

ePORTFOLIO FOR A LEARNING SOCIETY



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ABSTRACT

One of the main characteristics of a knowledge economy is the organic link between individual, community, organizational and territorial learning (e.g. learning regions and cities). Understanding and exploiting this link will be critical to responding to the Lisbon Summit's call for the rise of a knowledge economy.

We would contend that the dazzling advance of the ePortfolio is one of one of the most promising indicators that we are now entering into the age of a learning society.

ePortfolios are transforming the strong existing practice of the use of portfolios in education and training, and opening up a wealth of new services. Using state of the art technologies – blogs, social software, semantic web, peer to peer networks, distributed databases – ePortfolios are now major tools in the hands of policy makers at local and national level to develop the infrastructure of the learning cities and regions of the future. The choice of Wales - which defines itself as a “Learning Country” - to provide ePortfolios to its three million citizens, demonstrates how the ePortfolio can capture the idea of lifelong and lifewide learning, and the ability of technologies to support innovative policies.

In this paper we will present the arguments for the goal set by EIFEL and Europortfolio that “*in 2010, every citizen will have an ePortfolio.*” And how this objective will contribute to achieving the Lisbon goal of making Europe the most competitive knowledge based economy in the world.

INTRODUCTION

Why the ePortfolio, and why now? What does the 'e' add to standard 'portfolios'? How many different types of ePortfolios exist? What is the true nature of the ePortfolio revolution? How will ePortfolios and other systems interoperate? What is the link between ePortfolios and *digital identities*? These are some of the questions we should like to explore in this article.

The recent rise of ePortfolios is a global phenomenon: in Europe, Australia, the USA and Canada, there are now hundred of thousands of ePortfolio owners and there should be millions by the end of 2005. EIFEL is championing the idea that "*by 2010 every citizen will have an ePortfolio.*" The ePortfolio movement is a phenomenon that goes far beyond the field of initial education: ePortfolios will become essential tools for personal development planning (PDP), managing continuing professional development (CPD) and gaining accreditation for prior learning (APL). ePortfolios are now a central element in some national learning policies, as is the case in Wales and England, or state policies, as well as in Tasmania and Victoria in Australia, and Minnesota and more recently Iowa in the United States. Other European states are also considering national policies for ePortfolios.

The use of the *portfolio* is not new. As early as 1988 a book was published on "*The Course Portfolio: How Faculty Can Examine Their Teaching to Advance Practice and Improve Student Learning*" (Hutchings 1988) where the authors explored the benefits of documenting learning processes and reflection as a tool for improving learning – of learners and staff. The portfolio was also a central tool in the development of NVQs, the UK National Vocational Qualifications system that awards nearly 500,000 qualifications each year, based on the construction of a portfolio – and now increasingly being delivered by means of an ePortfolio (Ravet 1996).

Why the ePortfolio now?

The Lisbon declaration was ambitious: by 2010 Europe will become "*the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion*". We should now ask what are the methods, tools and systems that have emerged to support the achievement of this goal?

Since the Declaration, have we been working on *accommodating* the old structures to the needs of the knowledge economy or have we been *assimilating* new ideas in the old industrial framework. It is our belief that the emergence of the ePortfolio is the expression of this need to transform the old industrial paradigm into the new knowledge.

We do, however, face the danger of failing to achieve this transformation if the forces of assimilation are stronger than the forces of accommodation – here we use the distinction between *assimilation* and *accommodation* as an extension to the sense given by Jean Piaget (Piaget 1973) or Seymour Papert (Papert 1993) in the context of learning:

- *Assimilation*: how to *adapt* new ideas to *maintain* existing structures, limiting the need for change – e.g. putting computers in a locked classroom.
- *Accommodation*: how to *adopt* new ideas to *transform* existing structures, managing the need for change – e.g. transforming the physical architecture and methods to maximise the use of the digital infrastructure.

Adaptation versus Adoption.

For EIFEL, what characterises the knowledge economy is the organic link between the different contexts of learning:

- Individual learning – lifelong and lifewide
- Community learning – professional communities, citizen networks...
- Organisational learning – SMEs, corporations and public services...
- Territorial learning (learning cities and regions) valuing all the assets of a territory – human, social, industrial, cultural, patrimonial...

