio system to generate and customise reports, so that they suit the needs of the range of users who will require them.

7 Audit trails, security and authentication

There should be a clear assessment tracking system that includes a detailed audit trail, and it should be possible to control usage in a range of ways, for example, security passwords or IDs, read/write access rights and electronic storage of sample signatures or handwriting.

Access to the internet should be secure and encrypted, with access rights ensuring that only authorised users have access to specific areas of content, particularly in relation to assessment records.

Most critically, it must be possible to 'lock' completed units so that it is impossible to change evidence after it has been submitted for assessment. Data protection requirements must also be met.

An associated security issue is the kind of back-up facility provided in the event of a system failure.

8 Ease of use and quality of presentation

Some of the issues in this section are subjective, but overall the system should be both user-friendly and reasonably uncomplicated to use, otherwise it is likely to become an unpopular medium. There are a number of points that can be looked at and discussed that will help to establish how intuitive the process will be for staff and learners who may not be technically advanced.

Things to consider are:

- how easy it is to store evidence in a variety of formats, such as text, sound, images (pictures and graphics) and video
- whether the system provides good visual presentation of evidence
- whether the system uses standardised templates, and if so, whether these seem to be simple and work well
- what facility there is for customising the system for use by learners with special requirements
- whether it is possible to make links to other documents (such as centre policies and procedures, or qualification documentation) that are stored on other systems
- whether e-portfolio content can be transferred to a portable memory device if necessary (for example, CD, DVD and USB key)

9 Internal and external assessment

Assessment of learner evidence is clearly an important issue. Access to appropriate content and to learners should be a reliable, secure and user-friendly process, to ensure that electronic assessment is seen as beneficial and appropriate to these users.

Accurate, auditable records of assessment must be maintained, such that for each assessment decision the following information is needed:

- Who was assessed?
- Who conducted the assessment?
- What was assessed?
- When was it assessed?
- What was the assessment decision?
- Where is the evidence located?

This information should be endorsed with the candidate's and assessor's signatures and dates. Records of assessment must be audited by the external verifier and must be held by the centre until the awarding body authorises their release.

It is therefore important that the e-portfolio system can support such a process.

10 Communication/links

It is also useful to establish how user-friendly and widespread the communications aspect of the e-portfolio is. Users will often wish (or need) to use the centre's e-mail system, have webmail accounts or link to the centre's MIS and/or VLE, and will find it cumbersome to have to access all these systems separately.

11 Archiving and retention

All material should be backed up, and the e-portfolio system must meet a number of regulatory requirements around storage and archiving e-portfolio content used for assessment purposes, such as how long e-portfolios must be kept, and what is done to safeguard them against modification. It is worth establishing with the awarding body what their requirements are in this area. It is also worth checking that the content can be retrieved by the learner at a later date, or transferred to an alternative system — for instance, if the learner moves to a new centre — and if so, the process for this.

12 Induction/training/support

It is important to determine to what extent the e-portfolio supplier (whether the product is bought in or developed internally) would provide training for staff; whether this would extend to awarding body assessors if required; and

any additional cost of such training. Some suppliers also offer guidance in using their system effectively as part of the assessment process, rather than limiting it to navigational and basic usage of the system.

Allied to this, it is important to identify the following:

- what help is available on an on-going basis
- what the response time is, and how support is provided (for example online, by e-mail or telephone support)
- whether there is the potential for technical support to be supplied in-centre if necessary

13 Reference sites

It can be invaluable to see the e-portfolio in use in other organisations, and to talk to staff using it, particularly in centres that are similar in size, scope and organisational method. Suppliers should be willing to provide contact with such reference sites.

5. E-assessment case studies

5.1 Introduction

A substantial number of organisations and awarding bodies now offer e-testing as part of their assessment methodologies. In addition, a number of organisations are starting to consider which e-portfolio system to select, and how to manage the associated processes. Others are already using e-portfolios, but may wish to review their processes.

This guide has been piloted in selected centres in England, Wales and Northern Ireland, and resulting case studies and examples from these organisations have been included in this section. These experiences may be of interest and assistance to others looking at e-testing and/or e-portfolios, whether with a view to introducing them within their own centre or improving existing practice and staff skills.

It should be noted that all the organisations involved were at various stages of their own projects on which these case studies are based. There are, therefore, significant differences between the case studies, the amount and type of information available, and the extent to which the developments are 'complete'. Revisions and updates will be posted on the efutures website.

The pilot process was undertaken by the qualifications regulators for England, Wales and Northern Ireland, and where appropriate the results will be reflected in changes to this guide. SQA would welcome case studies from centres involved in e-assessment in Scotland. If you have experiences you would like to share of either e-testing or the use of e-portfolios in assessment, please contact Christine Wood (**christine.wood@sqa.org.uk**). We may be able to include them in future versions of this guide, or on SQA's website (**www.sqa.org.uk**) or the efutures website (**www.efutures.org**).

5.2 Case studies

Advice NI

Area	E-portfolios
Programmes supported	NVQ levels 2, 3 and 4 in Advice and Guidance
Awarding body	Open University (OU)
Number of learners covered by this case study	20
Contact	Fiona Magee

Background

Advice NI is a voluntary sector organisation that provides a range of services in Northern Ireland to support a professional advice and guidance service across the community. One aspect of providing this support is to offer professionals working in the sector the opportunity to gain appropriate qualifications. Advice NI undertakes this through programmes of supported distance learning. This includes a number of relevant NVQs which are accredited by the OU awarding body.

Advice NI is based in Belfast and its learners are spread throughout Northern Ireland, which has proved challenging for Advice NI both in terms of providing support to learners and undertaking assessment. In 2006, this led the centre to consider how it might use an e-portfolio system to address these challenges.

Issues

The first issue that needed to be addressed was the choice of system. Ideally, the organisation wanted a VLE that would enable it to combine the provision of learning material with an e-portfolio system. A major barrier was cost — as a small voluntary organisation many of the commercially provided systems were beyond the budget available. Furthermore, Advice NI felt it did not want to be 'tied in' to a bespoke system.

For these reasons, Advice NI chose Moodle, a free, open source software package. While there is a strong online community for Moodle, Advice NI felt that contract support was needed in the first instance to ensure the system was up and running successfully and to populate the learning materials. Consequently, the organisation put out the tender to a number of companies to both develop online learning material and provide Moodle support.

The first group of 20 learners started their programme in January 2007 and are due to complete in June 2008. Issues to date have included:

- Ensuring that all the learners were confident in using the system. Advice NI decided to run a half-day workshop to introduce the group to

the system and ensure that they all had the minimum IT skills necessary to use it, for example, using a scanner. A further IT skills workshop was held in early May.

- Ensuring that everybody using the system was aware of the facilities Moodle offered and how Advice NI was expecting them to be used.
- Undertaking one or two 'fixes' or 'workarounds' where it would appear that the system could not offer a particular facility. For example, Advice NI wanted to use the blog facility within the system as the particular area of work required assessors to see journals of learners' thoughts and activities. However, it had not been possible for the blog facility to be configured so that the assessors could view individual learner blogs.
- Ensuring that learners had access to support from other learners, not just from the assessors and tutors. This has been achieved by a 'buddy' system and use of the discussion forums within the VLE.

Progress

Advice NI is still learning what the system can offer and how it can be used.

In this sense the process is different from introducing a commercially based package. A significant amount of learner material has been produced and this is integrated with the assessment requirements in a very effective and engaging way. This ensures that the collection of evidence is not seen as separate from the learning support. Advice NI has also begun using the system to monitor learner progress and assess learner evidence.

The organisation found the guide to be a very useful document to raise awareness of a number of issues within the team that may otherwise not have been considered.

At the time of this case study (April 2007) it is too early to assess whether learners prefer the electronic system to the use of paper. However, feedback from learners so far has been very positive about their overall online experience. Advice NI cannot yet assess whether some learners might complete early, as they are only a third of the way into the programme. But there is no evidence to suggest that learners will need more time and early evidence suggests that some will need less.

Advice NI has actively involved its awarding body, which has been very supportive of the development. The organisation is currently awaiting feedback from the OU on its use of Moodle.

The CADCentre UK Ltd

Area	E-testing
Programmes supported	7262 IT Users and Practitioners 4353 Auto CAD 4412 Business and Administration
Awarding body	City & Guilds
Number of learners covered by this case study	800
Contact	Wayne Fisher

Background

The CADCentre UK Ltd offers training for employed and unemployed candidates, specialising in IT and Engineering, and has training centres strategically positioned along the M4 corridor. It set up an e-testing system four years ago upon which it is now heavily reliant, with around 800 candidates currently using e-testing.

Issues and actions

Generally, the CADCentre has found the e-testing software to be reliable. However, when trying to deliver the e-tests 'on-site' at an employer's premises, there are issues with the reliability of the software, which sometimes fails to download exams correctly. Wayne Fisher says, 'Having the option to deliver the e-test on-site is brilliant as it falls into line with the assessment strategies in place. However, due to the potential unreliability of the software this can prove somewhat difficult. Overall, the e-testing idea is a brilliant one, however the software needs to be more reliable in order to give assessors confidence in the delivery of the tests on-site.'

To combat this unreliability, the CADCentre has liaised with the manufacturer of the software, who has taken steps to overcome this issue. The original version of the testing software has undergone numerous updates and changes to ensure that candidates are able to sit the tests without any major problems. The CADCentre also keeps the awarding body informed of any problems, so that the body can feed these back to the e-testing software developers.

Using the guide

The CADCentre had already implemented its e-testing software before the guide was developed. However, they believe that if the guide had been available then, it would have been very useful in providing some indication of the personnel required in order to set up a successful e-testing process and the individual roles and responsibilities.

Feedback from candidates

The CADCentre reports that all candidates have found the e-testing method a lot easier and more user-friendly, and the majority of candidates commented on the ease of use of the software and the ability to review their answers.

The feedback generally received from candidates has been that they are happy to carry on with e-testing. However, not all qualifications offered currently support this and the CADCentre hopes that developments will enable e-testing to be implemented for more qualifications and at all levels wherever possible.

Success rates

Although candidate success rates have not improved in themselves, the introduction of e-tests has enabled the CADCentre to have a quicker turnaround of completed candidates. The tests can be sat when the candidates are ready rather than when designated by an awarding body, and learners can register and sit the exam whichever day and time suits them.

Benefits

Generally the CADCentre is happy with the e-testing package, as its flexibility brings many benefits for both the training centre and the candidate. The centre feels that e-testing works extremely well with the qualifications it currently offers, and that a successful e-testing operation can be achieved with minimal cost.

For other centres wishing to start implementing e-testing, the CADCentre would suggest using the guide to help make the transition period from paper to e-testing run as smoothly as possible, as the guide gives a clear indication as to the personnel, responsibilities and infrastructure required.

In relation to running e-tests, the CADCentre suggests that the process recommended in the guide is given serious consideration by other centres, ‘as it allows the assessor to fully accommodate the candidates’ needs, with tests carried out seven days a week and 24 hours a day if necessary!’

Chartered Institute of Purchasing and Supply

Area	E-testing
Programmes supported	Level 2 introductory certificate in Purchasing and Supply
Awarding body	CIPS
Number of learners covered by this case study	500–600 in 2007/8
Contact	Amanda O'Brien

Background

The Chartered Institute of Purchasing and Supply (CIPS) is a small awarding body with learners spread across both public and private centres in the UK and worldwide. CIPS offers a wide range of qualifications, primarily at level 3 and above. However, CIPS recently decided to introduce a level 2 qualification and deliver the associated examination via an e-test.

One reason for deciding to use e-testing was the expectation that a number of the learners for the qualification would be based outside the UK, and they considered that it would be both flexible and cost-effective to use an e-testing system from the beginning of the new qualification. This qualification is the first to be offered at this level and the first to use e-assessment.

CIPS is now in the process of signing up centres to offer the new qualification and undertake the approval process to offer e-testing. The tests will initially be available on four weeks' notice within a 9am–5pm support window, using fixed papers from a test bank. The market for the qualification will be primarily those in employment and, with this in mind, assessment is through standard multiple choice question (MCQ) papers. Following the initial period of system testing and familiarity, CIPS intends to offer tests on a 24/7 basis (world-wide and across time zones) and to extend their use outside the UK beyond an initial small group of overseas centres.

Issues

Initially, CIPS found it difficult to find impartial advice and guidance on how to approach e-testing as a small awarding body, and it is still concerned that the smaller awarding bodies find it difficult to access impartial e-assessment advice and guidance. There was also concern that the overall reputation of CIPS qualifications should not be compromised by any negative perceptions of the use of e-testing, either in terms of test content or of the way the e-testing was conducted.

Having chosen a technology partner and designed a system to meet its needs, CIPS found the guide extremely valuable in providing:

- the necessary information to develop its own e-testing guidance documentation
- an application process for centres wishing to become test centres
- the design of the training programme that centre staff will need to undertake for approval to offer the qualification and use the e-testing system

CIPS has used appropriate parts of the e-testing sections in full to ensure that the centres will meet its requirements and standards. Each centre will be required to install and test the software prior to live testing and the centre staff will use guidance based on the role matrix to ensure that they meet CIPS's quality standards.

Progress to date

At the time of this case study (June 2007) the application process is well advanced and the initial tests have been written to meet the needs of the qualification specification. An initial, small group of centres will pilot the system and the tests later in the summer. CIPS then wants to ensure that it can provide adequate geographical coverage of test centres that will enable candidates who are not attached to a learning provider to access the tests.

Future developments

CIPS is keen to ensure that its examination staff undertake the appropriate LLUK units as these become available, and will encourage staff in its centres to do the same.

CIPS also wants to investigate further use of e-assessment, perhaps using an e-portfolio system to assess some aspects of its higher level qualifications.

EAGIT Ltd

Area	E-portfolios and e-testing
Programmes supported	NVQ level 2 in Performing Engineering Operations
Awarding body	EMTA Awards Ltd (EAL)
Number of learners covered by this case study	30–40
Contact	Keith Franklin

Background

EAGIT is a long-established private sector training provider based in Norwich. It is primarily engaged in training for the engineering sector and runs a wide range of programmes including working with schools at 14 to 16, apprenticeships and bespoke industry-based training.

Traditionally, learners have attended EAGIT's Norwich facilities for training and assessment. However, in some cases this requires learners to travel significant distances, and also restricts the area within which EAGIT can operate.

EAGIT has been operating e-testing for some time for areas such as key skills testing. Last year it decided that one way to provide a more flexible offer to employers and their employees would be through the use of an e-portfolio system to capture evidence in the workplace. EAGIT saw a number of advantages of using e-portfolios, particularly for the group of adult learners it was planning to use them with initially.

- Learners would not have to maintain a large portfolio of paper-based evidence.
- All the assessment observations undertaken could be put directly onto the system and signed off immediately.
- Evidence could be collected in a variety of forms, including:
  - photographic or scanned evidence of documentation
  - video evidence of performance tasks
  - video records of answering knowledge questions
- Trainees could upload evidence for the assessor using the internet.
- Indications of progress would be on-going and immediately available.
- Assessors, verifiers and external verifiers could carry out their work remotely.

Progress to date

EAGIT undertook a detailed procurement process for its e-portfolio system. The final choice was based on one key consideration: that the system chosen enabled the assessor to mirror portfolios on the e-portfolio system server by synchronising them to a laptop. The assessor could then take the laptop to the workplace, work with the learner, add evidence through the laptop and, if an internet connection was not available, synchronise it back to the e-portfolio system server on returning to 'base'.

In late 2006, the system was set up and the first EAGIT staff trained. A small group of learners on Train to Gain programmes based at a number of employers began developing e-portfolios using the system. Initially, the assessor would collect the evidence on visits, review it with the learner and upload onto the laptop for later synchronisation. However, a number of the learners have now gone one step further and begun sending evidence to the assessor by e-mail, and EAGIT is confident that, in due course, some learners will gain the confidence to access the system directly and upload their own evidence.

