

Getting what you want from e-portfolio systems: a starting point for technical developers of ePortfolio systems in HE

This guidance template is one of six documents aimed at different audiences that have been developed to help Higher Education (HE) institutions make informed choices about e-portfolio systems, from a range of different perspectives. The others in this series include:

- Generic guidance: http://www.jisc.ac.uk/uploaded_documents/Guidance_final.doc
- A starting point for institutional managers in HE: http://www.jisc.ac.uk/uploaded_documents/Guidance_man.doc
- A starting point for MIS managers in HE: http://www.jisc.ac.uk/uploaded_documents/Guidance_MIS.doc
- A starting point for students in HE: http://www.jisc.ac.uk/uploaded_documents/Guidance_student.doc
- A starting point for Personal Development Planning (PDP) practitioners in HE: http://www.jisc.ac.uk/uploaded_documents/Guidance_PDP.doc

This template has been completed from the perspective of technical developers of ePortfolio systems in HE. It provides a perspective on the key issues in developing and implementing e-portfolios from their point of view.

As every institution and every department is different, you might not agree with all they say.

However, it might help you to clarify your own ideas about your contribution to your institutional discussion about developing and implementing e-portfolio. The third column gives space for you to record your own ideas.

A blank template for recording results of collective discussions with other stakeholders can be found in the generic guidance document.

| Aspects/functionalities/features/ for consideration ¹ | Key issues for technical developers of ePortfolio systems in HE | Key Issues for you |
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¹ We suggest that the questions may appropriately be used as an aid to conversation with colleagues, including institutional managers, PDP practitioners who support learners, IT developers, and with learners. With this in mind, we have addressed the questions to 'we/our', as though readers are asking colleagues and themselves together. The question tool may also be used by an individual as a personal prompt, in which situation, a reader may prefer to read it as though addressed to 'I/my'.

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| | Remember that this is not a categorical list, but some first thoughts from other technical developers to help you decide what the key points are for you, and for learners in your context. | |
| 1) Target learners and e-portfolio purpose(s) | | |
| <ul style="list-style-type: none"> Who are our target learners? What is their stage/episode of education or employment? How does this build on previous stages of their learning? How might this link prepare for next stages of learning? | <p>Target learners are likely to be identified in institutional policies, or through local initiatives.</p> <p>Learners may not recognise that they have a previous or a next stage of learning. One approach is to try to accommodate, learning as life-long and life-wide rather than episodic and sequential. In terms of eportfolio system development this requires a flexible tool with loosely scaffolded entry forms and without any prescribed route, structure or exit point.</p> | |
| <p>What do we see as the main purpose(s) of e-portfolio for our learners?</p> <ul style="list-style-type: none"> to support formal (e.g. curricular) learning/learning to learn to support overall development (including personal and career areas, and experience/learning from less formal contexts) to support formative assessment, to provide an assessment management tool, for formal summative assessment to create a presentational portfolio/showcasing for progression to support transition between different learning environments to support personalisation, effective choices and pathways Other purposes? | <p>Where an eportfolio system is an 'eportfolio for life', consideration should be given to designing a system to support:</p> <ul style="list-style-type: none"> learning, teaching and assessment across all subjects/levels; professional/vocational portfolio building; personal development planning; continuing professional development; professional standards; transition between levels of learning; transition to and within employment. <p>Depending on purpose(s), important considerations for developers include:</p> <ul style="list-style-type: none"> Can you look at each piece of information and track all of the possible paths from input to output? If you can you will have a very good model of the functionality of your e-portfolio system (real or proposed). Is a single user group sufficient, or should an academic user group be created with special roles? | |

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| | <ul style="list-style-type: none"> • How will feedback to learners be provided? • Who will create the feedback (possibly more user groups required)? • Is the portfolio dynamic or static? | |
| <p>2) What guidance to support a learner is important in our context to include online or alongside? (Would you include this 'online' or 'alongside' the e-portfolio system?)</p> | | |
| <ul style="list-style-type: none"> • Guidance to learner on the purpose(s) of the system • Guidance to learner on how to use the system • A tutorial programme alongside to support the PDP/e-portfolio process • On-line tutor/mentor support for feedback to learner • Diagnostic tools to assist with self-assessment, or educational or career planning <p>Other guidance?</p> | <p>Questions around guidance include: How does a learner find help when using the system? How does a learner know how to complete certain tasks on the system, such as printing? How will on-line help, if provided, be context driven? How will tutors provide feedback/review student work?</p> <p>Guidance to users could be offered at different levels and through different routes: e.g.</p> <ul style="list-style-type: none"> • Example materials and working 'movie clips' • Hint fields throughout the system to prompt field completion/navigation; • Hints linked to a more comprehensive on-screen help menu; • A generic user guide to navigate the system with simple examples of use; • Additional advice and support for contemporaneous use by teachers, advisers, personal/academic tutors, mentors; • drop-in eportfolio sessions (e.g. run by Students' Union), structured workshops and roaming coaches. <p>An Individual Learning Profile (diagnostic) tool can be built into the ePortfolio system to allow learners to self-assess their skills, or could be provided by a</p> | |