By organic link, we mean that any learning activity includes some kind of personal, communal, organisational and territorial dimension. For example, a nurse in her clinical practice will learn new methods and solve problems. This knowledge can be shared with peers (the community of nurses, and by extension, the community of health workers) and the institution (the hospital where the patients will benefit from this new knowledge). For a school district, the link with the territory occurs in the interaction with local libraries, learning centres, associations, art centres, etc. This will be reflected in the organisation of the information system.

In an organisation, this should mean that the title CLO (chief learning officer) is not simply a new name for the training director, but indicates someone who understands the link between formal and informal learning, organisational learning and knowledge management, who sees eLearning not as a way to move classroom courses online, but to use technology to transform and integrate all learning processes.

While the industrial society was mainly focused on training (adaptation), the knowledge economy is focused on learning (adoption) so as to support innovation and change. Beyond supporting the provision of initial and continuing education, the role of a region or city, as a learning entity, is to provide a framework fostering innovation and interaction with citizens, networks and organisations.

This cannot be done without the conscious participation of all the actors, and this is where the ePortfolio can play a major role.

What is an ePortfolio?

Today we can find different, but converging, definitions of an ePortfolio:

According to the National Learning Infrastructure Initiative (US), an ePortfolio is “*a collection of authentic and diverse evidence, drawn from a larger archive representing what a person or organization has learned over time on which the person or organization has reflected, and designed for presentation to one or more audiences for a particular rhetorical purpose*” (NLII, 2003).

In this definition, the ePortfolio is used to collect, reflect on and present information about learning. It is composed of two main parts: the **repository** (archive) which is generally only accessible by the ePortfolio owner and the **views** (presentations) that are built from the contents of the repository and are accessible to target audiences (peers, employer, awarding body, parents, teachers, school, etc.). What is implicit in this definition is that the ePortfolio belongs to its owner, and that the owner has complete control over contents and access.

While the NLII definition focuses on *contents*, built as the result of a learning and reflection process, ePortfolios are also the foundation for the provision of

many different *services*, beyond *presentation*, for example:

- Supporting learning activities
- Accreditation of Prior Learning
- Managing continuing professional development (CPD) and personal development planning (PDP)
- Sharing knowledge within a community or an organisation
- Reflecting on one’s learning and/or practice
- Course registration

This is reflected in the definition of a range of ePortfolio types:

- Learning ePortfolio
- Assessment ePortfolio
- Continuing Professional Development ePortfolio
- Accreditation of Prior Learning (APL) ePortfolio
- Showcase ePortfolio
- Community ePortfolio

These different types of ePortfolios are in fact different *services* provided by ePortfolios platforms or systems.

So ePortfolios are a combination of:

- **Archive** (or repository) of items collected (the hidden part)
- **Views** on selected elements of the archive (the visible part)
- **Services** provided to construct and exploit the contents (repository and views), e.g. for managing assessment, planning learning or presenting a good view of yourself to a potential employer

However, this ‘functional’ description fails to capture the true *essence* of an ePortfolio. An ePortfolio can also be viewed as a *digital profile*, a digital representation used to support interaction between the ePortfolio owner and other individuals, communities or organisations. This profile can be as simple as a vCard (the ID card often attached to emails), a résumé, or an extensive portfolio containing personal reflections, exemplars of best work cross-referenced with description of skills and competencies, testimonies, contacts with friends, mentor and colleagues.

The technology supporting ePortfolios range from simple blogs – which are powerful tools to support reflection and collecting feedback from others – to ePortfolio platforms (e.g. OSP, iWebfolio, Folio – for a more complete list see <http://www.eife->

[l.org/portfolio/inventory](#)) through various systems, such as content management systems (e.g. Plone), personal websites and other off-the-shelf and ad hoc solutions.

For EIFEL, the true nature of an ePortfolio is a *digital identity*, and from this point, we shall use the following definition:

A personal ePortfolio is a multidimensional digital representation (identity) of a reflective individual providing access to personalised services – e.g. learning and development, assessment, employment and personal development planning.

