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# BREAKING OUT OF THE BOX: DEMAND LED e-PORTFOLIO FOR EMPLOYABILITY

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## 1. The limitations of current ePortfolios

The commercial world is ahead of education in moving beyond closed systems containing services (“Web 1.0”) toward a more open landscape: “Web 2.0 is the network as platform, spanning all connected devices; Web 2.0 applications are those that make the most of the intrinsic advantages of that platform: delivering software as a continually-updated service that gets better the more people use it, consuming and remixing data from multiple sources, including individual users, while providing their own data and services in a form that allows remixing by others, creating network effects through an "architecture of participation," and going beyond the page metaphor of Web 1.0 to deliver rich user experiences<sup>1</sup>”.

If we accept this proposition a paper-based Portfolio cannot deliver the transformative benefits that Web 2.0 enables. ePortfolios working at the page metaphor level are severely constrained. The ePortfolio within a closed learning environment within a single organisation cannot deliver the same benefits as an open system using the network as platform. Why then are so many ePortfolios designed for closed virtual learning environments? Colleagues in the UK, the Netherlands, Belgium and Germany have been working together to exploit the opportunities that the open web provides.

## 2. A shared Problem

Although unemployment is low, the workforce in England has significantly fewer skills than other comparable European states. Before taking office the new British Prime Minister commissioned a strategic report which recommends major initiatives to improve the skills of existing workers and the next generation of workers currently studying in school, college and university. One of the *Market Failures in skills* identified by the Leitch Report<sup>2</sup> is *Information Failure*: “This occurs when the information available to individuals or firms is incomplete or imperfect, or when some have more or different information to others. This might be awareness of the benefits of skills improvements, or information about the quality and content of particular courses and particular institutions<sup>3</sup>”. This is a shared European problem.

## 3. A Solution?

Although the UK has made a significant investment in ePortfolios for Personal Development the priority for vocational reform may be more specific: to support learners integrate and apply the skills they are learning in employment and education The *employability e-Portfolios* that colleagues in Belgium and Holland have implemented in traditional industries and SMEs are directly relevant to the UK<sup>4</sup>. These ePortfolios are owned by the individual to help the individual develop the skills a rapidly changing labour

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<sup>1</sup> Tim O'Reilly [Available from: [http://radar.oreilly.com/archives/2005/10/web\\_20\\_compact\\_definition.html](http://radar.oreilly.com/archives/2005/10/web_20_compact_definition.html), accessed: 10.10.2005].

<sup>2</sup> For the Report of the Leitch Review of Sills in the UK. [ Available from: [http://www.hm-treasury.gov.uk/independent\\_reviews/leitch\\_review/review\\_leitch\\_index.cfm](http://www.hm-treasury.gov.uk/independent_reviews/leitch_review/review_leitch_index.cfm) ].

<sup>3</sup> Box 3.1 Prosperity for all in the global economy - world class skills Final Report December 2006 [Available from: [http://www.hm-treasury.gov.uk/independent\\_reviews/leitch\\_review/review\\_leitch\\_index.cfm](http://www.hm-treasury.gov.uk/independent_reviews/leitch_review/review_leitch_index.cfm) ].

<sup>4</sup> See [http://www.eife-l.org/publications/eportfolio/proceedings/ep06/ep2006\\_papers/vervenne/](http://www.eife-l.org/publications/eportfolio/proceedings/ep06/ep2006_papers/vervenne/)

market requires and can be dynamically linked to major HR systems, such as SAP and to education/training providers. *ICT services* help the individual to compare his or her skills profile against current career opportunities and identify the education and training providers who can enhance the individual's skills profile to meet employers' needs<sup>5</sup>. Further ICT services support employers and education/training providers plan for skills development within competency frameworks.

The UK is learning from this Dutch and Belgian work on skills and competency frameworks linking employers and education / training providers. Can we adapt these services for the similar but distinct needs of an under performing area in England, the East Midlands? How can we make available the services we are developing for use in the Netherlands and elsewhere in Europe?