EAL has worked alongside EAGIT to monitor these developments and is actively discussing how it might engage with the system to undertake external verification. EAL is also encouraged by the ability of the alternative types of evidence being gathered to immediately demonstrate appropriate and verifiable learner competence.

Issues

The relatively modest level of activity to date has not raised many issues, and EAGIT is very pleased to have moved forward fairly quickly, with a number of learners having populated significant proportions of their portfolios. However, while most employers have been supportive of this way of working, one or two have been less so. Extending the use of the system to other programmes will require some active 'people engagement'. This will include other staff within EAGIT, employers and awarding body external verifiers, as well as the learners themselves.

While there have been no insurmountable technical issues, if learners begin to actively access their own portfolios, or even wish to use e-mail to submit evidence, the issue of access may become important, and for a number of older learners using technology may present a skills issue. However, to date the learners have been very positive, with no problems in using video or photographs to collect performance evidence and only one or two not happy to be audio recorded.

Next steps

EAGIT has deliberately kept the initial introduction of e-portfolios to a manageable number of learners and wishes to see the issues raised by a complete cycle of activity before extending their use to other groups. However, the training provider is already considering which other learners

could benefit from the use of e-portfolios. For example, there are advantages for level 3 learners who, in addition to performance evidence, produce other evidence using word processing.

EAGIT has also begun to consider how to change its patterns of work and visits. Its 'operational' area has already been extended with the Train to Gain group, where learners have been recruited across eastern England and the East Midlands because they do not need to attend the facilities in Norwich.

Other developments

EAGIT has used the guide as a way of benchmarking its processes, particularly for e-testing. It has used the roles and responsibilities model as a way of changing the way it organises e-testing. For example, it helped the training provider to confirm a change that it had already initiated by bringing in a person to administer e-testing on an organisation-wide basis.

Hyfforddiant Mon Training

Area	E-testing and e-portfolios
Programmes supported	E-testing currently operates for the following qualifications: ♦ technical certificates for Hospitality and Catering, Retail and Customer Service ♦ basic skills diagnostics on desktop and laptop computers ♦ European Computer Driving Licence (ECDL)
Awarding bodies	City & Guilds, EDI/Goal, GQA (Glass and Glazing), EAL
Number of learners covered by this case study	6 Catering and Hospitality (e-testing)
Contact	Alan Jones

Background

Hyfforddiant Mon Training is a DCELLS-approved work-based learning provider that operates under the umbrella of the Isle of Anglesey County Council. Almost all students recruited are placed/employed within industry, commerce and business, or within the local authority.

The objectives of its pilot were to:

- provide initial feedback on the guide related to its use for the centre (desk research)
- provide an improved e-testing process for six Catering and Hospitality learners
- use the guide to help select a suitable e-portfolio system

Use of the guide

As Hyfforddiant Mon has been operating an e-testing facility for the last three years, the guide helped the centre to plug the gaps in its existing strategy. It found that the e-testing role matrix was particularly useful. The guide was also used to improve on existing systems and structures of the team and the centre is still in the process of adopting most of the guide's suggestions.

Commitment to e-testing

Hyfforddiant Mon has made further financial commitments to e-testing by providing internet access within other training rooms at its centre, which will enable further capability for e-testing.

For Catering and Hospitality learners, laptops are being provided to staff to enable them to visit work placements with a view of carrying out online

e-testing at the place of work. Careful planning will be needed to take into account requirements for examination conditions and the guide will help with this.

Selecting an e-portfolio

For the pilot the administration/IT team were asked to look at and use an e-portfolio system, as this team were best placed to determine which system would be the best for their use.

At present, Hyfforddiant Mon is still at the stage of deciding which e-portfolio to pilot. To help decide which system to select, the centre will be using the functionality checklist in annex A6. The cost of the systems will also be taken into account.

Due to the relatively short interval of time of the pilot period the centre has not moved as far forward as it would have liked. However, three systems have been demonstrated. Two were relevant for the purpose but the third was not. Before making a final decision, the centre wants to look at more systems.

This careful approach is partly due to the need to consider the council's procurement rules if purchasing above a certain limit. Costs will have a major influence on choice. One quote so far is for £3,500 for 20 users, which would have major implications in terms of on-going costs, so the decision is not to be made lightly. Hyfforddiant Mon says, 'From experience we know that this sort of decision can be costly and time-consuming if we get it 'wrong'.'

In the meantime, this has prompted the centre to develop a system devised in-house, which it admits is far more basic and offers at the moment a bank of resources. However, it gets Hyfforddiant Mon started down the e-portfolio route.

Key issues encountered to date:

1. Convincing staff that e-assessment is better than conventional systems has been a challenge. Current achievement rates have increased but other factors as well as e-assessment may have contributed to this.

2. Staff development issues in learning how to use new software systems and new technological advances are proving costly. It is hoped, though, that this investment will pay dividends in the returns that the centre and learners will receive as a result of e-testing.

Staff who have been identified as having a significant role in e-assessment are well-qualified and have considerable experience. These members of staff attend forums and events linked with e-learning. The centre looks to these people to provide training and assistance for other members of staff.

Feedback on the guide

Hyfforddiant Mon says that the guide is helping with decisions on matters which need to be addressed, and it believes that without the guide less informed decisions might have been made. However, the centre also feels that the guide is heavily weighted towards larger organisations, and that it would be helpful if a condensed/summarised version for smaller organisations could be developed.

Conclusions/next steps

The centre is comfortable that e-testing has been appropriate for its uses. It hopes to expand this facility within the organisation to cover other vocational areas.

In the main, e-testing has been used for MCQ. This is seen as an excellent way to carry out this kind of assessment as the results are fed back quickly. The centre has also indicated that it would like to increase its e-testing provision steadily in future years.

In relation to e-portfolios Hyfforddiant Mon needs to conduct more research to determine which system suits its needs best. It recommends the guide to others as an ‘excellent’ resource that will give providers the questions they need to ask before they commit to any system.

Lambeth College

Area	E-testing and e-portfolios
Programmes supported	Basic and key skills levels 1 and 2
Awarding body	NCFE
Number of learners covered by this case study	40 completed tests by end May 2007 1,100 learners completed tests by end of July 2007
Contact	Julia Hoyte

Background

Lambeth College is a large, urban further education college based at a number of sites in south London. The college has a significant programme of basic and key skills (BKS) delivery, both to full- and part-time learners. To date, Lambeth has been using traditional paper-based tests at levels 1 and 2. However, last year the college embarked on a college-wide strategy to improve its BKS performance and outcomes. One element of this strategy was to move towards using online tests for learners at levels 1 and 2.

The college took the opportunity to review the overall offer from each of the BKS awarding bodies and decided to use NCFE as its online provider. The aim was to have the system installation and training completed in time to use e-testing for the majority of learners at the end of the 2006/07 academic year.

Progress to date

The system was set up and the training completed during the early part of 2007. The first 40 learners successfully took their tests in mid-May. Between late May and July the college planned to use the system to test a further 1,100 learners.

Issues

Overall, the feedback from Lambeth was that the first set of tests had ‘gone better than expected’. The college information learning technology (ILT) manager made extensive use of the guide to train staff, and the college also received awarding body training in the use of the system and access to support from its local manager, all of which helped with the smooth introduction of the system. While some staff had been concerned about the changes, most welcomed the opportunity to improve BKS outcomes and offer more flexible testing and faster results, and were reassured by the level of preparation.

While it is too early to judge changes in learner performance, results from the initial batch of learners were broadly as expected. NCFE provided practice tests and the college used other, widely available BKS practice material. Using the technology did not prove to be an issue for younger learners, but the staff still have some concerns about adult learners and their IT skills. The college will monitor issues and address them as necessary.

Lambeth has used existing IT facilities to accommodate the testing and has not, therefore, needed to undertake any significant investment specifically for this development. However, this may become an issue if volumes increase significantly and use of the system and IT facilities spreads more widely across the year.

The college will continue to use the guide as a benchmark for good practice and it is likely to be used to benchmark other e-assessment developments.

Next steps

Following this development, Lambeth is thinking about introducing e-portfolios, and other parts of the college are looking at the BKS development to see if further online testing should be introduced.

Northern Ireland Civil Service Centre for Applied Learning

Area	E-portfolios
Programmes supported	NVQ levels 2 and 3 in Business and Administration
Awarding body	OCR
Number of learners covered by this case study	7 candidates, 4 trainee assessors, 3 qualified assessors, 1 internal verifier
Contact	Lorraine Thomson, Martinia Jefferies

Background

The Centre for Applied Learning is part of the Northern Ireland Civil Service (NICS). It was formed in 2006 and is designed to be the 'one-stop shop' for generic training within NICS. Based in Belfast, the centre has 'clients' throughout Northern Ireland, many of whom are scattered over a wide area.

By forming a central service, it was anticipated that staff across departments would be able to access training and accreditation more easily.

The centre uses OCR as its awarding body for NVQ Business and Administration and, on a number of occasions, has arranged for centres to see demonstrations of e-portfolio systems. Workplace 2010 is the NICS project which aims to meet one of the organisation's corporate objectives by introducing electronic storage of all documents and records. The introduction of an e-portfolio system into the Centre for Applied Learning fitted into this objective

The Centre for Applied Learning agreed to pilot an e-portfolio system during 2006/07 with the aim of evaluating the effectiveness both of e-portfolios generally and of the specific system chosen.

Procuring a system

The system chosen had been procured by a Northern Ireland department shortly before the Centre for Applied Learning was formed, using the standard NICS procurement process which requires bids from three providers. It was decided that the pilot would continue to use this system and OCR supported the centre in its choice, which was based on the evaluation of the following key criteria:

- **Suitability:** Was the system consistent with the centre's NVQ procedure and, if necessary, could it be adapted to meet the centre's needs?
- **User-friendliness:** It was important that the range of users — staff as learners, assessors, the internal verifier and external verifier — could use the system easily and that it could be easily managed by other centre staff.
- **Accessibility**: The chosen system needed to be accessed by staff in a

variety of locations and the system needed to allow access for different functions by a variety of staff.

- **Security:** The system needed to be secure and protected by passwords, administrator functions and so on.
- **Value for money:** The system needed to represent value for money both in terms of start-up and on-going costs.

Outcome and expectations

The pilot has now been running since September 2006. Two groups have been using the e-portfolio system — the first on a one-to-one basis and the second on a group basis. In addition to the staff using the e-portfolio system, others are using traditional, paper-based portfolios and this has provided a useful comparison.

The issues to date have been primarily concerned with the following:

- Preparing all users — staff/learners, assessors, verifiers and administrators — to ensure that they could both manage and use the system effectively. The centre wanted to ensure that it undertook a fair assessment of the use of e-portfolios and has therefore been monitoring, as far as reasonably possible, the difference between issues associated with the introduction of a new system and those directly attributable to the use of e-portfolios.
- Training in the use of the system has been vital. Assessors and others involved in the delivery of the NVQ found it difficult to handle both a new system and a revised set of standards at the same time. Learners also needed to be confident in using the system; some reverted to using paper for certain activities when they could have used the e-portfolio system. However, this was not surprising when both staff and learners were getting used to the system, its features and its limitations.
- Staff users being able to access the system at a local level was an issue as not all staff have open access to the internet or access to the internet away from work.
- There have been some technical difficulties and some processes that the centre currently operates, but which the system could not provide. These have been addressed with either process changes or ‘work-arounds’.

A mid-project review will be undertaken in spring 2007 and this will look at progress, compare the delivery issues between the groups and identify issues to date. However, there is already anecdotal evidence that some learners using the e-portfolio system are completing their NVQ more quickly than those using a paper portfolio.

The centre has been able to use the guide as a reference for good practice. Following the conclusion of the pilot (autumn 2007), should the centre pursue the e-portfolio route, it will consider how best to follow through and organise for wider use of an e-portfolio system.

Northumberland County Council Adult Learning Service

Area	E-portfolios
Programmes supported	A1 Assessors Awards ITQ ECDL testing
Awarding body	City & Guilds, OCR, BCS
Number of learners covered by this case study	18 in A1 Starting 98 in ITQ and 498 in ECDL testing
Contact	Jacquie Hodgson

Background

Northumberland County Council Adult Learning Service provides a wide range of programmes to adult learners in Northumberland, delivered in centres spread across the county.

For some time the service has been engaged in addressing how best to harness technology, where appropriate, to support learning and assessment. It has already introduced e-testing in a number of programmes and wanted to consider the use of e-portfolios.

The service has a learning platform which is a spoke from the main county council hub platform. This is a county-wide system that has been developed by Northumberland in conjunction with Durham University Business School. The system started life in the Business School as a content management system. Working in collaboration with Northumberland high schools, the platform evolved into a managed learning environment (MLE) and the project has now grown into a collaborative initiative between Northumberland, Newcastle and Gateshead local authorities, and the Business School. This regional group meets regularly and prioritises further development of the system.

Bringing the Adult Learning Service in as a user has added a further dimension in terms of the types of programmes and learners using the system and the assessment methodologies that many of these programmes use. The Adult Learning Service has used the information in the guide as a means to create stronger links between adult learning and the schools provision. The service feels that the guide shows that the needs of both are the same, giving a more connected vision for developments of the platform and greater understanding of what work the service does.

Progress to date

One of the first things the Adult Learning Service did was to deliver a course for its own tutors using the platform, with electronic storage and submission of work for assessment. Delivering the course this way meant that the tutors had first-hand experience and were likely to try it for themselves with their own students.

As this course was the A1 Assessors course for staff who wish to offer the ITQ, the Adult Learning Service also started developing the ITQ course on the platform to encourage the further use of e-portfolios. All but one of those involved with the A1 course expressed a wish to develop the use of e-portfolios in their sessions.

Another early step was for those responsible for the learning platform to see the guide, which the Adult Learning Service found useful in providing unbiased advice. The developers could then discuss the amendments needed for the platform to be used as a fully functional e-portfolio system. In doing this, the service tried to highlight the wider needs, showing how this would be beneficial for both the service and the schools in the county.

The Adult Education Service has also had contact with the external verifiers for City & Guilds and OCR. They were supportive in that they could see the benefits of using an electronic method of evidence collection. Further developments in the system are needed, however, before this becomes a clear process for internal and external verification.

Issues

In addition to the development work needed on the MLE for it to fully operate as an e-portfolio system, there are a number of other issues which will need to be addressed as more programmes and learners consider using the system.

One concern is that many busy staff will not take the time to read the guidance produced, at best skimming it. Therefore, ensuring staff become familiar with and confident in the use of e-assessment will be a key factor in ensuring its success.

There is also some concern that not all courses/assessments will suit this delivery method. There will continue to be a need to provide for the adult learner who wants a more traditional delivery, and planning for a ‘mixed economy’ will need to be undertaken carefully, with a balance being the most likely outcome.

This will be a particular issue as budgets tighten and there may only be the funds to offer one option. The service has already changed to an online test only for ECDL, to reduce costs. It is felt that organisations will need to take care when planning provision to ensure that it is fit for purpose.

Next steps

The Adult Learning Service will continue to work with those responsible for the development of the platform to ensure that the wider uses of the system are considered in the development process and to promote development that meets its needs, which are becoming more closely aligned with those of schools.

At the same time, the service will encourage tutors to use the e-portfolio system where appropriate, and plans to add more programmes to the system.