Individuals can have multiple ePortfolios (identities) that are privately owned and can be shared with other individuals, communities and organisations, to exploit and value their assets – e.g. competencies, knowledge and personal networks – and contribute to their development.

NB: this definition can be changed to suit a community, organisational or territorial ePortfolio.

The multidimensional aspect includes the representation of an individual (reflective practitioner) as part of a series of social networks, as well as the collection of evidence demonstrating reflective learning and practice over time. As learning is a social activity, this social dimension of an ePortfolio is particularly important and is now reflected in a new generation of tools such as *elgg.net* (Tosh 2004).

The services will differ according to the different activities: learning, assessment, APL, job search, etc. ePortfolios for communities and organisations can be built initially on the basis of individual ePortfolios, with a process similar to RSS aggregation – aggregation of Real Simple Syndication so as to build personalised, dynamic information streams. An organisation, for example, can demonstrate that it is an employer worth working for by providing objective evidence (salary scales, employee benefits and retention rates etc) and subjective evidence collected, with permission, from employees' ePortfolios (reflecting the experience of working for the organisation). This could work in a similar way for professional associations or trade unions.

From a technical point of view, an ePortfolio can be seen as composed of three main elements:

- An **archive**, (a content management system or a data base) which can contain example of previous personal work, reflections and contacts (mentor, coach, colleagues, etc.)
- A series of **views** (profiles) or presentations accessible by third parties, built from the documentation collected from the archive. These views can be built intentionally by selecting the most appropriate elements from the archive (e.g. to find a job) or they can be produced automatically (e.g. by a public statistical office surveying the competencies available in a territory).
- A series of **services** provided to ePortfolio owners, such as job-hunting, accreditation of prior learning, management of intellectual capital, etc. based on the profiles of the owner and the context where they are being used.

One of the main issues today is whether we should view the ePortfolio as a *digital document* or a *digital identity* (an *e-Self*)? This will have an impact on the kind of technology that will be developed and implemented, as well as on the issue of interoperability. Is ePortfolio interoperability about exchanging digital documents or interconnecting digital identities to other digital identities (social networks) and services? (see *infra*).

From Portfolio to ePortfolio

The ePortfolio already benefits from the wide-ranging experience of the 'traditional' portfolio with millions of users world-wide. One of the most extensive experience, so far, in the use of the portfolio (and now ePortfolio) in the field of education and training is to be found in the United Kingdom, where the portfolio has been used since the mid 1980s to award work-based qualifications (NVQs, national vocational qualifications). Portfolios have also been used here and in other countries as a tool to support initial education (from kindergarten to university courses) and continuing professional development (Dornan 2002) – some regulated and unregulated professions have been using portfolios as a way to collect evidence of CPD).

It is probably safe to assume, therefore, that the ePortfolio movement is not a *passing phase*, but a natural evolution, and probably transformation, of past practice.

In the mid-1990s, reflection began on the use of technology to support existing processes, mainly in the field of assessment. The objective of the *paperless portfolio* (Fletcher 1997) was not to transform current practice, but explore how currently available software could support existing assessment processes. For Helen Barrett (Barrett 1996), *Technology Supported Assessment* was an opportunity to help teachers to manage innovative assessment, but also to make the assessment in schools a much more holistic process:

*What if teachers, parents and students could have immediate access to many examples of student work throughout that student's school years?
 . . . not just paper and pencil work
 . . . including performance assessments
 . . . including audio and video samples (multimedia)
 (ibid)*

Of course, the ability to use multimedia contents (not just paper and pencil work) is a great advantage of the ePortfolio, but what is really interesting in this extract is the fact that the ePortfolio is seen as a *social* tool, facilitating communication among teachers, parents and students.