JISC<sup>6</sup> plays a leading role in the e-Framework<sup>7</sup> a strategic initiative involving SURF<sup>8</sup> and the ministries of Education in Australia and New Zealand which defines different versions ("*service expressions*") of the same generic service ("*service genre*") which can be shared and adapted for use in different contexts.

Following the development of a Reference Model for ePortfolio Learning funded by JISC<sup>9</sup> the Centre for International ePortfolio Development in the University of Nottingham are adapting the services which were developed to profile applicants for use within a regional partnership to provide e-Portfolios linking education and employment. Not only has this the potential to reduce costs but because the services are versions of the same thing the resulting services will be easier to interoperate, especially if tools which allow for the auditing of schemas, such as Schema Prof<sup>10</sup>, are used.

#### 4. The European Context

UK offers an example of an economy that has moved from manufacturing to a service based economy and has developed *services* for profiling people and providing information that may be relevant to the Netherlands. Where the UK is looking at the new project based economy from the perspective of the Ministries of education and skills, the Netherlands is looking at the same problem from the perspective of the Ministry of labour. These approaches fit well together but there is also a fundamental need shared by both countries and the rest of Europe: In the old economy people used the same skills in the same job for a long time. In the new economy people must continually develop new skills as they move from one project to another within a company and as they often move between employers. People are learning new skills throughout their lives and will often need to share their personal information between the education/training providers in a secure, trusted way not just in their home country but anywhere within a single dynamic European economy.

#### 5. An Opportunity and a Risk

The opportunity is to draw on the work of colleagues in Belgium and Holland who have implemented large scale *employability e-Portfolios* in both large industries and in consortia of SMEs. These e-Portfolios are owned by the individual to help the individual develop the skills a rapidly changing labour market requires but are also dynamically linked to the major HR systems, such as SAP, and to education/training providers. *Services* help the individual to compare his or her skills profile against current career opportunities and identify the education and training providers who can enhance the individual's skills profile to meet employers' needs<sup>11</sup>. Further ICT services support employers and education/training providers plan for skills development within competency frameworks.

The risk is that appropriate standards will not be available. It is important that the UK contributes to the development of the standards required to support these developments. There were significant problems

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<sup>5</sup> For an overview of this work <http://www.hr-xml.org/hr-xml/wms/customers/pdf/Competencies.pdf>

<sup>6</sup> The body responsible for the strategic support of ICT in Higher Education in the UK. See: <http://www.jisc.ac.uk/>

<sup>7</sup> See <http://www.e-framework.org/>

<sup>8</sup> JISC's Dutch sister <http://www.surf.nl/en/oversurf/Pages/Introductie.aspx>

<sup>9</sup> <http://www.nottingham.ac.uk/epreferencemodel/index.htm>

<sup>10</sup> <http://iwm.uni-koblenz.de/schemaprof/>

<sup>11</sup> For an overview of this work <http://www.hr-xml.org/hr-xml/wms/customers/pdf/Competencies.pdf>

with the UKLeaP specification, which was based on IMS LIP and remains a draft British Standard in development. There were significant issues with the IMS ePortfolio specification<sup>12</sup>. There is an urgent need for a reliable standard for learner information and within the Human Resources community significant take up of HR-XML, for example by a Recruitment Clearing House with 7% of the UK market<sup>13</sup> and this has prompted the development of a new specification with which UK HR ICT specialists working with Sector Skills Councils are already engaged. The link between education and employment is of strategic importance and the new version of HR-XML is a significant opportunity for developing a solution to specific problems.

However, specifications are of secondary importance. The ePortfolio Reference Model<sup>14</sup> funded by JISC proposed a “thin” model of ePortfolio in which the *services* consuming and producing data were separated from the *repositories* holding the data, which were also separated from the ePortfolio *application* managing the data flow. The Reference Model confirmed that the use of the eFramework reduced the complex problem of ePortfolio to simpler terms in which it could be implemented: this work is currently being developed for trials. However it did not address the use of repositories for learner information. This key issue is being addressed by Prof Ingo Dahn as part of the TAS3 project and the subject of a separate paper<sup>15</sup>. This proposes a specification neutral approach to learner information which will be trialled and implemented in UK and the Netherlands from 2009<sup>16</sup>.

