JISC

e-Portfolio Reference Model September 2006 Report: Annexes

JISC Distributed eLearning Programme:

eLearning e-Framework Reference Models

Contents

ANNEX 1 Overview

Author: Peter Rees Jones   **Version:** 1.1
Date: 2006 09 13   **Status:** Final
Intended audience: e-Framework specialists; e-Portfolio developers; HE and HR practitioners interested in student/staff recruitment/selection; potential bidders for the JISC HE admissions ITT

The e-Portfolio Reference Model provides a set of domain maps of the services supporting application to opportunities in education or employment. The services are derived from current practice, especially current practice in employment that may be used within reformed HE application processes. The maps are intended as a basis for projects which will refine, develop the proposed services for formal submission to the e-Framework.
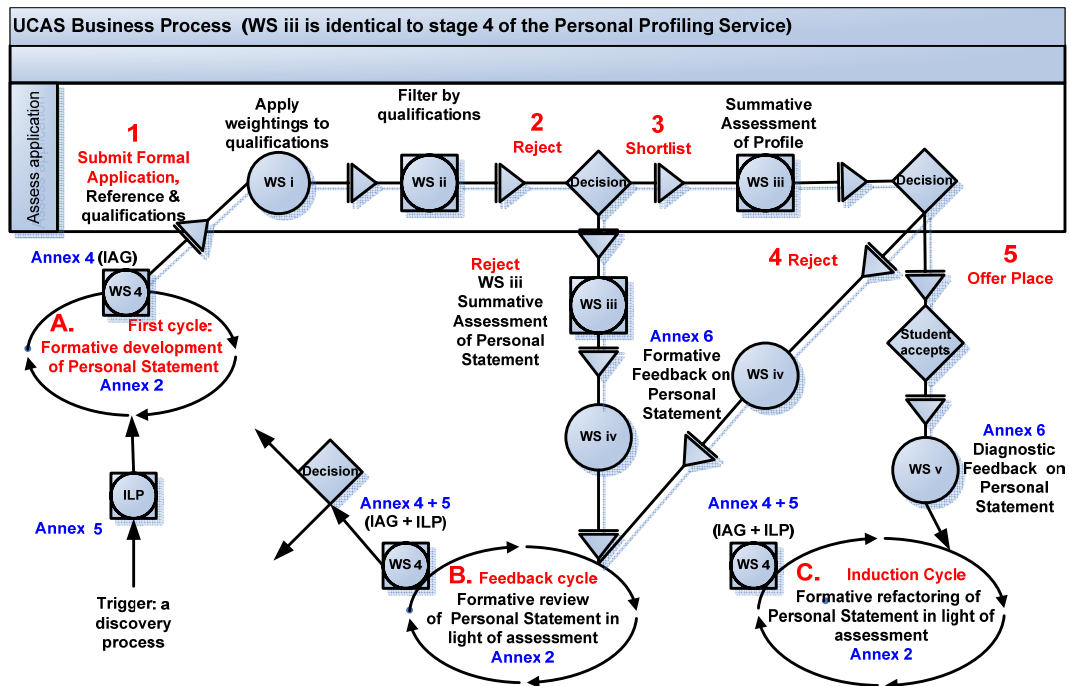
The annexes 2-8 focus on HE admissions. These provide four *service genres*, generic descriptions of a *service* followed by a *service expression* setting out how a service operates within the HE admissions process.

The HE admissions process is UK specific but the underlying patterns within the process are similar to other application processes. Many UK students use the pattern described in the Personal Profiling Service (Annex 2) to develop applications to employment. The workshop Exercise (Annex 10) re-factors the Personal Profiling Service for application to employment and asks how the other services set out in Annexes 3, 5 and 6 need to be re-factored for employment.

These maps suggested a thin architecture for e-Portfolio in which an engine provides information for services to consume and passes back information to repositories (Annex 7). The specifications and service definitions in Annex 8 form the basis for a demonstration and prototype of the Personal Profiling Service of Annex 2 as a model and basis for future work.

The thin model could be implemented within an e-Portfolio system but is intended to take advantage of the opportunities and economies that Web 2.0 is opening out. There are an increasing number of regional partnerships supporting lifelong learning and Annex 9 discusses how they might benefit by moving from discrete e-Portfolio systems and the practicability of this approach.

Diagram 1 Map of Annexes

ANNEX 2   Personal Profiling Service

Author: Peter Rees Jones	Version: 0b	
Date: 2006 07 14	Status: Draft	
Intended audience:	e-Framework specialists; e-Portfolio developers; HE and HR practitioners interested in student/staff recruitment/selection; potential bidders for the JISC ITT for studies on good practice and technology-supported approaches in recruitment and admissions	

1   Service Genre Name: Personal Profiling

Classification: An e-Portfolio enabled service [1]

Area: e-administration (especially within the HE admissions and HR recruitment domains)

e-learning (especially within Personal Development service flows in FE college and HEIs) including continuing professional and vocational development in employment.

Product/Process: A service, quality assured for equal opportunities, by which an individual may produce a profile of themselves in terms of a pre-defined set of requirements typically within a process for application to education or employment.

Comment: This formal e-administration / e-learning service is related to informal collaborative services supporting, for example the development of a personal profile for *foaf,* the focus of the JISC *Chimera* project and is functionally similar to developing a profile for a dating service such as *Faceparty.*[2]   The Personal Profiling Service is distinguished by the formal criteria which form the terms in which the profile is developed and against which it is formally assessed.

1.1   Purpose of the Service Genre

Historically applicants for a job, a traineeship or place at university were asked to provide *a letter of application* or *personal statement* for which no predefined structure was provided. As monitoring for gender, ethnic, religious and other forms of direct and indirect discrimination increased it became clear that this approach was open to unconscious bias. As Human Resource Management became increasingly professional the essential and desirable attributes of an employee for each job or role were stated explicitly.   Applicants for employment are increasingly asked to state how they match the criteria against which they are assessed.

As part of the professionalisation of HE admissions UCAS has encouraged HEI's to provide similar *course entry profiles* for applicants to HE. In September 2005 65% of HEIs provided profiles with a target of 100% in 2008 / 09. A *structured personal statement* to help applicants make active use of *course entry profiles* was proposed by the University of Nottingham and endorsed by the Schwartz Enquiry into HE admissions: [3]

"The JISC project 'Specifying an e-portfolio: enhanced learner information for flexible admissions and transitions into higher education' is reviewing how admissions staff use information and evidence. The project aims to make information and evidence available in an accessible electronic form that can be customised to support the admissions process and give feedback to the applicant. The project is specifically examining the potential of entry criteria and course information to structure the personal statement. This would allow academic staff to set prompts for their own courses. UCAS and other admissions services

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[1] The e-Portfolio Reference Model project has concluded that e-Portfolio is not a *service* but an *application* or *engine* transferring information between the e-Portfolio enabled services used by the learner and the e-Portfolio enabled repositories holding the information over which the learner has control. Further details are set out as ANNEX A to this document. See also 1.6.1 *classification*
[2] Some functionally similar services may have no relevance to education.
[3] The report is available from http://www.admissions-review.org.uk/

should also consider the inclusion of additional information to produce a fuller transcript of applicants' achievement. A more informative application form may in itself reduce the need for additional testing"

(p. 47; E9)

Schwartz recommended: "Structuring the Personal Statement and Reference, especially through the insertion of course specific prompts."

(p. 45; E5; bullet point 4)

The Service Expressions address this process. This description of the Service Genre provides the abstract model which the Service Expressions instantiate.