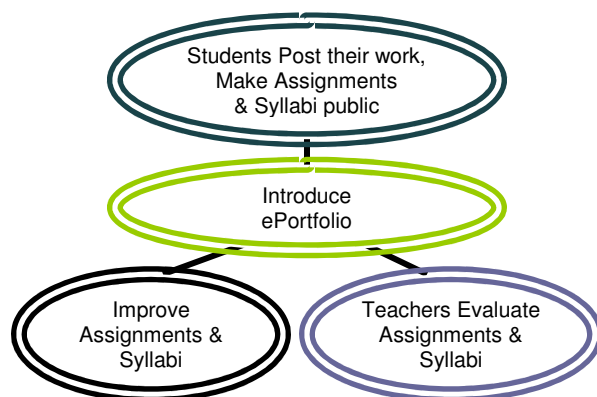
This is just the kind of issue addressed by projects such as SPAN in Stoke on Trent in England (<http://www.sgfl.org.uk>), where ePortfolios are being used within a managed learning environment with more than 40,000 users 12 months after release. Teachers and parents (and relatives) benefit from a much more holistic vision of pupils' activities, and interaction between the different stakeholders is dramatically improved.

ePortfolios as Change Agents

Evidence is now emerging that ePortfolios can also have an impact on the curriculum (Davis et al. 2004):

Perhaps the most surprising side effects to occur as the college shifted to a portfolio culture were the changes in the program. When the e-portfolio project was implemented, not only did students make their work public, but also as a result of students posting their work to the Internet, the course assignments and syllabi of our faculty were made public as well. Initially, the professors were concerned that they were being evaluated based on their students' choices. Soon, however, professors began to evaluate their course assignments based on the work their

students were posting to their portfolios. More than one professor commented that they were changing their syllabus based on what they learned from reviewing their students' portfolios. Not only were the students affected by the development of an e-portfolio, but change began to occur at the assignment, course, and program levels.



ePortfolios for Learning Individuals

The ePortfolio is an excellent tool to assess the quality of a learning experience. *What shall I be able to put into my ePortfolio?* is another way of asking about the learning outcomes.

Today's learning technologies have been mainly centred on the organisation, and the degree of freedom a learner generally experiences with a learning management system is closer to being 'released on probation' than enjoying total liberty. The degree of personalisation is often limited to the possibility of creating individualised learning paths which are in fact *training paths*. Recent technical specifications, for example, have included something called 'simple sequencing', that will allow a course designer to 'oblige' a learner to learn according to a pre-programmed sequence, based on the designer's preconceptions of how someone should learn.

While such external control systems might be harmless for basic training such as 'drill instruction', and useful to support poor training such as rote memorisation (if you respond well to the question you will have the right to move to the next section of the training), this kind of technology has very little relevance to the world of *learning*.

Unfortunately, as more and more technology solutions provide user-friendly systems to support poor training models, there is a danger that we will witness an even greater invasion of multiple choice questions and their associated paraphernalia. We see the ePortfolio as the most powerful antidote to this anti-pedagogical trend by encouraging authentic assessment and encouraging learners to manage their own learning, development, self and peer assessment. The results of multiple choice questions have little value in an ePortfolio - life, after all, is not a multiple-choice question.

ePortfolios for Learning Organisations and Communities

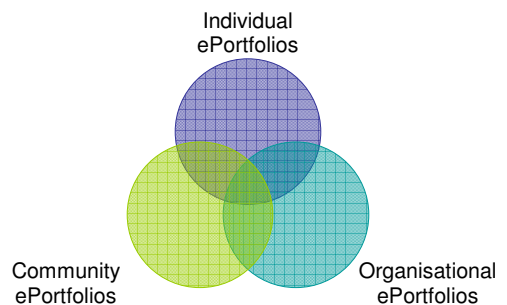
Learning is not limited to a place and time (training, generally is). Learning is an integral part of our day to day activities: *I work, therefore I learn*, is the motto of the knowledge worker.

While a few years ago, organisations could anticipate the competencies needing to be developed and the subsequent training required by means of training plans, this exercise is becoming more and more difficult. In some sectors, the pace and nature of the evolution of competencies, together with the growth of ‘portfolio careers’, means that a significant part of the responsibility for career planning and development is shifting to the individual him/herself.