## 6. Demand Led e-Portfolio for employability

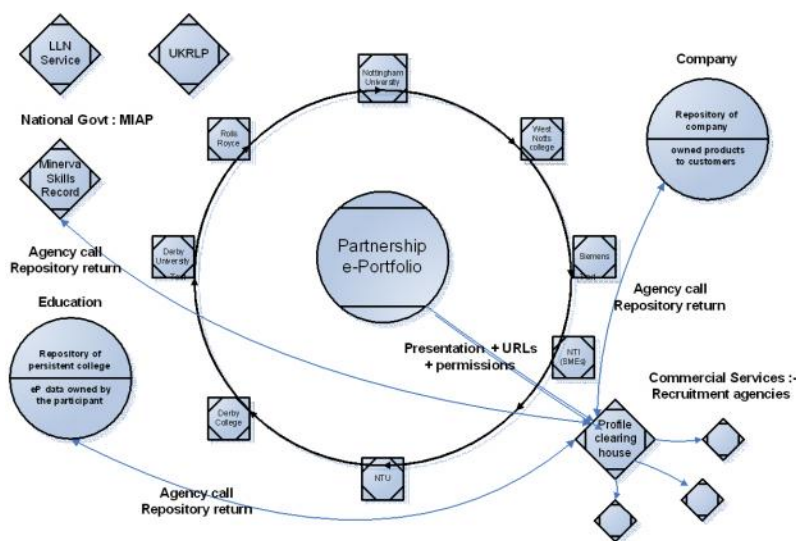


Diagram 1

Diagram 1 shows how an employee who is improving her skills within an LLN can draw together what she is learning at college or university (information held in the ePortfolio) recover information from her old college records (the repository of old college data) and examples of her current work (the repository of

<sup>12</sup> Doris Kezler in a presentation to the Institut fur Wissenmedien at the University of Koblenz-Landau in December 2006 reviewed the work of the Nedcar project noting that although, the IMS ePortfolio specification offered an appropriate framework it rapidly turned out that adaptations of the specification were required. This is probably the largest implementation of this IMS specification and stimulated the development of a new version of HR-XML.

<sup>13</sup> Alex Charles of SkillsMarket is pioneering use of HR-XML for ePortfolios for recruitment, a process which bears significant similarities to recent JISC work.

<sup>14</sup> For the ePortfolio Reference Model see: <http://www.nottingham.ac.uk/epreferencemodel/outputs.htm>

<sup>15</sup> *Specification Neutral ePortfolios and their implementation with a Fedora Database* to be presented by Prof. Ingo Dahn of the University Koblenz-Landau to ePortfolio 2007 at Maastricht.

<sup>16</sup> For the press release announcing the formation of the HR-XML Europe consortium in 2004 see [http://www.sourcewire.com/releases/rel\\_display.php?relid=18976&hilit](http://www.sourcewire.com/releases/rel_display.php?relid=18976&hilit)

company owned products). This information is integrated within an ePortfolio provided by a clearing house supporting recruitment agencies.

This learner may not be motivated by the concept of Personal Development but a strong wish to get a better job and this is what a demand-led ePortfolio for employability focuses on. The diagram shows a use case in which:

- a Partnership ePortfolio is at the centre of a circle linking the educators and employers making up an LLN (in the case of the Derbyshire / Nottinghamshire LLN NuVentive's i-webfolio which has strong access and security features),
- The ePortfolio provides the Recruitment Profile Clearing House with a view onto information that the applicant has assembled in several presentational portfolios for different types of employer PLUS links to resources such as a formal skills record provided by the Minerva service,
- In addition the Partnership ePortfolio provides a link to a repository containing information preserved from an old college PassPortfolio, say a piece of evidence of a skill (bottom left of the diagram),
- In addition the e-Portfolio provides a link to an employer's system showing the deployment of the same skill in a set of technical drawings for a customer (top right),
- The clearing house authenticates and assesses these materials and identifies recruiting agencies / employers with a likely interest in this individual.