North West Institute of Further and Higher Education (North West Regional College from August 2007)

Area	E-portfolios
Programmes supported	NVQ level 3 in Early Years NVQ level 3 in Caring
Awarding body	City & Guilds
Number of learners covered by this case study	15
Contact	Rosemary McGill

Background

The North West Institute of Further and Higher Education (NWIFHE) is a large further education college based in Derry/Londonderry, Northern Ireland. From August 2007, the college will become part of the North West Regional College, one of six area-based colleges being formed in Northern Ireland.

The initial e-assessment developments have been led by the Caring team within the Caring, Hairdressing and Beauty Therapy department in the college. The Caring team offer a range of full- and part-time Care programmes to a range of learners who are based across a wide geographical area, covering most of the north-west of Northern Ireland and Donegal in the Republic of Ireland. Many of the NVQ part-time learners are in full-time, shift-based employment with small caring sector organisations.

The team has recognised for some time that to enable a more flexible approach to accessing the NVQs, they need to improve the use of technology. They decided to work initially with two groups, both engaged on City & Guilds level 3 NVQ programmes, in Early Years and Caring respectively.

Strategy and vision

The team felt that the use of an e-portfolio system would encourage learners to achieve their programmes. They wanted to use an e-portfolio system that would enable learners, assessors and tutors to manage their NVQ portfolios electronically and, where necessary, allow the portfolio to be accessed remotely and at times best suited to the working patterns of the learners. At the same time, the team also wanted to develop innovative ways of assessing these programmes and considered that this would be possible using an e-portfolio system. The vision of how both learners and staff would use and benefit from the system was an important element in driving the project forward.

Issues

The main issue that the team had to address was that of finding support, either internally or externally, with the necessary experience and expertise to ensure that they approached the problem effectively.

It was at this point in the development that the college joined the QCA NI project. From here, the team used the material in the guide and on the efutures website to gain an understanding of what was needed if they were to successfully introduce an e-portfolio system.

Initially, they were encouraged to explore using the college VLE as a platform for e-portfolios. However, a number of operational and technical issues arose which prevented them from doing so and this finally led the team to bid for the necessary funds to purchase a suitable e-portfolio system. At the time of this case study (April 2007) this process has started and the team is using the guide as the basis for deciding which system to procure and what features they require.

The college has also agreed the necessary staff development process to ensure that, when operational, the e-portfolio system is used effectively.

Next steps

Although the team have not yet been able to introduce a full e-portfolio system into the NVQ programmes, they have been encouraging the learners to collect evidence electronically. This has already given them an understanding of a number of the issues that will need to be addressed. To date these have included:

- access to IT — many of the learners have no home access to IT, nor are they able to gain access at either the college or local community facilities because of the hours they work
- working with workplace employers to ensure that learners are able to collect electronic evidence and addressing issues such as the confidentiality of material
- how it may be possible to provide learners with, for example, laptops that could be used for portfolio building

The team have involved their awarding body external verifiers to a limited extent but feel that they will not be able to fully involve them until a system is up and running.

Other issues

From this year the Department for Employment and Learning in Northern Ireland is requiring all the new regional colleges to develop an ILT strategy and implementation plan. The ILT strategy encompasses e-assessment as well as e-learning. This will enable Northern Ireland's colleges to develop a college-wide vision and strategy for the use of e-assessment. As a result of the work undertaken by the Caring team at NWIFHE, they have been asked to take the lead on developing this vision and strategy for the wider college.

Open College Network London Region

Area	E-assessment survey
Programmes supported	n/a
Awarding body	OCNLR
Number of learners covered by this case study	n/a
Contact	Linda Dicks

Background

The Open College Network London Region (OCNLR) is one of the Open College Network regions, offering a variety of qualifications to providers in the London region. OCNLR is working with a number of these providers to assess the potential uses of e-assessment within its qualification offer. As part of the activity, along with all OCN regions, OCNLR has undertaken a survey of a number of its providers. The survey assessed their readiness to use e-assessment, the likely support needed and what providers considered the priorities were in developing e-assessment capability. An overview of this survey is included here, as it provides a useful insight into the current thinking from a range of e-assessment providers.

Survey details

The OCNLR survey covered five further education colleges (two of which are specialist designated institutions); three community organisations (a voluntary organisation, a local authority and an adult education service); one university; and one prison. This is a reasonable representation of OCNLR membership, and the results reflect the different views and concerns of organisations with different levels and types of funding.

Some centres are moving quickly to provide opportunities for all learners to use IT.

- In one college each learner has an e-mail address; the college is equipped with 200 computers; broadband access is available on campus; and a new building includes an internet café.
- Two other colleges are in the fortunate position of embarking on building programmes that include maximising IT capacity.
- One borough, responsible for community education, is supportive with resourcing because widespread access to IT fits in with its widening participation brief.
- Another borough supplies all voluntary sector organisations with several PCs, cameras and internet access.

Centres expressed interest in and enthusiasm for the introduction of e-portfolios and were able to identify many advantages to both centres and learners. Easier and cheaper internal verification, ability to record progress, and the necessary IT training for staff and learners were seen as benefits.

Many learners would also welcome e-portfolios, for reasons including:

- e-portfolios would give them flexibility in submitting evidence
- feedback could be recorded and their progress traced
- they would have a portable record to take away with them to use for applications/interviews

A common concern was that disadvantaged learners may be disadvantaged even further through the introduction of e-portfolios, although most respondents could see ways that barriers could be overcome.

Another concern was the huge resourcing implications for training staff and learners to work with e-portfolio assessment. OCNLR expects a number of staff training concerns to be addressed through this guide, and support given through the proposed LLUK e-assessor units and qualifications.

Stockton Riverside College

Area	E-portfolios and e-testing
Programmes supported	see text
Awarding body	City & Guilds, OCR, CACHE, CITB
Number of learners covered by this case study	262 for e-portfolios across a variety of programmes
Contact	Steve Errington, Rick Smith

Background

Stockton and Riverside College is a medium-sized further education college based in Stockton-on-Teesside. About four years ago, the college moved into new premises and embarked on a wide ranging programme to introduce technology into the learning and assessment process. At the same time, the college embarked on a 'cultural transformation', so that for both learner and staff using technology has now become a natural part of the day. For learners this starts with the use of e-testing for screening and initial assessment.

Annually, the college offers around 75 full-time and 500 part-time academic, pre-vocational, vocational and work-based courses to some 13,000 learners, including over 1,400 full-time 16- to 18-year-olds. The college offers a wide range of qualifications including NVQs, first, national and higher certificates/diplomas, accredited specialist courses and a range of subjects at GCSE, AVCE and GCE Advanced level. It also works in partnership with three universities to deliver a range of higher education courses including foundation degrees and teaching qualifications.

The college has a Centre of Vocational Excellence (CoVE) status for Performing Arts. They are one of only two CoVEs nationally within this area of further education provision. They also have two regional CoVEs in Playwork and Early Years and Adult Social Care, in partnership with three other colleges.

This wide range of provision and local collaboration has led to the college adopting and using a number of e-portfolio systems that have been procured through separate developments.

Because the college's use of e-testing stretches back over a number of years, it has built up considerable expertise in running e-tests and now has a dedicated e-testing facility. The college is a Pearson VUE test centre for Microsoft and a number of other tests, and uses the City & Guilds GOLA system, OCR's BKS system and the system from CACHE for foundation Childcare. It has also applied to Thomson Prometric to be a centre for the CITB health and safety tests.

Issues

E-testing

The college has a strategic policy of introducing e-testing as it becomes available from awarding bodies, and has a target of having 95 per cent of MCQ-based tests online by 2010.

One issue that has arisen from using a number of systems is the level of conflict between them. In many cases the systems cannot be run concurrently on the network. This means that there are occasions when the facility is not being used effectively

Although the college is an experienced user of e-testing, the guide has been used as a checklist against current practice and will be used with new staff who need to be briefed on the use of the e-testing facility.

E-portfolios

The college's experience of e-portfolios stems from a number of initiatives that have each used a different system. While this is not seen as ideal, it has enabled a number of programme teams within the college to gain extensive experience in using e-portfolios and for the college to begin to make comparisons between the systems.

The college's experience confirms that the procurement process is important if an organisation is to be confident of obtaining a system that fully meets its needs. The college is now considering how best to move towards one college-wide system, although this may not be entirely achievable as some of the systems are used for collaborative work with other organisations.

Teacher perceptions have changed significantly since e-portfolios were first introduced. Some of the more sceptical early adopters are now strong advocates for their use. There are very positive views that learners work more autonomously and become more engaged.

Overall, the college considers that, despite very good progress, there continues to be a need for e-assessment to be 'marketed' internally and for the cultural change message to be reinforced.

Ystrad Mynach College

Area	E-portfolios
Programmes supported	NVQ in Care Domestic Energy Assessors training
Awarding body	City & Guilds
Number of learners covered by this case study	25
Contact	Kevin Lawrence

Background

Ystrad Mynach is a medium size community college offering a range of further education and adult courses, both on campus and in the workplace.

An e-assessment strategy for the college has not yet been established, but it has been informally agreed that e-portfolios will become a major part of many different courses, especially where NVQs are involved. Consequently, a pilot is being run to assess the effectiveness and suitability of e-portfolios for two distinct types of user:

- engineering students (Domestic Energy Assessors)
- learners undertaking an NVQ in Care

With a number of e-portfolio solutions available, the college initially invited a selection of organisations to demonstrate their products, in addition to undertaking some internet research. e-NVQ was chosen as the product that met the college's needs and provided a reasonably simple interface.

Key issues

There were a number of key issues to be considered:

- **Access:** The main issue for all involved in the pilot (and with implications for the future) has been that of access. Both assessors and learners need access to internet-ready computers, and for the learners this ideally includes at home as well as at college and in the workplace. While this posed little problem for the Engineering group, the Care learners were less able to access the technology.
- **Level of skill:** Another big issue has been that of level of skill for using IT and the internet. Staff development and student induction both become key issues, especially in relation to learning new skills and using different technologies to gain assessment evidence. Because of the relatively small numbers of assessors involved in the e-portfolio pilot, staff development was kept fairly informal. The most important element was offering full induction into how to use the system, followed by technical support throughout the pilot, as learners who are confident with these skills are far more willing to embrace the technology.

- **Assessors:** Assessor commitment to the system is vital. There were, and are, many obstacles to overcome with assessors, especially those who are a little IT-phobic. The college found that it was best to get at least one enthusiast involved, to help overcome the fears. It also found providing assessors with laptops to be a significant motivator, and that it helped the process to run more smoothly for both the learner and the assessor.
- **Costs:** These are currently an issue. The college's current methodology imposes a cost for every learner, so longer term it is hoped that a system using open source software will provide a solution.

View of the guide

Ystrad Mynach did not have the guide when setting up its e-portfolio pilot, but still feels that it has helped it to formalise the concept of an e-portfolio. 'It has been difficult to define what an e-portfolio is; the guide has supported us in identifying the use and scope of an e-portfolio,' says Kevin Lawrence, the ILT manager.

Kevin believes that the guide will also serve as a useful document for those new to e-portfolios and considering using them in the future. He says that, fuelled with the evidence and evaluation from the pilot study, lecturers and assessors at the college will be more knowledgeable and will be able to make an informed decision about whether to use the system or not.

He felt that the guide will also help to identify staff development activities and could be used as part of staff development. In addition, he sees the guide as supporting strategic decisions with respect to e-portfolio use and advancement.

Kevin sums up his view of the guide by saying, 'I think that the guide covers most aspects of e-assessment very clearly. The only issue that needs to be addressed is that of IT skill levels being a potential barrier to users — and hopefully the inclusion of case studies will help with this.'

Feedback

The college chose the user base for the pilot deliberately, knowing that it would present some issues and useful comparisons. Informal feedback from learners was mixed. The learners studying NVQ Care were less happy using e-portfolios than the Engineering students were. This was found to be more to do with comfort with using computers in general and not being used to using e-mail as a communication tool. The Engineering students, in contrast, were far more comfortable with both of these aspects. However, once engaged with the system, students liked the fact that they could view their progress, enabling them to plan their work more effectively.

There has not been time yet to be able to compare success rates between e-portfolios and paper-based portfolios. Evaluation from both assessors and candidates is planned for the end of July.

The form of e-portfolio did not have any measurable impact on the timescales which were kept within the normal parameters of the course. In view of this approach, the college does not expect e-portfolios to be a particularly time-saving tool in terms of completion of a course. However, it does expect to see savings in terms of assessors' time, and to some extent in the learners' time between receiving feedback and receiving instructions for further submission.

An evaluation and comparison between e-portfolios and paper-based portfolios by both assessors and learners is planned for the end of July 2007.

Benefits

The college saw a number of distinct benefits of using e-portfolios:

- better communication between students and assessors
- easier-to-use forms and documentation
- more sharing of information between assessors, internal verifiers and external verifiers

Next steps

The next step for the college in the short term is to investigate open-source e-portfolios that may run alongside or complement its existing Moodle VLE.

It is hoped that this may provide a cost-effective way of developing and using e-portfolios in the future. In the meantime, the college thinks that individual lecturers who want to use e-portfolios will probably continue with e-NVQ.

However, the college has recognised that e-portfolios present a huge staff development issue, and believes that to use them effectively staff will need to be trained. It says that it is proving difficult for lecturers to get on board with technologies such as VLEs and ILT, let alone introducing more online systems. Kevin believes that the enthusiasts will continue to use and champion such systems and that hopefully the idea will cascade over time.

In summary, Kevin says: 'I recommend the use of e-portfolios as an excellent assessment tool, especially where tracking and audit trails are needed, such as in NVQ scenarios. I strongly recommend that the guide be used in the consultation period, when you are deciding who to involve and what system to adopt.'

6. The Level 3 Award in delivering e-testing

6.1 Introduction

The award is intended to recognise the skills and knowledge of people involved in the delivery of e-testing, leading to the award of credits or qualifications within the QCF (for England, Wales and Northern Ireland). The award has been developed in collaboration with the Federation of Awarding Bodies and has been approved by LLUK, the sector skills council for the lifelong learning sector. In Scotland the units and award will be considered with a view to identifying links to existing e-assessment qualifications already recognised within the Scottish Credit and Qualifications Framework (SCQF).

The award offers the opportunity to achieve credit through a range of units. Each unit is linked to one of the key e-testing roles identified in the guide. The award is intended to encourage people to develop skills and knowledge in e-testing that go beyond a single job role. However, the award is not prescriptive in requiring that a particular combination of credits is achieved. People may achieve the award through any combination of three of the five units offered within the qualification.

The units within the award form part of the set of optional units within the Level 3 and Level 4 Certificates in teaching in the lifelong learning sector, which in turn form part of LLUK's Teacher Qualifications Framework for England. Up to six credits from these e-testing units may therefore be counted towards the achievement of one of these larger qualifications in the QCF. SQA will liaise with the Scottish Government and agencies in Scotland involved in accrediting and delivering lifelong learning and teaching qualifications to establish the relationships between the LLUK units and award, existing qualifications, and the SCQF.

The rules of combination for the award are that a minimum of seven credits must be achieved from any three units.

The following units are available within the award:

Unit title	Level	Credits
Co-ordinating e-testing	3	3
Administering e-testing	3	3
Technical support for e-testing	3	3
Preparing learners for e-testing	3	3
Invigilating e-tests	3	1

Details of each of these units follow. For further information on the award, and for additional units as they are developed, please refer to the efutures website: **www.efutures.org**.