1.2   Scope of the Service Genre

The following diagram uses quality management conventions:
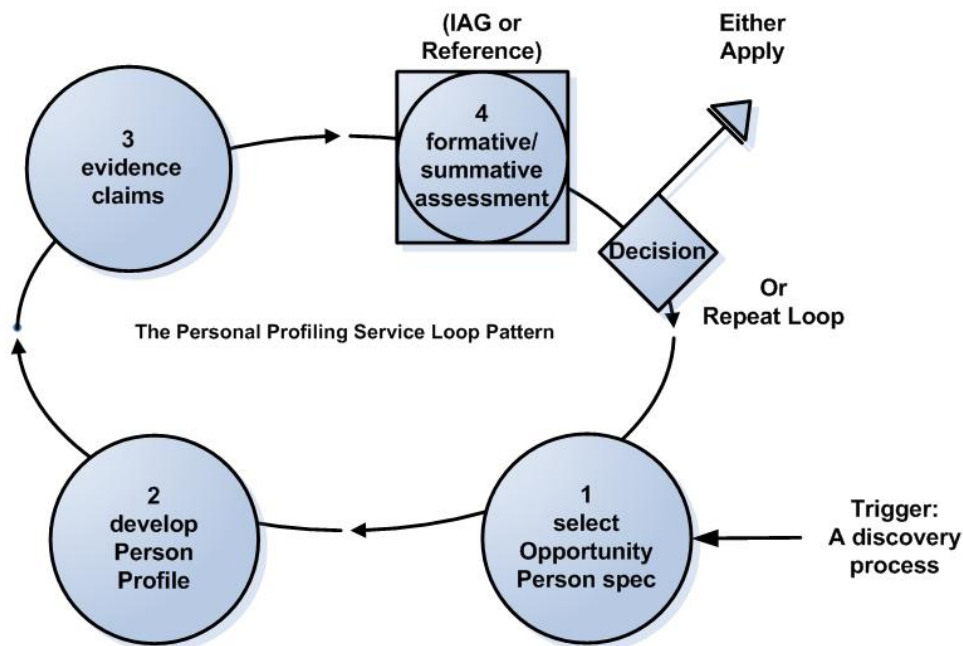
Generic Use Case 1

 The trigger for the use of the service is typically the use of a discovery service.

1 The applicant selects a template with a *profile* of an opportunity, that is the set of requirements that a person should match to be eligible for a particular opportunity, for example a *person specification* for a job or a *course entry profile* for a university place;
2 The potential applicant creates a profile of themselves by populating a template with assertions and activities from their e-Portfolio;
3 Assists the applicant creates a profile of themselves by linking to evidence of assertions within their e-Portfolio;
4 A supporter of the applicant comments on the Personal Profile.

There is no logical difference between a *Presentational e-Portfolio* which is assessed for entry to employment or education, such as a Personal Statement, and an *Assessment e-Portfolio* for a formal examination. A *Transition e-Portfolio* may contain the *Presentational e-Portfolio* but may also contain personal materials from a *Learning e-Portfolio* which are private to the learner, not used in the application process but which may be used at the learner's discretion in the new episode of education or employment.

A functional specification of the web services demonstrating this service will be available in September 2006.

1.3   Addressing the needs of the e-Framework

a   **Consultants for Becta** have concluded that Transition e-Portfolio is mature enough to be implemented in the short and medium term. This Service Genre specifically expresses an important service for transition.

b   **e-administration** The need to quality assure Fair Admissions to HE, a high priority for HEIs and Government, identifies the relationship with other Reference Models and scopes further areas where new Reference Models should be developed. On one level it therefore belongs within the e-administration domain.

c   **e-learning** The Service Genre also belongs within e-learning. The standard pattern falls within the Personal Development domain. At the end of the MLEs for Lifelong Learning Programme the Centre for Recording Achievement was asked to scope a Reference Model for Personal Development Planning (PDP) but believed that, given the diversity of practice this was not practicable. A specific intention of the project was to bring the PDP domain within the e-Framework.

> The Personal Statement Reference Model suggests that web services developed for one type of service (e.g. summative assessment in an administrative context) may be re-used for another (e.g. formative assessment in a learning context). This has the potential to transform a student's experience of learning in all aspects of life by identifying the value of learning beyond formal education. On a technical level the elaboration of a bare web service for use in many contexts has important implications for the cost effective development of ICT tailored to individuals' needs and preferences and as a basis for the incremental development of de facto and formal standards.
>
> **'Proposition 3'**

d   **Feedback** The Wilson Review of HE admissions published for consultation in September 2005 recommended the provision of feedback to applicants which the Delivery Partnership will take forward. As with the 11 plus, applicants to HE who are rejected on the basis of summative assessment alone are at high risk of disengaging from learning. The same principle may apply to returners to work or employment or people seeking to develop new skills and college students applying to employment.

Unsuccessful applicants will use feedback to learn from the application in order to identify more appropriate opportunities and / or to match themselves more closely to requirements. The standard Structured Personal Statement pattern may well be elaborated with other web services and services and these may be expected to yield further common patterns.

e   **Quality Assurance** A further area for exploration is the aggregation of feedback to individual applicants for quality assurance by colleges and universities and by national bodies responsible for Fair Admissions to University and equal opportunities in employment. This evidence will be directly relevant to research, including research on personalisation.

1.4   Benefits

- Make available good practice in HR for the development of analogous quality assured process for Fair Admissions to HE in line with the key policy needs of HEIs and Government.
- Develop existing practice using Progress File to take advantage of the much greater opportunities offered by e-Portfolio.
- Provide a basis for the provision of feedback to applicants and for their continuing development as lifelong learners.
- Define a key aspect of the amorphous term "PDP" more closely.
- Quantified evidence for research in terms of the requirements set out in the *Magenta Book.*
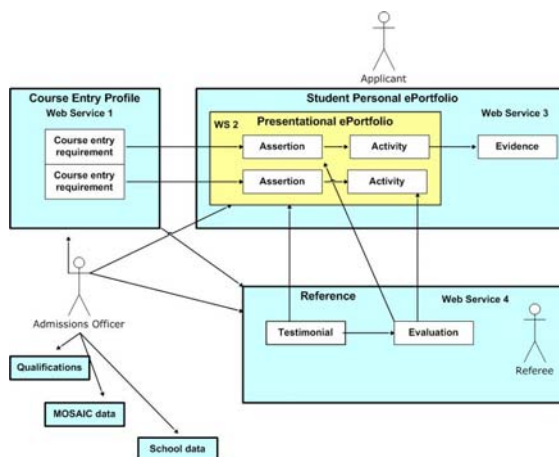
2.   Service Expressions

2.1 Personal Profiling Service Expression 1 (e-learning)

The following expression covers the formative use of the service to prepare a potential applicant, as an e-learning service.

Course Entry Profiles are analogous to the *Person Specifications* widely used by HR and recruitment professionals to score candidates' profiles. This is a quality assured process designed from an equal opportunities perspective. The service expression follows this established HR pattern and applies it to the analogous process of HE admission

Use Case 2: Formative development of a Structured Personal Statement

a   I select a particular course at a particular University. **Web service 1** populates a blank template with the Course Entry Profile.   **Diagram 1:**

b   I draw down material from my personal e-Portfolio into a presentational ePortfolio to make assertions of how my Personal Profile matches the entry profile. (**WS2**)

c   I link assertions and activities to evidence in my personal e-Portfolio **(WS3)**.

d   My advisor scores my Personal Profile against the course entry profile and adds comments for us to discuss (**WS4)** i.e. my advisor formatively assesses my profile.

Note: A functional specification of the web services demonstrating this service expression will be available in September 2006 and the web services will be available for adaptation and re-use.

2.2 Personal Profiling Service Expression 2 (e-administration)

The following expression covers the summative use of the service to make a formal application, as an e-learning service.

Use Case 3:   Summative assessment of a Structured Personal Statement

a   I discuss with my advisor how well my profile matches the course entry profile (The discussion is supported by an IAG service (a type of **Advice and Guidance Service**)

b   I complete the same *steps a-c* as for Use Case 1

c   But at *step d* my referee uses WS4 to make a summative assessment commenting on (but not quantifying) the match between my Personal Profile and the course entry profile. My application and the open reference are sent to the target university through UCAS where the admissions officer also takes into account qualifications data (a *Learner Achievement Record Service* is being specified) and contextual data about my social background *(Mosaic)* and my school's performance.