While the functions of the Recruitment Clearing House are not identical to UCAS<sup>17</sup> the processes involved bear marked similarities.

Diagram 1 covers a number of possible scenarios:

- a college learner in an LLN who decides to apply for a job rather than university,
- a college learner who applies simultaneously for employment and university,
- someone in employment who decides to begin part-time HE study,
- someone made redundant (or returning to work when children begin school) who wants to re-engage with education and training in order to get a good job.

The original version of this scenario adapted an existing HR pattern widely used in universities for the UCAS process but did not take account of the specific needs of potential applicants who are not in education or not interested in academic routes. Many useful current PDP processes are perceived by many learners to be supply-led. The explicit intention of these scenarios is to illustrate the re-use of current HR patterns in order to develop a demand-led approach to deliver the Leitch agenda. Further scenarios are required for people disengaged from learning and employment.

## **7. Integrative Learning**

### ***Simultaneous learning within employment and education***

Increasingly regional partnerships are being formed as a result of JISC activities and other initiatives, such as Lifelong Learning Networks (LLNs). Advice and Guidance is playing an increasing role in this work, for example the Nottinghamshire PassPortfolio in which Connexions are taking a leading role.

Up to this point, the collaborative Nottingham work on e-Portfolios has concentrated on encouraging and supporting transitions, but the development of 14-19 Specialised Diplomas is stimulating a growing emphasis on "*Lifewide Learning*" in different contexts, often including employment contexts and the involvement of employers in the development of curricula. There is a parallel, increasing demand from full-time undergraduates for various forms of work experience/placements which can complement and be integrated with their academic learning.

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<sup>17</sup> Full time students in the UK normally apply to University through UCAS.

In a *lifewide learning* scenario the learners must integrate the skills s/he is learning, for example through a college course, with the learning from practical experience being gained at the same time in employment. S/he must learn how to express themselves in the different terms required in these different contexts. Here information does not pass from a college to an employer in a single, once-and-for-all transfer, but constantly passes backwards and forwards.

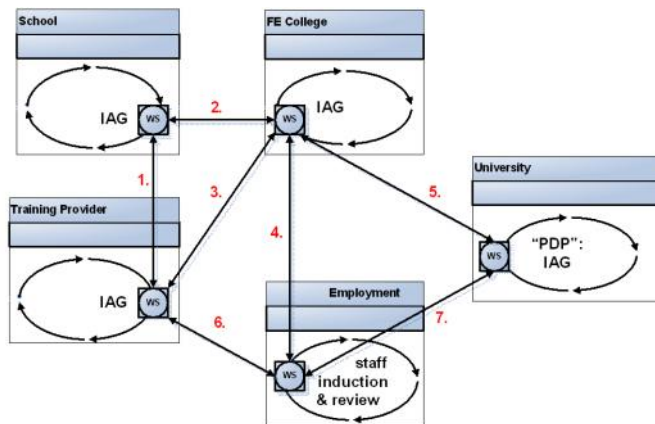


Figure 1.

In this illustration a learner may be employed but also attending college to re-take the GCSE English s/he failed at age 15 (4) and developing specific skills through a training provider (6) while the university student is undertaking a work placement as part of a degree programme (7). The primary question is the nature of the Advice and Guidance (sources and processes) that learners' require to integrate what they are learning simultaneously in education and employment.

The second question is the nature of the ICT required to support the provision of that *Advice and Guidance Service*. While two separate systems in two separate organizations could hold different perspectives on the learner's progress, the point is for the learner, and the advisors in education and employment to develop an integrated overview of what is being achieved and what needs to be achieved next. Institution-specific, system-bound approaches present significant problems here, which the more open architectures being opened out by *Web 2.0* address.