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| | link. | |
| 3) Information management: a) What types of information are/will be managed by a learner, and will not be processed for the purposes of the institution? ² | | |
| <ul style="list-style-type: none"> • Personal development records (PDRs) e.g. statements of interests and achievements, claims of progress, skills, and competency; aspirations, goals, plans • Evidence, e.g. qualifications, certificates, licences, other digital files (audio, video, picture) • Reflections • CV • Other information? | <p>It may be important to define for system use:</p> <ul style="list-style-type: none"> • What data are being stored, in the e-portfolio? • How are these data being processed? • How are they being presented? <p>Learner records might include any of the PDR types listed at: http://www.cetis.ac.uk/members/pdpcontent although institutions are likely to want to title PDR forms to suit their context.</p> <p>If learners can upload files directly into their ePortfolio, it is important to allow only files that are considered 'safe' by the institution, e.g. by applying the same rules the institution can attach to an email.</p> <p>Other aspects to consider in the design brief include:</p> <ul style="list-style-type: none"> • How will new types of record be added to the system? • How will the system be backed up? • How will a learner download their PDR? • How do these PDRs relate to a portfolio? • If a record or file is added to a portfolio, what happens when it is deleted? • What file types are acceptable as evidence? • What can evidence be associated with (e.g. skill, goal, plan)? • Some information which resides outside the | |

² Legal framework terminology for what is often described in lay terms as 'owned by the learner'.

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| | system, e.g. in the MIS, will be accessible through the eportfolio. | |
| b) What types of information will be managed by a learner and will <u>also</u> be processed for the purposes of the institution? | | |
| <ul style="list-style-type: none"> Is our institution acting as a data controller of e-portfolio learner information? (Yes/No) ³ <p>If 'yes', does our institutional notification to the Information Commissioner cover our proposed processing/ use of e-portfolio learner data?</p> | | |
| c) Information owned and managed by Institution/Organisation | | |
| Developing transcript - will a learner be able to view progress/assessed achievements (marks, grades) to evidence formal progress during a period of study? | Reuse of data held in the MIS should be part of the design brief, for example, through the MIS using eVision. It is important to build appropriate structures into the e-portfolio system to allow exchange of data with various MISs using XML based web-services at the same and other organisations (see sections 6 and 8 for Data Protection implications).. | |
| Transcript –will a learner be able to view and link to transcript as authenticated evidence of achievement after period of study? | Important considerations include: <ul style="list-style-type: none"> How can a learner view or obtain a transcript? | |

³ For the purposes of the Data Protection Act (1998), the institution is a 'data controller' of learner data that are processed for the institution's purposes. For a discussion of obligations of a 'data controller' with respect to a 'data subject', and related DP issues, see endnote reference to the JISC Legal Aspects of ePortfolios. If the institution is not a data controller, then the DPA 1998 does not apply to the information, but e-portfolio system users may need advice on DP implications of their own activities – see section 3d.

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| <p>How will security and authentication of transcript information be assured and maintained?</p> | <ul style="list-style-type: none"> • How is it authorised? • How is it authenticated? Is it the job of the e-portfolio system to do this? • Are all connections encrypted? • Are the data encrypted on the Server/Database? <p>Several approaches are indicated (although currently more theoretical than in practice):</p> <p>1) provide a dynamic link to the transcript so that an e-portfolio learner can link to it, and can cascade permissions to view the transcript in situ on the secure MIS.</p> <p>2) import transcript into the e-portfolio in a non-editable format (as a web page).</p> <p>Future work could consider providing mechanisms for accepting a range of institutionally defined 'reports' into the e-portfolio.</p> | |
| <p>How will the e-portfolio interoperate with our existing VLE? MLE? MIS?</p> | <ul style="list-style-type: none"> • Are there APIs, Web Services, Object Transports available? (Should the e-portfolio system have an API -application programming interface?) • What needs to be exchanged? • What needs to inter-operate? • What linkages are feasible to other Management Systems, e.g. can you link to the Student Record System to show transcripts? • How might data be transferred between systems (SOAP/RPC)? • How can various systems interact and can this be done in a way to ensure future developments/changes are possible? <p>It is important for an e-portfolio to use single sign-on authentication to pass the learner between the</p> | |