The ePortfolio can provide support to individuals with a range of services to manage their learning: personal development planning (PDP), evidence to support the achievement of learning outcomes and self-assessment of competencies against occupational standards, but also the services offered through interaction with peers. While more common in certain professions such as human resource management, information technology, engineering or medicine, membership of a professional association or network is a powerful incentive to encourage and value professional development, through peer support and peer review.

Organisations also exist as an intersection of groups of competencies (management, supply, customer service, engineering, secretariat, etc.). The main reference and source of support for CPD is generally outside the organisation, within professional communities. It is in the interest of the organisation to ensure that its staff is well connected to its communities, and that it provides the services at the level defined by the different communities –

professional body, sector body, etc. The ePortfolio can provide the means by which employers and employees can benefit from the latest developments in the different professional fields and measure in real time the competency gaps, and influence the evolution of future practice.



The collection of the individual ePortfolios of an organisation can contribute to the creation of its own organisational ePortfolio, while the collection of the organisational ePortfolios of a sector can contribute to the construction of the sector’s ePortfolio. A very concrete application would be the update of the standards of competence in a particular sector: through data-mining organisational ePortfolios, it could be possible to elicit emerging trends, advanced practices etc. This makes the ePortfolio a powerful knowledge management tool.

Of course, the aggregation of ePortfolios would depend on the policies and regulations governing organisations, professional bodies and trade unions.

Professional bodies, such as the Royal College of Physicians in Canada, are also looking at the ePortfolio as a tool for improving professional practice, making the ePortfolio a way to share the lessons learned, not only in courses, but more generally through professional practice. As the RCP manager said during the ePortfolio working forum in Vancouver in 2004: *“CPD isn’t about ticking a box after attending a course, it is about extracting learning from the workplace.”* The Royal College of Nursing (RCN) in the UK, the largest professional body in Europe with 350,000 members, has already started to implement an ePortfolio system to re-accredit nurses, and their ability to learn and share the lessons learned with their peers will be an important element of the re-accreditation process.

ePortfolio a Tool for Empowering Disadvantaged Groups

If a young person drops out of school, he/she will have to interact with a series of services: employment agency, counselling, social services, future employers, etc. Each one of them will keep a record of the interaction with the person, but none will have the ability to share the information with the other. Nor will the individual have easy access to all the information built during these interactions.

Now, let's imagine that our young person has an ePortfolio and that every agency interacting with him/her is required to provide a record for the ePortfolio. It would then be possible for the ePortfolio owner to grant appropriate access rights to different people or agencies, so the information is being shared to provide a more holistic picture of the individual. This is not a dream: it is one of the ideas behind Careers Wales Online, the Welsh Assembly initiative to provide each Welsh citizen with an ePortfolio. Based on a national infrastructure, each agency has the ability to provide and share information (under the owner control). The ePortfolio is becoming the tool for 'organisational interoperability' at the service of the individual.

More generally, we see the ePortfolio as powerful tool to aid social inclusion, as it encourages the celebration of achievements. Every person has a story to tell and everyone has competencies. The ePortfolio is the catalyst for making these known to the world.

ePortfolio Interoperability

Until now, in the field of eLearning, the issue of interoperability has been addressed as a local issue: how to make content work properly, once installed in a training or learning management system – of course, it can be any content and any management system, anywhere in the world, but the issue remains local.

With the ePortfolio, things are radically different: the issue of interoperability is not *local* anymore, but *global*. An ePortfolio must be able to interact not only with the school or employer system, but with many different systems at any one time. As a professional, I have a portfolio for managing my continuing professional development. At some point in my career, I wish to gain an accreditation of my prior

learning to obtain a qualification, and attend a course to support the development of new competencies in order to change job or employer. This means that my ePortfolio needs to interact with 1° my professional body's CPD management system, 2° my employer's competency management and development system, 3° an awarding body to get accreditation based on the evidence collected, 4° a university registrar system to validate the prerequisite. To this list I could add the use of my ePortfolio to secure a voluntary post in the community or to present myself as a candidate to my local political party.