2.3 The HE Admissions Process (e-administration)

Diagram 3 provides an illustrative map of a quality assured centralised e-admissions service. This is not a service proposed for the e-Framework but may help scope such a service.
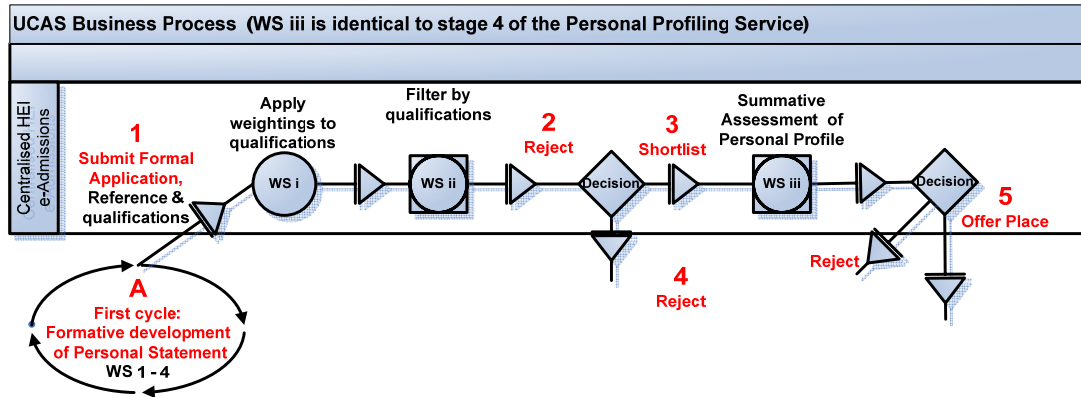

The development of a Structured Personal Statement for application to HE through UCAS is shown at A. Web services (to be specified) automatically apply social and school weightings to the qualifications and test results. A filter is applied and the most marginal applicants rejected. We follow the long-listed candidates, where the same web service (4) used by the applicant's advisor and referee is used by a human to score the match of the Personal Profile against the course entry profile.

There is feedback for each of the outcomes with an emphasis in helping unsuccessful applicants identify how to make better and better targeted applications. However, here we track applicants who accept the places offered, through to induction.

2.4 Personal Profiling Service Induction expression (e-learning)

Diagram 4
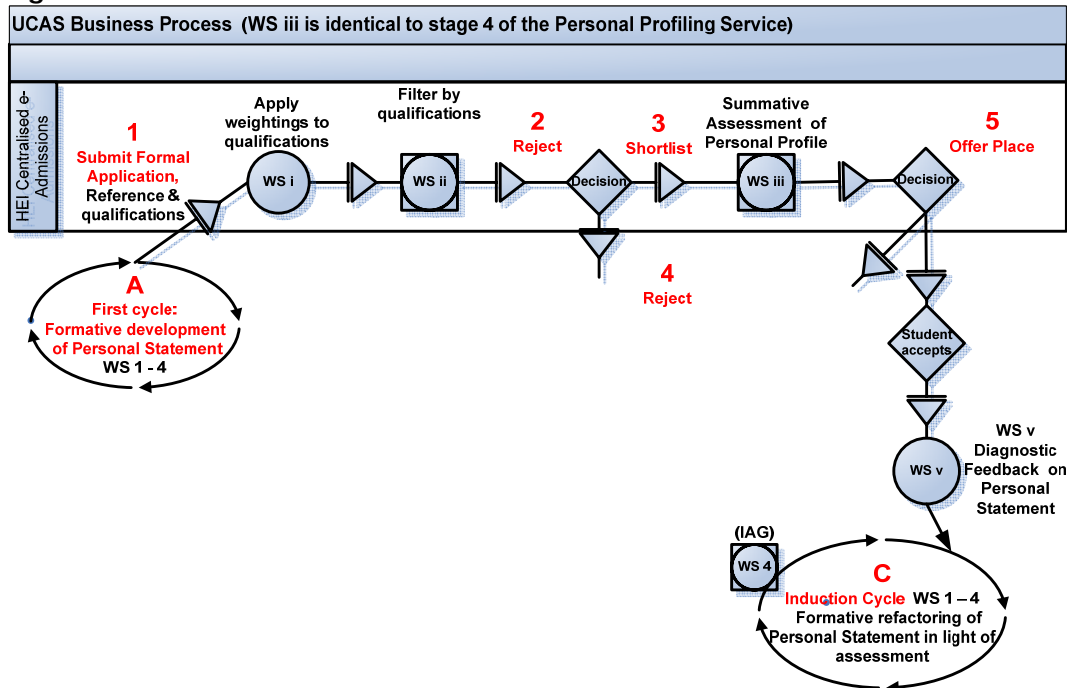
Use Case 4

Trigger: I have been shortlisted by the HEI, the Personal Profile I have presented in a structured Personal Statement has been scored and used as the basis of feedback to inform me how I match the Course Entry Profile. I am asked to review the feedback in order to prepare for a first meeting with my HE advisor. The feedback is the student's original application with scores added to his responses to each of the entry criteria and bare comments such as "fails to meet the minimum standard for this criterion".

1. I open the feedback and review the scores and comments made on my text: I have done much better than I expected in some areas, but worse in another area, which was formally below the minimum entry standard, but condoned because of my overall profile.

2. I amend the text of the assertions and activities I put in my statement to clarify a couple of issues I think were unclear. I add some comments to cover other issues.

3. I now think the evidence I presented gave only half the picture, and I now create new links to other evidence in my college e-Portfolio that clarifies a misunderstanding.

4. I send this to my advisor together with some other stuff for induction expecting to use it to plan out my work in the first semester and make a good start to my HE career!

3 An Outline of the HE Admissions Domain

Diagram 5
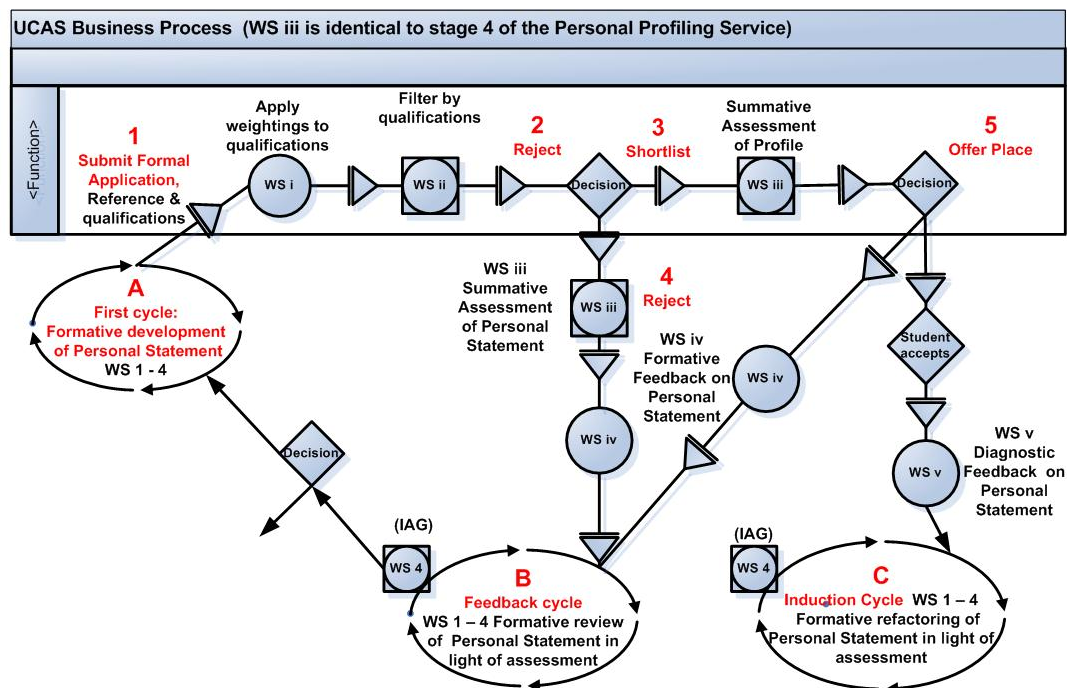
ANNEX 3 e-Portfolio and HE admissions

Author: Peter Rees Jones   **Version:** 0b
Date: 2006 07 14   **Status:** Draft
Intended audience: This paper is intended for managers, admissions staff IT professionals with a special interest in HE admissions but no prior knowledge of e-Portfolio. For more information on e-Portfolio see Annex 2.