6.2 Units in the award

Unit title: **Level:** **Credit value:**	**Co-ordinating e-testing** **3** **3**
Learning outcomes	**Assessment criteria**
The learner will: 1. Understand the operational running requirements for the e-testing process within the designated centre(s)	The learner can: 1.1 Explain the operational implications of the organisation's e-testing strategy, and how these are met at an operational level 1.2 Explain the centre's e-testing processes and demonstrate how they meet specified quality standards and the requirements of the awarding body, using documented evidence 1.3 Explain how these processes are set up and maintained, including any checks that are used to ensure that they are followed by staff and learners 1.4 Explain the process for resolving and escalating problems related to the e-testing process 1.5 Explain the general criteria required for a valid, appropriate and secure e-testing environment 1.6 Liaise with senior management, awarding bodies, technical and non-technical staff as appropriate to ensure that the centre continues to meet requirements for e-testing

2. Understand the facilities and resources required for effective e-testing, and how to manage them effectively	2.1 Explain the roles, facilities and equipment required to run an effective e-testing centre, and the processes required to ensure that these are available when required 2.2 Explain how she/he works with senior management to ensure that sufficient and appropriate resources are available to the centre 2.3 Identify staff as appropriate for specific roles and responsibilities in the following areas, and ensure that these roles and responsibilities are understood by individuals and the team: ♦ e-test administration ♦ technical support (whether provided by centre staff or through liaison with other departments) ♦ learner support (whether through centre or other staff) 2.4 Ensure that appropriate equipment is identified, resourced, set up and maintained as necessary, including relevant assistive technology, and that these processes are documented and followed 2.5 Ensure that appropriate facilities are available and the e-testing environment is set up to meet agreed quality criteria, and that appropriate processes are set up and followed

3. Understand the critical success factors for running e-test sessions consistently and effectively	3.1 Identify factors that may impact on the consistent and effective running of e-test sessions, explaining their importance and potential impact. These factors to include: ♦ awarding body requirements for conducting e-testing ♦ security and integrity of the e-testing process ♦ availability of trained technical staff (whether in person or remotely) ♦ trained invigilators ♦ trained administrative staff 3.2 Explain the importance and purpose of having documented processes for all aspects of the e-testing process, and the potential impact if these are not in place and followed 3.3 Explain the measures that need to be taken related to emergencies, technical failures and irregularities, and the processes in place to ensure that they are dealt with, logged and reported appropriately 3.4 Explain the role of invigilators and how they can be supported by other staff, including provision of appropriate support to candidates

4. Be able to monitor and manage the performance of staff involved in the e-testing process	4.1 Explain the processes for monitoring and assessing staff associated with e-testing against their defined roles and responsibilities, whether as part of the e-testing centre, or as members of other teams 4.2 Use anonymised reports to identify and describe problems and shortfalls in relation to staff performance, and explain what steps were put in place for their resolution and improvement 4.3 Provide or arrange for staff development as appropriate, to ensure continued capability to support consistent, reliable and effective e-testing
5. Evaluate own role and performance in the e-testing process activities	5.1 Review the success of planned e-testing 5.2 Review the effectiveness of own contributions to the e-testing process, both individually and as the manager of a team 5.3 Produce a report recommending potential improvements to the processes for managing e-testing in a centre

Unit title: **Level:** **Credit value:**	**Administering e-testing** **3** **3**
Learning outcomes	**Assessment criteria**
The learner will: 1. Set up and maintain operational processes and procedures for e-testing	The learner can: 1.1 Demonstrate how the centre's e-testing processes meet specified quality standards and the requirements of the awarding body 1.2 Demonstrate sample processes for conducting e-testing, to include: ♦ managing registration and identification of learners ♦ starting and ending e-tests ♦ procedures for emergencies and technical failures ♦ printing out learner reports 1.3 Explain how these processes are set up and maintained, including any checks that are used to ensure that they are followed by other staff and learners 1.4 Explain the checks and procedures for resolving and escalating problems related to the e-testing process
2. Be able to set up an e-testing environment	2.1 Explain the general criteria required for a valid, appropriate and secure e-testing environment 2.2 Set up a designated e-testing area to meet the criteria for a specific e-test and learners 2.3 Explain the equipment required for a specific e-test and learners 2.4 Ensure that the appropriate equipment is in place and working prior to the start of an e-test session

3. Understand how to set up additional facilities and e-test areas to meet the needs of learners and non-standard e-testing situations	3.1 Describe the criteria to be used to decide when additional facilities and e-test areas are required 3.2 Describe the process and equipment for situations setting up an e-test at a remote location 3.3 Describe the type of equipment, facilities and support that can be offered to assist learners with accessibility requirements 3.4 Agree the specific facilities and equipment required for a given situation 3.5 Ensure that the appropriate equipment and additional facilities can be in place and working prior to the start of an e-test session
4. Understand the administrative steps involved in preparing a learner to participate in an e-test session	4.1 Support the identification of appropriate e-testing opportunities for a learner 4.2 Register a designated learner with an awarding body 4.3 Explain what support for learners is available at each stage of the e-testing process 4.4 Identify any additional needs for a designated learner 4.5 Set up and run a practice e-test session and explain its purpose and importance to the learner

5. Be able to run an e-test session	5.1 Liaise with the awarding body, technical and other staff as appropriate to ensure that specific facilities and equipment are approved and available for a given situation 5.2 Make the final checks to ensure that the e-test location, equipment (including assistive technology) and materials are set up correctly 5.3 Make the final readiness checks with candidates prior to the start of the e-test, using a recognised process 5.4 Explain the measures that need to be taken regarding planned and unplanned breaks to ensure that security is not breached 5.5 Explain the processes in place related to emergencies, technical failures and irregularities, and how they are logged 5.6 Explain the role of invigilators and how they can be supported by other staff, including provision of appropriate support to candidates 5.7 Check that the session is closed in accordance with approved procedures
6. Understand the administrative steps involved after the conclusion of an e-test	6.1 Ensure candidate details and responses are transmitted in line with awarding body requirements 6.2 Explain the process for obtaining session awarding body certification
7. Evaluate own role and performance in the e-testing process	7.1 Review the success of e-testing activities 7.2 Review effectiveness of own contributions to the e-testing process (individually and as a member of a team where relevant) 7.3 Produce a report suggesting possible improvements to e-testing arrangements in a centre

Unit title: **Level:** **Credit value:**	**Technical support for e-testing** **3** **3**
Learning outcomes	**Assessment criteria**
The learner will: 1. Understand the technical aspects of the e-testing environment and processes	The learner can: 1.1 Explain the technical processes and equipment required for running e-testing sessions both at a centre and remotely, including security arrangements and procedures 1.2 Demonstrate the e-testing equipment the centre has, including assistive technology, and explain the processes for ensuring that it is available when required and kept in working order 1.3 Explain the procedures for dealing with emergencies and technical failures

2. Be able to provide technical support to set up an e-testing environment (whether at the centre or remotely)	2.1 Liaise with other staff, awarding bodies and technical suppliers as appropriate to identify the appropriate equipment and/or applications required to meet the requirements of different learners, such as assistive technology, specific locations and tests 2.2 Provide timely technical assistance and/or advice to set up a designated e-testing area (whether remote or at the centre) to meet the criteria for a specific awarding body, e-test and learners 2.3 Ensure that all appropriate equipment is in place and working prior to the start of an e-test session 2.4 Set up the e-test equipment to meet designated conditions, e-test and learner requirements, to include: ♦ technical checks on hardware, software and communications equipment ♦ security features of a specific e-test ♦ links to assistive technology, additional equipment and facilities

3. Support the running of e-test sessions	3.1 Make final checks to ensure that the e-test location, equipment (including any assistive technology) and materials are set up correctly 3.2 Explain the technical support that can be provided to candidates during an e-test session, and assist staff in technical aspects of running the e-test session as required 3.3 Deliver timely first line technical problem resolution, both in person and remotely from the test location 3.4 Explain when and how to report and/or escalate issues, liaising with awarding bodies and/or technical suppliers as required 3.5 Assist the closing of the session as appropriate, in accordance with safety and security procedures
4. Evaluate own role and performance in the e-testing process	4.1 Review and report on the success/issues of the centre's e-testing activities from a technical perspective 4.2 Review effectiveness of own contributions to the e-testing process, both individually and as a member of a team where relevant 4.3 Describe current developments in e-testing and explain how she/he keeps up to date with technical and general criteria and processes related to e-testing

Unit title: **Level:** **Credit value:**	**Preparing learners for e-testing** **3** **3**
Learning outcomes	**Assessment criteria**
The learner will: 1. Understand the processes that are in place to prepare learners for e-testing	The learner can: 1.1 Explain procedures for performing e-test activities related to the learner, for example printing out learner reports 1.2 Explain the processes for ensuring that the needs of learners are met, including: ♦ identifying appropriate e-tests ♦ identifying and providing assistive technology needs ♦ arranging practice e-test sessions ♦ supporting learners before, during and after e-test sessions 1.3 Explain the documentation and/or process used to log the support provided to learners, and any issues that arise from the application of this process/documentation 1.4 Explain the checks and procedures for resolving and escalating problems related to the e-testing process
2. Understand the e-testing environment in relation to learner requirements	2.1 Explain the general criteria required for an appropriate, valid and secure e-testing environment 2.2 Describe the criteria to be used to decide when additional facilities and e-test areas may be required 2.3 Describe and demonstrate the use of common assistive technology available for learners 2.4 Explain what additional equipment and facilities may be required for a specific e-test and specific learners

3. Understand the opportunities and support available to learners participating in e-testing	3.1 Explain the process for identifying appropriate e-testing opportunities for a learner 3.2 Explain the support for learners that must be available at each stage of the e-testing process 3.3 Explain the role of invigilators and how they can be supported by other staff, including provision of appropriate support to candidates 3.4 Identify and describe any additional support needs for a designated learner 3.5 Liaise with technical, admin and other staff as appropriate to ensure that the relevant equipment and/or facilities are in place to meet the needs of specific learners, and are working prior to the start of an e-test session
4. Understand how to use practice e-tests effectively to help prepare learners for e-testing	4.1 Explain the process for ensuring that the learner knows how to use any additional equipment and/or assistive technology 4.2 Explain the purpose and importance of practice e-tests and provide appropriate explanation and support to learners on the following aspects: ♦ navigation through the test and types and level of question ♦ help features ♦ features of the specific e-test ♦ a sample of results and/or feedback ♦ best practice in relation to completing tests 4.3 Give constructive feedback to a candidate on the results of a practice e-test, together with advice and guidance on readiness to go on to formal assessment

5. Ensure that the learner has sufficient knowledge of the e-testing process	5.1 Give learners relevant information and guidance in advance of the e-test, to include: ♦ any requirements related to proof of identity ♦ general centre procedures related to the e-test session that may affect the learner ♦ support available to the learner throughout the process ♦ specific security features of the assessment that the learner needs to know 5.2 Ensure that learners understand the relevant procedures for the conduct of e-tests, to include: ♦ how the assessment will be conducted ♦ any invigilation rules and regulations they need to understand, including the procedure for supervising any breaks ♦ when and how to ask for assistance during an e-test 5.3 Explain the process for obtaining awarding body certification
6. Evaluate own role and performance in the e-testing process	6.1 Review the success of planned e-testing activities 6.2 Review the effectiveness of own contribution to the e-testing process, both individually and as a member of a team where relevant 6.3 Produce a report recommending improvements to the process for preparing learners for e-testing in a centre

Unit title: **Level:** **Credit value:**	**Invigilating e-tests** **3** **1**
Learning outcomes	**Assessment criteria**
The learner will: 1. Understand the quality standards and the requirements of the awarding body for an e-testing environment	The learner can: 1.1 Explain/demonstrate the checks that an invigilator needs to make to ensure that the e-test location, equipment (including assistive technology) and materials have been set up correctly
2. Understand the support that should be available for e-testing candidates	2.1 Explain what assistive technology is generally approved by awarding bodies 2.2 Explain what support for candidates is and is not allowed during an e-test session
3. Understand the role of the invigilator, its boundaries and how it integrates with other roles	3.1 Explain the awarding body regulations relating to the conduct of e-test sessions 3.2 Explain how candidates are authenticated to take the e-test 3.3 Explain the processes required related to emergencies, technical failures and irregularities, and how these are logged 3.4 Explain the measures that need to be taken to ensure that security is not breached 3.5 Explain the checks and procedures for resolving and escalating problems related to the e-testing process and environment, including notification of the awarding body

4. Be able to invigilate an e-test session according to the requirements of the awarding body	4.1 Explain to candidates the procedures and regulations related to the e-test that they need to be familiar with 4.2 Explain to candidates what support is and is not allowed during an e-test session 4.3 Log on candidates and unlock the e-test as appropriate 4.4 Supervise the e-test session according to the requirements of the awarding body, and resolve any issues that arise, liaising with other staff and the awarding body as appropriate 4.5 Provide support to candidates as appropriate 4.6 Supervise the logging-off/closing of the session as appropriate, in accordance with approved safety and security procedures
5. Evaluate own role and performance in the e-testing process	5.1 Review the effectiveness of own contributions to the e-testing process (individually and as a member of a team where relevant)

7. Glossary

Accessibility	The extent to which a service can be used by people with disabilities or special access requirements. With reference to e-assessment, the accessibility of an e-assessment or e-test is the extent to which the e-assessment system (including the physical environment, test software itself, and the administration system) can be accessed, including by the student using special software access tools (such as screen readers, screen magnifiers, Braille readers and speech recognition software).
Adaptive test	A test in which successive questions are presented based primarily on the properties and content of the items, and the candidate's response to previous items, that is the questions become harder or easier depending on performance. **Note:** Adaptive tests are widely used for diagnostic purposes, allowing a more detailed exploration of strong and weak areas in a student's knowledge within a given time for a test.
Assessment	The process of making judgements about the extent to which a candidate's work meets the assessment criteria for a qualification or unit, or part of a unit.
Assessment objective	A single unit of knowledge, skills or understanding that a test is designed to assess in a candidate, usually set in the context of the programme of study and as part of the test specification.
Assessor	The person who assesses a candidate's work.
Assistive technology	Also called 'access tools' or 'access technology'. Computer-based materials and software designed to provide or improve the accessibility of e-assessments. **Note:** Tools include aids to test authors for evaluating accessibility or for adding in accessibility features to content, and devices and programmes provided for the candidate to provide an alternative or augmented means of accessing on-screen assessments (such as screen readers, screen magnifiers, Braille readers and speech recognition software).

Authentication (1)	Confirmation that a candidate's work has been produced by the candidate who is putting it forward for assessment, and, where applicable, that it has been produced under the required conditions. **Note:** Some qualifications require the candidate to make a statement of authenticity. Where work is part of a collaborative effort, authentication may also state the candidate's role in the work.
Authentication (2)	In e-assessment, authentication is increasingly used to describe the function of specialised software to authenticate the identity of a user at a computer terminal, and to pass this data between operating systems.
Automated feedback	Providing feedback to the candidate about their performance, based on automatic scoring of their responses. While automatic feedback will usually include a result (for example pass/fail, a grade), it will often also include formative information such as strong and weak areas of performance in the test and recommendations for further study or progression.
Automated scoring	Marking of candidates' responses electronically. Automatic scoring is largely limited to objective question types such as multiple choice questions.
Awarding body	An organisation or consortium that awards qualifications. To be eligible to award accredited qualifications in the non-higher education sectors (for example in schools, colleges and workplace training), awarding bodies must meet the requirements of the regulatory authorities.
Becta	A UK government agency which supports all four UK nations' education departments in their strategic ICT developments. See **www.becta.org.uk**.

