



Developing and Implementing a Methodology for Reviewing E-portfolio Products

A report to the JISC, encompassing a review of existing e-portfolio software applications in use in the UK, and a synthesis of literature reviews on e-portfolio systems

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1. Abstract

This study is the first comprehensive review of purposes and functions currently represented in UK e-portfolio/PDP/Progress File products. The study developed a mapping template and explored a sample of twelve e-portfolio products which exemplify the range of existing UK systems, in terms of target learner communities, purposes and functionalities and commercial or non-commercial basis.

We found that most systems have been developed for a particular age or stage of learning, and that the main purpose of most is to support personal development planning (PDP), usually alongside a tutorial programme, or with facility for mentor feedback. Two systems are more appropriately described as assessment management tools, and three provide a means for creating presentational portfolios. However, these purposes overlap and some systems support more than one purpose. All systems allow learners to create and edit text, and most support file upload and/or linked files. About half the systems state their privacy policy on site. Similarly, about half allow the learner to select person(s) to share either selected parts (or all) of their e-portfolio. Both assessment management products set these permissions for learners. Very few systems currently support learner controlled screen display preference settings. Some are planning development in this area. Most system developers reported that 'conformance with e-learning standards is under development'.

In the process, it was found that the tool itself is a significant transferable outcome of the study, with much wider potential uses, including, as a 'quality' indicator: 1) to enable informed dialogue between practitioners, IT experts and managers about which functionalities may be important to effectively support learners in their own context, 2) to inform developers and vendors of functionality which user communities are likely to require, and 3) to catalyse developers to develop systems accordingly.

The report also draws together existing portfolio reviews as an introduction to the software review. It concludes with **seven recommendations** for future work in the context of the study outcomes:

1. to publish the report as widely as possible;
2. to develop the mapping tool as an on-line cross sectoral, capacity building resource, and to provide guidance to facilitate use of this resource;
3. to provide support for vendors to develop systems which take into account the key issues identified, which are usability, data protection legislation, and learners being in control of their information;
4. to obtain practitioner evaluation of selected existing e-portfolio systems;
5. to obtain learner evaluation of selected existing e-portfolio systems;
6. to study learner take up, and impact on the learner of selected e-portfolio systems;
7. to make the mapping tool available outside the UK, to obtain a wider international perspective with a review of USA and European practice.

2. Aims

This aims of this JISC e-portfolio review were:

1. to identify existing e-portfolio/PDP¹ software applications² and describe their current status in terms of availability, development time frame and conformance to e-learning standards; and
2. to collate and synthesise existing reviews in this area.

The collation and synthesis of e-portfolio literature reviews are presented within the introduction. The study and review of existing e-portfolio/PDP software applications follow. The report concludes with recommendations for future work. The main effort has been directed to the review of software, because our search revealed there were several recent literature reviews on e-portfolio systems, including Darren Cambridge's review (2004), which had been commissioned by the JISC.

¹ In this report, the terms e-portfolio, PDP and Progress File are used interchangeably.

² In the report, the terms software application, product and system are used interchangeably.

3. Glossary of Acronyms used in this Report

ALT	Association for Learning Technology: http://www.alt.ac.uk/
Becta	British Educational Communications and Technology Agency: http://www.becta.org.uk/
CMALT	Certified Member of ALT
CPD	Continuing Professional Development: http://www.cpduk.co.uk/
CETIS	Centre for Educational Technology Interoperability Standards: http://www.cetis.ac.uk
CRA	The Centre for Recording Achievement: http://www.recordingachievement.org
DfES	Department for Education and Skills: http://www.dfes.gov.uk/
DP	Data Protection
eILP	electronic Individual Learning Plan
EPICC	European Portfolio Initiative Co-ordinating Committee: http://www.qwiki.info/projects/Europortfolio/epicc
FE	Further Education
FTDL4	Fund for the Development of Teaching and Learning (phase 4, 2003 - 2005): http://ltsnpsy.york.ac.uk/ltsnasp/ltsnfdtl4proj.asp
HE	Higher Education
HR-XML	Human Resources Extensible Markup Language
IMS	IMS Global Learning Consortium: http://www.imsglobal.org/
IMS ACCLIP	IMS Accessibility for Learner Information Package Specification Version 1.0: http://www.imsglobal.org/accessibility/index.html#acclip
IMS LIP	IMS Learner Information Package: http://www.imsglobal.org/profiles/
JAWS	Job access with speech (to be confirmed). JAWS provides speech synthesis working with a pc's sound card to read aloud screen information, also outputs to refreshable Braille displays. http://www.techno-vision.co.uk/JAWS.htm
JISC	Joint Information Systems Committee: http://www.jisc.ac.uk
LL	Lifelong learning
LLSP	Lifelong Learning Support Project to the MLEs for LL Programme: http://www.cetis.ac.uk/members/llsp
LTSN	Learning and Teaching Support Network, now part of the Higher Education Academy: http://www.heacademy.ac.uk/
LUNA	LUNA is screen enhancer assistive technology (acronym to be confirmed)

LUSID	Liverpool University Student Interactive Database: http://lusid.liv.ac.uk/index.html
MIS	Management Information System(s)
MLEs	Managed learning environments
MLEs4LL	MLEs for Lifelong Learning: a JISC funded Programme 2003 – 2005: http://www.jisc.ac.uk/index.cfm?name=programme_mle_lifelong2
OSPI	Open Source Portfolio Initiative: http://www.theospi.org/
PESC	Postsecondary Electronic Standards Council: http://www.pesc.org/
P3P	Platform for Privacy Preferences (P3P) Project: http://www.w3.org/P3P/
PDP	Personal Development Planning (see Dearing, 1997)
PGCE	Post Graduate Certificate of Education
PGR	Post Graduate Research(er)
RAPID	Recording Achievement, Professional and Individual Development: http://rapid.lboro.ac.uk
RNIB	Royal National Institute of the Blind: http://www.rnib.org.uk/xpedio/groups/public/documents/code/InternetHome.hcsp
SENDA	Special Educational Needs and Disability Act 2001: http://www.hmsso.gov.uk/acts/acts2001/20010010.htm
UCAS	Universities and Colleges Admissions Service: http://www.ucas.ac.uk/
UK	United Kingdom
UKLeaP	United Kingdom Learner Profile: http://ecommittees.bsi-global.com/bsi/controller?library=true&livelinkDataID=835353
W3C	World Wide Web Consortium
WCAG	Web Content Accessibility Guidelines

4. Introduction: A review of literature of e-portfolio products

This study set out to review and collate existing work and use web resources to identify on-going work, including a literature review of e-portfolio products and systems, which can be used to inform future JISC work. The main objectives of the study were to:

1. Identify existing e-portfolio software applications and describe their current status in terms of availability, development time frame and conformance with e-Learning standards.
2. Draw together reviews of existing work into a short report, which identifies key issues, provides a series of actions required before e-portfolio systems can be adopted by institutions and makes recommendation on areas for further investigation, in particular of e-portfolio software and of vendors, who could work with a project to develop conformance to e-learning standards.

This section of the report draws together literature and web resources, which give an account of: individual e-portfolio products and projects, generic uses and potential benefits of e-portfolios, e-learning standards and specifications, or other issues which e-portfolio developers and learner communities should be made aware of, such as privacy and e-inclusion.

The term portfolio as used in the UK generally describes a collection (or archive) of reflective writing and associated evidence, which documents learning and which a learner may draw upon to present her/his learning and achievements. A portfolio therefore encompasses the concept of personal development records (PDRs), including records that may contribute to the HE Progress File (Dearing, 1997), and extends beyond that, to incorporate artefacts which may evidence claims made in PDRs.

Recent development in e-learning technologies and a change of emphasis, from a focus on learning sectors towards learners themselves, have provided an impetus to generate a more joined-up approach to learner support, and therefore to create e-portfolio products with the potential to support the lifelong learner. There has been recognition of a need to support learners particularly across transitions between stages of education and employment, which, with changing employment patterns and Widening Participation, are likely to vary increasingly in sequence and in combination.

The JISC MLEs for Lifelong Learning Programme has identified the significance of the development of e-portfolio systems in relation to lifelong learning records and personal development planning processes, particularly in respect of capturing migration of records from paper to electronic format, to more effectively support transfer of learner information across transitions, and has therefore commissioned this review to determine the current status of existing e-portfolio products.

The current review is particularly timely in view of the recently announced strategic alliance between Becta and the JISC³, who between them cover educational sectors from schools to postgraduate research. This alliance should facilitate provision of seamless cross sectoral

³ 10 December.2004: http://www.jisc.ac.uk/index.cfm?name=news_jiscbecta

ICT support for learners, including e-portfolio developments (incorporating personal development records, CVs and career management planning), essential to the concept of lifelong learning. A highly congruent report, recently commissioned by Becta, reviews current e-assessment and e-portfolio developments, including pedagogical issues, provision and take up, in the 14 - 19, adult and lifelong learning sectors (Strivens, 2005).

Although the concept of portfolios is not new, and portfolios have been in use in professions allied to teaching and health for many years, the past few years have seen a profusion of developments in the area of portfolios, both in paper and electronic format⁴. A recent review (Grant, Rees Jones & Ward, 2004), draws together much of this work and includes sections on e-portfolio from both the UK and international perspectives, whilst useful links to individual institutional experience of e-portfolio developments and use, are included within the website of the CRA⁵.

The report by Cambridge (2004) on the current status of ePortfolios⁶, in North America (also commissioned by the JISC MLEs Programme), reviews standards and specifications (developed through projects and not-for profit organizations), which relate to transfer of learner information, including: IMS ePortfolio⁷, HR-XML⁸, PESC⁹, and open source standards-based ePortfolio software development by the OSPI¹⁰. Cambridge reports on the development of each project and practice in turn, in terms of its background, purpose and scope, current state, future planned developments, adoption and crosslinks with JISC work. The two areas of closest relevance to the current study appear to be IMS ePortfolio specification and OSP. The IMS ePortfolio specification has been developed to enable transfer of portfolio information between systems (interoperability). Representation of some types of parts, such as competency, goal, interest and participation, is defined by reference to IMS LIP, and extensions to IMS LIP, developed for UKLeaP, (BS8788). Cambridge lists "products, rubrics and reflexions" as likely to be within IMS ePortfolio specification, so it is possible that some type parts, e.g. reflexion, may be defined within both UKLeaP and IMS ePortfolio specifications. He makes the point that:

"communities implementing IMS ePortfolio and BS8788 will face significant challenges in establishing, sharing and building consensus around shared vocabularies for such components as competencies, relationship types and subject classifications. JISC and IMS should work together closely to provide adoption support to their memberships that addresses shared vocabulary issues"

The IMS ePortfolio specification defines presentation portfolios "for sharing with particular audiences", and working portfolios, which are an "individual's complete repository of ePortfolio information". From a 'working portfolio', a learner may select component sets of information for use as 'presentation portfolios'¹¹. The 'presentation portfolio' appears to be well established and widely used in North America, and this is reflected in presentational

⁴ Google currently lists about 121,000 entries for e-portfolio worldwide, including over 6,000 in UK!

⁵ http://www.recordingachievement.org/Useful_Links/links_display.asp?catid=5&offset=0

⁶ An alternative spelling, such as used here, reflects that used in the paper being referred to.

⁷ <http://www.imsglobal.org/ep/>

⁸ For transfer of human resources-related information: <http://xml.coverpages.org/hr-xml.html>

⁹ Postsecondary Electronic Standards Council, which focuses exclusively on business functions of colleges and universities, and "is uninterested in ePortfolios as tools for tracking and planning learning."

¹⁰ Open Source Portfolio Initiative

¹¹ Through 'Presentations' which are sets of instructions for transforming the other contents of the portfolio (Rees Jones, 2004)

portfolios being the main purpose of two UK products, (mapped as part of this study), which originated in the USA. These are a commercial software application, 'Folio' developed in the UK by sentientlearning, (UK arm of eportaro), and PETAL, based on OSP software. By contrast, the current study has found that, in the UK, the majority of developers of e-portfolio applications define their purpose in terms of supporting personal development planning (PDP), which appears more analogous to 'working portfolio' than 'presentation portfolio'. '

With regard to OSP, Cambridge reports that OSP ePortfolio software differs from that of IMS, in that OSP attempts to serve the needs of both learners and institutions. The institutional purpose may relate to management of assessment of portfolios, which, as explained later, may be in conflict with a learner-centred approach to e-portfolio. Cambridge notes that

"the University of Minnesota software, on which the 1.0 and 1.5 releases of OSP are largely based, offers little flexibility to individuals to control the structure and presentation of the contents of their portfolios" and that *"Information and documents are added to portfolios within a hierarchy of categories and elements that is designed and controlled centrally by the hosting institution"*.

The more recent OSP version 2.0 provides learners with greater flexibility, including their own template design, so it will be important for potential user organisations to adopt the most up to date version, if they wish to facilitate flexibility for learners within their e-portfolio systems.

The current study of software applications has approached e-portfolio products from a less technical perspective, and aimed to capture 'how often/how widely' and 'for which community/ies of learners' each purpose or functionality explored, is represented in existing UK e-portfolio software.

Most work cited in the following pages of this literature review, has been drawn from web resources of vendors or specifications and standards developers.

Papers which discuss aspects of e-portfolio such as contexts, purposes, and benefits of use, generally do so without reference to specific software applications. However, Banks (2004) reviews the uses and benefits of e-portfolio for different stages of learning, and extends the discussion by reference to three exemplar e-portfolio tools¹², each developed to fit a particular context of use: reflection and planning, recording achievement, and evidencing for assessment and evaluation of skills. The review and the products referred to are of particular relevance to this report, because they support a range of learners in the UK (including for NVQ and in HE), and the vendor Company has contributed to development of the IMS ePortfolio specification and BSI UKLeaP standard. Developers of other e-portfolio products mapped for this study, including commercial, home grown and open source, also have contributed to development of specifications and standards for interoperability. With reference to the ePortfolio specification, Cambridge (2004) particularly draws attention to OSPI's¹³ implementation plan:

¹² Developed by the parent Company, FDLearning, (Tribal Technology) <http://www.flearning.com>

¹³ A version of OSPI has been mapped as part of this study.

“Whilst no organization has yet publicly committed to adopting the forthcoming specification, several groups have expressed a strong interest. The Open Source Portfolio Initiative (OSPI) has included implementation of the specification within its development plan for the Open Source Portfolio (OSP) 2005”.

He also notes the contributions to the requirements gathering process by vendors ePortaro (product mapped for this study) and Nuventive (not mapped):

“ePortfolio system vendors Nuventive and ePortaro contributed to the requirements gathering process”.

Many of the websites hosting e-portfolio software surveyed for this report contribute to an understanding of purposes for which (their organisation’s) e-portfolio tools have been designed, as they include overviews of their intended purpose and contexts of use, although not as review papers¹⁴. However, few of the websites state compliance with particular e-learning specifications or standards. The mapping survey has asked about compliance.