 "...this is a really important point; we will have to re-engineer the data so that wherever you are in the education system the individual learner can demonstrate to another institution, an employer, or to a parent, what they have done, how they are succeeding and who they are."

(**Michael Stevenson** head of DfES Technical Group January 2006)[4]

"E-portfolios….are personal online spaces for students to access services and store work. They will become ever more useful as learners grow up and start moving between different types of learning and different institutions."

(**Ruth Kelly** Secretary of State for Education, January 2006)

What is an e-Portfolio?

In the last century artists kept *portfolios* of their work, individuals kept *commonplace books, photo albums* and *journals* they shared with friends and produced CVs. in France workmen kept *livrets* containing certificates of their skills and testimonials of customers. e-Portfolio covers this same personal domain. At the same time awarding bodies certified the value of work within a portfolio and individuals drew on journals and diaries to develop their CVs and letters of application. Ownership was not a difficult problem since it was difficult to share these physical artefacts. In the new century it has become easy to transmit information and share these artefacts. It will soon become equally easy to make use of this information by means of web services. Information in an e-Portfolio may be:

a   wholly owned by one stakeholder and not accessible to any other stakeholder without the owner's permission, except under the terms of the Data Protection Act (DPA). This defines the term "*ownership*";

b   owned by one stakeholder, with another stakeholder having some specific rights over and above the DPA. This defines the term "*information rights*";

This information may be held on behalf of a stakeholder by a service provider with no direct interest in the information itself. This defines the term "*Stewardship".*

Increasingly students entering University may have a portfolio of artefacts and other information, for example, a learning journal, a set of drawings not submitted for assessment, an assessed project, assessed course work and exam work, a C.V. and transcripts of A2s: -

a   the core of the portfolio is wholly *owned* by the learner (e.g. the learning journal, the set of drawings and the CV)

b1   other information may be owned by the learner with other bodies having some *rights* over it (e.g. the assessed project and course work) OR

b2   owned by another body with the learner having some rights over it (e.g. the right of a learner to access a transcript setting out their achievement owned by an exam board or university.)

The original Information Model for the HE Progress File was published by QAA in 2001[5] and implemented by all HEIs by 2005 contained these three types of information. It is proposed that this same model should apply to e-Portfolio. However, unlike an electronic Progress File, the first generation of practice, e-Portfolio will take advantage of the opportunities offered by the web, in particular web services and provide a basis for Lifelong Learning.

In the US there is widespread use of e-Portfolio, including assessed e-Portfolios for personal and professional development. In UK HE the emphasis has been on non assessed e-Portfolios, but in schools and colleges there is an increasing emphasis on e-Portfolios for

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[4] See http://www.tes.co.uk/search/story/?story_id=2166552
[5] See http://www.qaa.ac.uk/academicinfrastructure/progressFiles/guidelines/progfile2001.asp

assessment beyond the art and performance subjects following UCAS route B, for example in the 14-19 Specialised Diplomas being developed by Sector Skills Councils.

Government Policies

In England, DfES are developing proposals for a learning space capable of supporting e-Portfolio to be made available to all students in school and college by 2008. DfES and Becta have reviewed JISC work on e-Portfolio in colleges and universities in order to develop a common approach across sectors. The Schwartz and Wilson reviews of HE admissions have made specific recommendations for the use of e-Portfolio for HE admissions. Many learners in Wales already have access to an e-Portfolio provided by the Assembly Government, focused on careers.   Transformation projects in colleges and universities in Scotland have similar themes. All these initiatives seek to establish a basis for lifelong learning and there is an increased emphasis on the link between education and employment.

"The JISC project…. is reviewing how admissions staff use information and evidence. The project aims to make information and evidence available in an accessible electronic form that can be customised to support the admissions process and give feedback to the applicant. The Project is specifically examining the potential of entry criteria and course information to structure the personal statement. This would allow academic staff to set prompts for their own courses….UCAS and other admissions services should also consider the inclusion of additional information to produce a fuller transcript of applicants' achievement. A more informative application form may in itself reduce the need for additional testing"
(**Stephen Schwartz** *Fair Admissions to higher education: recommendations for good practice* p. 48; E9; 2005 09 00)

"There is also much work going on in the sector in relation to the development of e-portfolios, the content of which could include a portfolio of evidence compiled by the student, a developmental CV and a transcript or learner record. This includes work by UCAS and the [JISC] in the area of e-portfolios and online applications, and also development through the British Standards Institution of the technical standard UKLEAP, based on international standards, to support transfer of learner information. Additionally there are links into Europe and the Europass learner record.   This type of information, representing an up-to-date collection of a student's achievement, could be used by HEIs to help inform admissions decisions. It could be a particularly useful record for those students not following the traditional A-level or Higher based route into HE."
(**Sir Alan Wilson**, consultation on HE admissions; 2005 09 09.)

Customisation of the HE admissions business process

Standard HR practice is to specify the essential and desirable features applicants for a job should possess. This may include quantified information such as formal qualifications alongside applicants' personal attributes and experience. Typically a sift of written applications identifies and prioritises potential candidates who can be assessed against the same criteria at interview.

The web services for HE admissions are intended to support the same pattern of process. A customised set of requirements including personal attributes would be available for each course. Candidates would map themselves against the requirements. Evidence within a student's e-Portfolio would further reduce the need for interview. In this scenario:

Web Service 1 An applicant selects a particular course at a particular University. The web service populates a blank template with the Course Entry Requirements.

Web Service 2 helps the applicant draw down material from her personal e-Portfolio into the presentational e-Portfolio to make assertions of how she meets the requirements.

Web Service 3 helps the applicant link assertions to evidence in her presentational e-Portfolio

Web Service 4 helps a referee provide a testimonial for the applicant and to evaluate her assertions, linking comments to specific items in the applicant's presentational e-Portfolio.
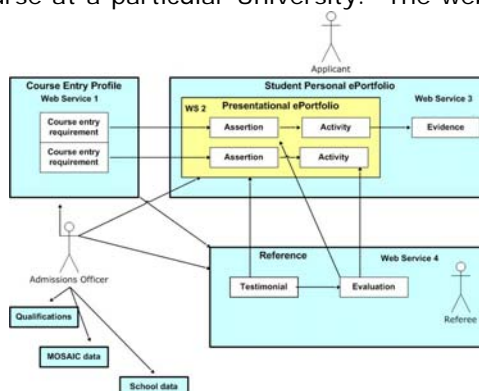
Web Service 5 posts to the admissions officer the presentational e-Portfolio, reference and the permissions to access specific evidence within the personal e-Portfolio.

A further set of web services are being specified to enable the admissions officer to make effective use of this richer information at no extra cost in terms of staff time. Around this basic core a range of further services will provide additional support.

Personalisation of HE admissions

This use of e-Portfolio and a Structured Personal Statement has some similarities with the APeL processes by which adult learners without qualifications apply to HE. It allows the evidence of an applicant's formal qualifications to be balanced against other personal attributes and qualities. It provides a transparent framework within which admissions officers can exercise their judgement and take risks in order to offer life changing opportunities to applicants from non traditional backgrounds. It could also help identify the particular needs of very able students. In both cases a Structured Personal Statement could identify how the standard curriculum should be personalised to meet the needs of the individual.

How may this affect the support the college or other body provides to the potential applicant? What are the implications for HEIs seeking to establish more efficient and effective support and induction to an increasingly diverse range of students in order to minimise drop out?

College support to applicants

The same set of web services for the business process of application to HE could also be used formatively within a college to develop students' ability to map themselves against course requirements and set themselves challenging but realistic goals. Here a student would map himself against course requirements by completing the Personal Statement and linking to evidence in his e-Portfolio in the same way as the **summative assessment scenario** in section 2. However, in this **formative scenario** a coach, rather than a referee, would provide formative feedback to the student rather than a reference.[6] Before reaching this stage, the student might already have followed a similar but simpler **diagnostic scenario** with a coach helping him confirm if he wished to apply to HE and what subjects he might wish to follow.