Browser	A software application that enables users to display and interact with HTML documents (or 'web pages') hosted by web servers or held on a file system. The most widely used (web) browser is Microsoft Internet Explorer but there are others such as Mozilla, Netscape Navigator, Opera and Firefox which are also popular in some organisations. **Note:** Many e-assessment software applications deliver tests to candidates via a browser, which is a popular approach as it reduces the time and effort required to set up a student machine to access the test, given that all modern desktop computer systems have a browser available by default.
BS 7988:2002	The British Standard for the use of information technology in computer-aided examinations. The first draft was published in 2002. It is aimed at a wide audience of both exam providers and exam centres and includes performance criteria and codes of practice. Available from **www.bsi-global.com**.
Candidate	A person who is registered with an awarding body for a qualification or unit.
CCEA	CCEA is the Northern Ireland Council for the Curriculum, Examinations and Assessment. CCEA carries out the principal activities of advising government on what should be taught in Northern Ireland's schools and colleges; monitoring standards of qualifications and examinations offered by awarding bodies in Northern Ireland; and awarding qualifications including a diverse range of qualifications, awards and certificates in education, training and skills.
Centre for Recording Achievement	See CRA.
Certificate	The record of attainment in a unit or qualification for an individual issued by the awarding body.
Code of practice	Principles and practices which define a required standard of activity in the management and delivery of assessment activities. **Note:** In the non-higher education sectors of education, these are specified by the regulatory authorities against which, for example, awarding body processes and procedures for the assessing and awarding of particular qualification types are designed and evaluated.

Collusion	The act where two or more people collaborate secretly to obtain an unfair outcome in an assessment (one form of cheating).
Common centre recognition	Proposed system for enabling awarding bodies to collectively recognise a centre as a place for delivering, managing and assessing qualifications.
CRA	The Centre for Recording Achievement. A UK national network organisation seeking to promote the awareness of recording achievement and action planning processes as an important element in improving learning and progression throughout the world of education, training and employment. **Note**: The CRA is undertaking work in the area of e-portfolios. See **www.recordingachievement.org**.
Cryptography	A scientific discipline which includes principles, means and methods for the modification ('encryption') of data in order to hide its content, prevent its undetected modification, or prevent its unauthorised use.
Dedicated test centre	An electronic test centre which is not used for other purposes at other times.
DCELLS	Department for Children, Education, Lifelong Learning and Skills and qualifications regulator in Wales. Formerly DELLS.
Delivery platform	The final technical destination for an e-assessment on the client computer, for example a desktop PC.
Diagnostic assessment	Non-accredited assessment used to identify a learner's strengths and weaknesses with a view to providing an appropriate learning programme. Often undertaken at the start of a programme, diagnostic assessment therefore needs to evaluate a learner's existing level of attainment across the range of relevant knowledge, skills and understanding.
Dynamically constructed	In a technical context, meaning done at the time it is required, not pre-prepared, and/or personalised for the particular user. For example, a dynamic test generation system will produce a customised test for a candidate just before the candidate starts the assessment rather than selecting a pre-prepared test.
E-assessment	The end-to-end electronic assessment processes where ICT is used for the presentation of assessment activity and the recording of responses. This includes the end-to-end assessment process from the perspective of learners, tutors, learning establishments, awarding bodies and regulators, and the general public.

E-marking	A generic term for all the ways that the use of ICT can contribute to the marking of assessments.
E-portfolio	An electronically based file store and information management system which is modelled on the working method used for paper portfolios, but which takes advantage of the capabilities of ICT. The learner builds and maintains a digital repository of artefacts, which they can use to demonstrate competence (in a summative assessment setting) and/or reflect on their learning (in a formative assessment setting). **Note:** Within e-assessment, e-portfolios are generally related to a particular course over a particular period of time, and designed for assessment purposes. However, in other settings portfolios may also or alternatively be a 'complete learning life record', where students have access to their records, digital repository, feedback and on reflection students can achieve a greater understanding of their individual growth, career planning and CV building.
E-test	An assessment presented to the candidate on screen.
E-test distributor	A general term for the organisation(s) providing the assessment to a test centre, which may be the awarding body and/or the technical partner.
External assessment	An assessment which is set and/or marked by examiners who are not associated with the organisation providing the candidate's learning.
Fair assessment	Assessment which is free of any bias, that is free of any factor that distorts the true measurement of the candidate's ability or achievement. Sources of bias can include factors in test design (accessibility, question design and content) and test delivery (physical conditions during assessment) and marking.
Feedback	Qualitative and/or quantitative information about their performance given to students after an assessment. **Note:** Unlike a grade, feedback is explicitly developmental, that is oriented towards further progress on the part of the student. Feedback is particularly important in formative assessment, when no final grade will be given. Feedback typically includes a correct or model response and an explanation of any incorrect responses made by the student.

First line technical support	A telephone, e-mail and/or fax service providing reactive assistance to computer system users, operated by the assessment provider and answering all initial queries from the user (hence 'first line'). Those queries which cannot be answered are escalated, usually to second line technical support and field support services.
Formative assessment	Assessment that has a primary objective of providing developmental feedback (item, topic and/or assessment level) to a student (and perhaps also their teacher) to adjust the plan for future learning. As such, it usually takes place during the learning programme (rather than at the end — summative, or beginning — diagnostic). **Note:** It is often called 'assessment for learning'.
Group-based assessment	A process of collective assessment often used for project work and for encouraging collaboration in teaching and learning. **Note:** Group members can receive an equal mark or a proportion of the group mark supplemented by marks for individual work. Marks can be allocated by the course tutor and/or by the group collectively. Tutors often ask candidates about the distribution of work among group members, group interaction and the way resources were used.
High stakes test	A test which is statutory and/or has results collected and used for statutory reporting, that is when the outcomes are important to the centre and candidates (for example, affecting progress to another phase of education).
ICT systems	Clusters of interconnected information and communications technology (synonymous with IT for almost all purposes, but strictly speaking including the internet and other network-enabled devices).
Initial assessment	A relatively short assessment of a learner which may follow a screening test and which is designed to determine approximately the general level of knowledge or competence.
Internal assessment	An assessment marked within the institution delivering the programme of learning, possibly by the tutor delivering the learning. This marking may then be subject to external modification and/or verification.
Internal verifier	An individual appointed by the centre to ensure accurate and consistent standards of assessment between assessors operating within a centre.

Interoperability	A feature of computer systems' components which allow the components to interact (share data, processes etc.) according to technical standards which define functionality useful to the user. The IMS QTI specification is an example of an interoperability specification within the e-assessment domain which allows tests to be presented on different delivery platforms.
Intranet	A network of computers within an organisation which functions (from a user's perspective) similarly to the internet, and potentially provides additional services to users, while also preventing unauthorised external access. From 'internal' and 'network'.
Invigilation	The supervision of an examination to maintain a fair and consistent testing environment, but having no part in the examination process itself. Invigilation/invigilator are the most commonly used terms in the UK. The USA equivalent terms are proctor/proctoring.
ISO/IEC 23988	The International Standard for the use of information technology in computer-aided examinations. It is aimed at a wide audience of both exam providers and exam centres and includes performance criteria and codes of practice. Available from **www.bsi-global.com**. BS ISO/IEC 23988:2007 has superseded BS 7988:2002.
Item	The smallest separately identified question or task within an assessment plus its associated information (for example mark scheme, curriculum reference, media content, performance information etc), usually a single objective question. Distinguished from a 'question', which may be a longer and less-objective task but often used synonymously.
Item bank	A storage facility for items which allows them to be maintained and used for automatic and manual test generation purposes (to create tests on paper and/or on screen). Today, almost all item banks are electronic although historically many were physical.
JANET	The Joint Academic NETwork is a British private, government funded computer network dedicated to education and research. All further and higher education organisations are connected to JANET, as are all the research councils and several metropolitan area networks in the UK.

JISC	The Joint Information Systems Committee. An independent advisory body that works with further and higher education by providing strategic guidance, advice and opportunities to use ICT to support learning, teaching, research and administration. JISC is funded by the UK Further and Higher Education Councils and is responsible for the development of this e-assessment glossary.
Joint Information Systems Committee	See JISC.
Learner achievement record	An electronic document, owned by the learner, in which the credits and qualifications achieved in the QCF are recorded.
Lifelong Learning UK	Lifelong Learning UK (LLUK) is the sector skills council responsible for the professional development of all those working in community learning and development; further education; higher education; libraries; archives and information services; and work-based learning. See **www.lluk.org**.
Local server	A server which is located within a centre on a LAN rather than on the internet.
Management information system	See MIS.
MCQ	A question where the student is required to select a single correct answer from a range of available options called distracters (usually four or five).
MIS	Management information system. A computer system used in educational institutions which stores administrative information (such as student administrative records, financial information etc.) about the enterprise, its staff, learners, programmes etc.
Moderator	See Verifier.
Multimedia	ICT systems that support the interactive use of text, audio, still images, video and graphics. Each of these elements must be converted in some way from analogue form to digital form before they can be used in a computer application. Thus, the distinction of multimedia is the convergence of previously diverse systems.
Multiple-choice question type	See MCQ.

National Qualifications Framework	See NQF.
Navigation	In an e-assessment context, the on-screen buttons and other controls that move candidates from screen to screen in an on-screen assessment, and provide access to other non-question specific features such as on-screen help, print functions, exit etc. They are generally visually separate from controls that relate to the specific question.
NQF	National Qualifications Framework. Sets out the levels (from Entry to 8, increasing with ability) at which qualifications can be recognised in England, Wales and Northern Ireland. See **www.qca.org.uk/493.html.** See SCQF.
NVQ	National Vocational Qualification. A large suite of vocational qualifications offered in England, Wales and Northern Ireland. They are generally portfolio-assessed qualifications which show skills, knowledge and ability in specific work areas. Can be taken at five levels, depending on level of expertise and responsibility of the job — see Scottish Qualifications Authority. See SVQ.
Offline assessment	An on-screen assessment which is conducted without using an internet connection during the test (although an internet connection may be used to deliver the test to the client computer prior to the test starting, and to upload the candidate responses once the test has been completed).
On-demand assessment	Used in examinations. Assessments where there is a high degree of flexibility in the date and time that tests can be offered to suit the student or their learning programme (although it may not necessarily include all days, times and dates). In contrast to many traditional assessments which are provided on a fixed date and time (or a limited range of dates and times).
On-paper assessment	An assessment delivered to the candidate on paper and where the candidate responds on paper (that is, a traditional examination).
PDA	Personal digital assistant. A small hand-held computer. Depending on level of sophistication may allow e-mail, word processing, music playback, internet access, digital photography or GPS reception, but generally less functional than a pocket computer.

PDF	Adobe Corporation's Portable Document Format. A file format that enables people to view documents with their fonts, images, links and layouts displaying exactly as they were created, regardless of the type of computer or other software being used. See **www.adobe.com**.
Plug-in	A program added to a web browser in order to add capabilities, often multimedia capabilities, for example Flash plug-in and Java plug-in.
QCA	The Qualifications and Curriculum Authority. An English non-departmental public body, sponsored by the Department for Education and Skills (DfES). Roles include the maintenance and development of the English schools national curriculum and associated assessments, tests and examinations in England, and the regulation of publicly funded qualifications in further and continuing education. The QCA is also responsible for the regulation of NVQs in Northern Ireland. See **www.qca.org.uk**.
QCF	Qualifications and Credit Framework. A unit-based qualification framework underpinned by a system of credit accumulation and transfer.
Qualification	A formal award made by an awarding body for demonstration of achievement or competence.
Qualifications and Curriculum Authority	See QCA.
Qualifications and Credit Framework	See QCF.
Qualification regulators	The four bodies, in England, Wales, Northern Ireland and Scotland, responsible for the regulation of all externally accredited qualifications outside higher education.
RBC	Regional Broadband Consortia. The ten groups of regionally adjacent local education authorities (LEAs) in England working together to procure broadband telecommunications cost-effectively for schools and to develop online content.
Response file	The electronic file which contains the candidate's responses to the assessment, which is returned from the workstation to a central computer for marking.
SCQF	See Scottish Credit and Qualifications Framework
Score	The total marks achieved by a student on a test.

Scottish Qualifications Authority	The national body in Scotland responsible for the development, accreditation, assessment and certification of qualifications other than degrees — **www.sqa.org.uk**.
Scottish Credit and Qualifications Framework	The qualifications framework for Scotland which allocates a level and credit value to each Scottish qualification. The aim of SCQF is to facilitate understanding on the range of qualifications available and how these relate to each other — **www.sqa.org.uk.** See NQF.
Scottish Vocational Qualification	See SVQ.
Screen resolution	The number of distinct dots (pixels) that a screen can display (not the same as screen size). Higher screen resolutions allow presentation of more detail and information on a screen page.
Security (technical)	The technical measures employed in computer software and hardware to prevent unauthorised access to content when stored on a computer or in transmission from one computer to another.
Self-assessment	A judgement a candidate makes about his/her work or level of attainment in relation to the stated learning outcomes for the activity/programme, often supported by an assessment which they administer themselves informally. Self-assessment is generally used to develop the candidate's ability to think critically about his/her learning.
Server	A powerful computer and (in some cases) a software application which supplies files and other resources to client machines over a network. The internet consists of many computer servers supplying web content to client machines. In e-assessment terms, servers generally deliver tests to client computers and store student responses.
Shibboleth	Shibboleth is standards-based, open source middleware software which provides web single sign-on (SSO) across or within organisational boundaries. From a user's perspective this allows one login process to be used to access multiple internet and intranet websites (to avoid multiple logins, passwords etc.). See **shibboleth.internet2.edu**.
SIF	School Interoperability Framework. A non-profit membership organisation which seeks to create a set of technical specifications to enable software programs from different companies to share information. Abbreviated to SIF. See **www.sifinfo.org**.

SQA	See Scottish Qualifications Authority.
Summative assessment	An assessment generally undertaken at the end of a learning activity or programme of learning which is used to make a judgement on the candidate's overall achievement. A key purpose of summative assessment is to record, and often grade, the candidate's performance in relation to the stated learning objectives of the programme.
SVQ	Scottish Vocational Qualification. Vocational qualifications identifying skills, knowledge and understanding in specific employment areas. Available at up to five levels. See NVQ for equivalent qualifications for England, Wales and Northern Ireland.
Teacher Qualification Framework	In England from September 2007 all new entrants to teaching in post-compulsory sectors will be required to complete a new award which will prepare them to teach in the sector. This award will be part of a new range of awards available for trainee and practising teachers. See **www.lluk.org**.
Technical standard	A specification which governs the required performance of software or hardware systems, and which has become ratified by one or more international bodies (for example CEN or IEEE). In practice, there may be considerable delay between a specification becoming widely used and it formally being adopted as a standard. **Note:** In the case of e-assessment, the IMS QTI specification is not yet a standard (although many people refer to it as a standard because it is widely in use).
UKLeaP	A draft British Standard for the representation of e-portfolio evidence and structures to allow transfer between different e-portfolio systems.
Unit (of a qualification)	The smallest part of a qualification that is capable of certification in its own right. Units may be designed as part of a specific qualification or group of qualifications, or designed independently (for example to be taken for stand-alone certification or to attract credit and be built up towards qualifications). Units may consist of separately assessed components. None of this implies that units must be taught or delivered as discrete entities.
Unit (QCF)	A coherent set of learning outcomes and related assessment criteria with a title, credit value and level.

Usability	A measure of the extent or ease with which a service can be used by users with a broad range of requirements and preferences.
Verification	A process of moderation that includes local checking of assessment processes and decisions.
Verifier	A person who checks that assessment standards have been applied correctly and consistently between assessors, between centres and over time, and makes adjustments to results where required to compensate for any differences in standard that are encountered. Also involves reviewing the work of a sample of candidates
Virtual learning environment	See VLE.
VLE	A virtual learning environment is a set of learning and teaching tools based on networked computer resources (ICT) which provide a focus for students' learning activities and their management and facilitation, along with the provision of content and resources required to help make the activities successful. The functions considered standard in a VLE are curriculum mapping, student tracking, communications tools, tutor and student support, assessment and learning delivery tools. VLE is sometimes used interchangeably with MLE (managed learning environment) but an MLE can also be defined as comprising the complete learning environment, including a VLE and offline elements.
Workstation	In an e-assessment context, a client computer on a network that is used by the candidate to take the on-screen test.