Regarding e-learning standards, Macromedia’s ‘Getting Started with eLearning Standards’ offers a helpful overview. More detailed information about IMS standards, specifications and current work in progress, can be viewed on the IMS Global site¹⁵ and its many links. On a related theme, Wilson (2005a, b) provides a useful resume of draft e:Portfolio Vocabulary Specifications together with examples, and how the resulting portfolio might look.

In addition to interoperability, IMS e-portfolio specifications provide guidance on accessibility preferences or requirements of a learner/portfolio owner for interacting with systems and content (IMS Global Learning Consortium, Inc., 2001, 2004a, 2004b).

However, specifications and standards are only part of the evolving picture. This review would be incomplete without brief reference to either e-Learning Framework (ELF)¹⁶, which includes ‘ePortfolio’ and ‘personal development’ within learning domain services, or service oriented architecture and web services developed in other domains (e.g. Security, Library, HR) to facilitate interoperation between educational and non-educational contexts. The aim of services oriented architecture is to help the education community to understand specifications by organising and putting them in a context of a more general architectural pattern and functional categorisation. It is envisaged that as the framework develops, increasing numbers of components will contain complete service definitions, and signposts to “*software development kits that will allow institutions to integrate the services with existing systems and software developers with new ones*”. Smythe, Evdemon, Sim & Thorne (2005) review current developments in web services and provide links to associated projects, whilst Kraan (2005) provides a brief overview of Smythe *et al*’s paper, comments on commonality between the ELF and web services, and also provides useful links.

In addition to conformance with e-learning standards, such as for interoperability and accessibility, key national issues which impact on e-portfolio development and which vendors and learner communities should be aware of are data protection, privacy and e-inclusion/exclusion.

¹⁴ URLs provided at Appendix 2.

¹⁵ <http://www.imsproject.org/>

¹⁶ <http://www.elframework.org>

Charlesworth (2004) assesses legal risks to the implementation of e-portfolio systems, including data protection, privacy and e-inclusion/exclusion. Issues of relevance include who owns which data, how long and by whom data should/may be stored, and how data may be used. A helpful overview of legal aspects of e-portfolio systems is provided by a 'frequently asked questions' paper (Charlesworth and Home, 2005).

'ICT accessibility' or 'e-inclusion', is an important issue relevant to e-portfolio software development. Home and Charlesworth (2005) have explored the potential impact of the 'digital divide' and barriers to use of, or to benefit from, ICT, which are generally associated with social exclusion (often due to socio-economic and/or disability related factors) in the context of EU e-inclusion policy. Citing references which identify on the one hand '*inequalities of opportunity and outcome*' or, on the other, '*a lack of motivational-, material-, skills- or usage- access*' as '*barriers*', they make a number of recommendations, including:

"Make the study of social inclusion/exclusion effects of existing and planned ePortfolio projects an integral element of their (the ePortfolio community's) work", and "Seek active collaboration with public authorities who are responsible for delivering on EU and national social inclusion and e-inclusion policies."

In addition to written reviews and resources, e-portfolio events deserve a mention in this report, as they make an important contribution to cumulative learning and understanding about e-portfolio purposes and products. Increasing numbers of e-portfolio events have been scheduled recently, in the UK as well as abroad, as e-portfolio has become a buzzword associated with reflective practice and evidence for employability/ CPD/ fitness to practice in the UK. At a recent UK e-portfolio event¹⁷, delegates were guided to note distinctions between e-portfolio systems aimed at supporting the learner or the learning experience, and those that are 'Assessment Management tools', (see Barrett and Wilkerson, 2004). This was not intended to imply that learner support systems should not include areas for assessment, but that an 'Assessment Management tool' will generally be designed differently, reflecting its different main purposes. It was noted that portfolios may be created as assessment management tools to provide a motivation for learners to complete personal development planning (PDP) activities. However, this notion leads to considerations of relative desirability of intrinsic *versus* extrinsic motivators to engage learners in the process of developing a portfolio. Lifelong use beyond formal education or employment settings will inevitably depend on a learner seeing benefits, taking responsibility and being self-motivated to continue.

Distinctions in scenarios of use emphasise the importance of considering the purpose(s) of a portfolio tool in the context of a learner community before forging ahead with its design. A useful paper to note in this context is Love, McKean & Gathercoal (2004), which suggests five developmental stages of e-portfolio use ("*scrapbook, CV, curriculum collaboration between student and faculty, mentoring leading to mastery, and authentic evidence as the authoritative evidence for assessment, evaluation and reporting*"), and offers institutions guidance about identifying 'where they are' in the process, and 'how to move to the next level'. This paper drew our attention to definitions of e-portfolio, since it distinguishes

¹⁷ Conference on 27th April 2004, organised by the CRA at which Helen Barrett was keynote speaker.

between an e-portfolio, which *“resides on disk, CD-ROM, or similar physical transportable media and is not accessible from the Web”*, and a webfolio, which *“resides on the Web”* and *“is a tightly integrated collection of Web-based multimedia documents that [could] include curricular standards, course assignments, student artifacts in response to assignments, and reviewer feedback of students’ work.”* By contrast, the term e-portfolio in this report, including its reference to all the systems mapped, and as currently in use UK normally, refers to online (web-based) resources.

Siemens (2004) also usefully identifies ‘levels of use’, but in the context of broad terms of beliefs about levels of ‘greatest value’ from a learner’s viewpoint (*“blogs and wikis”*) to greatest value for faculty, institution and the industry (*“fully interoperable e-portfolio systems”*), including respective levels of institutional support requirements for these various levels. He includes a section on ‘ideal’ approaches to effective ePortfolio implementation and embedding in an educational institution. In common with the experience of many PDP practitioners, his identified ‘ideal’ features for effective ePortfolio adoption include: *“learner-in-control tool, learners understanding ‘how this will help you’, embedding of use of portfolio to complete course work, culture that values e-portfolio work, where dialogue, debate, discussion and examples of portfolio use are common, and time is allocated to portfolio work”*. However, in contrast to reviews which encourage interoperability through use of specifications and standards, Siemens discusses potential disadvantages of standards and specifications for interoperability, in terms of increased centralisation and standardisation reducing flexibility and user adoption, and argues that interoperability should be built in to the sharing structure, and not in the content to be shared. As examples, he cites Word documents and PowerPoint notes, which people share *‘because they don’t have to repackage the object with detailed metadata’*.

At the outset of the current study it was evident that, in the UK, there were both some established e-portfolio systems, and others in development. For example, in HE, e-portfolio applications have been developed through several publicly funded projects, including the DfES funded Recording Achievement project (1998 – 2000), for either discipline related, or generic, use (exemplified by RAPID¹⁸ or LUSID¹⁹ respectively), and a major collaborative FDTL4-funded project (2002 – 2005), which aimed *‘to develop Web based portfolios to support reflective approaches for evidencing the attainment of programme outcomes in undergraduate Medicine’*²⁰. These products have the potential to be developed as e-Portfolio conformant applications, and some are working towards that.

Additional e-portfolio tools are in the process of being developed for a range of disciplines or generic use. Many of these can be viewed on the CETIS²¹ website.

A previous project, Developing Learner Profiles across FE and HE (2002 – 3) identified a number of PDP software applications being used by or developed within UK organisations (CRA, 2003b). The current study and report build on that work, and also complement other

¹⁸ RAPID – ‘Recording Achievement, Professional and Individual Development’, developed at Loughborough University, also FDTL3 funded 2000-2003: <http://rapid.lboro.ac.uk>

¹⁹ LUSID – ‘Liverpool University Student Interactive Database’: <http://lusid.liv.ac.uk/index.html>

²⁰ <http://www.eportfolios.ac.uk>, FDTL4 project; lead Institution: the University of Newcastle upon Tyne. Further developed as a customisable generic e-portfolio tool, referred to in this Report as Newcastle University generic ePortfolio (Project).

²¹ Centre for Educational Technology Interoperability Standards: <http://www.cetis.ac.uk/members/PDPcontent>.

recent reports, including that of Cambridge (2004, *loc cit.*) on the current status of ePortfolios in North America, a review of North American Practice in respect of the support given to student employability through the use of e-portfolios, commissioned by the LTSN (CRA, 2003b), and 'a state of the art review', which includes comparison between European and American lifelong learning policy and e-portfolio practice, including a brief resume of funding policy for these initiatives (Rees-Jones, 2004).

This current report also seeks to be viewed in the context of work in which the CRA is working with EPICC²² to develop a community of practitioners, technicians and managers to set out the use of an e-portfolio from a learner's perspective in order to lead the development of policy and technical solutions within national governments and the European Commission. In association with that work, the e-portfolio state of the art review (Rees Jones, 2004, *loc cit.*) will draw together aspects of European practice including lifelong practice as a European theme, Anglo Dutch reflective practice, Scandinavian practice, French practice and Greek developments. It is anticipated that each of the above areas of practice will be linked to one or more scenarios providing a greater insight and understanding of the practice.

²² European Portfolio Initiative Co-ordinating Committee: <http://www.qwiki.info/projects/Europportfolio/epicc>

5. Review of existing e-portfolio software applications and their current status in terms of availability, development time frame and conformance to e-learning standards

5.1 Summary of the findings

This section of the report is based on a mapping survey of twelve e-portfolio systems, which are currently in use in the UK, and which may be considered broadly representative of the range of UK web resource portfolio applications, in terms of target learner communities, commercial or non-commercial basis, purposes, and functionalities represented.

The survey collated data to a template developed as a mapping tool for the study. The study has found that most systems have been developed for a particular age or stage of learning, and that the main purpose of most is to support PDP, usually alongside a tutorial programme, or with the facility for mentor feedback. Two systems appear to be mainly an assessment management tool, and three primarily to provide a means for creating presentational portfolios or CVs. However, these various purposes overlap: systems supporting PDP may include elements of assessment (especially formative), or may be used to create a presentation such as a CV, whilst assessment management tools normally prompt learners to reflect on their claims of competency or evidence of learning, which is itself an important component of PDP.

Most systems supporting PDP include explanations and guidance relating to PDP. All systems allow learners to create and edit text, and most support file upload and file referencing. A few longer established systems do not include a file upload facility, but prompt learners to reference their paper based evidence on-line, and to file it manually.

About half the systems allow the learner to select person(s) to share either selected parts (or all) of their e-portfolio information, but both assessment management products set these permissions for the learner. A few either do not include permissions for sharing information with any other person, or provide an option for the portfolio to be either 'public' or 'private'.

Very few systems currently support learner selected screen display preference settings, such that the learner can set screen display including font size and background colour, which are then applied automatically at log-in. Some systems are planning development in this area.

Most system developers report that 'conformance with e-learning standards is under development' including development towards UKLeaP, and a few give a more specific time frame such as 'within the next 6 months'. A few developers report that they plan to improve usability and move towards WCAG compliance and IMS ACCLIP specification.

An important 'added value' outcome of the mapping study is that the mapping template itself has significant wider potential applications. For example, it may be used to inform developers and vendors of functionality and facilities which user communities are likely to require, and thus to catalyse them into action to develop products accordingly. Additionally, it may act as a prompt to enable informed conversations between practitioners, managers

and IT experts to identify their own requirements from which to 'buy into' or develop systems to more effectively support learners in their own context. Thus, the data gathered through the template may be used to improve informed choice, as it may aid managers or practitioners, who are seeking to select a commercial system appropriate to their needs, of what functionality exists and which systems provide aspects of functionality they may require.

There are a few caveats about the data. One is that, although the sample exemplifies the scope of UK e-portfolio/PDP applications, it is not representative in terms of 'proportionality' in two respects. One is that it focuses more on systems supporting learners in formal education than in employment. The survey did not include commercial e-portfolio systems for learners in specific private sector (including 'blue chip' Companies) or public sector employment or as members of Trades Unions. The second is that within the educational sector, there are at least 20 additional UK online PDP systems in use in HE, most developed non-commercially 'in-house'. These have been noted²³, but have not been mapped. Thus the detail, in terms of number of systems with a particular feature, is indicative only, and it would be inappropriate to 'scale up' data by the number of existing systems. It should also be noted that most applications are under continuous review and evolving continuously, and that, in verification of the mapping information, particularly where a feature was not found in the 'demonstration' account accessed by the reviewer, some systems' developers have reported that certain features are available in 'one version' of their products, or that a feature is 'customisable to a client's requirements'. Thus there is a sense that 'the data are messy' and inevitably subject to change. For these reasons, this report should be considered as giving a snapshot of part of a bigger and evolving picture, with rather ill defined boundaries, which extend beyond the current field of view.

5.2 Method

The study aim to identify existing e-portfolio products was initially scoped by considering contexts for use of e-portfolio products in the UK and communities of learner who might be using them. Some learner communities and contexts of use are listed in Table 1: It was immediately apparent that there were potentially a vast number of systems. A decision had to be made whether to survey a large number of products superficially or a smaller number in greater depth. On grounds of quality, it was agreed to select and field test a sample to illustrate the range.

It was decided to include within the survey a detailed mapping of 12 applications. These would be selected on the basis of inclusion criteria for the study, agreed before commencement of the study, which were: 1) being established systems currently in use in the UK, 2) representing amongst them a range of target learners and purposes, and incorporating a mix of commercial and non-commercial systems. A provisional list of sixteen was drawn up and agreed with the JISC MLEs4LL Programme Manager.

Part way through the survey, due to potential challenges, without guest user log-in, of getting an adequate insight of a system's functionalities when based on developer information only,

²³ These are listed at <http://www.cetis.ac.uk/members/PDPcontent>

an exclusion criterion, “no guest log-in is available to explore the product as an end-user” was added.

TABLE 1: Overview of some learner communities and contexts of use of e-portfolio²⁴

‘Learners in education’	<11, 11 – 14, 14 – 19, FE, HE, LL, in transition
Contexts/purposes for use:	PDP, assessment, presentational, employability/career planning, CV
‘Learners in employment’, including:	Vocational professional
	Public sector, e.g. health, education, library, civil service, local authority, prison service, police
	Private sector: small, medium and large enterprises (e.g. retail, financial, HR)
	Trade Unions
	Media and entertainment, Charities, Religion,
Employability contexts/ purposes for use	Career management, CV preparation/presentation, CPD, appraisal, revalidation or other assessment management

A draft mapping template was developed to find out “What is available now and what is planned?”, and not to evaluate individual systems. The template was based on items, which might appropriately be considered as requirements to support quality e-portfolio processes and systems. The items were identified through discussions at various events, including the MLEs for Lifelong Learning Programme²⁵ Meeting, June 2004, and JISC e-Learning Conference, November 2004, and various publications, including Grant *et al.* (2004). The mapping tool was iteratively refined in the light of learning from conference events, discussion, research, feedback, and initial mappings. The current version of the mapping tool template is included at Appendix 1.