Feedback for all applicants

Feedback is of limited use to applicants where success is determined solely on the basis of formal qualifications and tests. Like the 11 plus, if used in isolation these processes can be expected to lead to unsuccessful applicants disengaging from learning. An admission officer's assessment of a Structured Personal Statement against clear entry requirements could be scored (a common HR practice) and feedback provided to unsuccessful applicants on how they can improve their personal attributes as well as their test performance.

The same principle applies to successful applicants whose profiles fall below the normal thresholds for admission in some areas, for example an entrant to an IT course with below average qualifications in Maths or no experience of IT in employment environments.

Induction to HE

The e-Portfolio Reference Model is identifying the information within the UCAS domain that may provide a starting point for e-Portfolio within HE (the additional private personal information the student may wish to import will also be scoped). A use case for how the new student may introduce herself to her university tutor has been prepared.

Feedback from the admissions process is important here in identifying the issues the new student should address, but the student will also need to map herself against the more detailed and short term requirements of the first semester of the course. This may represent a further scenario in which the web services set out.

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[6] Web services 1,2,3 would assist the learner and an adaptation of web service 4 would allow the coach to provide feedback to the learner, rather than a reference to a referee.

Integrative Learning and Web 2.0

Anecdotally, staff enrolling students in college, academic admissions officers and tutors, employers and professional bodies often emphasise that a key indicator of potential is the ability of a learner or employee to assess the quality of their work and apply what they have learned to future work.   The use of e-Portfolio: -

- enables a learner to develop the capacity for self evaluation through the integration of formal and informal experience gained in education, work experience or personal life. This also allows a learner to identify his need for further learning to meet further goals.
- requires the learner to make effective use of web technology to identify an integrated profile of herself and present particular aspects of it to particular audiences for particular purposes.

Technology was once seen simply as a tool for delivering the Progress File. By contrast, e-Portfolio is a means by which the learner will develop her ability to make effective use of Web 2.0 and exploit the opportunities for advancement offered by the knowledge economy presently restricted to a small minority of citizens.

Use Case:

The following service flow centres on the review of an Individual Learning Plan (ILP) to support application to HE, following the diagnostic use of a Personal Statement. ILPs are common in UK schools, colleges and some universities. They can help customise learning to the individual; and therefore offer potential for an individual to personalise learning:
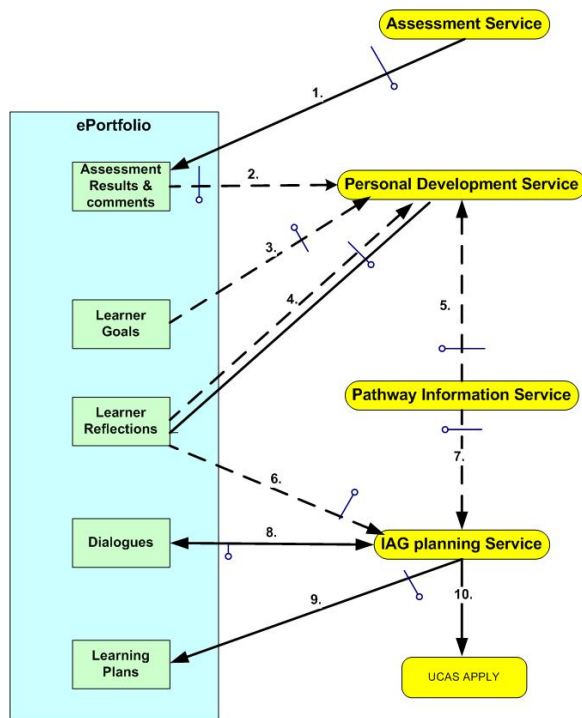
1. **Trigger An assessment result**:
2. I call this information into an e-Portfolio enabled Personal Development Service.
3. I review the results against my goals ;
4. in the context of past reflections.
5. taking account of pathway information about the grades I need to meet my goals.
6. I make some of my reflections available to my formal advisor in an Information Advice Guidance Planning Service
7. My advisor also calls pathway info
8. Our dialogue is recorded
9. We negotiate a formal learning
10. **The plan sets out what I will do to apply to HE.**

ANNEX 4   Defining an e-Portfolio Engine for Personal Learning Space

Author:	**Version:** 1a
Date: 2006-07-14	**Status:** Final
Intended audience:	General audiences needing to understand the concept of a thin e-Portfolio

"...this is a really important point; we will have to re-engineer the data so that wherever you are in the education system the individual learner can demonstrate to another institution, an employer, or to a parent, what they have done, how they are succeeding and who they are."

(Michael Stevenson head of DfES Technical Group, 6 January 2006) [7]

On a technical level e-Portfolio is not a *service* like *Assessment* or *Career Planning.*   Rather e-Portfolio is an *application*, the **engine** which enables the individual learner to join together what they have learned through different *services* so that they can demonstrate to another institution, an employer or a parent what they have done, how they are succeeding and who they are.

The JISC e-Portfolio Reference Model[8] has defined the functions that such an **e-Portfolio engine** should perform, whether within current *e-Portfolio systems*, which are often specialised *Virtual Learning Environments* (VLEs) or within a wider *Personal Learning Space* in order to enable:

- an individual learner to *integrate* what they are learning in different ways in different contexts;
- to personalise their learning;
- and to present themselves to a range of different audiences.

In this way the individual's experience of learning may be transformed.

A learner should be able to replace a standard *service* provided within one *e-Portfolio system* with a different version of the *service* available from another provider in order to meet the learner's specific needs and preferences. For example, when I complete the staff review form for my employer I may want to use the *learning log* provided by my professional association rather than the equivalent *service* provided by the employer's *e-Portfolio system.*   The employer's *learning log* may cover any kind of professional employee whereas the log provided by my association is customised to my specific area of professional expertise. The *e-Portfolio engine* enables this.

By separating the *e-Portfolio application* from the *services* which make use of it we simplify a potentially complex problem to simpler terms in which it becomes capable of practical implementation.

In particular we can develop a set of technical definitions for each of the *services* that make use of an *e-Portfolio engine* to interact with other *e-Portfolio enabled services* and *e-Portfolio enabled repositories*.   In this way we can develop an extensible technical definition of the e-Portfolio domain incrementally. This is the thin model of e-Portfolio.

The services identified by the Reference Model are now being submitted to the *e-Framework*. This strategic international initiative includes JISC, DEST in Australia and SURF in the Netherlands. It is developing a service oriented approach to learning, research and administrative processes. This parallels work by major commercial vendors such as Microsoft with whom JISC-CETIS is discussing *Personal Learning Space* and an *e-Portfolio engine.*

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[7] Interview with TES reflected on http://www.autoindustry.co.uk/articles/06-01-06
[8] For the full interim report on the e-Portfolio Reference Model see:
http://www.nottingham.ac.uk/epreferencemodel/keydocuments/eP%20RM%20final.doc

1.   Developing Service Definitions

The e-Portfolio Reference Model has developed definitions of key e-Portfolio services by developing use cases of different expressions of a service in order to define the overarching service genre different types of service:

1.   Narrative descriptions of a process in plain English told from the learner's perspective provide a *scenario of practice*;
2.   High level *use cases* express a process as a *flow of services*. This *encapsulates* (ignores) the types of data passing between the e-Portfolio *services* and *repositories;*
3.   More detailed *use cases* of the *web services* within a *service* in which the data types are obvious if not explicit;
4.   The next phase of work should specify the data types within the use cases for pilot implementations and then ad-hoc and then formal standards as the model is proven in practice taking specific account of MIAP and Becta work on information flows.