Reproduced with permission of the Joint Informations Systems Committee. Some additional definitions are included and other definitions have been amended slightly. The full JISC glossary can be found at **www.qca.org.uk/** or **www.jisc.ac.uk/assessment**.

8. Select bibliography and resources

The following sources of reference have been used within the guide.

Specific sources

- International Standard ISO/IEC 23988:2007 *Code of practice for the use of information technology (IT) in the delivery of assessments*, British Standards Institution. Formerly BS 7988:2002.
- BS 8788 *UK Lifelong Learning Information Profile* (UKLeaP), British Standards Institution.
- International guidelines on computer-based and internet-delivered testing (2005), International Test Commission.
- 'E-portfolios — Definitions and directions paper' Becta.
- *A review of current e-portfolio developments*, conducted by the Centre for Recording Achievement (CRA) on behalf of Becta.

General sources

Documents from the regulatory authorities that have been reviewed to take account of developments in the area of e-assessment include:

- Guidelines on use of e-portfolios produced by technology suppliers
- Test centre guidelines developed by individual awarding bodies

Centres should also have an awareness of legislation and codes of practice relevant to e-assessment operation, including:

- The Data Protection Act 1998
- The Health and Safety at Work Act 1974
- The Disability Discrimination Act 1995
- The Special Educational Needs and Disability Act 2001
- The Freedom of Information Act 2000 (if the test centre or the awarding body is a public authority)
- ISO/IEC 17799: 2005 Code of Practice for Information Security Management
- BS EN ISO 9241 Ergonomic requirements for office work with visual display terminals (VDTs)

9. Annexes

A1: Staffing requirements checklist

Print-ready version on the e-futures website: **www.efutures.org**.

E-assessment requires access to staff able to undertake the following range of functions, either individually or collectively. The numbers of staff available should be adequate for the anticipated volume of e-assessments and the number of learners involved, and there must be timely access to appropriate technical support.

This checklist can be used both for identification of appropriate staff (or access to these skills and knowledge) to cover the requirements of e-assessment, and for determining gaps in type and/or level of available expertise.

Note: Supporting information on the items listed can be found in section 2, 'Roles and responsibilities'.

Are named staff available for the following key roles? This may require negotiation with other departments or organisations. ♦ management (overall strategy, policies and accountability for the e-assessment process) ♦ administration (responsibility for operational systems and processes) ♦ technical support (responsibility for the technology and/or access to appropriate external support) ♦ working with the learner (maximising the potential for success through the conduct of the e-assessment process) ♦ invigilation of e-testing sessions ♦ assessment of e-portfolios	**Name/contact details:**
Are sufficient staff available to meet the predicted scale of e-assessments? Consider whether designated staff have the knowledge/skills for the related responsibilities, for example: ♦ generic assessment knowledge and skills (related to points above) ♦ e-testing specific knowledge and skills ♦ e-portfolio specific knowledge and skills	**Yes/No**
Gaps in available expertise identified (including back-up plans, for example if key staff leave or are unavailable):	**Planned solutions, eg training:**

A2: E-testing role matrix

Print-ready version on the efutures website: **www.efutures.org**.

This matrix makes a distinction between roles and people in the provision of e-testing, in order to recognise that a range of operational models is likely to exist within different organisations. It details the responsibilities inherent within each role, indicating the type and scale of activity to be undertaken, regardless of whether these are covered by one or more than one person within the organisation.

These roles and responsibilities match the recommended processes in the guide, and are reflected in the design and content of the relevant LLUK approved units for people involved in the delivery of e-assessment. A copy of these units can be found in section 6.

Each section of the matrix is headed by cross-references to relevant sections of the guide.

The references to learning outcomes and assessment criteria within the units appear in brackets at the end of entries for each role:

- ‘LO’ refers to learning outcome in the unit
- ‘Criteria’ refers to the assessment criteria in the unit

Note: The roles and responsibilities covered in this matrix also assume that a senior manager within the organisation will be responsible for the development of an e-assessment strategy, and accountable for the successful implementation of the strategy.

Key areas of responsibility

(see section 2)

Co-ordination role	Administration role	Technical role	Learner support role	Invigilation role
Implementation of the overall strategy and policies, with accountability for the operational running of the e-testing process within the centre(s) [LO 1] Working with senior management to ensure that sufficient and appropriate equipment and resources are available for e-testing to be effectively managed and conducted [LO 2] Assessment, monitoring and control of critical success factors related to running e-test sessions [LO 3]	Operational responsibility for setting up and maintaining designated aspects of the e-testing process, including problem resolution and checks to ensure that processes are followed [LO 1] Setting up the e-testing environment, and working effectively with learners and other staff connected with the e-testing process to ensure that it meets quality, e-test and learner requirements [LO 2, LO 3] In conjunction with other staff, assisting learners in their preparation for participating in an e-test [LO 4]	Operational responsibility for technical aspects of the e-testing process [LO 1] Providing technical support for setting up the e-test location, both at the centre and remotely, including the identification and use of appropriate equipment and applications to meet specific e-test and learner needs [LO 2] Ensuring that the environment and equipment is working correctly for e-test sessions, and providing timely technical support and first line problem resolution to staff, invigilators and learners as appropriate [LO 3] Evaluation of own role and performance in the e-testing process [LO 4]	Understanding the processes that are in place to prepare learners for e-testing [LO 1] Understanding the e-testing environment and equipment and how it can be adapted to meet learner needs [LO 2] Understanding what e-testing opportunities and support are available to learners, and identifying any specific needs to ensure that they are not disadvantaged by the e-testing process [LO 3] Using practice sessions to build learner readiness to take e-tests [LO 4] Ensuring learners are kept informed of relevant centre processes and e-testing regulations [LO 5]	Understanding of the quality standards and requirements of the awarding body for an approved e-testing environment [LO 1] Ensuring provision of appropriate support to learners during the e-test [LO 2] Invigilation of e-test sessions according to the requirements of the relevant awarding body [LO 3, LO 4]

Allocation of staff to specific roles and responsibilities, and ensuring that these are understood by all staff; monitoring of the performance of staff involved in the e-testing process; and identification of staff development needs in relation to the e-testing process [LO 4] Evaluation of own and others' roles and performance in the e-testing process[LO 4]	Running e-test sessions, assisting invigilators and learners as appropriate, and liaising with other staff as required [LO 5, LO 6] Evaluation of own role and performance in the e-testing process [LO 7]		Evaluation of own role and performance in the e-testing process [LO 6]	

Generic tasks and responsibilities

(see section 2 and annexes A1, A2, A3, A4 and A5)

E-testing processes and procedures

Co-ordination role	Administration role	Technical role	Learner support role	Invigilation role
Agree operational processes and procedures with senior management to enable e-testing to be conducted to specified quality standards Implement agreed processes and procedures with other staff involved in the delivery of e-testing Identify critical success factors, and ensure that appropriate processes and measures are in place to enable these to be monitored and achieved, and any issues resolved in a timely fashion [Criteria: 1.1–1.3, 3.1–3.3]	Set up and maintain agreed operational processes and procedures to ensure that e-testing is conducted to specified quality standards [Criteria: 1.1–1.4, 3.2, 5.3, 5.4, 5.6]	Provide technical support for e-testing in line with processes set up at the centre, and taking account of awarding body requirements, agreed quality standards and learner needs [Criteria: 1.1–1.3]	Ensure own and learners' familiarity with the procedures and regulations for e-testing, and the technology and support available [Criteria: 1.1–1.4]	Check that learners are familiar with the procedures and regulations for the e-test, and have access to appropriate technical and other support [Criteria: 1.1, 3.6]

Liaison

Co-ordination role	Administration role	Technical role	Learner support role	Invigilation role
Liaise with awarding body and technical supplier, and with other staff to ensure that the centre continues to meet requirements for e-testing [Criterion 1.6]	Liaise with awarding body and other staff as required within the role Support other staff in the delivery of an effective service to learners [Criteria: 2.4, 3.3, 3.4, 5.5]	Liaise with awarding body and/or technical supplier's help desk as required, in order to provide technical help and troubleshooting Support other staff in the delivery of an effective service to learners [Criteria: 2.1–2.4, 3.4]	Liaise with other staff to ensure suitable opportunities and support are identified and provided for learners, and resolve/escalate issues that arise Support other staff as required, in order to provide an effective service to learners [Criteria: 1.2, 1.4, 3.4]	Liaise with awarding body and other staff as required, to ensure that e-test sessions are conducted effectively [Criteria: 1.1, 3.6, 4.3, 4.6]

Resources

Co-ordination role	Administration role	Technical role	Learner support role	Invigilation role
Ensure availability of appropriately trained staff at each stage of the e-testing process, including timely access to appropriate technical support Work with senior management to agree required resources, and ensure that these are available and kept in good working order to meet e-testing needs Identify and allocate staff to specific roles and responsibilities, and ensure that these are understood by all staff; have a working understanding of what is involved in each role and any likely key issues Ensure availability of appropriately trained staff at each stage of the e-testing process [Criteria: 2.1–2.5]	Ensure that appropriate resources are made available in a timely fashion for learners undertaking e-testing, including any special requirements [Criteria: 2.4, 3.1–3.4, 4.4, 5.1]	Identify the appropriate hardware and software required to enable the centre to deliver the volume and type of e-testing being conducted Maintain the equipment in good working order [Criteria: 1.2, 2.1–2.4, 3.1]	Ensure that appropriate facilities, equipment and resources are made available for learners undertaking e-testing [Criteria: 1.2, 2.2–2.4]	Verify that the e-testing location and equipment meets the required assessment conditions and specific requirements of learners [Criteria: 1.1, 2.1, 3.5]

Problem solving

Co-ordination role	Administration role	Technical role	Learner support role	Invigilation role
Ensure that agreed processes are followed and resolve any issues in conjunction with awarding bodies, technical suppliers and other staff as required [Criteria: 1.4, 3.3]	Deliver first line resolution of administrative issues related to the e-testing process. Report and/or escalate issues as necessary [Criteria: 1.4, 2.2, 3.4]	Deliver first line technical problem resolution, and report and/or escalate issues as necessary [Criteria: 1.3, 2.3, 3.1, 3.3e]	Resolve and/or escalate any issues that arise, liaising with other staff as appropriate [Criteria: 1.4, 3.4]	Raise any issues arising from checks made related to the e-test (for example the environment and assistive technology), and ensure that these are resolved and/or escalated as appropriate Report and document any emergencies, technical failures and irregularities, and ensure that these are resolved appropriately for the candidate [Criteria: 1.1, 3.5]

Learner support

Co-ordination role	Administration role	Technical role	Learner support role	Invigilation role
Ensure that all staff are aware of their responsibilities related to learner support and e-testing and are providing appropriate assistance to learners [Criterion: 2.3]	In conjunction with other staff, ensure that learners have access to the appropriate information, support and resources to ensure that they are not disadvantaged by the e-testing process [Criteria: 2.2, 2.3, 3.2, 4.1–4.5, 5.2, 5.5]	Assist other staff in identifying the appropriate equipment and/or applications required to meet specific requirements of learners and tests Provide technical support to learners as required [Criteria: 2.1, 2.2, 3.2]	Provide learners with information and guidance relating to e-testing, including identifying suitable e-testing opportunities related to units and qualifications that meet their needs Ensure that learners have access to appropriate technical and other support, liaising with other staff as appropriate Ensure that learners know how to use any equipment or assistive technology [Criteria: 1.2, 2.4, 3.3, 4.2, 5.1, 5.2]	Ensure that candidates have been provided with any required assistive technology Ensure that support is given to candidates in line with e-test regulations [Criteria: 2.1, 2.2]

Staff development/skills

Co-ordination role	Administration role	Technical role	Learner support role	Invigilation role
Understand the roles required for consistent, reliable delivery of the e-testing process Ensure that all roles are covered by designated staff Monitor effectiveness of individuals involved in the e-testing process Identify and resolve any issues, and provide or arrange for appropriate staff development to ensure capability to support the effective performance of roles within the e-testing process Evaluate own effectiveness in the role, and identify any training and development needs [Criteria: 2.1, 2.3, 4.1–4.3, 5.1–5.3]	Keep up to date with the centre's processes and procedures related to e-testing Perform agreed role and tasks in a timely fashion and to agreed quality standards Evaluate own effectiveness in the role, and identify any training and development needs [Criteria: 7.1–7.3]	Keep up to date with technical and general processes and procedures related to e-testing Perform agreed role and tasks in a timely fashion and to agreed quality standards Evaluate own effectiveness in the role, and identify any training and development needs [Criteria: 4.1–4.3]	Keep up to date with e-testing processes and requirements as they relate to the learner Evaluate own effectiveness in the role, and identify any training and development needs [Criteria: 6.1–6.3]	Keep up to date with centre processes relevant to the invigilation of e-tests and with awarding bodies' requirements related to e-testing Maintain a general understanding of the assistive technology approved by awarding bodies [Criteria: 1.1, 2.1, 2.2, 3.1, 3.3, 3.4, 4.4]

Tasks related to the e-testing environment (see section 3.3, and annexes A4 and A5)

General environment

Co-ordination role	Administration role	Technical role	Learner support role	Invigilation role
Ensure that the general environment, facilities and equipment meet the criteria required for e-testing and that staff are aware of these [Criteria: 1.5, 2.1, 2.2, 2.4, 2.5]	Understand the general criteria for an e-testing environment and facilities, and make checks to ensure readiness prior to an e-testing session [Criteria: 2.1, 2.2]	Understand the general criteria for an e-testing environment and facilities Assist other staff to ensure readiness of the e-testing location and equipment prior to an e-testing session [Criteria: 2.1–2.4]	Understand the general criteria for an e-testing environment and facilities, and how this can be optimised to meet learner requirements [Criteria: 2.1–2.4]	Check that the e-test location meets the criteria required for e-testing prior to starting the test, and raise any issues with appropriate staff [Criterion: 1.1]

E-testing equipment

Co-ordination role	Administration role	Technical role	Learner support role	Invigilation role
Ensure that the centre has the right equipment to meet the criteria for an e-test centre, and that staff maintain the equipment so that it is available when required for a specific session [Criteria: 2.1–2.5]	Work with technical staff to identify what equipment is required for a specific e-test and learners, and to ensure that this is in place and working prior to the start of the e-test session [Criteria: 2.3, 2.4, 3.2–3.4]	Know what equipment the centre has, and ensure that it meets the criteria for an e-test centre, and is kept in good working order Liaise with admin staff to determine what equipment is required for a specific e-test or learner and ensure that this is in place prior to the start of the e-test session [Criteria: 1.2, 2.1–2.4]	Determine what equipment learners require for a specific e-test and whether they have any individual needs related to assistive technology Liaise with technical staff to ensure that equipment is in place and working prior to the start of the e-test session [Criteria: 2.4, 3.4]	Check that learners have the appropriate equipment for the e-test as well as any specific assistive technology [Criterion: 1.1]

Additional facilities and areas

Co-ordination role	Administration role	Technical role	Learner support role	Invigilation role
Ensure that the centre has the required additional facilities and areas, and that these are available if the need arises [Criteria: 2.1, 2.2, 2.5]	Know the criteria for when additional facilities and e-test areas are required, and liaise as appropriate to ensure that these are set up and available if the need arises [Criteria: 3.1–3.4]	Assist other staff to identify when additional facilities and e-test areas are required, and set up if the need arises [Criterion: 2.2]	Know the criteria for when additional facilities and e-test areas may be required for learners, and liaise as appropriate to ensure that these are set up and available if the need arises [Criteria: 2.1–2.4, 3.4]	Check that any additional facilities or areas required for a specific test are available [Criterion: 1.1]