In summary, the template included fields relating to:

- Name and URL of system and contact details of vendor/developer
- Target learners (e.g. age, stage/episode of education, employment)
- Current availability and locations of use
- Main purposes of the system for learners (e.g. supporting curricular or extra-curricular PDP/lifelong learning, or CPD, assessment management tool, presentational tool)
- Usability/accessibility (through user-selected screen display preference settings)
- Data protection/privacy
- Permissions to allow selected persons to share portfolio information (privacy/ownership)
- Functionality in terms of supporting learner (including PDP guidance, tutorial or mentor feedback)
- Functionality in terms of learner management of records (including editing text, archiving records, uploading or linking to digital files of evidence, transfer of records to another system/institution)

²⁴ Some of these categories overlap

²⁵ Managed learning environments for lifelong learning

- Storage capacity and storage timeframe
- Planned developments and development time frame
- Conformance to e-learning standards, including interoperability, and planned developments in this area.
- What other resources are required alongside the product to ensure product runs effectively, especially in terms of human resources, such as IT support.

Eleven of the 12 systems were explored with guest login, as an end-user, and one application was 'reviewed' by telephone discussion, as guest log-in was unavailable. Each completed draft mapping was emailed to the relevant developer/vendor for comment, with an invitation to verify the data, correct any errors or misinterpretations and to answer the JISC survey queries about conformance to e-learning standards and other planned developments, including timeframe. Developers were also asked for agreement to their refined mapping information to be included in the JISC report, either attributed or not, and were invited to comment on the mapping tool, including perceived 'gaps' within it.

5.3 Results of the mapping survey

5.3.1 System identities

Twelve systems were mapped for this study. The name and URL of the twelve mapped systems and contact details of vendors/developers are listed at Appendix 2.

In the results and discussion, wherever possible, and with permission of developers, we have identified systems by name. Where data are not attributed, permission is still awaited.

Each individual system template provided a rich source of data. Three examples are included in Appendix 3. These are Loughborough College Progress File, Newcastle *University* generic ePortfolio and Careers Wales Online/Vitaality. These indicate some of the diversity of applications and functions represented.

Collation of information from the template led to the conclusion that no one system represents all required functions, and that no two systems represent an identical range of functions. For each item analysed, data are presented in tabular form for quick reference, and described in the text to provide context. In the tables, for brevity, each system is referred to by letter (key at Appendix 2). However, the authors consider that the importance of the data from this study relates more to how often different purposes and functionalities are represented, rather than an emphasis on what any one individual system provides, since 'fitness for purpose' may influence an individual product's functionality, or a vendor may customise the e-portfolio product to suit a particular client or organisation.

It should be noted that these data should be considered provisional for three reasons, firstly, because some systems' developers have not yet answered specific questions about planned developments or development timeframe; secondly, because some replies need clarification, and thirdly, because most systems are under continuous review and development, so the mapping was changing as the report was written, or a feature may be represented in one version for one group of learners, but not for another.

The report does not include all possible combinations of data collected. Additional information may be extracted from the mapping on request.

5.3.2 Availability of systems

All twelve systems mapped are currently available and in use in the UK.

5.3.3 Commercial basis

Of the twelve systems mapped, 7 have been developed by, or in close association with, commercial organisations (including two based on DfES materials, and one under licence to the DfES), 4 are non-commercial ‘homegrown’ systems and 1 is open source.

5.3.4 Target learners and locations of use

Most systems have been developed for a specified learner community (e.g. age, stage/episode of education, employment). They range from systems which were developed originally for use within an individual school (Opeus) or school/LEA partnership/Connexions (Oldham Online Progress File²⁶), FE College (Loughborough College Progress File), HE department (University of Southampton PGCE Electronic Portfolio System, EPS), or HE Institution (University of Liverpool), to systems designed for UK wide use by learners in FE/vocational training (SkillsFolio), post-compulsory education (FE, HE and professional) (PETAL/OSP), or enrolled on adult work-related learning and training programmes (Ufi/Learndirect), or from 13 years old for life long learning for any purpose (Vitality). Some systems were designed for and piloted with one learner community and are now being rolled out for use by additional learner communities.

TABLE 2: Availability, commercial basis and target learners of the twelve mapped systems

	Number of systems and System identity		
Systems mapped for this study	12 (a, b, c, d, e, f, g, h, i, j, k, l)		
Current availability and use	All 12 systems are available and in use now in UK.		
Systems for which mapping verification received from developer/vendor by 18/2/05	All 12 systems		
COMMERCIAL BASIS			TARGET LEARNERS
Commercial systems (includes systems based on DfES materials adapted for use by a particular organisation, and developed in association with a commercial organisation)	7	a – g	School/LEA partnership: 13 – 16 years old (a)
			Schools: pupils or staff (d)
			FE (g)
			FE/adult: vocational training (NVQ) (c)
			Adult work /skills related (f)
			HE (e)
			13 years old - LL (b)
Non-commercial systems developed ‘in-house’	4	h – k	HE (h, i, j, k)
Open source systems	1	l	HE/FE/CPD (l)

²⁶ Relunched March 2005 as ‘Positive Steps Oldham: myprogressfile.com’.

Generally, HE systems developed 'in house' were piloted initially within one or a few departments, and are now in use by a wider range of academic disciplines, for which selected areas of the systems can be customised. For example, the Newcastle University generic ePortfolio is now in use by learners of:

HE, 1st degree; vocational (Medicine; MBBS) University of Newcastle upon Tyne
HE, 1st degree; vocational (Medicine) University of St Andrews
HE: 1st degree (Biosciences) University of Newcastle upon Tyne
HE: 1st degree (Dentistry) – Queen Mary College, University of London
CPD: Vocational Dental Training – Postgraduate Institute for Medicine & Dentistry
CPD/HE: Contract Research Staff – University of Newcastle upon Tyne
HE: Postgraduate Research Training Portfolio (pilot beginning 05/01/05)

As another example, RAPID was developed at Loughborough University as a PDP system to support learners in professional academic disciplines related to construction (e.g. Institute of Building, Civil Engineering). RAPID is now in use by over a dozen Institutions for a range of vocational HE 1st degree disciplines related to building and engineering, as well as a non-vocational HE 1st degree programme (maths) and graduate programmes. It has an important current role in interoperability developments, as the 'target recipient' for data transfer pilots between institutions within the JISC MLEs for Lifelong Learning Programme (from Loughborough College into RAPID).

LUSID was developed as an institutional system to support PDP at the University of Liverpool. It is now used also at the University of Huddersfield, and expects to become open source soon, (see section on planned developments).

A commercial 'HE system' surveyed ('Folio' by sentientlearning, the UK arm of eportaro) has been developed more generically, and is currently in use as an institutional system by Glasgow Caledonian University. An open source system for 'post-compulsory education', including FE, HE and professional institution learners (currently ALT certification) is in use by Oxford Brookes University (OSPI/PETAL). In the new JISC regional projects, OSP is being rolled out further, including to 'HE in FE' learners.

For school age learners, 'myprogressfile.com'²⁷, based on DfES 'Getting started' and 'Moving on' Progress File materials, has been developed for children aged 13 – 16, and plans to broaden its use to younger pupils, whilst 'Opeus for Schools' was developed for use by pupils of any age and by school staff. Interestingly, Opeus for Schools was developed in 1997 to help school children develop their own web pages, thus preceding the DfES Progress File products, and so may be thought of as a pioneer in UK e-portfolio terms. More recently, Opeus²⁸ has adapted and customised its product for client organisations which support a wide range of adult learner communities²⁹, including:

The National School Improvement Network: <http://www.nsin.org/>

Barnet College - IT and Engineering: <http://www.myopeus.com/barnetcollege/>

Training for Today: <http://www.myopeus.com/mjt/index.php>

²⁷ 'Positive Steps Oldham' is funded by Oldham 14-19 Pathfinder and Bury Enterprise Pathfinder monies.

²⁸ Relaunched February 2005 as 'PortfolioMaker'

²⁹ Many of these Organisations use the system for learner portfolios that are not publicly available.

Nottinghamshire Training Network: www.myopeus.com/ntn

West Suffolk College: <http://www.myopeus.com/wsce2e/>

Institute of Education: <http://www.myopeus.com/ioe/>

Two systems based on DfES 'Widening Horizons/Broadening Horizons' Progress File materials are Loughborough FE College online Progress File³⁰, for young adult learners, and Careers Wales Online (recently re-launched and marketed as 'Vitaality') for use by learners of any age, whether enrolled in formal education, employment or training or none of these. FDLearning's 'SkillsFolio' is typically for young adult learners, whilst Ufi/Learndirect e-portfolio caters for adult learners of all ages who are enrolled on one of the Learndirect courses. Interestingly, Learndirect e-portfolio products are supplied by FDLearning (Banks, 2004).

5.3.5 Main purposes of the systems for learners

Seven of the systems were developed mainly to support PDP³¹. Two have been designed for use as an assessment management tool, and three to create presentational portfolios. However, the nature of PDP results in overlap of all these purposes, since PDP support systems include features which may be used additionally to support assessment or to create a presentational CV or portfolio, whilst systems designed for assessment management or presentational purposes, inevitably require a learner to reflect on their learning and to provide evidence of their learning or competence, and thus incorporate support for reflective aspects of PDP.

Most systems which support PDP are curricular based, guiding learners to reflect on, and action plan in relation to, their curricular learning (either academic or employability skills related, depending on context). Some of these also prompt learners to reflect on extra-curricular learning.

TABLE 3: Main purposes of the twelve mapped systems in relation to target learners

MAIN PURPOSES	Number	Identity	Target learners
Systems whose main (stated) purpose is to support PDP	7	a, b, f, g, h, i, j	13 – 16 years (a), FE (g), HE (h, i, j), adult work related (f), 13 – LL (b)
- through formal (curricular) learning	6	a, f, g, h, i, j	See above
- through informal (extra-curricular) learning	4	a, b, i, j	See above
Systems whose main purpose is as an assessment management tool	2	c, k	FE/adult vocational accreditation (NVQ) (c) HE (PGCE) (k)
Systems whose main (stated) purpose is to help learners to prepare presentation portfolios/CV	3	d, e, l	School (pupils and teachers) (d), HE (e, l)

³⁰ Developed and used under licence to the DfES.

³¹ Including PDP congruent practice outside HE. For example, Positive Steps Oldham 'myprogressfile' *"has been created to enable personal, social and academic development for 13-16 year olds"*.

It is important also to consider curricular based e-portfolio products in the wider context of the curriculum in which they function, for whatever purpose. Viewing an e-portfolio product in isolation may give an erroneous impression of its use or role, or the reasons for presence or absence of particular functionalities. For example, the Electronic Portfolio System ('EPS'), used as an assessment management tool of 'presented work' in the PGCE degree at the University of Southampton, does not include 'private' areas for the learner, as its main role is to provide a means whereby tutors can view learners' completed work, not 'work in progress'. The developer has explained that *"Reflection/self assessment is part of the course but not of/by EPS, and that EPS is "... part of a big "course" package of blended approaches"*, in which *'logging and diaries are separate activities'*. However, these additional facets would understandably not be apparent by just exploring the e-portfolio product without reference to the developer or the wider curriculum. This is an example both of the need to obtain developer verification of mapping data, and of the concept of 'fit for purpose' influencing a system's functionality – lack of a particular functionality needs to be understood with reference to the purpose of the system.

Because some systems mapped have different versions customised for different learner communities, whereas the reviewer's guest log-in was normally restricted to exploration as one type of end-user only, the purposes and functions reported are restricted to the learner community relevant to the guest log-in provided. The result is that a system may support a different main purpose for a different learner community. For example, OSP currently provides a presentational e-portfolio tool in HE (PETAL, mapped), but supports reflective practice for ALT accreditation (not mapped).

5.3.6 Functionalities represented

5.3.6.1 Usability/accessibility

Developers were asked whether they provide a facility for learner-selected preference settings, which enable a learner to select screen display such as font size and colour, which are stored and then applied automatically at log-in.

Few systems currently include such learner selected preferences. Loughborough College Progress File includes learner selected preference settings for every learner, and is the only system surveyed which reports that it is working towards IMS ACCLIP. Two commercial vendors reported that learners can set their preferences, but this does not appear to be for every learner 'as of right'. For example, one responded *"Yes. They first need to be set up on the system by an administrator"*, whilst another responded *"Yes – this is configurable per user – not just by role"*, from which, it was not clear whether this option is provided automatically for every learner, or only on request. Several additional commercial systems include cascading style sheets, as an option to client organisations, to enable preference settings to a client's requirements, but an individual learner can set preferences only if first 'set-up' by the client organisation. For example, Opeus explained that preference options are set by the client organisation, and are therefore available to individual learners only if their organisation requests this: *"The accessibility option is available for organisations to request. It basically makes a duplicate copy of their content - an accessible copy. Many of our Users do not adhere to the accessibility guidelines when they are making webpages"*

(font sizes and colours etc). The system that we install imports all of their content - alters the formatting - and then displays it how the visitor wants it.”

TABLE 4: Functions represented: preferences, data protection/privacy, learner inventory, and permissions

FUNCTIONS REPRESENTED	Number and identity of systems with this feature	
Preferences settings: System allows learner to set preferences for usability/accessibility	3	b, c, g,
Under development	1	H
System vendor customises preference settings to client organisation requirement	2	d ³² ,e
Developers plan to address this issue	1	L
Learner can change text font by transferring documents to word	1	A
System without (plan to develop) preference setting	3	f, k, i
System for which this feature is uncertain	1	,j
Data Protection: System has a DP/privacy policy statement on site	6	b, c ³³ ,f, h ³⁴ , j ,l
Vendor provides Client organisations with copy of system DP/privacy policy statement as part of contractual agreement between vendor and client organisation	2	d, e
System has DP/privacy policy issue under review or development planned	3	a, k, g ³⁵
System for which this feature is uncertain	1	l
Inventory: System allows learner to see all his/her information including list of uploaded files ³⁶	11	a, b, d, e, f, g, h, i, j, k ,l
System for which this feature is uncertain	1 ³⁷	C
Permissions		
System with learner controlled permissions	5	e, h, l, j ³⁸ , l
System with organisation controlled permissions	5	c, d ³⁹ , f, g ⁴⁰ , k
System private to learner (learner information for learner only)	2	a, b

Preference setting is an area under development by at least one additional system (Newcastle University generic ePortfolio), whilst OSP/PETAL ‘plans to address accessibility issues’.

³² on request by client

³³ Data Protection policy appears as hyperlink on log in page

³⁴ “DP policy will vary – depending on configuration and local settings”

³⁵ Will add link to College documents

³⁶ This information when present is not always provided as one complete list, e.g. the list of files may be located separately from other learner data.

³⁷ This developer was not asked for this information, which was added at a late stage in the survey

³⁸ Under development, currently available for PG learners,

³⁹ Permissions options restricted to either ‘public’ or ‘private’, though learner selects which of these.

⁴⁰ Permissions script on the personal record which links to the college disability disclosure policy/form

The mapping tool did not ask about compliance more generally with WCAG or IMS accessibility guidelines. Several commercial systems reported their use of cascading style sheets and gave details of their compliance with UK Bobby standards, or WCAG guidelines. These responses are reported in greater detail in the section on conformance to e-learning standards and developments. As this was not specifically asked about, it cannot be assumed that other systems either do or do not comply with such guidance. More prompts about accessibility compliance and learner preferences are additional fields that it would be important to include in the mapping tool, if it were to be made available more widely for managers and practitioners.