2.   Example of a high level *use case* with narrative

The following service flow grew out of specific use cases for school to college transition, where a student must apply for college courses. An abstract model was developed and in late 2005, when UCAS joined the Reference Model project, a new version of how it applied to the UCAS process was prepared:

ILP Use Case Diagram
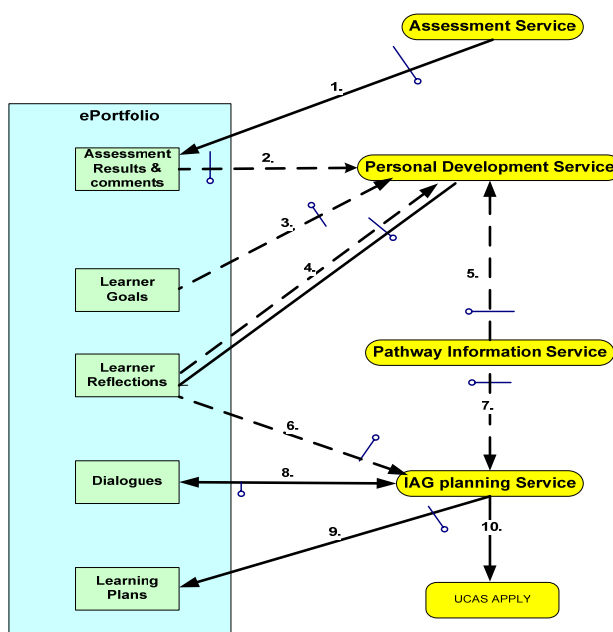
Illustrative Use Case
Each of the yellow lozenges represents a distinct service. The narrative below summarises the learner's experience of the process. The diagram illustrates the flow of data between the services and the domains within e-Portfolio. Each stage of the flow requires a narrow interface (the numbered hatpin symbols). These represent application profiles of existing specifications (such as IMS ePortfolio) and standards (such as UKLeaP) allowing existing specifications / standards to be radically simplified.

Gap: This flow covers the formal educational process, but students will engage in valuable informal discussions, often facilitated by collaborative and mobile technologies, which also need to be taken into account by e-Portfolio. The Reference Model will develop use cases for services using mobile and collaborative technologies with Signposter for report in August 2006. It will be important to identify the location of e-Portfolio within the more personalised learning spaces that are being developed.

**Narrative from the learner's perspective:**
11. Trigger: An assessment result and a scheduled meeting with an advisor
12. I call this information into an e-Portfolio-enabled Personal Development Service which helps me review the result in the context of my goals and past reflection.
13. I review the results against my goals

14. in the context of past reflections
15. taking account of pathway information about the grades I need to meet my goals.
16. I make some of my reflections available to my formal advisor in an Information Advice Guidance Planning (IAG) Service. My advisor also calls pathway information
17. We discuss the position together and agree a record of our dialogue
18. We agree a formal learning plan.
19. **Outcome: The plan sets out what I will do to apply to Higher Education.**

This pragmatic approach does not discard existing specifications and standards but requires them to be radically reconfigured. JISC pilots have confirmed that current specifications work but are too complex and therefore too costly for general implementation. By breaking down e-Portfolio into a set of discrete interfaces we can break down an existing specification such as UKLeaP into a simpler set of application profiles discarding the unnecessary superstructure.

3.   Thin e-Portfolio

The model is expressed as a *flow of services* (to the right of the page) which supports the development of an *Individual Learning Plan* but here this covers a university student selecting modules for enrolment. An *e-Portfolio engine* (the centre column) manages the data provided by services (the yellow lozenges) and provides data required by them. *Repositories* (to the left of the page) store the data. The type of data exchanged between the *service* and the *repository* is specified in the column representing the *e-Portfolio engine*. The learner must confirm that they have the appropriate pre-HE qualification to take a particular HE module (say an AS level in French held in an exam board repository). They may also wish to review their college e-Portfolio as well as their current university e-Portfolio (held in the college and university repositories). The storage of the information, the engine serving the information and the services providing and consuming the information are each separated out.
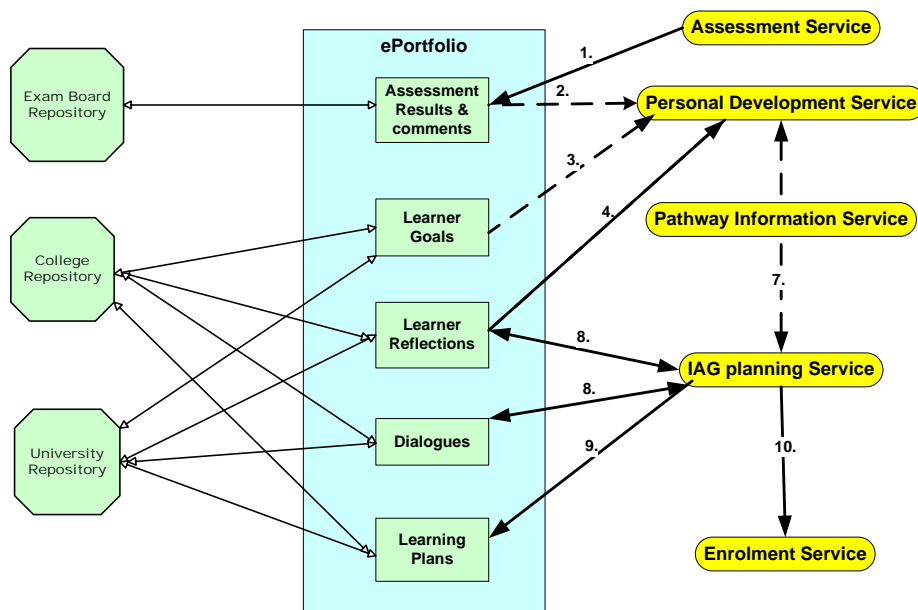
The interfaces required to pass information to and from services should be identical to the interfaces required to pass the information to a repository, so no additional interfaces are required. Services are enabled to make use of e-Portfolio by these interfaces, which are *application profiles* of existing, often monolithic, specifications. The interfaces used by the e-Portfolio engine to serve information between services and repositories can discard much of the superstructure of existing specifications. Previous JISC work has demonstrated that existing specifications work but that they are too complex and hence too costly for general implementation. Further JISC work will prove whether the proposed lightweight interfaces are fit for function. Successful implementations should establish de facto standards which can then be formalised, but the emphasis should be on achieving interoperability rather than a standard. In other words, the thin model represents a more pragmatic approach.

From a business perspective, a modular service approach allows an institution to prioritise and customise the progressive implementation of ICT services. If it buys a best of breed VLE containing a full range of *e-Portfolio services* it may still find some of the services are not well

adapted to its specific needs and can replace them.   It can add new versions of *services* for learners with particular needs or preferences.

From the Learner's perspective an *e-Portfolio engine* within a *Personal Learning Space* would allow them to select the particular versions of *services* they preferred.   By developing their capacity within the scaffolding provided by a controlled learning space which can be progressively personalised, learners entering vocational and professional employment will be able to make effective independent use of Web 2.0. This is an important but neglected aspect of e-Portfolio.

From a vendor (and developer) perspective there are significant opportunities in developing software and hosting services. However, the model also allows a niche version of a service relevant to perhaps 1,000 UK users to be widely sold, providing a low entry point to the market.

Annex 5 Modelling FE to HE transition: Narrative

Name	Modelling FE to HE transition: Narrative
Project	e-Portfolio for Lifelong Learning Reference Model
Author	Alan Paull
Creation date	1 June 2006
Last update date	13 September 2006 by PRJ
Version	Final

Modelling FE to HE transition

an e-Portfolio approach to application for undergraduate courses in the UK

Contents

Introduction

An e-Portfolio engine

'On a technical level e-Portfolio is not a service like Assessment or Career Planning. Rather e-Portfolio is an application, the engine which enables the individual learner to join together what they have learned through different services so that they can demonstrate to another institution, an employer or a parent what they have done, how they are succeeding and who they are.'

Peter Rees Jones "Defining an e-Portfolio Engine for Personal Learning Space"

1. This document describes a narrative for a learner making an application to a Higher Education Institution (HEI) exemplifying the approach set in Annex 2 of the e-Portfolio Reference Model. It is based upon the thin e-Portfolio model detailed in the interim report of the e-Portfolio Reference Model of April 2006, in particular section 6.2.

2. The narrative sets out how a learner with access to an e-Portfolio engine may handle the search for Higher Education courses and application to an HEI via UCAS. The focus of the narrative is on electronic information system processes to enable the learner to complete structured Personal Statements as part of his or her applications to HEIs. The learner creates Personal Statements in order to match his or her own attributes against the preferred attributes for admission described by a particular HEI for a specific course. The learner can also match formal academic achievements against the course's academic entry requirements.