Security

Co-ordination role	Administration role	Technical role	Learner support role	Invigilation role
Ensure that security arrangements and procedures related to the layout of the room, e-test content and candidate details are understood and adhered to [Criteria: 1.5, 2.1–2.5]	Ensure that positioning of workstations and invigilator's desk facilitates detection of any unauthorised activity Ensure that there are appropriate arrangements in place for keeping e-test content and candidate details secure [Criteria: 2.1, 5.3, 6.1]	Ensure that any security arrangements and procedures that involve the technology or equipment are adhered to [Criteria: 1.1, 2.4, 3.1]	Ensure that learners are aware of any security arrangements and procedures that apply to them [Criteria: 5.1, 5.2]	Understand the awarding body regulations relating to the secure conduct of e-test sessions Ensure that there is no unauthorised communication between candidates or access to unauthorised information Criteria: 3.1, 3.4, 4.6]

Process-related tasks and responsibilities

(see section 3 and annexes A3, A4 and A5)

E-testing processes and procedures

(see section 3.4)

Co-ordination role	Administration role	Technical role	Learner support role	Invigilation role
Ensure that processes are in place and understood/followed by staff [Criterion: 1.3]	Identify/explain appropriate assessment opportunities for learners (including e-testing) Register learners with the appropriate awarding body Explain to learners what support is available at each stage of the assessment process, and identify any additional candidate needs Ensure that the e-testing location and equipment are prepared prior to the e-testing session Set up and run practice e-test sessions as required [Criteria: 1.4, 4.1–4.5]	Check and maintain hardware, software and communications equipment to ensure their capability to deliver a technically sound e-testing process Ensure that any required assistive technology, additional equipment and facilities are available and in working order prior to the start of e-testing sessions Check security features of the specific e-test Assist non-technical staff to ensure that the e-test location, equipment and materials are set up correctly [Criteria: 2.1–2.4, 3.1]	Assist learners in identifying any specific needs they may have, and ensure that they are provided with any appropriate assistive technology, and that they know how to use it Ensure that learners are at an adequate stage of readiness before they are entered for any e-test, unit or qualification Support learners in undertaking practice assessments in order to become familiar with the technology and applications to be used [Criteria: 3.1–3.4, 4.1, 4.2]	

Running e-test sessions

(see section 3.5)

Co-ordination role	Administration role	Technical role	Learner support role	Invigilation role
Ensure that processes are in place and understood/followed by staff [Criterion: 1.3]	Conduct final checks to ensure that the e-test location meets the required assessment conditions Ensure that all candidates have been registered and authenticated Check that any test-specific instructions have been followed Check that agreed assistive technology is in place Ensure that individual logon passwords for the candidate(s) have been obtained Ensure that any issues are resolved, working with other staff and bodies where necessary [Criteria: 1.4, 5.1–5.4]	Make final checks that the equipment needed for the e-test session is in place and meets the required assessment conditions, and e-test and learner requirements Provide technical advice and assistance, and resolve and/or escalate any technical issues that arise during the e-test session, working with other staff and bodies where necessary Working with other staff, awarding bodies and technical suppliers as necessary, ensure that any emergencies, technical failures and irregularities are dealt with appropriately, logged and reported [Criteria: 3.2–3.4]	Ensure that learners understand the regulations and procedures related to the conduct of e-tests [Criteria: 5.1, 5.2]	Conduct checks to ensure that the e-test location, equipment (including assistive technology) and materials have been set up correctly Check that candidates have been authenticated to take the e-test [Criteria: 1.1, 3.2]

Invigilation — running the e-test session

(see section 3.5)

Co-ordination role	Administration role	Technical role	Learner support role	Invigilation role
Ensure that processes are in place and understood/followed by staff Ensure that all staff are aware of their role in supporting learners and the invigilator in the effective running of e-test sessions Ensure that all staff are aware of the measures that need to be taken related to emergencies, technical failures and irregularities [Criteria: 1.3, 3.3, 3.4]	Support the invigilator and candidates as appropriate during the e-test session Ensure that any breaks are carried out safely and securely Working with other staff and awarding bodies as necessary, ensure that any emergencies, technical failures and irregularities are dealt with appropriately, logged and reported Close the e-test session in accordance with approved procedures [Criteria: 5.3, 5.5, 5.6]	Support other staff, invigilators and candidates appropriately during the e-test session Assist the closing of the e-test session if required, in accordance with approved procedures [Criteria: 3.2, 3.5]		Log on candidates and unlock the e-test Invigilate the e-test session according to the requirements of the awarding body Ensure that appropriate support is provided to candidates (if required) Ensure that any breaks are carried out safely and securely Ensure that any emergencies, technical failures and irregularities are dealt with appropriately, logged and reported Ensure that any other issues are resolved and/or escalated appropriately, including notification of the awarding body Supervise the logging-off/closing of the session in accordance with approved safety and security procedures [Criteria: 3.3–3.5, 4.3–4.6]

After the e-test session

(see section 3.6)

Co-ordination role	Administration role	Technical role	Learner support role	Invigilation role
Ensure that processes are in place and understood/followed by staff [Criterion: 1.3]	Transmit candidate details and responses in line with awarding body requirements Assist other staff by providing feedback on a specific e-test if required Ensure that any awarding body certificates are obtained [Criteria: 6.1, 6.2]		Provide timely and supportive feedback to candidates as required Ensure that candidates understand the process for obtaining awarding body certification, where relevant [Criteria: 4.3, 5.3]	Report any issues arising from the e-test session as appropriate [Criteria: 3.3, 3.5]

A3: Process checklists

See related sections of the guide for further information on individual items. A print-ready version can be found at the efutures website: **www.efutures.org**.

Preparing for e-testing

(see section 3.4)

Registering with an awarding body (administrator)

Checklist	Yes/No/NA	Role/Name	Date/Comment
Explain what support will be available to learners at each stage of the e-testing process.			
Explain the specific e-testing options available.			
Help the learners to select the appropriate option(s) to meet their needs.			
Register the learner with the relevant awarding body and enter them for assessment for the particular qualification or unit selected (in accordance with the specific requirements and arrangements defined by the relevant awarding body).			
Schedule the learner to take their e-test on a date that meets their own, the centre's and the awarding body's requirements.			
Signature of administrator:			
Signature of supervisor/manager:			

E-test location and equipment preparation (technical support)

Note: Preparation of the room and equipment prior to the e-testing session should be carried out well before candidates are due to arrive, and should include the following checks:

Checklist	Yes/No/NA	Role/Name	Date/Comment
Check that all necessary computers and peripherals (including spares, if available) are in working order.			
Check that the centre's server and connections (including communications links) meet the requirements of the e-test.			
Verify that computer date and time are correct.			
Load any specific e-test software, together with any other required software.			
Check that the assessment software works correctly on all the equipment to be used for the assessment, using material supplied by the awarding body.			
If necessary, configure software to the requirements of the specific e-test, or check the configuration; this may, for example, involve disabling help screens and spell-checks.			
Check, if practicable, that e-test software and storage of results are working correctly.			
Where feasible and required, disable access to any unauthorised software which could threaten test security, for example web access or e-mail.			
Check any fail-safe features that have been used in the assessment, for instance to prevent the candidate quitting the test by accident.			
Check what access the assessment allows to on-screen data and aids, such as calculators, and that these are available/working.			
Check that any additional equipment or facilities required (either by the assessment or by the candidate) are available and work with the assessment software and centre equipment.			
Signature of technical support staff:			
Signature of supervisor/manager:			

Materials preparation (administrator/technical support)

Checklist	Yes/No/NA	Role/Name	Date/Comment
Log on or start the e-test (and know how to end the test).			
Verify that it is the correct e-test and that it is the most up-to-date version of the e-test, if necessary.			
Know how the particular e-test operates, in order to recognise any problems that arise, and know how to deal with them.			
If necessary, configure software to the requirements of the specific e-test, or check the configuration; this may, for example, involve disabling help screens and spell-checks.			
Ensure that any necessary additional materials (such as calculators) and paper for rough notes, if permitted, are available if they are to be provided by the centre.			
Check the awarding body's procedures for safeguarding the security of assessment content during transmission, and the centre's involvement in that process.			
Signature of administrator:			
Signature of technical support staff:			
Signature of supervisor/manager:			

Preparing learners for e-testing/running a practice e-test session (administrator/learner support)

Note: It is essential that staff can answer questions around navigation and types of question used within e-tests, in order to help prepare candidates for taking a formal e-test. They may also need to answer navigation questions during the actual e-test.

Checklist	Yes/No/NA	Role/Name	Date/Comment
Offer at least one practice e-test linked to the qualification or unit the learner is undertaking. **Note:** Practice material similar to the actual e-test should be provided, and should be made available in the appropriate format (for example via the internet or on disk) and taking into account any specific needs of the learner.			
Explain the purpose of a practice e-test and give appropriate explanation and support to learners in using these practice materials (both before and during the session if necessary), in order to help them prepare for formal assessment.			
Draw attention to the help and fail-safe features of the e-test.			
Show learners all the relevant features in the e-test, giving them an opportunity to become familiar with navigation.			
Explain any data protection or waivers and rules of conduct that the candidate may have to agree to.			
Show all item types used in the actual test.			
Show a sample of items similar in content, style and difficulty to those used in the actual test (not necessarily a full scale mock test).			
Show a sample of results and/or feedback.			

Checklist	Yes/No/NA	Role/Name	Date/Comment
Give feedback on the results of any practice e-test, together with advice and guidance on readiness to go on to formal assessment.			
Give additional practice opportunities if necessary.			
Provide additional support in the use of e-tests if this would be beneficial.			
Give learners the following information and guidance in advance of taking an e-test: ♦ any requirements to bring proof of identity with them when they come to take the e-test ♦ any general centre procedures related to the e-test session that may affect the learner ♦ any specific security features of the assessment that the learner needs to know ♦ how to use any additional equipment and/or assistive technology			
Make learners aware of the following: ♦ how the assessment will be conducted ♦ any invigilation rules and regulations they need to understand, including the procedure for supervising any breaks ♦ when and how they should ask for assistance during the e-test ♦ how the e-test will be scored (at least in general terms) ♦ any relevant best practice in relation to completing the test, for example not spending too long on any one question, and attempting all questions			
Signature of administrator:			
Signatures of technical support staff:			
Signature of supervisor/manager:			

Running the e-test session

(see section 3.5)

Final checks related to location, equipment and materials (technical support/administrator)

Note: Centres must comply with health and safety requirements, and the requirements of the regulatory authorities, awarding bodies and e-test suppliers, and safeguard the confidentiality of any personal data, including information relating to health and disability.

Checklist	Yes/No/NA	Role/Name	Date/Comment
Check that the e-test location and equipment meet the required assessment conditions.			
Check that all candidates have been registered correctly.			
Check that any test-specific instructions (for example provided by the relevant awarding body) have been followed.			
Check that any agreed assistive technology is in place.			
Check that any issues identified have been resolved.			
Check that any individual logon passwords for the candidate(s) have been obtained — these may be supplied either by the awarding body or the e-test distributor.			
Signature of technical support staff:			
Signature of administrator:			
Signature of supervisor/manager:			

Authentication confidentiality (administrator)

Checklist	Yes/No/NA	Role/Name	Date/Comment
Check that candidates have been identified/authenticated according to centre regulations as agreed with the awarding body.			
Check that a seating plan has been made (if required by the awarding body), linking candidates' personal data to a specific workstation.			
Check that records of attendance have been completed and processed according to awarding body requirements.			
Check that candidates have been asked to sign a confidential disclosure agreement (if required by the awarding body).			
Check that there are processes in place to ensure that confidentiality of the candidate data is maintained.			
Signature of administrator:			
Signature of supervisor/manager:			

Final checks related to the candidate (administrator/invigilator)

Checklist	Yes/No/NA	Role/Name	Date/Comment
Check that candidates are comfortably seated (in the designated places on the seating plan, if there is one) with access to any agreed assistive technology if relevant.			
Check that candidates are familiar with the e-test instructions, procedures and regulations, including how to navigate and answer items.			
Inform candidates of any time limit and how the e-test will be terminated.			
Ensure that candidates know how to request technical or emergency assistance.			
Check that candidates have logged on successfully (or been logged on by the centre).			
Signature of administrator:			
Signature of invigilator:			
Signature of supervisor/manager:			

Planned and unplanned breaks (administrator/invigilator)

Note: For e-tests longer than 1.5 hours and where the candidates work entirely or almost entirely at the screen, there should be provision for them to take a break. This extended time should be known and approved in advance by the awarding body. Candidates may also be allowed an extended test time due to a disability. In certain instances awarding bodies may permit an extension of this time limit for particular qualifications.

Checklist	Yes/No/NA	Role/Name	Date/Comment
Check that there are measures to ensure that there is no unauthorised access to the e-test during any break.			
If there is a break, ensure that the invigilator has controlled access to the e-test after the break and controls the restart in the same way as at the start of the test.			
If there is a break, check that candidates can re-access their previous responses where this is technically feasible and permitted by the regulations.			
Signature of administrator:			
Signature of invigilator:			
Signature of supervisor/manager:			

Invigilating the e-test session (invigilator/technical support)

Note: Unless specifically permitted by the regulations, candidates should not be given any help in understanding or answering e-test items, but can and should be given technical support if necessary.

Checklist	Yes/No/NA	Role/Name	Date/Comment
Ensure that candidates have an opportunity to read the initial instructions and information relating to the test (before any timing of the session starts).			
If there is an option to revert to paper-based testing, explain the conditions relating to this to the candidate.			
Ensure that at least one invigilator is present in the room or able to monitor all the candidates throughout the e-test session. **Note:** In certain instances awarding bodies may set requirements for a specific ratio of candidates to invigilator.			
Ensure that candidates' screens are observed by patrolling the room and that general assessment regulations are observed.			
Ensure that candidates do not have access to outside information.			
Check that technical support in relation to navigation and usage is available throughout the e-test.			
Check what processes are in place regarding access to technical help to resolve issues related to malfunction of equipment, software or the e-test itself. **Note:** There should be the potential to rebook the session if this option is the least disruptive to the candidate.			

Checklist	Yes/No/NA	Role/Name	Date/Comment
Check that any other assistance to candidates is available throughout the e-test session in accordance with the regulations for the e-test.			
At the conclusion of the e-test, check that any necessary back-ups are made and stored securely.			
Ensure that no unauthorised materials (for example printouts) are taken from the e-testing location by candidates.			
Name and signature of invigilator:			
Signature of supervisor/manager:			

Emergencies, technical failures and irregularities (invigilator)

Note: Invigilators should log all technical failures, delays and candidate complaints in case of appeal.

Checklist	Yes/No/NA	Role/Name	Date/Comment
Check the procedures for dealing with hardware, software and communication failures.			
Record and report any candidate complaints of system delays or other unusual occurrences.			
If there are any situations where the candidate is thought to have cheated, follow the formalised processes for reporting to avoid conflict. **Note:** All automated test results are only provisional, to allow for any investigation.			
Signature of invigilator:			
Signature of supervisor/manager:			

Concluding the e-test session (administrator/technical support)

Note: It may be necessary for centre staff to check with candidates to confirm formally that they have completed the e-test and are ready to have their responses submitted, particularly if some items remain unanswered.

Checklist	Yes/No/NA	Role/Name	Date/Comment
Close the e-test software as required (some may close automatically).			
Make any necessary back-ups and store them securely, to meet awarding body requirements.			
Ensure that no unauthorised materials (for example printouts) are taken from the e-testing location by candidates.			
Signature of administrator:			
Signature of supervisor/manager:			

A4: Technical information/support

Note: In addition to IT-specific recommendations, centres need to conform to the general requirements of awarding bodies and with health and safety requirements, and safeguard the confidentiality of candidates' personal data, including information relating to health and disability.