5.3.6.2 Data protection and privacy policy

Half of the systems surveyed include a data protection policy statement on site, or via a hyperlink to the host institutional site. LUSID includes a particularly clear statement that learners can see all their data, and how their data are used. Vitaelity sets out how its privacy policy complies with European & UK DP requirements together with the terms and conditions of use. Another commercial product has a privacy statement tab on the homepage, but clicking that tab led me to a page with 'not found'. Although it may be the case that inability to access the DP statement resulted from being a guest user, (with perhaps restricted privileges) this is important to note, as the reviewer was nevertheless able to enter and save personal details on the site.

One developer reported that the system will add a link to institutional DP documents. Two additional systems have acknowledged data protection policy as an issue for review or planned development. Vendors of two systems, to which the reviewer had guest log-in but for which no data protection policy was found on the site, explained that a copy of its data protection policy is provided to each client organisation.

Another developer who provides software to several HE institutions reported "DP policy will vary – depending on configuration and local settings." It is possible that in some (e.g. HE) systems, for which the e-portfolio application is a component of an institutional site, a data protection policy statement may be located elsewhere (in another area) of the institutional site, and that a relevant link is either missing or not easy to find.

Lack of provision of a data protection policy statement on some sites where learners input personal information may be an area for consideration by the legal studies team, e.g. they could be invited to advise whether any user with personal information on the site should be able to view the system's data protection policy.

In addition to learners being informed how their data will be used, it is also important that a learner can view an inventory of all his/her data held by the system. This function appears to be present in most systems, but not always as a single list, e.g. PETAL explained that a learner can see this in two separate sections, 'elements' and 'files', but not altogether as one list.

5.3.6.3 Permissions to allow others to share portfolio information (privacy/ownership)

An important requirement relating to privacy and ownership is for a learner to be able to select with whom to share either selected parts (or all) of their e-portfolio information. About half the systems allow the learner to do this, but those with an assessment management purpose select who the learner shall share their information with. Consideration of who decides the permissions (learner or system/organisation) may be an important clue to the purpose of a system. Thus a system which claims its main purpose is to support PDP would be expected to be 'learner centred' and to incorporate permissions setting by the learner, whereas if the system/organisation selects permissions, then the primary purpose is most likely to be assessment management, or presentational.

Two products, one commercial and one HE 'home grown', are primarily assessment management tools. Learners using these systems have no choice about who sees their developing e-portfolio.

A few systems do not include permissions for sharing information with any other person, or provide an option for only 'public' or 'private' presentation.

5.3.6.4 Support for PDP

Although PDP is a main function of seven systems, eleven of the twelve products claim to support PDP. This support is more explicit and easier to find in some systems than in others. Most systems supporting PDP incorporate explanations and guidance relating to PDP, which is easy to find from the home page (menu/ tabs). This is especially well organised in systems based on DfES Progress File materials, for school and FE use (Myprogressfile.com and Loughborough College Progress File), in a commercial system for lifelong learners (Vitaality), and in 'home grown' HE systems (Newcastle, RAPID, LUSID).

Most systems designed specifically for school, FE or HE are designed to run alongside tutorial support, though their guidance materials also mean that they could be used by highly motivated individuals to work with at their own pace. The emphasis on reflection and self-review engendered by these systems inevitably means that they support self-assessment, and those that run alongside a tutorial system include elements of formative assessment. This is not normally of the e-portfolio itself, but the e-portfolio is used as a tool for gathering evidence that can be the basis of tutor progress review.

It is salient to note the comment of RAPID's Project Manager: *"RAPID can be used as a stand alone PDP system BUT our research strongly indicates that students will engage in PDP only if it is strongly promoted by academic staff and integrated seamlessly into existing academic practice. As such, we strongly emphasise to all potential licensees that RAPID is but a tool NOT an alternative to establishing a proper PDP process within the academic culture of an Institution"*.

Systems designed for use with or without tutorial support, might nevertheless have online tutor/mentor support, either within the portfolio itself, or by downloading text or files and sending by email. All systems except one appear to have some form of e-mentor support.

One assessment management tool developer stated that the e-portfolio application does not support PDP, but that PDP is supported elsewhere in the curriculum. An administrator of a system which supports PDP and also assessment reported: *“There is instructive help for each of the online tools, plus fifty pages of help and guidance on recognising skills and achievements, planning learning etc”*. (However, the reviewer was unable to access online PDP guidance with guest log-in).

TABLE 5: Functions represented: PDP guidance and support

FUNCTIONS REPRESENTED	Number and identity of systems with this feature	
PDP guidance and support (1)		
System includes online PDP guidance (for use as PDP tool)	9	a, b, c, f, g, h, i, j, l ⁴¹
System excludes PDP guidance because PDP is not a purpose of the system	1	k
PDP or other support guidance is provided separately from online product	1	d ⁴²
System provides a menu tab for client organisations to add their own version of PDP guidance if required.	1	e
PDP guidance and support (2)		
System is designed to run alongside face to face tutorial programme (optional ⁴³ or mandatory)	7	a, f, g, h, l, j, k
System is designed to run ‘stand alone’ without tutorial programme	3	b, e, l ⁴⁴
System for which this feature is uncertain	2	c, d
System has on-line mentor/tutor facility to provide feedback to learner	8 ⁴⁵	b, c, d, e, h, i ⁴⁶ , k, l
System with associated email facility for mentor/tutor feedback to learner	3	f, g, j
Facility for face to face peer feedback on ILPs	1	a ⁴⁷

5.3.7 Information managed

5.3.7.1 Personal development records

All systems allow learners to create and edit text, and most support file upload and file referencing by hyperlink. Two of the longest established systems do not include a file

⁴¹ Included in some versions of PETAL, e.g. for ALT accreditation. *“The guidance tool facility is tailored to the domain: the system takes the learner through use in the context of the domain in which they are the user”*.

⁴² White papers and supporting documentation is distributed directly to purchasing institutions. Bespoke training programs are outsourced to OPEUS Partners, namely Cambridge Education Associates (www.cea.co.uk) and The Learning Post.

⁴³ Can also be used ‘standalone’.

⁴⁴ At least 6 of ‘HE in FE’ PETAL pilots in new JISC Regional projects will be designed to run alongside a tutorial programme.

⁴⁵ Some of these are by exposing complete portfolio to a mentor/tutor:

⁴⁶ Planned for early 2005.

upload facility: RAPID prompts learners to reference their paper based evidence on-line, and to file it manually, and Positive Steps Oldham My Progress File similarly prompts learners to maintain a folder of (hard copy) documentation to evidence claims made in the online progress file. These two progress file products, whose main purpose is to support PDP, were developed before current e-portfolio tool developments.

TABLE 6: Information managed

Information managed	Number and identity of systems with this feature	
Personal development records		
System allows learner to create/edit text	12	a-l
System allows learner to upload and/or reference digital files	10	b, c, d, e, f, g, h, j, k, l
System prompts learner to maintain a folder with paper record of archived evidence	2	a, i
Transcript		
System allows learner to see formally assessed progression through a developing transcript ⁴⁸	6	b, c, f, g, h, j
System prompts learner to archive their own (paper) documentation of formally assessed progress	1	a
System does not currently provide transcript facility	3	e, i, l
System for which this feature is uncertain	2	d, k

5.3.7.2 Transcript

Developers were asked whether a learner can view his/her developing transcript (as an indication of formal achievement and progression). Although a transcript is provided and 'owned' by an organisation, and cannot be edited by a learner, it is hoped that a learner's e-portfolio may have links to his/her developing transcript during a programme of study, and to the completed transcript after completion.

Six products reported an online transcript that a learner can view, in at least one version of their software that is currently in use. These include four commercial products, of which two are e-portfolios for work related skills and learning, SkillsFolio and Ufi/Learndirect. For example, SkillsFolio reports that *"progress towards an NVQ is provided by a current breakdown of 'units completed' and 'progress %' towards complete NVQ"*. Another is a version of Vitaelity, for which a transcript is being piloted in a school/LEA partnership in Southwark. In an FE setting, it is reported that *"As the progress reviews build throughout the course, this (the transcript) will happen as all documents are archived"*.

The remaining two examples are in HE. In LUSID, *"there are specific links to transcript information held in SPIDER, within the PDP pages (a display of module marks at relevant*

⁴⁷ Peer discussion of Individual Learning Plans

⁴⁸ In at least one version in use or being piloted

points) but not an 'on demand' link within the main system as yet". The Newcastle 'generic' e-portfolio 'demonstration account' includes an 'Unofficial transcript' "for learner to monitor their progress towards graduation". However, the developer has explained that provision of this facility will depend also on local configuration and integration with local MIS.

One product prompts learners to maintain their own documentation of progress.

5.3.8 Storage and transfer of learner information

Storage capacity has been reported for nine systems, and varies from about 2MB upwards. For two, (Loughborough College Progress File and PETAL) it is 20 MB, and for several (including RAPID, LUSID, Folio and Southampton EPS) it is 'unlimited', though there may be a size limit for individual files⁴⁹, or numbers of pieces of evidence which can be archived. For HE in-house systems, replies included that the storage 'will be managed locally' and 'can be reviewed and amended readily by increasing file server space availability'.

In response to the query how long a learner's previous records remain archived, so that a learner can view their progress, by reflecting back to compare the 'then' and 'now', some developers/vendors (Vitaality, Ufi, RAPID, LUSID and PETAL) state that learners may keep their records on the system indefinitely, or that they plan to archive all learner data on a regular basis, and that the storage capacity allowance will be kept under review. For example, one vendor has explained: "The learner has complete control of their records. They will not be deleted unless the learner does this themselves. The vendor is aware that over time there may be data storage issues and is developing a policy for this. Every six months they will take an imprint of the data and archive it so that even if a portfolio has not been used for some time any data stored will be accessible."

However, with other systems, the learner does not have this control: a vendor of an assessment management system (SkillsFolio) reports that length of storage is "entirely up to the training centre" and that the system "has the option to archive old or inactive students' records ... up until the time when the centre no longer requires the information". The developer of another assessment management system (Southampton EPS) reports that previous records are not archived on the system, and that it is a learner's responsibility to make a back-up version of their portfolio collection of evidence.

TABLE 7: Storage timeframe

Storage timeframe	Number of systems and System identity	
System archives learner information 'indefinitely'	7	c ⁵⁰ , b, d, f, j, i, l
System archives information for several years	1	g
System retains learner information for more limited duration	1	k
System for which this feature is uncertain ⁵¹ or variable according to client requirement	3	a ⁵² , e, h

⁴⁹ For example, EPS is described as 'no limit set', but with a maximum of 2MB for any single file upload.

⁵⁰ Possible option, with 'organisational' control on storage timeframe for individual learners.

Current practice relating to learner information data transfer has been reported for most systems. This is variously by floppy disc, CD-ROM, memory stick, or a perception that this is not an issue with a web-based tool ‘*as the learner can maintain records on the system indefinitely*’.

For example, Vitaelity has explained:

“The beauty of a portfolio being web-based is that records are available anywhere where there is an Internet connection. There is no time limit on how long records are stored and we intend this to be a life long tool and available to people of all ages so that records stay with the author from school to college, HE if applicable and on-the-job training or employment and to retirement. “

Learner information transfer is further considered in the section on conformance to e-learning standards and in the discussion.

5.3.9 Conformance to e-learning standards, including interoperability, and planned developments in this area

Most responses to the query about conformance with e-learning standards related to either UKLeaP for interoperability or IMS ACCLIP for accessibility, or both. However, the anticipated time frame for development was sometimes understandably uncertain.

About half of the system developers reported that ‘conformance with e-learning standards is under development’ including development towards UKLeaP, and occasionally have given a more specific time frame such as ‘*within the next 6 months*’. A few developers appear to be working to improve accessibility/usability, one by moving towards IMS ACCLIP specification. In planned enhancements, several mentioned improving accessibility, including becoming more compliant with WCAG or IMS accessibility guidelines.

TABLE 8: Conformance with e-learning standards

Conformance with e-learning standards	Number of systems and identities	
Under development – see text for details	6	b, c, g, h, i, j, l
Understood to have been achieved	1	f
Response to this query awaited	2	a, d
Not currently planned	1	k, e ⁵³

Responses from individual product developers/vendors:

1. Vitaelity’s response regarding how a learner may transfer information e.g. from My Progress File to a UCAS e-application form or to a company’s HR records, and whether they will need re-keying, was:

⁵¹ Not all developers were asked for this information, which was added at a late stage in the survey.

⁵² Developers are looking at feasibility of retaining records until a learner reaches 21.

⁵³ Not clear from response whether conformance is planned or not.

“Transfer of portfolio information, using UKLeaP, is currently under development. This will involve trials exchanging information with other portfolio developers. Likely timeframe: 6 months”

With respect to e-learning accessibility guidelines/ standards, Vitaality report that they use the following standards:

- *Conform to the W3C Web Content Accessibility Guidelines ‘Single A’ minimum, ‘Double A’ guidelines met as a preference. Triple A where possible.*
- *Comply with W3C guidelines on CSS, XHTML and XML. Pages will be marked up as XHTML Transitional 1.0. using CSS 2 to control layout.*
- *We will comply with eGif guidelines on interoperability.*

Vitaality adds

We are “working towards AAA compliant, currently single A compliant”, and

“It is however worth noting that compliance with WIA guidelines is only part of the solution to delivering true accessibility. We commit to making Vitaality accessible through access testing with a broad range of users with a variety of preference requirements.”

2. Ufi/LearnDirect system administrator, in response to the question about conformance, reported that *“To our knowledge, the developers developed the functionality in line with e-learning standards”,* and is in the process of re-checking to confirm this, whilst FDLearning, the vendor who supplies Ufi, has reported in regard to interoperability of FDL’s surveyed product, that *“SkillsFolio will have configurability options to allow administrators to adapt and ensure compliance with standards. System can also be set with these settings as default”.*
3. SkillsFolio also reports it *“will also have roles to enable correct use of screen readers and will also meet W3C and Disability Discrimination Act (SENDA 2001) .compliance”.*
4. Eportaro/Sentientlearning (Folio) reports that *“These standards are not supported. However, in an upcoming release, users will be able to export their portfolio to be stored on their local file system to modify/distribute as they wish.”*
5. Loughborough College are *“working towards ACCLIP and UKLeaP”.* The developer reports that *“At this stage there is no interoperability with previous institutions. They can transfer from floppy disk if they have information stored in that format. We are considering a variety of ways for transferring into future institutions/employment including to copy onto CD/memory stick/floppy disk. Or to archive within the college system and e-mail on request by the student”.*
6. RAPID report *“No current development work re transfer to alternative Professional Institution systems. JISC’s LP3 project at Loughborough College is currently piloting transfer of data across systems (i.e. into RAPID)”.*
7. Newcastle University generic ePortfolio developers are *“working towards IMS LIP / UKLeaP, IMS ePortfolio (drawing on various other IMS specs)”.* They continue:
 - *“ePortfolio Extensions Toolkit (ePET) is being funded by JISC as part of the JISC Distributed e-Learning programme to develop a ‘Web Services’ interface for the ‘generic’ portfolio.*
 - *JISC funded Regional ePortfolio project will be exploring the use of ioNodes*

- *A version of the ePortfolio has been configured to work, framed, within the Blackboard VLE."*
 - *"1st cohort of portfolio users will be graduating in 2005. Currently institutional data are transferred to the Postgraduate Institute for Medicine and Dentistry"*
8. LUSID report that *"UKLeap is represented. Data can be transferred (on one person's PC only at the moment) via a web service interface or via a file. Enterprise and ACCLIP are not transferred. They add that "LUSID can import via webservice too".*
9. PETAL's reply includes:
*"The starting point of development is UKLeaP
We will be discussing the mapping of Petal Fields to UKLeaP, the UK reference model for the IMS LIP (Learner Information Package). I am thinking that something like Content Packaging may be required for the full export and import of a portfolio. There will be at least four dimensions to the export packaging "problem".*
- *Basic learner info which is held in the database such as name, address, and maybe some parts of the transcript*
 - *reflective annotations and comments in respect of information held in the system*
 - *Digital artefacts (files: documents, graphics, multimedia, etc) held on the Petal server>*
 - *Digital artefacts held elsewhere and referenced (linked) in 2 above*

Importing to another system will depend on the mappings on the target system. This is what standardisation is supposed to deal with, but ..."