3. We recognise that learners seeking admission to higher education can be categorised into many groups with differing needs in the areas of academic support, information, advice and guidance (IAG) and information and communications technology (ICT). Learners can also be grouped by social class, gender and ethnicity, all of which have a significant part to play in Higher Education choice. The narrative uses a specific example of a type of student, not to suggest that the processes are restricted to this group, but to present a realistic scenario. The processes here could be relevant to any learner with access to an e-Portfolio engine.

4. The e-Portfolio engine makes use of e-Portfolio enabled services and e-Portfolio enabled repositories. The e-Portfolio engine empowers the learner and other human actors to use the services, to manipulate the data and create links between data items held in the repositories and to cause the services to interact with each other in useful ways.

Overall narrative: UCAS transition scenario

5. Within the context of an Individual Learning Plan (ILP) negotiated at age 17, when she entered college, Anne has expressed a desire to progress from FE college to Higher Education, probably studying electrical and

electronic engineering. She has attended university run master classes in engineering as a taster of Higher Education. She searches for courses, mapping her own academic and non-academic profile against the UCAS Entry Profiles of different courses. Anne discusses these draft Personal Statements and the initial outcomes of her research with her college adviser. She records comments, both formal and informal in her personal learning space on the college e-Portfolio system. Her college tutor writes her a reference, and she applies to her chosen courses at selected HEIs. Final outcomes of her applications result in formative feedback, which enables her to learn from the experience as well as to progress to HE.

6. Environment: Anne has access to advisers and other supporters, as well as electronic resources to help her. The college provides its students with a personal learning space ('college e-Portfolio system') that has embedded functionality enabling students to interact with internal assistance (tutors, referees, other students, etc), as well as to access external information systems, including course information services and the UCAS Apply service.

7. Constraints: The learner is familiar with the college e-Portfolio system. Advisers, and her college tutor, are readily to hand to help with formative and summative assessments. Other aspects of social context are not discussed further.

8. Processes not covered: log-in, learner identity verification, non-electronic research of options.

Service Flow Diagram: Application to HE Service Flow
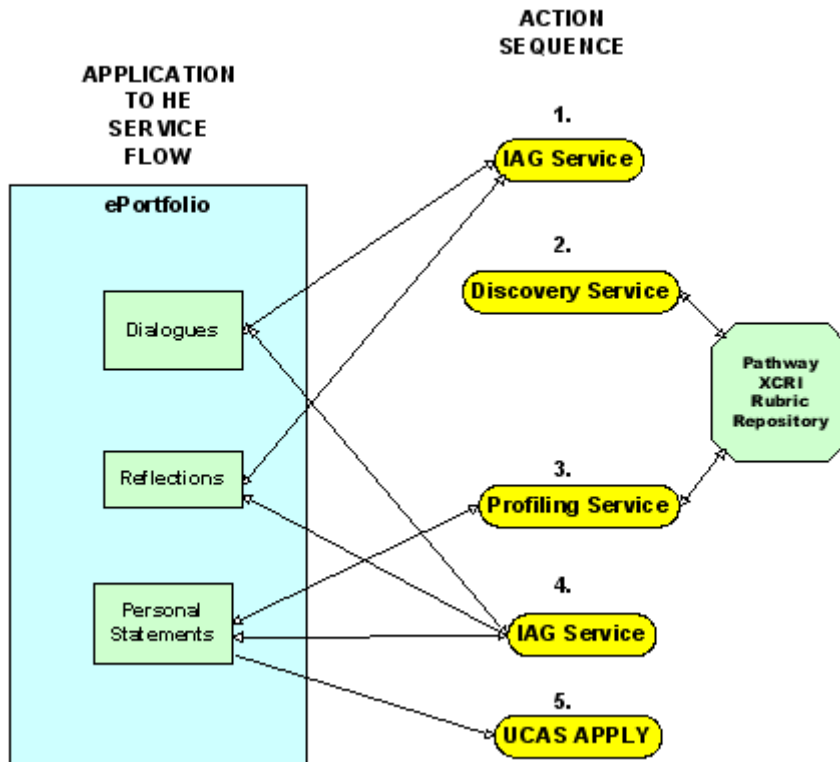
9. The service flow diagram describes the conceptual approach to the narrative, which is an iterative progression from an initial decision by the learner to move on to HE towards making a formal application via UCAS. While the action sequence here may suggest a traditional rational decision-making process, we recognise that the real processes may be messy and strongly influenced by elements not formally recorded here. The key to the service flow is to enable the learner to keep control over the processes (however messy) by enabling advice, reflections and decisions to be recorded electronically for formative assessment, a summative assessment at application stage and for further formative assessment as and when the learner's e-portfolio artefacts are transferred to the Higher Education domain.

UML overview
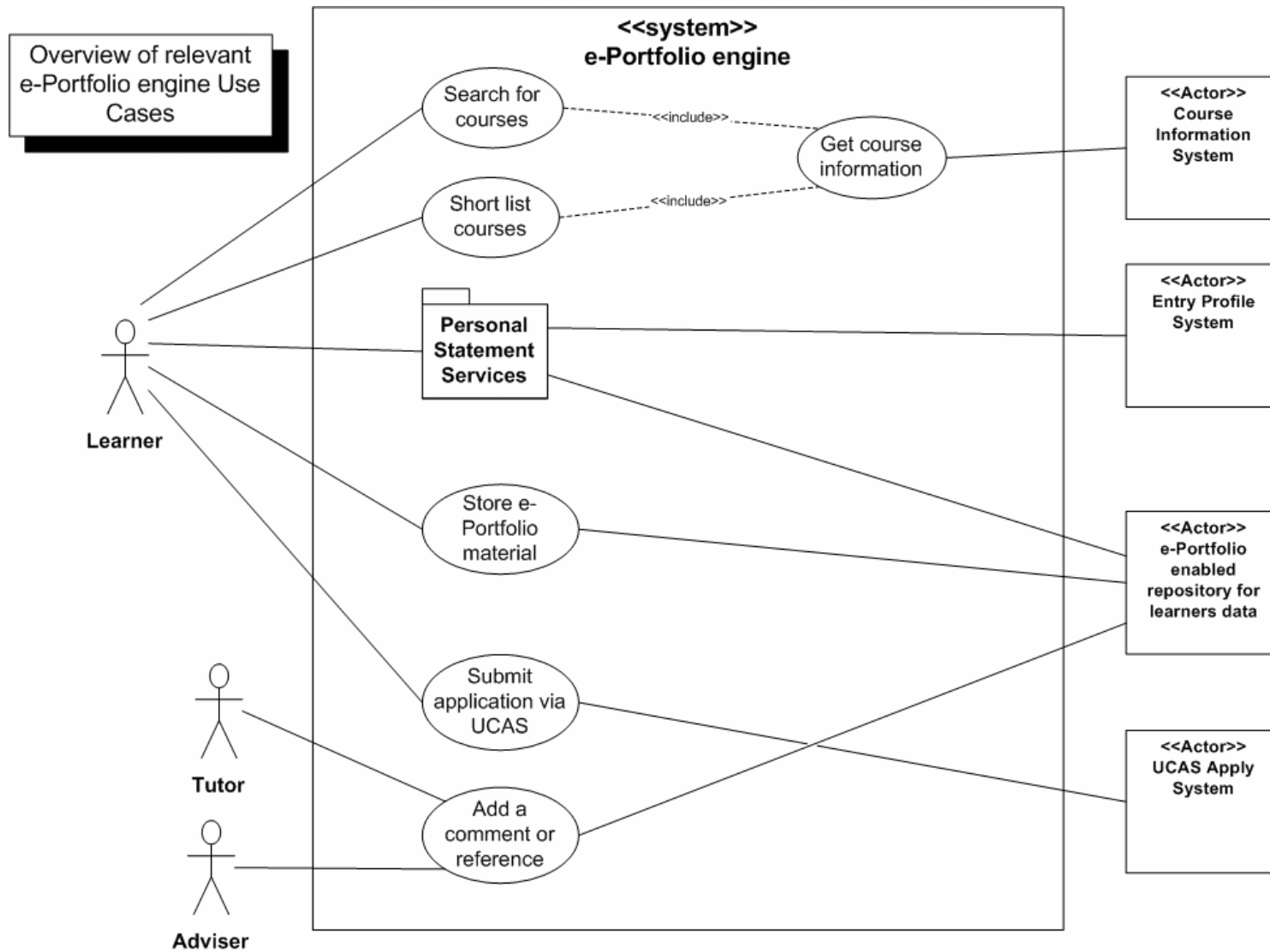
Scenario 1: Sources the Course Entry Profiles

Scenario description

10. Anne searches for appropriate courses using publicly available websites or search facilities accessible from within the college e-Portfolio system.[9] Anne uses the college e-Portfolio system on-site at college and over the Internet from home. She might also choose to use it at an Internet café.