Today, I am faced with the situation that I shall probably have to re-present my data to suit the various formats of ePortfolios currently being used by different agencies.

ePortfolio Interoperability Framework

Depending on one's vision of the ePortfolio, different interoperability frameworks are possible. The first model, partially defined by IMS, is based on the idea that the ePortfolio is a document, and is therefore focused on defining a data structure. Another model, as defined by EIFEL, is based on the idea that the ePortfolio is a digital identity, the digital representation of an individual, upon which a series of services can be developed to value the assets of its owner. The focus of the EIFEL interoperability framework is the definition of a digital identity and how this digital identity can provide access to personalised services and control one's digital representation.

The first specification identified by EIFEL as most relevant to ePortfolios was SAML, defined by the Oasis group, and used in Liberty Alliance, a framework for federation of services through single sign on (SSO): once identified by one of the federated services, access to other services does not require a new registration and, more interestingly, Service A and Service B can have access to each other's information. For example, you can have your address registered once, and all the federated services can have access to the same record: there is no need to change 10 different records when moving.

Although useful, and now an industry standard, Liberty Alliance does not provide the level of granularity required to manage an ePortfolio. As an ePortfolio owner, I want to be able to say who can

have access to discrete elements of my ePortfolio and when they can do this. This issue has been solved by another specification developed by the Oasis Group: it is called XRI/XDI, and provides individuals with the proper level of control required to share the information contained in an ePortfolio. It will certainly benefit current specifications such as friend of a friend (FOAF), a semantic web specification used in social networking software – which lacks appropriate management controls.

EIfEL and IMS are working together on the EC co-financed project EPICC (European Portfolio Initiatives Coordination Committee), which is at the origin of Europortfolio, the European Consortium for the ePortfolio. The first ePortfolio plugfest to be held on 26 October in Cambridge should provide a good opportunity to explore how different and complementary those two approaches are: IMS to provide a structure for contents, EIfEL to include ePortfolios in a federation of services and social networks, and combine various specifications and technologies to explore the future of ePortfolio technologies and interoperability – probably a combination of peer-to-peer networks (social dimension) and client-server applications (organisational dimension).

Conclusion

The ePortfolio revolution has just started and it has already had a significant impact on policies, practice and technologies. States are building ePortfolio policies; professionals are using ePortfolios to develop and value their assets - their intellectual capital; technologies are in constant innovation, providing individuals, communities and organisations with better and more extensive services.

It is our view that the ePortfolio should be seen as an eSelf, a digital extension of a physical self, a kind of virtual clone, that will be at our service to interact through a digital world with other individuals, networks and organisations. The process of building our ePortfolio is the process of constructing our digital identity and the collective digital identities of the communities we belong to.

Building one's ePortfolio is a way to link to other people: with the same or complementary interests, competencies or abilities, share ideas, get feed-back and grow in a lifelong and lifewide learning exercise.

Building a digital ID is a way to analyse and reflect on one's strengths and weaknesses, identify – and be identified by – opportunities.

The ePortfolio TOUCH

- Transparency of usage
 - Negotiate with, and track readers: *show me yours, I'll show you mine!*
- Opacity of contents
 - Control access to personal information: *don't touch my digital clone!*
- Ubiquitous
 - Interlink ePortfolios: *ePortfolios of the world, united!*
- Celebration of achievements
 - Value individual assets: *my ePortfolio is at the beauty parlour!*
- Holistic
 - Maintain a global view of the individual: *reunite my digital self!*

ePortfolios represent a response to the need of a knowledge economy to equip knowledge workers to develop and exploit their human capital.

This is no easy option. As Stephen Leacock, Canadian humorist and educator, once wrote: “*I am a great believer in luck, and I find the harder I work the more I have of it.*” ePortfolios require (and therefore demonstrate) hard work and deep learning; they are powerful multipliers of the beneficial effects one can expect from this.

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EIfEL is a cross-sectoral professional body created in February 2001 whose mission is to support the development of a knowledge and learning society, in particular by recognising the organic link between individual, organisational and community learning and the role played by knowledge, information and learning technologies (KILT), in particular the ePortfolio, to achieve this goal