Emergencies

- The centre should have procedures in place for dealing with emergencies (such as fire alarms and bomb scares). These should include provision to:
  - safeguard the security of assessment content and responses (for example, by locking an assessment room which has been evacuated without closing down software)
  - minimise opportunities for collusion between candidates or communication with others during interruptions to an assessment
  - ensure that candidates have the full working time for the assessment
  - safeguard access to the server room if applicable
- Procedures for dealing with hardware, software and communication failures (which may affect individual workstations or the whole network) should normally allow the candidate(s) to continue the assessment session at a different workstation or at a later time, if necessary, without loss of working time.
- In extreme cases it may be preferable to provide a paper-based assessment, and the conditions/procedure for this should be agreed in advance with the awarding body.
- Where appropriate, the invigilator may be able to opt to extend the time limit (if any) to compensate for delays. This must be agreed with the appropriate awarding body, as it is not a valid option for some assessments.
- All emergencies, technical failures and irregularities, including system delays, should be recorded, together with the action taken.
- All technical failures and delays and any candidate complaints of this nature that could form the basis of an appeal should be logged and reported.
- The centre should attempt to resolve any difficulties that occur. However, if an issue cannot be resolved locally, or is the subject of an appeal, it should be referred to the awarding body.

First line troubleshooting

- Centre staff should be able to perform initial troubleshooting should problems occur. However, if it is not possible to resolve the problem internally, or a quick solution is needed (particularly if the e-test session

is under way), the centre should contact the appropriate specialist help (see 'Specialist technical support', below).

- To minimise disruptions due to technical failures, the centre should give due consideration to:
  - maintenance of hardware
  - provision of spare workstations and/or easily replaced items
  - a back-up server, if applicable

Specialist technical support

- Technical help should be available for centres, both for initial setting up of assessment software (if needed) and during e-test sessions. Information should include helpline numbers and troubleshooting hints.
- The centre should check with the awarding body who to contact for technical assistance, and ensure that staff have access to helpline numbers.
- The centre manager should ensure that relevant staff understand any troubleshooting hints that have been provided.

Technical specification: delivery platforms

Exact technical specifications may vary from one awarding body to another, and e-assessment centres should check their suitability to offer e-tests. These technical specifications will include requirements such as:

- minimum hardware, including network and peripherals
- keyboard (for example UK, US)
- screen resolution and colour depth
- operating system(s), including the range of acceptable version numbers
- language of the operating system (for example English, French). This could affect, for example, the display of dates and of numbers using decimal points and number of bits for character codes
- any software required in addition to the e-assessment software (for example browser software, plug-ins and specific fonts), including software versions where applicable
- communication links
- assistive technology to which the e-assessment software may link (including any particular settings or hardware inclusions)

Technical support checklist

Summary of technical requirements	Yes/No	Comment/Issues
The centre has procedures in place for dealing with emergencies, technical irregularities and delays.		
Technical support meets the following requirements: ♦ Technical support staff have been trained as required by the awarding body's requirements. ♦ Trained support staff are available for setting up assessment software and downloading/checking e-assessment materials. ♦ Trained support staff are available for e-assessment sessions. ♦ Trained support staff are available to perform initial troubleshooting. ♦ The centre has contact details for specialist technical.		
Centre equipment meets the relevant awarding body's systems specification for delivering e-assessments.		
Signature of supervisor/manager:		

A5: E-testing environment checklist

Note: Supporting information about all requirements listed can be found in section 3.3, 'The e-testing environment'.

Summary of e-testing environment requirements	Yes/No	Comment/Issues
Adequate ventilation		
Suitable lighting		
Separate assessment areas available if needed, for example for: ♦ special help/facilities ♦ practice assessments suitable chairs ♦ sound output		
Workstation: ♦ suitable chairs ♦ adjustable monitors ♦ document holders ♦ footrests (available if requested) ♦ freedom from glare ♦ space for keyboard, mouse and screen ♦ space for papers, materials and equipment ♦ space for rough notes		
Workstation layout: ♦ sufficient distance between workstations ♦ partitions provided; or ♦ positioning retains confidentiality (if needed)		
Space/facilities for candidates with disabilities, if applicable		
Workstations/invigilator's desk positioned well		
♦ back-up provision: ♦ spare workstations ♦ spares of easily replaced items ♦ back-up server, if applicable		
Signature of supervisor/manager:		

A6: Functionality checklist

Print-ready version on the efutures website: **www.efutures.org**.

Desirable features for e-portfolios	Priority L/M/H	Yes/No/NA	Comments
1. Acceptability/suitability of system			
Has the product you are considering been approved by the awarding body/bodies you wish to work with?			
Is there an e-portfolio system currently in use elsewhere in your institution? If yes, is it suitable for your e-assessment purposes? If no, what are your reasons for rejecting it?			
2. Scope			
If you wish to use the e-portfolio for other purposes (for example, personal development, diagnostic and/or formative assessment), does the product cater for these additional uses?			
3. Accessibility			
Is the e-portfolio easily accessible by learners, teachers, assessors and verifiers?			
Can the product be accessed from locations remote from the centre? Can documents/evidence be transferred simply between the relevant users?			
Is it clear who 'owns' the portfolio?			

Desirable features for e-portfolios	Priority L/M/H	Yes/No/NA	Comments
4. Monitoring learner progress Who needs to be able to monitor your candidates' progress? Can a candidate's progress be monitored easily?			
Is it possible to conduct initial assessment checks online?			
Can action planning be conducted online with learners?			
Does the system 'flag' when work is received for review?			
Can additional courses be selected for learners?			
Can comments from internal and external assessors be viewed? If so, by whom? Can these comments be protected from amendment?			
5. Cross-referencing			
Is it simple to cross-reference evidence, if this is a prerequisite of the qualifications you are working with?			
If there is a facility for cross-referencing against criteria: ♦ How easy is this to do? ♦ Who can do it?			
Can one evidence file (with more than one piece of evidence) be cross-referenced to more than one assessment criterion?			

Desirable features for e-portfolios	Priority L/M/H	Yes/No/NA	Comments
6. Reports			
Is there real time reporting from workplace to centre back-end systems?			
Can learner reporting systems be accessed off-site?			
Can the system report on credits and qualification achievements?			
Can the centre customise reports?			
6.1 Generic reports			
Can the system generate the following generic reports? For example: ♦ size of assessor's case-load ♦ start and end dates for candidates ♦ time taken to complete unit(s) or qualification (in days) ♦ forms of assessment used ♦ number of candidate registrations per assessor ♦ numbers in receipt of credit for completed units ♦ gender/diversity/equality analysis ♦ report by age of candidates ♦ analysis of candidates against national benchmarks			

Desirable features for e-portfolios	Priority L/M/H	Yes/No/NA	Comments
6.2 Assessor reports			
Can the system generate the following assessor reports (related to individual learner)? For example: ♦ contact prior to visit ♦ what has happened on visit ♦ learner progress ♦ whether assessment has taken place ♦ last time learner seen (attendance) ♦ next scheduled visit ♦ contact schedule overview ♦ flag when learner approaching four weeks between contacts			
6.3 Employer reports			
Can the system generate the following employer reports? For example: ♦ course target plans ♦ candidate progress ♦ percentage completed in time			
7. Audit trails, security and authentication			
Does the product provide an audit trail?			
If so, who can access the audit trail?			

Desirable features for e-portfolios	Priority L/M/H	Yes/No/NA	Comments
Are unique security passwords/IDs provided for each level of user?			
Are read-only rights provided?			
Is there provision to show only qualified assessor or internal verifier involvement?			
Is it possible to electronically store sample signatures/handwriting?			
Is it possible to 'lock' completed units?			
Does the product provide a back-up facility in the event of system failure?			
8. Ease of use and quality of presentation			
Is it easy to store: ♦ text ♦ sound ♦ scanned images/pictures ♦ video evidence			
Does the product provide good visual presentation of evidence?			
Does the product use standardised templates? Are they user friendly?			

Desirable features for e-portfolios	Priority L/M/H	Yes/No/NA	Comments
Does the product permit customisation for candidates with special requirements?			
Can the system present different 'views' of information dependent on role (for example, learner, assessor or verifier)?			
Does the product provide links to other documents/areas, for example, centre policies and procedures and qualification documentation?			
Can both staff and learners upload evidence?			
Can CDs be generated from portfolio content?			
9. Internal and external assessment			
Are networked standards available to assessors, to enable easy assignment to students on- and off-site?			
Are assessors automatically notified when evidence is available for assessment?			
Can internal/external assessors have access online at any time, with a record of when this takes place?			
Can assessor access be 'managed', and recorded when it takes place?			
Can comments from assessors be viewed, with control over who views what data?			
Can comments be protected from amendment?			

Desirable features for e-portfolios	Priority L/M/H	Yes/No/NA	Comments
10. Communications links			
Can the e-portfolio be integrated with the centre's e-mail system?			
Can learners have webmail accounts?			
Can the system link with the centre's VLE or learning management system?			
Are e-mail contacts and distribution lists for course students produced automatically?			
Can the system be accessed remotely by designated staff, learners, employers and so on?			
Is there the facility for staff to use the system offline for assessment or verification purposes?			
Can PDAs be used for off-site assessment purposes?			
11. Archiving and retention			
Does the supplier meet the regulatory retention requirements?			
Are archived documents safeguarded against modification?			
Can a learner access content at a later date/transfer it to another e-portfolio system or location?			
12. Induction/training/support			
Does the supplier provide induction/training programmes for candidates and centre staff in the use of the e-portfolio product?			

Desirable features for e-portfolios	Priority L/M/H	Yes/No/NA	Comments
Would the supplier be prepared to provide training for awarding body assessors in the operation of the e-portfolio product?			
What help provision is there? For example: ♦ online (differentiated by user role and rights, and contextualised) ♦ e-mail response ♦ telephone support ♦ in-centre technical support (including any geographical limitations)			
How many people are available to provide this support?			
What are the response times? (Must have service level agreements.)			
13. Reference sites			
Is the e-portfolio product currently being successfully used by learners, teachers, assessors and verifiers in other organisations? If so, is the supplier able/willing to provide reference sites for you to contact?			
14. Other			

A7: Types of e-portfolio

(Source: IMS Global Learning Consortium)

In addition to the usage covered within this guide (using e-portfolios for assessment purposes) there are many other uses to which e-portfolios can be put, including:

Assessment e-portfolios

Demonstrate achievement to some authority by relating evidence within the e-portfolio to performance standards defined by that authority.

Example: A nursing student submits an assessment e-portfolio as evidence of a specific competency requirement.

Presentation e-portfolios

Present an audience with evidence of learning and achievement.

Example: A software engineer creates a presentation e-portfolio that shows relationships between professional certifications she has received, code she has written and employment history.

Learning e-portfolios

Document, guide and advance learning over time.

Example: A student develops a learning e-portfolio that allows him to reflect upon how his technology skills improve over the course of a year.

Personal development e-portfolios

Record learning and performance that can be reflected on, outcomes of that reflection and future development plans.

Working e-portfolios

Combine elements of all the above types and can include multiple views of each.

What items can an e-portfolio contain?

- digital learning items
- personal information about the owner(s)
- competencies of the owner(s)
- goals
- activities undertaken or planned
- achievements
- accessibility preferences
- interests and values
- reflections
- assertions and comments
- test and examination results
- information about activities undertaken and planned
- information about creation and ownership of portfolio parts
- relationships between parts of the portfolio
- dynamically-constructed views and presentations.

A8: Technical issues for e-portfolios

(Source: Becta, 'E-portfolios — Definitions and directions paper')

Connectivity

The model of e-portfolios … supports many aspects of learning and recording learning. Driving towards flexibility in learning and teaching (through 14–19 reform, personalisation, the extended schools initiative, and the e-strategy) suggests that access to the full functionality of e-portfolios should be equally flexible. It is now much more common for learners (particularly 14+) to learn in multiple locations — for example, in schools, colleges, work-based learning or travelling communities. Not all of these locations have equity of provision to technology, or connectivity. Connectivity should be available through the National Education Network and JANET to provide access to e-portfolios for all communities. The work-based learning environments are a particular issue that will need to be addressed. Otherwise, learners choosing vocational provision may be disadvantaged in their lack of access to a common learning system which their in-school peers enjoy.

Many of the potential uses of an e-portfolio process will require consistent broadband access. Uploading multimedia evidence is already common for those NVQs and Diploma qualifications which use course-based e-portfolios.

Hosting

The pressures placed on a central hosting service to support a lifelong learning portfolio relate mainly to storage space, and the ability to provide a scaleable solution for all learners (potentially all UK residents).

Offering local (institution based) or regional (LEA or RBC based) hosting for portfolios has its own issues. When learners move on to the next stage of their life, or to the next learning provider, does the portfolio remain, and how can the host guarantee access across a lifetime, when all connections with the learner are gone? Or does the portfolio move with them, how and where? How can the e-portfolio be supported and distributed once the learner moves out of the formal education system? Who will provide that support? If the portfolio remains with a host institution or education network, who will provide the funding to manage the portfolio? For example, after 10 years, an LEA could be managing tens of thousands of portfolios requiring considerable storage space every year. These are management issues that may compromise the ideal of a lifelong learning portfolio and that need to be seriously considered.

Authentication

The development of e-portfolios will create more pressure for a swift resolution on the unique learner ID in order to ensure transferability and continuity for a lifelong learning portfolio. Learners using an e-portfolio process will require a single sign-on to access every element of functionality. An alternative solution to the unique learner ID, which may be worthy of further exploration, is the potential of the Shibboleth or similar authentication solution. A single user sign-on would enable e-portfolios to be fully integrated into learning. This sign-on could incorporate a unique learner ID at a later date.

There are, however, some existing issues with the Shibboleth system. For example, access rights could not be dynamically allowed for supply teachers. Similarly, if a learner wished to give a potential employer access to parts of their portfolio, the current Shibboleth system would prevent them from doing so unless that employer was a member of the Shibboleth foundation.

Authentication is likely to be one area in which accessibility is key — if you can't authenticate, you can't access provision. As Shibboleth uses the institution's existing log-in system, if that system is not accessible, no services or applications using Shibboleth will be. Personal assistive technologies are regarded by industry as non-standard and are susceptible to lock-out by security measures (the RM work on accessibility and e-assessment for QCA in respect of key stage 3 ICT assessment concluded that assistive technologies can only be facilitated by by-passing security procedures. Is that an acceptable risk?).

Browser-based authentication to date has tended to centre around fixed media/format entry/output and this is inflexible/inaccessible, eg online banking which requires use of the mouse to manipulate number scrollers, dynamic security code generation 'type in the number from the graphic above' — all have proved largely unsatisfactory for one or more groups of assistive technology users.

Accessibility

There is currently little guidance in relation to accessibility of e-media other than for content. This needs to be remedied before decisions are made to implement online learning spaces or e-portfolios or any other large scale initiative which changes the learning environment. Equity of access is key.

Technical standards and interoperability

We acknowledge that there are many systems currently in use in education that adequately offer elements of the e-portfolio process. We recommend that the implementation of e-portfolios across education should incorporate these existing systems.

However, all elements of the system must be interoperable. Whatever their provenance, systems need to be able either to export directly in a common agreed format to required specifications, or to be able to provide a two-way 'translation' service (proprietary format into a common agreed format and vice versa).

Technical standards that will have an impact on elements of e-portfolio functionality are developing. UKLeaP and IMS e-portfolio are clearly important here. Other areas are worth exploration — for example, SIF (the US Schools Interoperability Framework) — middleware which defines standards for data exchange and rules for inter-application interaction, enabling for example, an MIS system and a VLE from different suppliers to interact.