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| | VLE and itself. Behind the scenes authentication can also allow learners to access MIS data through their e-portfolio. | |
| Other considerations? | | |
| d) What information might be managed or processed collaboratively, e.g. by more than one learner, or by more than one organisation? What are the implications of shared information? ⁴ | | |
| <ul style="list-style-type: none"> • Collaborative work involving other people's personal data • Work undertaken with another organisation, e.g. work experience placement • A record of a discussion at key review points • Learner information shared with the institutional MIS, and re-used for the purposes of managing the e-portfolio • "Does our portfolio system have suitable prompts about the use of other people's data, or other people's copyrighted material, at the point of incorporation?" Other considerations? | | |
| 4) Managing information: How will a learner manage information? What editing rights and facilities will a learner need? | | |
| e.g. should a learner have rights/facilities to: <ul style="list-style-type: none"> • enter, edit and save text ? (e.g. personal development records) • upload files as evidence of learning/ competency etc? (these might be text, images, audio, video) • hyperlink to files as evidence? (text, audio etc) • export files? • create his/her own web page templates? | Other considerations include: <ul style="list-style-type: none"> • Should you provide some additional mark-up features; bold, italic, underline, spell checker? • Should uploaded files be virus scanned? • What level of expertise will the learners have/need in web site design? • Can a system be designed that is flexible enough to handle novice and advanced learners? | |

⁴ For all potentially shared data, considerations include: "Who has an interest, an obligation, a right with respect to these data? What is the interest, obligation, right?" e.g. Is the learner's sponsor aware of, and agreeable to, use of their placement data, (which may include commercially sensitive data) in the learner's portfolio?
"Does our portfolio system have suitable prompts about the use of other people's data, or other people's copyrighted material, at the point of incorporation?"

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| <ul style="list-style-type: none"> • see all his/her data and a list of uploaded and linked files? • view/link to his/ her developing transcript/awarding body record? • Other considerations? | <ul style="list-style-type: none"> • How will my information be presented? (e.g. how will it look if I print it out?) | |
| 5) Privacy⁴ and ownership/stewardship⁵ of information | | |
| <ul style="list-style-type: none"> • Is our institutional Data Protection Officer (DPO) aware of our (planned) e-portfolio implementation? Do we have an ongoing dialogue with our DPO to tackle data protection issues as they arise? • What is our institutional data protection policy (DPP)? • How does our e-portfolio implementation relate to this policy? • Will a learner be able to view the institutional DPP from within the e-portfolio system? (Yes/No)⁶ • Will learner be able to view the DPP within the e-portfolio system? | <ul style="list-style-type: none"> • A fundamental design principle is that the learner should manage and control information in her/his e-portfolio, and that all data stored should be secure. Only the individual learner should record, upload or 'invite' (from a 3rd party) data in the e-portfolio. • If any part of the data placed in the learner e-portfolio originates from the institutional MIS, however, there are likely to be Data Protection implications resulting from the institution's role as a data controller. • There are no Data Protection issues for the institution if the institution does not decide the processing criteria for data originating from the learner and held in the learner's e-portfolio. <p>Other concerns include: Do you know what data are stored, who can see them and what can be done with them?</p> <ul style="list-style-type: none"> • Do you have a means of tracking what is done with data? • Do you have a means of censoring data? • Will all shared information be generated dynamically or statically? • Will static content be indexed by search | |

⁵ Where 'stewardship' is defined as 'the assumption of responsibility for the proper management of learner data'. See Q 4 of (1.) of a series of papers in the form of FAQs, produced by the JISC Study to Explore the Legal and Records Management Issues Relating to the Concept of the Lifelong Learner Record i

⁶ If 'yes', can a learner view information about the policy and institutional use/processing of their data, by means of collection notices at a point when personal data are collected?

If 'no', how are learners advised about DP implications of their own e-portfolio activities?