## 8. Scenario Re-engaging an employee with learning

How does a 26 year old disengaged from learning for 10 years recover their profile from ICT resources in order to re-engage and progress? This draft scenario represents the first phase of an individual's engagement with a LLN, a regional partnership funded to increase participation in Higher Education and focused on vocational reform. The focus is on the relationship of informal social software for the initialization of a new ePortfolio which also draws on national databases and repositories of preserved data.

### a) Scenario Background

A 26year old who left college early now lacks the prospects of friends who stayed on and went to university. He is in a steady job and now wants to catch up. The Amicus Rep has told him about the Lifelong Learning Network and he uses meet-O-matic to arrange a time to talk with an advisor face to face.

### ***b) What the participant tells the advisor face to face:***

#### **Then**

At the end of my first year in college my cousin said he'd pay for me to go to the Isle of Man if I tuned up his bike for the TT. I missed some of the exams and never quite made it back to college but in October my uncle got me a good job that could lead on to chartered engineer. That meant bits of college / Learn Direct work.

But I was still mainly into bikes and that was a good way to get on with the guys at work: I added a bulletin board about the bikes in addition to the group of friends I moderated. They are all old AEU types and I went to AMICUS meetings because that was expected. So I did stuff in college for work and stuff with Parity through the union, quite a lot of it on-line.

#### **Now**

I use MySpace because anyone can see your stuff. I started with the bikes: videos, technical stuff, chatting on IM and advice (from my uncle!). There's also an activist's feed from the union: work's much more traditional even though I do CAD stuff. I've got a mortgage, I'm nearly 27 and the people who stayed at college and went to uni have prospects I don't. More important: I'm still doing pretty much what I did 10 years ago. I got in touch with friends who went to uni (I had to sign up to FaceBook) but the links they gave me were for 19 year olds and the formal engineering web sites just gave me information, not people like me who I could talk to.

#### **Next**

I want to stand back, try out new stuff to find out what I really want from life: I need a different view. And of course that includes more money and a career as well! A qualification in IT? Something with an HE badge on it certainly. A degree would be best, but that would have to fit into work, or get me into a new job.

### ***c) What the Advisor suggests***

The learner seemed to me to be a non-conformist with an excellent set of traditional and 21<sup>st</sup> century skills including communication, creativity, collaboration and leadership while achieving below less able students in educational settings<sup>18</sup>. I suggest s/he recovers information about their past achievement (which I expect will be better than s/he expects) and use this as the basis for an initial assessment of how their profile matches different educational opportunities and their linked career opportunities. S/he can then develop more detailed profiles and identify how they can be enhanced to meet goals.

### **Commentary**

The Cmap attached in the Annex is an instantiation of Hilda Kruger's core iterative process around Learner Contexts for Learning<sup>19</sup> for the scenario numbered steps 1-4. JISC has begun work on the recovery of data from MIAP / QCA databases. SAP and Oracle are commissioned to develop interoperability with employment ePortfolios for their HR offerings for pilot from 2009 through the TAS3 project funded by the European Commission.

Technical services could categorise these personal data according to source (step 2) but this is insufficient to integrate data to link different terms meaning similar things in the education and employment worlds in order to assist learners produce information and knowledge (step 3). However the TAS3 consortium has commissioned the University of Koblenz-Landau to develop services to recover personal information on the recovery of data and information from federated repositories for pilot implementation by the University of Nottingham.

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<sup>18</sup> This categorisation is taken from *Creating & Connecting Research and Guidelines on Online Social and educational networking* published by the National School Boards Association.

<sup>19</sup> This Cmap builds on the work of Hilda Kruger (the link to which is broken) and Nigel Ecclesfield (unpublished)

Ontology services could then assist learners in integrating data and information to produce knowledge. However, an assessment of the TAS work by Star Lab, leading European experts in the semantic web, concludes that it is impractical to develop such services before 2012, although the UK and NL demonstrators should gather the data required to further their long-term development.

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