5.3.10 Other planned enhancements and development time frame

Developers and vendors have reported a variety of planned enhancement developments, mainly during 2005/6. These are:

1. Positive Steps Oldham 'myprogressfile.com' developer has identified that future developments should include sections for Pre-13 and young people with special needs. There are plans to retain records on site until age 21. The developer has also indicated that *"A cooperative model has been set up to ensure sustainability and areas are being asked to invest and become part of the management group to oversee continued development and management of the site."*
2. Vitaelity is planning a programme of development, specifically relating to special needs, in 2005. *The site is currently 'single A compliant', and plans to become 'triple A compliant'.*
3. Eportaro/Sentientlearning (Folio) plans include:
 - Liaison with key champions in order to identify perceived benefits of the system and transfer these in to a more customised approach to PDP.
 - Training of key champions in each department of the institution involved
 - Training for key academic staff and for computing services department
 - Eportaro's road map includes further plans for product features relating to PDP, including *"templates, Configurable Attributes on Items for Planning and Measuring, Achievement of Goals and Competencies, Configurable Skill/Competency Data Model for Comparison and Reporting, Skill and Skill Component Database for*

Integrated Tracking and Competency Management, Plan versus Actual tracking and assessment”.

4. Ufi plan to refine their learner toolkit in the light of feedback received from learners, and new areas enabling the collection and submission (to awarding bodies) of evidence will be added over approximately the next 2 years.
5. Loughborough College will be piloting their eLP on a small scale by September 2005, and plan to develop different variants, suitable for KS3 & 4 students & students with learning disabilities, and portable applications.
6. Newcastle University generic ePortfolio team plans to continue on-going development, including tools developed by 3rd party developers, with the aim of creating a community in which developments/upgrades can be freely shared. They are also looking at repositories for file storage, rather than local file systems.
7. RAPID plans an online tutor system for 2005. They also plan to continue various areas of work in progress from 2004-2005, including an administrative interface and skill bank to assist academic tutors to more readily develop bespoke versions based on subject discipline or programme requirements. RAPID intend to work to develop online support materials (e.g. for ‘planning’ and ‘reflection’ processes). New versions or RAPID are currently planned for Post Graduate Researchers (PGRs), PGCE students, and Information Science students.

5.4 Discussion and Conclusions

5.4.1 Scope of study

At the outset of the study it was apparent that there were many systems potentially available to review, so the challenge was what to exclude rather than what to include.

At this point, the aim to review existing e-portfolio products appeared to be satisfied by taking from relevant websites a description of the software and its purposes, as stated by the developers or vendors. However, it quickly became apparent that, to put planned developments into context, it would be necessary to gain a better understanding of systems, and that to achieve this, exploration of each system as an end-user was essential. Guest-user access to each system was therefore sought, and non-availability became an exclusion study criterion.

It was agreed that it would be more informative and useful to make an in-depth survey of an illustrative sample of products, than a very superficial survey of many more. The decision was made to include only products in use in the UK. This resulted in exclusion of several products well established elsewhere, including in North America (e.g. Nuventive, which had contributed to the requirements gathering process for IMS ePortfolio) and in Europe (e.g. Giunti). Additionally, the survey focused mainly on e-portfolio products developed in educational contexts and UK-wide work related training organisations, and did not include e-portfolio products of private sector companies, professional bodies or public sector organisations. The decision to restrict product review in this way resulted from several considerations, including the decision to survey a limited number of products, the decision to include only products for which guest-user access was available, and the fact that the authors were likely to have more contacts, from whom to request guest access, in some sectors than in others.

This mapping survey of twelve UK on-line e-portfolio/PDP applications is the first comprehensive attempt to determine the range and frequency of purpose and function represented by such UK systems. The sample of e-portfolio/PDP applications may be considered representative of the scope of UK systems, in terms of target learner communities, commercial or non-commercial basis, purposes, and functionalities represented.

However, it should be emphasised that this is a relatively small sample of the total number of UK e-portfolio products which are available, especially in HE where the number of e-PDP applications has increased rapidly over the past few years, including during the study itself (e.g. ELGG and Bodington). The study therefore barely 'scratches the surface' in terms of the breadth of its exploration. Much additional exploration and analysis could be justifiably undertaken to enhance understanding of the quality of these other systems. Wider practitioner evaluation would be valuable. Practitioner evaluation of a limited number of systems has already been undertaken, but reporting on those findings is beyond the remit of this study.

5.4.2 Learning points from the methodology

Eleven applications were explored 'hands on'. Some of the systems were more straightforward to use than others. With some, it was easy to find information, create and edit text, save data, or upload a file. Others were less easy to use, and sometimes generated a feeling of needing instruction on getting started, which was not always included within the site. Our anticipation was that each online system would guide an end-user through important information or functionalities such as privacy, permissions, preference setting, or storage capacity and timeframe, in much the same way that retail equipment includes instructions for use 'in the package'. One vendor explained that training or guidance was not on the site, as it was provided to the client organisation, and that this was a better approach as the training could be provided in a customisable way, adapted to the client organisation's target learners. However, this is not without challenge, for learners learn at different rates, and some may require further on-site help to progress.

For some systems surveyed, guest log-in was restricted to certain areas and functions, and for one system surveyed, no guest log-in was available. For that application, the survey was conducted by telephone interview. However, this method of survey was felt to be unsatisfactory, as it was impossible to get a feel for the application without permission to enter text to create portfolio entries. It was therefore decided that, from that point in time, non-availability of a guest log-in would be an exclusion criterion for the survey. As a result, two well-established HE systems⁵⁴, which were included in a provisional list for the study, were excluded. Non-availability of guest access may be a consequence of the way a system is set up, with access through an intranet, available only to registered students and staff of the organisation, and may apply to many additional applications. It emphasises a need to confirm current availability for guest access as an end-user, before selecting a particular application for inclusion within a survey.

Major challenges of the survey included getting guest log-in as an end-user to some commercial sites, obtaining feedback on the mapping from developers or vendors, or getting comprehensible information in response to specific questions asked of developers/vendors. To reassure developers/vendors, the reviewers explained that information would not be passed on without a vendor's consent. Despite this, the outcome was unsatisfactory, because some information was verified and some was not. We, the reviewers, had a sense that we were entering a commercial environment where vendors have other agenda, and that there was a reticence among some vendors to share information freely. Answers were sometimes ambiguous or incomplete, although not necessarily deliberately so. Some but not all these queries were satisfactorily clarified on further follow up, but delays in receiving initial replies and mapping verifications together with limited timeframe have meant that it has been impossible to follow up every ambiguous reply for further clarification. For example, one vendor, who reported that an e-portfolio product provided preference settings as an 'option', on further enquiry helpfully explained that these preference options are set by the client organisation, and are therefore available to individual learners only if their organisation requests this: Less helpfully, some developers have not answered the JISC questions about planned developments or development time frame.

⁵⁴ ePARS, University of Nottingham, and PACE, University of Wolverhampton

It was anticipated that the invitation to developers to comment on the mapping tool, including perceived 'gaps' in it, would prompt developers to draw attention to additional features or functions of their applications that the mapping tool did not include. However, no suggestions for improvements to the mapping tool have been received, although some responses of developers, in regard to data verification, indicated to us potential ambiguities in the vocabulary of the mapping tool. These responses will be used as a basis for further refinement of the tool, as will our observation that some questions include more than one part, and that this also may lead to ambiguity.

5.4.3 Significant findings of the study

The most significant findings of the study were those relating to support for PDP, accessibility/usability preferences, privacy, and conformance to e-learning standards including data transfer.

The **high level of representation of support for PDP** may reflect this study's educational focus in the survey of UK based e-portfolio products, since e-portfolio in UK educational contexts has evolved largely from PDP practice. It was reassuring to find that many products, (including some which have other main purposes, such as presentation or assessment), support learners through face to face tutorials or e-mentoring, since learner feedback regarding engagement with PDP processes has repeatedly indicated that learners value dialogue with tutors, and are more likely to engage in PDP processes if embedded alongside tutor support (Forsyth, 1997; Rouncefield, & Ward, 1998; Quinlan & Richardson, 2001).

Accessibility/usability preferences indicate a learner's technical preferences for interacting with systems and content. Comprehensive guidelines are available from several sources. IMS has developed a framework to promote accessibility for the distributed learning community (IMS Global Learning Consortium, 2001), and specifications, including IMS ACCLIP (IMS 2004). It is generally acknowledged that guidance to web developers, which promotes accessibility to disabled learners, should also be followed to make Web content more available to all users. For example, Web Content Accessibility Guidelines (WCAG 1.0, 1999) set out practice to improve accessibility to e-learning for all. Their website states:

"The primary goal of these guidelines is to promote accessibility. However, following them will also make Web content more available to all users".

It is therefore of considerable concern that **few developers report that they are working towards accessibility specifications**, such as IMS ACCLIP, or WCAG 'AAA' compliance. Raising awareness of need for appropriate system development to support accessibility/usability is therefore an important area for consideration for continuation work.

Even without preference setting, the browser 'view' button should allow the text size to be adapted during that session. However, browsers do not appear to support this feature reliably and consistently, and the view may depend also in part on how the webpage is configured. Frequently, font size does not alter between 'view' size options, with the consequence that, when set at 'largest', the font may be uncomfortably small (e.g. for

'varifocal' refractively corrected eye sight). Sometimes, heading size may alter, or text paragraph format may alter, but not the general text size, or only parts of the text, e.g. excluding text boxes. Developers need to be made more aware of the need to address these issues.

Going beyond the findings of the study, it is worth noting a recently added accessibility specification, IMS AccessForAll Meta-data Specification, which is intended to make it possible to identify resources that match a user's stated preferences or needs.

"These preferences or needs would be declared using the IMS Learner Information Package Accessibility for LIP specification. The needs and preferences addressed include the need or preference for alternative presentations of resources, alternative methods of controlling resources, alternative equivalents to the resources themselves and enhancements or supports required by the user. The specification provides a common language for identifying and describing the primary or default resource and equivalent alternatives for that resource."

The CETIS Accessibility website also has a number of links relating to e-learning and specifications⁵⁵, which developers might find useful.

Regarding **privacy**, the apparent **lack of a privacy statement on the site of about half the products** is a particular cause for concern, especially among applications with a commercial basis. One vendor explained that a data protection policy statement was provided in hard copy to its client organisations. However, learners need to see a data protection policy and to be reassured that their data will be used only in the way intended. There would appear to be a need for a further significant contribution by the 'legal studies' team, towards awareness raising and development work with developers and vendors in this area.

Most developers indicated some awareness of requirements for development towards **conformance with e-learning standards**, and progress (or planned progress) towards these, in respect of interoperability, although less so, as reported above, in respect of accessibility. Progress towards conformance needs further monitoring as UKLeaP and other standards are implemented.

Planned developments are seen to be variable, and include working to support disability and special needs, to develop variants for additional communities of learners, working towards creating a community in which developments can be freely shared, using repositories for file storage, and refining support in the light of feedback. It was noticeable that some developers and vendors expressed an intention to develop in areas where the mapping tool indicated 'gaps' in their provision, and, in that sense, the mapping tool may be seen to have already had a wider transferable significance of catalysing developers into action. It is also noticeable that some vendors or developers have not replied to the question about planned developments, although this information has been requested several times.

No e-portfolio product currently supports direct transfer of learner information between systems. Methods identified by product developers for data transfer mainly involved

⁵⁵ http://www.cetis.ac.uk/members/accessibility/links/links_index

employing another medium between, such as a CD-ROM or memory stick. A web based product vendor considered that this was not an issue for a web-based e-portfolio, as a learner could access it at anytime from anywhere.

However, there are potential problems with this approach. One is that a system may not be maintained over the lifetime of a learner, and the question arises as to what would then happen to a learner's e-portfolio. A guarantee that learner records will be retained and remain accessible to a learner may be meaningless, as a marketed system may change its priorities, or an educational organisation may cease to exist. Two other potential problems associated with online e-portfolio within a single organisation are:

- the apparent conflict between a lifelong record and a relatively low storage space for an individual learner (currently often around 2 – 20 MB), and
- a learner's unknown future needs, which may require her/him to provide records to another organisation or professional body, or HE admissions process.

Access to data transferred to a floppy disc or memory stick also faces potential challenges as technology evolves. Already, fewer pcs support an A-drive floppy, so if a learner transfers records, and then for any reason does not access the records for several years, those records are likely to become inaccessible⁵⁶.

An alternative approach to a portfolio being hosted on the site of a particular organisation or vendor would be to use Personal Information and Aggregation Distribution Services (PIADS). Key aspects of PIADS are that information is distributed and stored in many locations, a learner has a single access control point to access and change information, and when a learner changes information, that information is updated in all her/his e-portfolio storage locations. This approach might provide a key solution to challenges associated with data being stored on a website hosted by an individual organisation.

6. Key Issues identified

1. Low awareness among developers of the requirements for usability compliance. For example, in relation to visual preference, a learner should be able to set preferences for screen display which are automatically applied at log-in. (There may also be low awareness of usability issues relating to auditory and tactile sense, and finger/hand mobility).
2. Low awareness among some developers of requirements of data protection legislation.
3. Low awareness among some developers of requirements for learners to be in control of their information, and the necessity for interoperable systems which allow the learner:
 - to remain in control of their information, even if a vendor ceases provision, and
 - to transfer information without need to re-key or save in another medium.

⁵⁶ Author comment "Remember 5 inch floppy discs? – it's as well we didn't store our learner records to those!"

4. Progress in conformance to e-learning standards. This is an area currently under development and many developers are aware of it, and working towards it, (but see (3) above).