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| <ul style="list-style-type: none"> Who will have permission to view all or part of a learner's e-portfolio? Who will set permissions for sharing information? (learner/Department/ School/ Faculty/Institution/ awarding body/company?) How long may/must data be stored after learner leaves Institution /Organisation? What are the institutional obligations of stewardship? Other? | <p>engines e.g. Google?</p> <p>In respect of sharing and permissions structures, a learner is likely to want to know:</p> <ul style="list-style-type: none"> Are portfolios public or private? Can I let certain people see my portfolio? <p>Views expressed include:</p> <ul style="list-style-type: none"> The learner should be able to share any part(s) with other people, either inside or outside an institution. A learner should be able to give permissions to view, comment, copy or collaborate on individual records or collections like WebFolios, so that learners working on a joint project can collectively create records. A learner may be required to share parts for purposes of CPD, validation, or assessment. <p>Each institution will need to determine its ongoing hosting policy. For example, a university could offer continued hosting as part of its Alumni package.</p> | |
| <p>6) Accessibility/usability</p> | | |
| <p>Accessibility/usability issues which should be taken into consideration include:</p> <ul style="list-style-type: none"> Does our e-portfolio system comply with our obligations under the DDA and SENDAⁱⁱ? can each learner select preference settings for screen display – font style, size, colours of font and background, which are stored and automatically applied at log-in? is accessibility via a keyboard (instead of a pointing device) available to a learner? | <ul style="list-style-type: none"> The e-portfolio should provide learners with a range of skins; pad colours that can be changed; fonts that can be personalised for size, colour and style. Elements of the programme should be accessible through logical tab-ordering and keyboard shortcuts and there should be support for JAWS (currently 6.1) in the input areas. All of the HTML outputs should be standards compliant (WCAGⁱⁱⁱ and IMS ACCLIP^{iv}) and allow full accessibility through CSS⁷. | |

⁷ CSS: Cascading Style Sheets

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| <p>Other considerations?</p> | <p>Other considerations include:</p> <ul style="list-style-type: none"> • Will the system just be viewed in modern versions of Netscape/Explorer/Mozilla? • Will Flash be required? • Will you be able to print every piece of data? <p>There may be a trade-off between accessibility and usability. One developer reports that <i>“although accessibility is a high priority, we designed for usability⁸ (‘easy and fun to use’) over accessibility – ‘partly to emulate the rich media that learners are experiencing elsewhere’.</i></p> | |
| <p>7) Storage capacity and storage duration</p> | | |
| <ul style="list-style-type: none"> • How much space will be allocated to each learner’s PD records and digital files? • How long will a learner’s records be retained, so that learner may reflect back on progress between ‘then’ and ‘now’? • Other considerations? | <p>Important considerations include:</p> <ul style="list-style-type: none"> • If there is a space limit quotas must be tracked and limiting of uploads occur? • What happens to a learner who goes to a different institution? • How will an alumnus be authenticated? <p><i>“At present we do not have enough experience to know what a sensible limit would be. We have left the space allocation unreserved to allow us to monitor learner behaviour. We recommend running specialist or large files, developed by students in their normal course activities, from dedicated servers and for links to be made from the e-portfolio”.</i></p> <p><i>“Learner’s records are maintained for the duration of the account and can be returned to at any time for editing. All records also include a review field which allows learners to monitor changes in</i></p> | |

⁸ ‘Usability’ is often used in the context of ‘accessibility’, as an extension to that term, when it refers to ease of use ‘for all persons’, as distinct from ‘for those with disability’. However, usability is used here to indicate ‘feel, fun and quality’ of use (‘learner friendliness/how it feels to use’).

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| | <i>thinking, knowing or experiencing over time. Multiple reviews can be made to any record."</i> | |
| 8) What does the system need to conform to e-learning standards? | | |
| <p>How will the system interoperate with other systems, so that:</p> <ul style="list-style-type: none"> • a learner can transfer his/her PD information from previous stage, and to next stage of learning/ organisation without re-keying information? • an organisation can transfer a learner's information from previous, and to next, stage of learning/ organisation without re-keying information? • Other considerations? | <p>One view is that a system should be designed for interoperability as an essential component of an 'e-portfolio for life'. Because standards do not yet guarantee movement of data between systems the ability to save WebFolios as content packages would guarantee that, even if the learner moves to an institution/organisation that does not have an e-portfolio provision, the records can be easily ported to a personal web space.</p> <p>Other important considerations include:</p> <ul style="list-style-type: none"> • How does the transfer occur? • Do you download and then upload? • Do all systems provide a 'migrate' method via an API? • Who authorises an organisation to transfer a learner's information (who 'owns' the information anyway – especially after a learner leaves)? | |
| 9) What other resources do we require to run alongside to assure effective learner support? | | |
| <ul style="list-style-type: none"> • e.g. human resources, such as tutor support, IT support for learner and system, IT developer support for further development. • Other? | <p>See section 2 above relating to 'person' support.</p> <p>Other considerations relate to system support, including:</p> <p>In development,</p> <ul style="list-style-type: none"> • How will errors/bug be trapped? • How will the system be tested? <p>After launch and in continued use:</p> | |