7. Actions required before e-portfolio systems can be adopted by institutions

Many organisations and institutions have adopted e-portfolio systems without the above issues being addressed, these are:

- requirements for usability compliance
- requirements of data protection legislation
- requirements for learners to be in control of their information.

The following series of actions are therefore recommended:

1. systems developers, practitioners and managers should be made aware of the above issues, and
2. systems developers should be encouraged and supported to develop systems which satisfy the above requirements.

Drivers relating to usability and privacy exist in legal frameworks, including SENDA and Data Protection, but there is an apparent need to increase awareness in these areas, through workshops and publicity materials. There should be an expectation that these requirements are integral to processes of e-portfolio development.

The mapping template has an important role to play in this regard, by prompting developers and vendors to take notice of these requirements, and by helping organisations acquiring e-portfolio systems to pay attention to those requirements, of which they may previously have been unaware.

8. Recommendations for continuation work including further investigations

On the basis of the findings of this work, we make the following seven recommendations for continuation work to the JISC. The context and rationale for each are set out below.

8.1 The Report

Recommendation 1: to publish the report as widely as possible.

However, it is recognised that there would need to be different versions for different audiences. For example, for some audiences it may be necessary to remove information identifying individual commercial products. Alternatively, parts of the report could be published 'stand alone', e.g. abstract; literature review plus relevant references; mapping study summary; mapping study: template, method, findings, discussion plus relevant references; key issues; recommendations.

8.2 The Mapping Template

One of the most important outcomes of the study has been the development and implementation of the mapping tool, which is itself a significant transferable deliverable, with wider potential application to inform choice and to facilitate dialogue between systems developers/vendors, practitioners and managers about the features required to effectively support learners in their own context. The following recommendations for future work relate mainly to ways in which wider use of the mapping tool might help to define and inform development of e-portfolio software, as well as to support practitioners, systems developers and managers to have a shared understanding of system requirements in their own context.

Recommendation 2

- to develop the mapping tool as an on-line cross sectoral, capacity building resource, (possibly to be hosted on the PDP content area of the CETIS website), and
- to provide guidance (perhaps through a workshop programme) to facilitate use of this resource.

Rationale: The two main purposes of providing the template as a resource would be:

1. to raise awareness among vendors and developers of the functionalities that they might reasonably be expected to consider incorporating in their systems,
2. to facilitate dialogue between managers, practitioners and systems developers about system requirements to support learners in their particular context.

It is important that the learning from the survey, about functional requirements to support learners through an e-portfolio product, is not lost. With the increasing move towards e-learning systems, it is likely that an increasing number of PDP support systems will be developed to include e-portfolio elements. There are many institutions which could benefit from the template as an online development resource, including (as a starting point), those hosting the approximately 20 on-line PDP systems listed on the CETIS/members/PDPcontent site that have not been mapped for this study, and, additionally, systems developed for 14 – 19 or adult learners, referred to in the Becta

commissioned review of e-portfolio developments (Strivens, 2005). Further e-portfolio software is being developed through the JISC regional distributed e-learning pilot projects, one of which has already indicated an interest in provision of the mapping tool to support e-portfolio development. The survey included only one online PDP system which is also a project of the MLEs for Lifelong Learning Programme (Loughborough College Progress File). Other MLE projects which incorporate e-portfolio/PDP support processes could be invited to complete the template, to raise awareness of functionalities which might appropriately be incorporated within their projects' on-line materials, and thus to add value to that work.

A workshop programme to facilitate use of the mapping template is important because experience suggests that potential users of an 'unfamiliar resource' often need 'people support' initially to see the benefits of using it, and that contributors need 'people support' to add content.

8.3 Support for vendors

Recommendation 3: to provide support for vendors to develop systems which take into account the key issues identified, which are usability, data protection legislation, and learners being in control of their information.

The rationale is that on the basis of evidence presented in the report, vendors themselves need support in order to be made aware of, and to be helped to work towards, the key issues of compliance with legislation, usability guidance, and 'what end-users want' from an e-portfolio system. (This could be facilitated through 8.2 above). This support will facilitate developers and vendors to work with projects to develop conformance to e-learning standards.

8.4 Practitioner and learner perspectives of e-portfolio systems

Recommendation 4: to obtain practitioner evaluation of selected existing e-portfolio systems.

Recommendation 5: to obtain learner evaluation of selected existing e-portfolio systems.

The rationale is that user evaluation will help to inform product development, both of the system being evaluated and of a system which the evaluator may wish to influence in the context of his/her own learning situation. Both learners and practitioners are 'users' in the context of e-portfolio systems.

The reviewer has been careful to remain neutral in respect of how systems work, to report only on features represented or not, and not to evaluate the quality of the system in terms of fitness for purpose, how well it functions, how easy it is to use etc. Some systems developers have agreed that they would like an opportunity to receive practitioner feedback, if this is offered. For any system to be evaluated by a wider practitioner base, a pre-condition would have to be that the system would provide guest log-in for each evaluator end-user. In the current study, 11 of the 12 systems surveyed provided a guest log-in to the survey's reviewer.

Recommendation 6: to study learner take up, and impact on the learner of selected e-portfolio systems.

The rationale is that evaluation of a system is essential, but in itself insufficient evidence for effective use of resource. Reasons for take up and impact on learning, as evidence of effective use of resources, are also required alongside evaluation.

8.5 The International dimension

Recommendation 7: to make the mapping tool available outside the UK, to obtain a wider international perspective with a review of USA and European practice.

The rationale is that, in relation to future actions to define use of e-portfolio systems, availability of the mapping tool outside the UK, would facilitate drawing together a wider international perspective, e.g. through a review of USA and European practice. One approach to this for an US perspective might be to invite Darren Cambridge to map a small sample of established North American Systems to the template, and for a European dimension, to invite co-workers in Europe via Peter Rees Jones, the UK EPICC representative, to map a sample of e-portfolio systems to the template. Comparisons with UK data would enhance understanding of commonalities in development and aid definition of use of e-portfolios.

9. Acknowledgments

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10. Disclaimer

Every effort has been made to provide information which is accurate at the time of publication. The report includes information provided by software developers and vendors, and external links are provided to point readers to additional information and resources, which the authors believe are of a satisfactory standard. The authors are not responsible for accuracy of information provided by developers and vendors with regard to existing e-portfolio products, or with regard to future developments, and the authors do not endorse any external sites, are not responsible for their content, and cannot guarantee accuracy or quality of information on sites to which this report has links.

11. Works cited

Banks, B (2004) E-portfolios: their uses and benefits. (Version 1.1: December 2004) at <http://www.fdlearning.com> (paper available on request from fdl).

Barrett, H and Wilkerson, J (2004) Conflicting paradigms in electronic portfolio approaches: Choosing and electronic portfolio strategy that matches your conceptual framework at <http://www.electronicportfolios.com/systems/paradigms.html> (accessed 21/03/05).

Cambridge, D (2004) Learner related information and artifacts in the United States: a comprehensive analysis of projects and practices. A report commissioned by the Joint Information Systems Committee. Version July 2004 – [awaiting updated version confirmation/URL, requested from D Cambridge 1/3/05.](#)

Centre for Recording Achievement (2003a) A review of specified North American websites in respect of the support given to student employability through the use of digital (e)portfolios. Commissioned report to the Learning and Teaching Support Network (31/08/03) (Unpublished).

Centre for Recording Achievement (2003b) Developing learner profiles across FE and HE: Summary Report 2002/3 at: http://www.jisc.ac.uk/uploaded_documents/learner-profiles-synoptic-report.doc (accessed 21/03/05).

Charlesworth, A (2004) Legal Issues that could block the development of a national lifelong learner record system: the 'project killer' report. JISC study to explore the legal and records management issues relating to the concept of the lifelong learner record. At http://www.jisc.ac.uk/index.cfm?name=project_learner_records_legal_study: [Project Killer Workpackage](#) (accessed 21/03/05).

Charlesworth, A & Home, A (2005) Legal aspects of ePortfolio: a short FAQ (⁵⁷) (Work in progress: contact anna.home@bristol.ac.uk or a.j.charlesworth@bristol.ac.uk).

Cotterill, S (2004) Managed environments for portfolio-based reflective learning: Integrated support for evidencing outcomes. At <http://www.eportfolios.ac.uk/FDTL4?pid=46> (accessed 21/03/05).

Dearing, R (1997) Report of the National Committee of Inquiry into Higher Education (The Dearing Report) <http://www.leeds.ac.uk/educol/ncihe/> (accessed 21/03/05).

Forsyth, AR. (1997) Student perceptions of PADPs. (Unpublished) Final Year Project Report, University of Manchester.

Grant, S, Rees Jones, P and Ward, R (2004) E-portfolio and its relationship to Personal Development Planning. <http://www.inst.co.uk/clients/jisc/e-portfoliodef.html> (accessed 21/03/05).

⁵⁷ Frequently asked questions

Home, A and Charlesworth, A (2004) The ePortfolio's potential as enhancer of social inclusion: Reflections of UK initiatives in light of the EU e-inclusion policy. Contact Anna.Home@bristol.ac.uk.

IMS Global Learning Consortium, Inc. (2001) IMS Guidelines for Developing Accessible Learning Applications Version 0.6 White Paper <http://www.imsglobal.org/accessibility/index.html#accguide> (accessed 21/03/05).

IMS Global Learning Consortium, Inc. (2004a) IMS AccessForAll Metadata Specification Version 1 Final Specification <http://www.imsglobal.org/accessibility/index.html#accmd> (accessed 21/03/05).

IMS Global Learning Consortium, Inc. (2004b) IMS ACCLIP (Accessibility for Learner Information Package) Specification Version 1.0 – <http://www.imsglobal.org/accessibility/index.html#acclip> (21/03/05).

Kraan, W (2005) IMS publishes service oriented architecture whitepaper (version 24/01/05) (<http://www.cetis.ac.uk/content2/20050124115817>) (accessed 21/03/05).

Love, D, McKean, G, and Gathercoal, P (2004) Portfolios to Webfolios and Beyond: Levels of Maturation. Descriptions of developmental stages offer institutions guidance about their place in the process and how to move to the next level. Educause Quarterly, Volume 27, no. 2 <http://www.educause.edu/apps/eq/eqm04/eqm042.asp> (accessed 21/03/05).

Macromedia (undated) Getting started with eLearning standards. <http://download.macromedia.com/pub/solutions/downloads/elearning/standards.pdf> (accessed 21/03/05).

Quinlan, RL, and Richardson, HC (2001) Student Evaluations of Transferable Skills in HE and Employment. Proceedings of the Annual Symposium of the TRDN. University of Manchester. ISBN 1 903640 04 0.

Rees Jones, P (2005) e-Portfolio for Europe: a review of emerging practice. Consultative draft. Available from p.r.jones@adm.leeds.ac.uk.

Rouncefield, M and Ward R. (1998) Recording achievement and action planning: a basis for progression to higher education. British J. Counselling & Guidance 26: 61 – 73.

Siemens, G (2004) ePortfolios at: <http://www.elearnspace.org/Articles/eportfolios.htm> (accessed 21/03/05).

Smythe, C, Evdemon, J, Sim, S, and Thorne, S (2005) Basic Architectural Principles for Learning Technology Systems (version January 2005) <http://imsglobal.org/architecture.pdf> (accessed 21/03/05).

Strivens, J (2005). E-portfolio developments in the 14 - 19, adult and lifelong learning sectors. Commissioned report to Becta (currently unpublished).

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WCAG (1999) Web Content Accessibility Guidelines 1.0 <http://www.w3.org/TR/WAI-WEBCONTENT/> (accessed 21/03/05).

Wilson, S (2005a) e:Portfolio relationships vocabulary specification. Initial draft, version 0.1: 09/01/05. (Work in progress: contact s.wilson@bangor.ac.uk).

Wilson, S (2005a) e:Portfolio vocabulary specification. Initial draft, version 0.1: 12/01/05. (Work in progress: contact s.wilson@bangor.ac.uk).

12 APPENDICES

Appendix 1

Mapping tool used for the survey of 12 UK online portfolio/PDP/Progress File applications

Appendix 2

Systems surveyed and their contact details

Appendix 3

Mappings of 3 exemplar systems

Appendix 1

Mapping tool used for the survey of 12 UK online portfolio/PDP/Progress File applications

Date of survey: (date of draft mapping inserted here)

STATUS: draft (confidential between LLSP⁵⁸ and e-portfolio system contact/developer/vendor)

JISC e-portfolio software applications review 2004

The JISC e-portfolio software applications review aims 1) to identify existing e-portfolio/PDP software applications and describe their current status in terms of availability, development time frame and conformance to e-learning standards; and 2) to collate existing reviews in this area.

To help with strand (1), we have developed a mapping tool and are surveying about a dozen systems, supporting between them a range of learners, to check out what functionality is generally represented, and what is planned, and to refine our mapping tool, before surveying more systems.

The purpose of this draft mapping is to not to evaluate individual systems, but to find out 'what is out there now and what is planned?' The mapping tool is based on items identified through discussions in various events, including the MLEs for LLL Programme Meeting, June 2004, and JISC e-Learning Conference, November 2004, and various publications, including e-portfolio paper <http://www.inst.co.uk/clients/jisc/e-portfoliodef.html>.

If you feel that our mapping tool has gaps, please feel welcome to let us know how you think it can be improved.

Draft mapping of e-portfolio systems

Notes

As terminology varies, we provide in the Table, our use of terms as we propose to use them in the study.

We appreciate that some of the mapping terms naturally group together, or 'overlap', or may be packaged under several of the 'item' headings. The table indicates the most obvious of these, of which we are aware.

Glossary

'Learner' (also 'author') is the person using the site to create his/her Progress File/portfolio.

'Organisation' refers to any place of work or study or recreation, where learner has been or is: studying, working, training, or has/had professional or recreational links to etc.

System overview

Inserted here: brief description of product, usually copied and pasted from the system website.

Please verify information in column 3, and provide answers to queries, also in column 3.

Item	Glossary/meaning/queries	Data, comments, further queries
Name of system		
URL		
Software developer/vendor	Commercial or non-commercial ('home-grown') Contact details	Name of vendor or developer here. For further information or to request guest log-in, contact

⁵⁸ Lifelong Learning Support Project of the JISC MLEs for LLL Programme

Target learners	Stage/level/episode of learning: e.g. 14 - 19, FE, HE, CPD, job seeker any age, LL for any purpose.	
Storage space	How much space does each learner have to store his/her data?	
FUNCTIONALITY		
Preference setting for accessibility/usability	Author/user can select settings for colour, text size, font, images, video and audio. These are stored and apply automatically each time that user logs on. Query: What standards & tools does the system use, e.g. ACCLIP, LUNA, JAWS?	
Privacy/data protection	Site includes a data protection policy statement, including privacy, 'how your data are used', and facility for learner to view all information held about him/herself.	
Permissions setting for exposing information, for others to read or edit (Some parts of this might be what others might call 'privacy' or 'ownership')	<ul style="list-style-type: none"> - Author can select and control who can read or edit what, and can alter these with time. - Considerations: - There may be multiple audiences/editors. Target audience/editor(s) may vary with time. Author can select information and alter permission settings for different purposes/audiences, - Various levels of privacy/permissions can be set simultaneously; e.g. for 'read only' permissions: - 1) author can select parts of the e-pf as private: 'self only' - 2) author can select parts of the e-pf as 'public' - 3) author can permit specified person(s) to read selected parts of e-pf at selected times, e.g. to present information to a mentor, adviser, assessor, prospective employer, employer, HR person, professional body, etc - e.g. for editing permissions: - author can select as above who can edit what and when (e.g. adding comments or feedback.) 	
Editing (includes: sifting, selecting, summarising, connecting)	An important function is editing for re-use e.g. for different purposes/audiences 1) Author can add text, audio, video clips, still images, 2) Author can edit/amend text, audio, video clips, change to different images – or, depending on nature of images, perhaps edit the images themselves? 3) Author can manipulate text within the system, – this includes sifting, selecting, connecting by copying, pasting selected items, or 4) Author can select parts to transfer out to another system, including e.g. MS 'Word' type format, for manipulation	queries – as a learner progresses and updates his/her records, 1) how long do the previous records remain stored? 2) can learner access previous records for reflecting back so learner can compare the 'then' and 'now'? 3) how does learner access previous records for this purpose?
Managing information (1)	Author can import, export, or reference by hyperlink to other information as evidence e.g. assignments, qcl, artwork, video.	

Managing information (2)	Author can see all their data, <u>and</u> an inventory/ list of their uploaded files and files referenced/linked ⁵⁹	Please complete
Interoperability/ Conformance with e-learning standards	Information is represented in IMS-LIP structures/ compliant format. Author can select parts or all for transfer to another (on-line) system for reuse.	Current status of this functionality is asked about in later 'developments' section
Supporting PDP - guidance	"PDP is a structured and supported process ...": The system provides guidance: 1) for any/all elements of personal development, e.g for developing skills, action planning, types of evidence etc; 2) re purpose of system, & how to use it, e.g. it might provide exemplars for completing records. OR as an e-PDP/e-portfolio system may alternatively or additionally provide guidance through a tutorial programme which runs alongside it, the system prompts learner to access that programme, to support completion of associated records.	
Mentor feedback/ discussion facility	This might be considered part of permissions setting, but adds value to editing role, in sense that it formatively supports the learner. Several UK e-PDP/pf systems – e.g. Newcastle and Careers Wales have a 'family/mentor' facility: author selects mentor who posts/gives feedback/ comments/ guidance. This supports PDP activities.	
Creative design	Learner can design their own pages/templates for inclusion <u>within</u> the portfolio (not just referenced by link)	
INFORMATION MANAGED		
Evidence including		
Personal development records (PDRs)	Represents any/all elements of PDRs, including: goal, competency, interest, qcl, accessibility, need for learner support, statements, reflexion, evidence, reflective writing, represented as e.g. CV/presentation Reflections Log/diary/ Action planning Target review	
Transcript	Provided and 'owned' by organisation – cannot be edited by author – but it should be possible for author to link to, or maybe to select and highlight information (or possibly re-configure?) for presentation to different audiences.	
Products – digital products contained,	e.g. text, still images, video clips, audio?	
Products -other referenced	Hyperlinks to referenced items such as text documents, video, still images, audio	
SCENARIOS OF USE	check that at least one purpose is stated explicitly	

⁵⁹ I should like to acknowledge Helen Barrett's congruent work for ideas in developing this area
<http://electronicportfolios.org/myportfolio/versions.html> (or mailto:helen.barrett@comcast.net)

Formal learning, self-assessment, reflection, formative assessment	Academic curriculum based, e.g. defined by intended learning outcomes, required, institution-based, usually pre-structured records with reflective components. Learner's records reflect how achievements evidence his/her goals, and show learning and progression over time.	
(...continuum to ...)		
Personal development, reflection, self-assessment	Learner-centred, often self generated records to document learning for own use: informal learning logs, diaries, possibly relating to continuing professional development.	
Assessment management tool (summative assessment)	To demonstrate achievement by relating evidence in portfolio to performance standards, as defined by curriculum, or body/authority, e.g. NVQ, normally mainly tick-box, with little if any reflection	
(...continuum to ...)		
Presentational	As defined by self, e.g. Helen-Barrett-style, to show-case self to audiences for purposes such as CV, appraisal, showing competence for professional qualifications, etc.	

Please complete the following sections

Development time frame	Include actions required before system can be adopted by Institutions/Organisations	
Availability	Include actions required before system can be adopted by Institutions/organisations	
Interoperability/ Conformance with e-learning standards *	Which standards are represented, e.g. UKLeaP, Enterprise, ACCLIP? How may learner transfer selected parts or all to another (on-line) system for reuse?	
Provision for enhancement or additional features to meet further key needs of users	What further developments are planned? e.g. how does the system plan to take account of 'social inclusion/exclusion' issues ⁶⁰ , such as economic, cultural, learning/intellectual disability, digital skill level?	
Practitioner evaluation	As 'value added' to this review process, there may be an opportunity for practitioner system evaluation. Would you like to take advantage of this, if offered?	

Other queries

These will vary with what I find about the system, but commonly include:

As a learner I'd like to know how long my records will be retained, and whether 'previous' text is stored after I update them, so I can reflect back on my progress between 'then' and 'now'.

I'd also like to know who can view my records, and if I can keep any parts private to myself – and how to do this.

⁶⁰ Home, A & Charlesworth, A (2004) The ePortfolio's potential as enhancer of social inclusion: Reflections of UK initiatives in light of the EU e-inclusion policy. Contact Anna.Home@bristol.ac.uk

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I'd also like to know how I can transfer my records to my next place of study or employment.

As a manager, I'd like to know the cost of buying this system, what else is needed alongside this to ensure it runs effectively, especially in terms of human resources, e.g. what sort of IT support, if any? If I need IT support, whom do I contact, and is there a cost for advice? Also, is tutorial support recommended alongside to encourage/support learners complete the pages? Is there a sense of 'timeliness' which encourages learners to complete pages?

Helen Richardson (on behalf of LLSP for JISC MLEs for LLL Programme e-portfolio software applications review)

date

Appendix 2

Systems surveyed and contact details

Id.	System name & institution or location of use (as relevant)	URL	Contact details of vendor/ developer/project manager	For further information or to request guest login, contact	Date of survey/ (Notes)
a	'Myprogressfile' (Positive Steps Oldham/Bury)	www.myprogressfile.com	shirleycannon@positivestepsoldham.org (original product developed by Interactive Solutions)	shirleycannon@positivestepsoldham.org	9 th November 2004. (Formerly 'OEBGS Online Progress File', relaunched March 2005)
b	CareersWales Online/Vitaelity (Wales)	http://www.careerswales.com/	Arc software.& Illumina Digital http://www.arcsoftwareconsultancy.com/vitaelity.htm	stuart.farquharson@arcsoftwareconsultancy.co.uk or jude.sanders@illumina.co.uk	11 th November 2004. (Formerly known as CWO, relaunched January 2005.)
c	SkillsFolio (UK wide)	http://www.flearning.com	http://www.tribaltechnology.com	Martin Byrne	26 th October 2004. (Telephone survey, no guest login.)
d	PortfolioMaker	http://www.portfoliomaker.co.uk	OPEUS Technologies Ltd	Info@opeus.com , info@portfoliomaker.co.uk	20 th November 2004. (Formerly 'Opeus for schools', relaunched February 2005)
e	Folio	http://folio.sentientlearning.com/Folio/login.aspx	ePortaro http://www.eportaro.com/ in partnership with Blackboard http://www.blackboard.com/ http://www.ufi.com	ceri.mccall@sentientlearning.com	8 th December 2004.
f	Ufi/learndirect	http://www.learndirect.co.uk	http://www.learndirect.co.uk http://www.ufi.com	Michelle Gleadall at mgleadall@ufi.com	25 th November 2004. (Unable to view PDR structure)
g	Loughborough College Progress File	http://progressfile.loucoll.ac.uk	Web developer: samuel.persse@loucoll.ac.uk	fiona.henry@loucoll.ac.uk	10 th December 2004 (Under licence to DfES, Widening Horizons materials, 3T software).

Appendix 2 (continuation)

Id.	System name & institution or location of use (as relevant)	URL	Contact details of vendor/ developer/project manager	For further information or to request guest log-in, contact	Date of survey (& Notes)
h	Newcastle University 'generic' ePortfolio	http://www.eportfolios.ac.uk	s.j.cotterill@newcastle.ac.uk	s.j.cotterill@newcastle.ac.uk	19 th November 2004. (FDTL4 funded '03 – '05; JISC funded '03-'04.)
i	RAPID (Loughborough University)	http://rapid.lboro.ac.uk/	r.goodman@lboro.ac.uk ,	a.p.maddocks@lboro.ac.uk	21 st November 2004. (DfES Project 1998-2000 & FDTL3 2000–03)
j	LUSID (University of Liverpool)	http://lusid.liv.ac.uk	Campus developed using Sun Microsystems software. http://www.sun.com	Marie Connor at lusid-webmaster@liv.ac.uk	20 th November 2004
k	Electronic Portfolio System (EPS) (University of Southampton)	http://www.soton.ac.uk/eps		Dr Jon Woollard at j.woollard@soton.ac.uk	21 st November 2004. (developed on house)
l	PETAL (Oxford Brookes)	http://developer.k-int.com:8080/portfolio/registration.do	Developer : Neil Smith neil@k-int.com	Visit the site and register	16 th December 2004; (Open source: Based on OSPI http://www.theospi.org Beta Version released 10 th January 2005).

Appendix 3

Exemplar mappings of 3 systems

(See Appendix 1 for introductory text providing the context of the mapping tool)

System overview

Loughborough College Progress File

Materials based on 'Widening Horizons'; with guidance on induction, setting goals and career planning, developing skills, making progress, moving on, and final progress check, with links to UCAS, Connexions Direct and Careers Gateway sites.

The forms that make up a learner's Individual Learning Plan are: Personal Record, Personal Statements, Initial Assessment, Career Plan, Course Plan, Progress Reviews, Progression Checklist. Forms are completed by learner, and checked and discussed with Progress Tutor as part of Progress Review.

Newcastle generic ePortfolio

A 'generic' ePortfolio has been developed as part of an FDTL4 project: 'Managed Environments for Portfolio-based Reflective Learning - Integrated Support for Evidencing Outcomes'. This is a project, to develop Web based portfolios to support reflective approaches for evidencing the attainment of programme outcomes. The development of database driven portfolios will be closely integrated with on-line curricula / study guides to become an integral part of the networked learning environment for Medicine. This is a collaborative 3 year project, commencing October 2002, involving; The University of Newcastle (lead site), The University of Leeds, the University of Sheffield and The University of Dundee.

Careers Wales/Vitaelity

Careers Wales is envisaged as an online lifelong learning passport for the Welsh nation in the form of an online progress file. It has about 2.5 million users currently. There are specialised areas of content for users of different ages or differing stages of their academic/professional careers which provide advice and information on topics relevant to these groups of people. The portfolio was designed around the learning processes of record, reflect and review. Users can record information about qualifications and skills and then reflect on their achievements. A series of self-assessments and diagnostic tools help them to define their personal qualities and skills, learning and working styles and to encourage them to reflect on their goals and aspirations etc. There are integrated tools to aid decision making and to develop action plans in addition to a wide range of careers advice and job and course searches.

Helen-feel there needs to be a key to the use of different colours –blue, magenta, black - in the following table

Item	Glossary/meaning/queries	Data, comments, further queries	Data, comments, further queries	Data, comments, further queries
Name of system		Loughborough College Progress File	Newcastle 'generic' ePortfolio	Careers Wales/Vitaelity
URL		http://progressfile.loucoll.ac.uk	http://www.eportfolios.ac.uk/	http://www.careerswales.com
Software developer/vendor	Commercial or non-commercial ('home-grown') Contact details Name of vendor or developer here. For further information or to request guest log-in, contact	Under licence to DfES. Based on DfES Widening Horizons software (3T) Web developer: samuel.persse@loucoll.ac.uk For further information or to request guest log-in, contact	FDTL4 funded project (non-commercial). JISC funded (03-04) ePortfolio Extensions Toolkit (ePET) JISC funded (07-04) Regional ePortfolio project (EPICS)	Vendor: Arc software.& Illumina Digital http://www.arcsoftwareconsultancy.com/vitaelity.htm For further information or to request guest log-in, contact: stuart.farquharson@arcsoftware

		fiona.henry@loucoll.ac.uk	For further information, or to request guest log-in, contact: s.j.cotterill@newcastle.ac.uk	consultancy.com jude.sanders@illumina.co.uk
Target learners	Stage/level/episode of learning: e.g. 14 - 19, FE, HE, CPD, job seeker any age, LL for any purpose.	FE	<p>The ePortfolio has been designed to be highly configurable so that it can be used in a wide range of contexts. See: http://www.eportfolios.ac.uk/FDTL4?pid=49</p> <p><u>Current usage:</u> HE, 1st degree; vocational (Medicine; MBBS) Newcastle University HE, 1st degree; vocational (Medicine) St Andrew's University HE: 1st degree (Biosciences) Newcastle University HE: 1st degree (Dentistry) – Queen Mary University of London CPD: Vocational Dental Training – Postgraduate Institute for Medicine & Dentistry CPD/HE: Contract Research Staff – Newcastle University</p> <p>HE: Postgraduate Research Training Portfolio (pilot beginning 05/01/05)</p> <p>Other: project demonstrator (based on initial 18 months of our FDTL4 project)</p> <p>Other projects in various stages of negotiation, including interest from some CETL candidates.</p>	All ages from 13 to adult, including HE, professionals seeking new employment and those returning to work or seeking to retrain. Designated sections with specific content for different user communities

Storage space	How much space does each learner have to store his/her data?		<p>Will be variable – depending on configuration and local settings</p> <p>Current implementations mostly databased information entered via Web forms to support re-usability of data</p>	General users - 2Mb upwards. More for under 21 and as requested.
FUNCTIONALITY			<p>Common contents structure to support:</p> <ul style="list-style-type: none"> • sharing • cross-referencing • searchable • integrated action planning <p>Customisation:</p> <ul style="list-style-type: none"> • select components by course/year • outcomes / skills sets • terminology • graphics / layout <p>Generic Components (emphasis on PDP)</p> <ul style="list-style-type: none"> • CV • Outcomes / skills log • Reflective learning diary • Meetings log • SWOT • To-Do list / Action Plan • Placement portfolio <p>Context-specific tools</p> <ul style="list-style-type: none"> • Simple tool editor for creating new components • More sophisticated components can be added by developers using (Zope DTML, ZPT or Python) 	
Preference setting for	Author/user can select settings	Yes: see 'Make Display Profile' on lh menu bar	Under development under the 'Portfolio settings' tool	Compliant with W3C standards for XHTML & cascading style