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| | <ul style="list-style-type: none"> • What maintenance will be provided to fix bugs? • What maintenance will be provided to make enhancements? • What administration effort is required, server, database, software? • How will updates to the system be integrated without losing data integrity? | |
| 10) Evaluation | | |
| <p>How might we evaluate efficacy, e.g.</p> <ul style="list-style-type: none"> • level of use by learners • impact on learners • impact on staff • Other ? | <p>Considerations include what constitutes usage and what statistics are required to measure/analyse use? This might also include consideration of how learners are grouped, e.g. by class, programme, faculty, other?</p> <p>Evaluation can take place with a broad range of learners, teachers, policy makers and careers/employability advisers, including evaluation of:</p> <ul style="list-style-type: none"> • Ease of use; • Contribution to learning; • Contribution to professional development; • Contribution to transition. | |

This perspective has been developed by Rob Ward and Helen Richardson with contributions from Gordon Crawford (University of Ulster, Coleraine) and Shane Sutherland (University of Wolverhampton) and the JISC Legal Study team.

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Acronyms:

DDA – Disability Discrimination Act

DPA – Data Protection Act 1998

JISC – Joint Information Systems Committee

MIS – Management Information Systems

MLE – Managed Learning Environment

PDP – Personal Development Planning
PDR – Personal Development Record(s)
SENDA – Special Educational Needs and Disability Act 2001
VLE – Virtual Learning Environment

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- ⁱ A series of papers in the form of FAQs, produced by the JISC Study to Explore the Legal and Records Management Issues Relating to the Concept of the Lifelong Learner Record:
1. Legal Aspects of ePortfolios: A Short FAQ - http://www.jisc.ac.uk/uploaded_documents/Legal_Aspects_FAQ.pdf (accessed 23/12/05)
 2. Data Protection, Lifelong Learner Record Systems and ePortfolios: A short FAQ - http://www.jisc.ac.uk/uploaded_documents/Data_Protection_FAQ.pdf (accessed 23/12/05)
 3. Consortium Agreements: A Short FAQ - http://www.jisc.ac.uk/uploaded_documents/Consortium_Agreements.pdf (accessed 23/12/05)
- (Further outputs and information on the legal study can be found at: http://www.jisc.ac.uk/project_learner_records_legal_study.html) (accessed 23/12/05)
- ⁱⁱ Special Educational Needs and Disability Act 2001 <http://www.hmso.gov.uk/acts/acts2001/20010010.htm> (accessed 23/12/05)
- ⁱⁱⁱ WCAG (1999) Web Content Accessibility Guidelines 1.0 <http://www.w3.org/TR/WAI-WEBCONTENT/> (accessed 15/09/05).
- ^{iv} IMS AccLIP (Accessibility for Learner Information Package) has recently been put forward to ISO (International Standards Organization). As a result, the first public draft international standard of the "Individualized Adaptability and Accessibility in E-Learning Education and Training", which builds on these IMS specifications, is now available for comment. Three documents (in PDF format) make up the draft international standard:
- a. ISO/IEC CD 24751-1 "Individualized Adaptability and Accessibility in E-Learning Education and Training Part 1: Framework" - <http://jtc1sc36.org/doc/36N1024.pdf> (accessed 15/09/05)
 - b. ISO/IEC CD 24751-2 "Individualized Adaptability and Accessibility in E-Learning Education and Training Part 2: AccessForAll Personal Needs and Preferences Statement" - <http://jtc1sc36.org/doc/36N1025.pdf> (accessed 15/09/05)
 - c. ISO/IEC CD 24751-3 "Individualized Adaptability and Accessibility in E-Learning Education and Training Part 3: AccessForAll Digital Resource Description" - <http://jtc1sc36.org/doc/36N1026.pdf> (accessed 15/09/05)
- A recent briefing paper in this area is available at <http://www.cetis.ac.uk/static/briefings.html> (accessed 15/09/05). The briefing outlines how the spec can be used to store learner's preferences about how they want to interact with online e-learning resources. The spec is complemented by one designed to record the accessibility properties of resources themselves, and a briefing about that spec will be released in due course.