<p>accessibility/usability</p>	<p>for colour, text size, font, images, video and audio. These are stored and apply automatically each time that user logs on. Query: What standards & tools does the system use, e.g. ACCLIP, LUNA, JAWS?</p>		<p>CSS driven to support user settings for text-size held with the Browser. Latest version in MBBS portfolio has preferences for font size saved and loaded on log-in.</p> <p>Accessibility statement to be reviewed – will be configurable in the stand-alone ‘generic’ ePortfolio</p>	<p>sheets and we are in the process of making the site AAA compliant, it is single A compliant at the moment.</p>
<p>Privacy/data protection</p>	<p>Site includes a data protection policy statement, including privacy, ‘how your data are used’, and facility for learner to view all information held about him/her self.</p>	<p>Will add link to college documents.</p>	<p>Will vary – depending on configuration and local settings</p> <p>The ePortfolio supports explicit access rules which can be set for each component. The default for is private with no access to others unless the portfolio owner chooses to share (see below) that specific content. However, other components can be configured to allow certain staff roles to access to view, comment, sign-off or grade where appropriate eg. for assessed parts of the portfolio. No editing of the learners records is supported – though where permissions are set supervisors may add temporary or permanent comments.</p>	<p>Yes – our privacy policy sets out how CWA complies with European & UK DP requirements together with the terms and conditions of use.</p>
<p>Permissions setting for exposing information, for others to read or edit</p> <p>(Some parts of this might be what others might call ‘privacy’ or ‘ownership’)</p>	<p>Author can select and control who can read or edit what, and can alter these with time.</p> <p>Considerations: There may be multiple audiences/editors. Target audience/editor(s) may vary with time. Author can select information and alter permission settings for different</p>	<p>There is a permissions script on the personal record which links to the college disability disclosure policy/form.</p> <p>We are in the process of adding another permission script on the home page of the ILP forms for student to select. (FCH)</p>	<p>Yes – share list is within ‘Portfolio Settings’ tab</p> <p>The learner can share specific parts of their portfolio with others (either internal or external users).</p> <p>See notes on privacy (above).</p>	<p>The ability for the author to nominate other specified users of CWO to have access to their portfolio to both read and edit was developed but Careers Wales had worries over how best to administer it and so it was withdrawn.</p>

	<p>purposes/audiences, Various levels of privacy/permissions can be set simultaneously; e.g. for 'read only' permissions:</p> <ol style="list-style-type: none"> 1) author can select parts of the e-pf as private: 'self only' 2) author can select parts of the e-pf as 'public' 3) author can permit specified person(s) to read selected parts of e-pf at selected times, e.g. to present information to a mentor, adviser, assessor, prospective employer, employer, HR person, professional body, etc <p>e.g. for editing permissions: author can select as above who can edit what and when (e.g. adding comments or feedback.)</p>			
<p>Editing (includes: sifting, selecting, connecting, summarising)</p>	<p>An important function is editing for re-use e.g. for different purposes/audiences</p> <ol style="list-style-type: none"> 1) Author can add text, audio, video clips, still images, 2) Author can edit/amend text, audio, video clips, change to different images – or, depending on nature of images, perhaps edit the images themselves? 3) Author can manipulate text within the system,– this includes sifting, selecting, connecting by copying, pasting selected items, or 4) Author can select parts to transfer out to another system, including e.g. MS 'Word' type format, for manipulation 	<ol style="list-style-type: none"> 1) Upload files facility found in 'Application Tracking', and pop-up window completed, but 'done' button didn't seem to work, and there was no 'save' option, so the upload was unsuccessful. Comments/advice please! Upload facility now fixed. Added save link at top of ILP forms. 2) can amend text in ILP and other forms. Not always easy to find a save button. 3) 4) can select and copy for transfer out. 	<p>Learners can add or alter text. Also,– as a learner progresses and updates records, previous dated records remain stored for reflecting back so learner can compare the 'then ' and 'now'.</p> <p>Cross-referencing is also supported. For example a learner may record attendance of a workshop in their CV, the record of the workshop can then be cross-referenced with one or more skills or learning outcomes – with the facility to note how the workshop applies to that skill and how they have since applied that learning.</p> <p>Data are re-used for different</p>	<p>The learner can save work and return to it later to edit. As a learner progresses and updates his/her records, they may archive their work i.e. a complete copy is taken and stored so the learner can reflect upon their progress by comparing 'then' and 'now'? In addition to this the results of the self-assessments and diagnostic tools are automatically imported in to the appropriate parts of the portfolio e.g. the CV builder for editing by the author and a clip board function allows the user to copy and paste relevant material between documents..</p>

	queries – as a learner progresses and updates his/her records, 1) how long do the previous records remain stored? 2) can learner access previous records for reflecting back so learner can compare the 'then' and 'now'? 3) how does learner access previous records for this purpose?		purposes eg. a record of a presentation might appear in CV, skills, appraisal, and assessment reports. A range of formats are supported –printer friendly HTML (for printer or cut and paste into Word) or PDF.	
Managing information (1)	Author can import, export, or reference by hyperlink to other information as evidence e.g. assignments, qcl, artwork, video.	Upload files facility found in 'Application Tracking', (see above)	Can upload files. Files can be cross-referenced with multiple parts of the portfolio.	See below
Managing information (2)	Author can see all their data, <u>and</u> an inventory/ list of their uploaded files and files referenced/linked ⁶¹ Please complete	See application tracker.	There is a contents view of the portfolio which lists all contents objects.	The author is able to upload documents and other files (e.g. video, audio, images etc) and link these together in groups as presentations
Interoperability/ Conformance with e-learning standards	Information is represented in IMS-LIP structures/ compliant format. Author can select parts or all for transfer to another (on-line) system for reuse. Current status of this functionality is asked about in later 'developments' section	Current status of this functionality is asked about in later 'developments' section	Current status of this functionality is covered later in 'developments' section -being developed as part of the JISC ePET project	Under development
Supporting PDP guidance	"PDP is a structured and supported process ...": The system provides guidance: 1) for any/all elements of personal development, e.g for developing skills, action planning, types of evidence etc; 2) re purpose of system, & how to use it, e.g. it	Guidance to help learner through the Progress Tutoring process can be accessed through the links at the top of the page. (Induction, Setting Goals and Career Planning etc...) The system is designed to run alongside a face to face Progress	The ePortfolio supports (but is not reliant on) a personal tutor system	Yes – age-specific tutorials and guides provide advice on how to get the most out of the system and aspects of personal development like setting SMART targets and identifying skills or achievements. In addition there are a variety of self-

⁶¹ I should like to acknowledge Helen Barrett's congruent work for ideas in developing this area <http://electronicportfolios.org/myportfolio/versions.html> (or mailto:helen.barrett@comcast.net)

	<p>might provide exemplars for completing records. OR as an e-PDP/e-portfolio system may alternatively or additionally provide guidance through a tutorial programme which runs alongside it, the system prompts learner to access that programme, to support completion of associated records.</p>	Tutoring Review process.		assessments and diagnostics to support the user..
Mentor feedback/discussion facility	<p>This might be considered part of permissions setting, but adds value to editing role, in sense that it formatively supports the learner. Several UK e-PDP/pf systems – e.g. Newcastle and Careers Wales have a ‘family/mentor’ facility: author selects mentor who posts/gives feedback/ comments/ guidance. This supports PDP activities.</p>	<p>Not found At this stage there is an e-mail facility for tutors/tutees to contact each other. There is no forum as such – may include later. (FCH)</p>	yes.	<p>‘My circle of support’ is a space for recording contact details for mentor etc Circle of support is a contact database of interested parties. There is also a facility for users to create mentors. In CWO, these mentors can see the whole portfolio.</p> <p>The ability to expose “parts” of the portfolio; e.g. cv or presentation, is present in the underlying structure, but not exposed through the interface</p> <p>For ‘institutional’ users, eg school, FE, HE, is the system intended for use alongside a supporting (e.g. tutorial) programme?</p> <p>Yes, it can be but this is managed locally. The system has been developed to be a stand alone resource but it is recognised that those in the 13-19 age group would need more support</p>
Creative design	<p>Learner can design their own pages/templates for inclusion</p>	<p>Not found No proposals for this at this stage.</p>	Under review	<p>There is a mySite utility which can be used to build an</p>

	<u>within</u> the portfolio (not just referenced by link)			individual's web site. The author may also upload pages to be held in their portfolio
INFORMATION MANAGED Evidence including				
Personal development records (PDRs)	Represents any/all elements of PDRs, including: goal, competency, interest, qcl, accessibility, need for learner support, statements, reflexion, evidence, reflective writing, represented as e.g. CV/presentation Reflections Log/diary/ Action planning Target review	There are PDR elements in most sections of the site: e.g. Action Plan Manager, Career Planner, Confidence Tracker, Application Tracker, ILP forms		The portfolio Includes text boxes where the author can, document evidence that supports their statements of competency, performance, achievement etc There are also action planning and decision making tools designed to help the user plan their career and personal development.
Transcript	Provided and 'owned' by organisation – cannot be edited by author – but it should be possible for author to link to, or maybe to select and highlight information (or possibly re-configure?) for presentation to different audiences.	Can a learner see their progress to date as a developing transcript online? This facility could help with progress self-review. As the progress reviews build throughout the course this will happen as all documents are archived. Staff can edit.	Includes PDRs: text boxes to complete, & file upload facility to support statements of competency, performance, achievement reflection etc. Specific sections include 'my Progress', 'my learning diary', 'CV' – some of these are accessed from a variety of start points	Not found /not applicable? Not present in CWO, but currently present in a pilot for Southwark
Products – digital products contained,	e.g. text, still images, video clips, audio?	Not 'contained' – linked.	Yes – facility to upload files	See queries/ comments below
Products -other referenced	Hyperlinks to referenced items such as text documents, video, still images, audio	Linked text files – though I was unsuccessful with this. Which links did you try?	Can be added in configurable text – either at the Institutional or Course level	See queries/ comments below
SCENARIOS OF USE	check that at least one purpose is stated explicitly	Yes: "manage your learning and development" (see Introduction). yes		Employability
Formal learning, reflection, self-assessment, formative assessment	Academic curriculum based, e.g. defined by intended learning outcomes, required, institution-based, usually pre-structured records with reflective		Current implementations emphasise reflection and formative processes.	Learner is encouraged to reflect and record on curricular and extra curricular achievements, but see end comments below re 'My e-portfolio'

	components. Learner's records reflect how achievements evidence his/her goals, and show learning and progression over time.			
<i>(...continuum to ...)</i>				
Personal development, reflection, self-assessment	Learner-centred, often self generated records to document learning for own use: informal learning logs, diaries, possibly relating to continuing professional development.	Learner can add personal statement or other files, though specific prompts to do this not found.	The 'generic' tools provided with the portfolio are predominantly PDP related.	As above
Assessment management tool (summative assessment)	To demonstrate achievement by relating evidence in portfolio to performance standards, as defined by curriculum, or body/authority, e.g. NVQ, normally mainly tick-box, with little if any reflection	No – tutor formative feedback to aid progress, but no assessment	Assessment is supported.	Not a stated focus, – but could be used to evidence this.
<i>(...continuum to ...)</i>				
Presentation	As defined by self, e.g. Helen-Barrett-style, to show-case self to audiences for purposes such as CV, appraisal, showing competence for professional qualifications, etc.	No	CV creation facilities and other sharable contents to support job application, appraisals and assessment.	The author can create different versions of CV to suit different circumstances. They can also develop presentations for appraisals or interviews by selecting appropriate material stored with in their portfolio e.g audio, image, video, text documents

Please complete the following sections

Development time frame	Include actions required before system can be adopted by Institutions/Organisations	Small scale by Sept. 2005. Actions: to develop different variants and portable applications.	Version 2 to be freely available to UK HEIs by end of March 2005	
Availability	Include actions required before system can be adopted by Institutions/organisations	See above	To be freely available to UK HEIs by end of March 2005 (For current locations of use: see target learners in main text)	Available now, to registered users as Careers Wales, Online
Interoperability	Which standards are	Under development:	IMS LIP / UKLeaP ,	Queries: 1) what is current status

<p>Conformance with e-learning standards *</p>	<p>represented, e.g. UKLeaP, Enterprise, ACCLIP? How may learner transfer selected parts or all to another (on-line) system for reuse?</p>	<p>UKLeaP and ACCLIP.</p>	<p>IMS ePortfolio (drawing on various other IMS specs)</p> <p>ePortfolio Extensions Toolkit (ePET) is being funded by JISC as part of the JISC Distributed e-Learning programme to develop a 'Web Services' interface for the 'generic' portfolio.</p> <p>JISC funded Regional ePortfolio project will be exploring the use of ioNodes</p> <p>A version of the ePortfolio has been configured to work, framed, within the Blackboard VLE.</p> <p>Query: How may learner currently transfer their information on completion of MBBS? – 1st cohort of portfolio users will be graduating in 2005. Currently institutional data are transferred to the Postgraduate Institute for Medicine and Dentistry.</p>	<p>and development time frame for data transfer to other systems? 2) Can record, or parts of record, be transferred? 3) How else may learner transfer their information e.g. from My Progress File to a UCAS e-application form or to a company's HR records – would this require re-keying?</p> <p>Transfer of portfolio information, using UKLeaP, currently under development. Will involve trials exchanging information with other portfolio developers. Likely timeframe: 6 months</p>
<p>Provision for enhancement or additional features to meet further key needs of users</p>	<p>What further developments are planned? e.g. how does the system plan to take account of 'social inclusion/exclusion' issues⁶², such as economic, cultural, learning/intellectual disability, digital skill level?</p>	<p>Developments planned for variants suitable for KS3 & 4 students & students with learning disabilities</p>	<p>On-going development planned – including tools developed by 3rd party developers, with the aim of creating a community in which developments/upgrades can be freely shared.</p> <p>Looking at repositories for file storage, rather than local file systems.</p>	<p>Program of development, specifically relating to special needs, to be undertaken by CWO in 2005</p>
<p>Practitioner evaluation</p>	<p>As 'value added' to this review process, there may be an opportunity for practitioner system evaluation. Would you</p>	<p>Yes</p>		<p>yes</p>

⁶² Home, A & Charlesworth, A (2004) The ePortfolio's potential as enhancer of social inclusion: Reflections of UK initiatives in light of the EU e-inclusion policy. Contact Anna.Home@bristol.ac.uk

	like to take advantage of this, if offered?			
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Other queries

These will vary with what I find about the system, but commonly include:

As a learner I'd like to know how long my records will be retained, and whether 'previous' text is stored after I update them, so I can reflect back on my progress between 'then' and 'now'.

I'd also like to know who can view my records, and if I can keep any parts private to myself – and how to do this.

I'd also like to know how I can transfer my records to my next place of study or employment.

As a manager, I'd like to know the cost of buying this system, what else is needed alongside this to ensure it runs effectively, especially in terms of human resources, e.g. what sort of IT support, if any? If I need IT support, whom do I contact, and is there a cost for advice? Also, is tutorial support recommended alongside to encourage/support learners complete the pages? Is there a sense of 'timeliness' which encourages learners to complete pages?

Helen Richardson (on behalf of LLSP for JISC MLEs for LLL Programme e-portfolio software applications review)

date