11. The college e-Portfolio system permits her to short list courses in a section of her personalised web space labelled 'Applications to HE and Employment'. This is a local e-Portfolio enabled storage area.

12. As part of her short listing process, she wishes to carry out some trial applications to courses that meet her aspirations. She logs into the college e-Portfolio system and selects a course from her short list. The college e-Portfolio system accesses a course information system, which provides relevant information about the course and university. She also consults the UCAS website to obtain the UCAS Entry Profile for the course, which is accessed via a Personal Statement template drawn from the college e-Portfolio system. Anne views the information about the short listed course on screen.

13. Anne could have registered on the UCAS website at this time as a precursor to making a formal application through the UCAS Apply service. She decides to do that at another time.

14. For convenience Anne creates a new sub-section of the 'Applications to HE and Employment' section of her e-Portfolio and labels it 'Applications to Engineering courses'. This sub-section holds her short list.

---

[9] This section sets out the Discovery process that triggers the Personal Profiling Service set out on Annex 2 Page 2.

UML model references

Use Case specifications:

Class Diagram of Personal Statement Services

ePortfolio Item

- Learner ID
- ePortfolio Item ID
- ePortfolio Item Text : String

Entry Profile Item

- Course Title
- Course ID
- Provider Name : String
- Entry Profile Item ID
- Entry Profile Item text

0..1

Fetches ▼

Personal Statement Item

- Learner ID
- Personal Statement Item ID = getNextPersonalStatementItemID()
- Next Personal Statement Item ID
- Entry Profile Item ID
- ePortfolio Item ID
- is Finalised By Learner: Boolean = False
- Personal Statement ID

<<constructor>> +PersonalStatementItem(Personal Statement Item ID)

+ editEPortfolioItem(not is Finalised By Learner)
- getNextPersonalStatementItemID()
+ enterHyperlink()
+ authoriseReview(Adviser ID)

0..*

1

Fetches ▼

0..*

0..*

1..*

contains

1 {ordered}

Course

- Course Title
- Course ID
- Provider Name : String

Short Listed Course

- learnerID
- Position In List : Integer = getNextPositionInList():Integer
- Course Title
- Course ID
- Provider Name : String
- Next Position In List : Integer

<<constructor>> + ShortListedCourse()
+ displayAsHTML()
- getNextPositionInList() : Integer
+ listShortListedCourses()
+ deleteCourse()
+ makeUcasChoice(course ID)

0..* Gets course identifiers 1

1

Personal Statement

- Learner ID
- Course ID
- Personal Statement ID

+ GetPersonalStatementItems()
+ DisplayAsHTML()
+ GetTemplate()

0..* Identifies 1

List item

1..* {ordered}

Is listed with

A25

Service Definition

15. Part of Anne's activity was to obtain UCAS Entry Profiles. The mechanism whereby the e-Portfolio engine obtains UCAS Entry Profile has been further described in a Service Definition document. As this service could be provided by a Web Service, we have included a generic WSDL file for it.

Service Definition: Get Entry Profile   WSDL file: Get Entry Profile

Scenario 2: Completes Personal Statements

Scenario description

16. Anne selects a course from her short list of courses in the 'Applications for Engineering' section of her e-Portfolio and calls up a Personal Statement template from the college e-Portfolio system, which can be populated either automatically or by her own requests with the following data:

- The Entry Profiles from her earlier investigation. This information forms a set of prompts relating to academic and non-academic requirements for the courses.

- Any assertions that she has previously made in this Personal Statement.

17. The template permits her to add her own commentary against the Entry Profile items. Each Personal Statement item can be marked as private to the student or for submission as part of the personal statement. Items for publication in the Personal Statement have stated word limits. Each Personal Statement item can optionally have links to other related items.

18. Anne adds two links from her statement that she attended master classes in Engineering at her local university, one to the part of the university website detailing the master classes, and one to a statement about the Electronic Engineering module in her Engineering A level course. She records a private note to herself to re-consider the wording of this section in the context of the applications to electrical as opposed to electronic engineering courses.

19. Anne reviews and revises the Personal Statement and saves it in the 'Applications to Engineering' sub-section of her personalised web space. She follows this same process for 3 other courses in Electronic Engineering and for 2 courses in Electrical and Electronic Engineering, the latter she saves in a new short list within a new e-Portfolio sub-section which she calls 'Applications to Electrical and Electronic Engineering'.

20. She is happy with her work on the Personal Statements so far, but would like to discuss them with her tutor (and others) before finalising her plans.

   Sample of Anne's comments against the University of Birmingham's MEng Electronic Engineering degree entry profile.

UML model references

See diagrams on pages 7 and 8.
Use Case specifications:

[Edit a Personal Statement](#)
[Populate a Personal Statement](#)

Service Definition

21. Part of Anne's activity was also to obtain previously held e-Portfolio Items to match the returned Entry Profile items. The mechanism whereby the e-Portfolio engine fetches the e-Portfolio Items has been further described in a Service Definition document alongside the one for the UCAS Entry Profiles. This service is a generic one, because the data could be held locally in an "e-Portfolio computer system" or remotely in a separate e-Portfolio enabled repository. As this service could be provided by a Web Service, we have again included a generic WSDL file for it. [10]

[Service Definition: Get e-Portfolio Items](#)   [WSDL file: Get e-Portfolio Items](#)

---

[10] The linking of e-Portfolio items occurs primarily at step 3 of the Personal Profiling Service set out on Annex 2 Page 2.

Scenario 3: Authentication of Personal Statement items

Scenario description

22. The college e-Portfolio system allows Anne to control access to all the information she has created in her e-portfolio, including her Personal Statements. The college expects to support Anne prepare her Personal Statements and provide her with a reference. Anne gives rights of access to an advisor and her head of year group, who will approve the final reference. The advisor is able to add comments to her e-Portfolio, so that Anne can read them, record her own reflections and refine her statements.

23. This action also enables the referee to confirm via a reference that the information given in Anne's application is accurate.

24. In this narrative the generic term 'Adviser' is used to mean any authorised individual, including a tutor or other member of staff who can be given access to a learner's e-Portfolio for review purposes. As well as advice from her tutor, her head of year group she grants access to the relevant parts of her applications to her subject teachers, and could seek advice more widely beyond the college. Access rights are necessary for step 4 of the Personal Profiling Service set out on page 2 of Annex 2 but may be given earlier.

UML model references

Use Case specifications:

    Assign Access Rights

ePortfolio Item

- Learner ID
- ePortfolio Item ID
- ePortfolio Item Text : String

0..1

Fetches

Class Diagram:
Assign access
rights

Personal Statement Item

- Learner ID
- Personal Statement Item ID = getNextPersonalStatementItemID()
- Next Personal Statement Item ID
- Entry Profile Item ID
- ePortfolio Item ID
- is Finalised By Learner: Boolean = False
- Personal Statement ID

<<constructor>> +PersonalStatementItem(Personal Statement Item ID)

+ editEPortfolioItem(not is Finalised By Learner)
- getNextPersonalStatementItemID()
+ enterHyperlink()
+ authoriseReview(Adviser ID)

0..*

1..*

contains

1
{ordered}

Access Rights

- Personal Statement Item ID
- Adviser ID

+ notifyAdviser(Learner ID, Personal Statement Item ID)

Authorises review 0..*
1

0..*

Notifies authorisation

1

Personal Statement

- Learner ID
- Course ID
- Personal Statement Item IDs

+ GetPersonalStatementItems()
+ DisplayAsHTML()
+ GetTemplate()
+ authoriseReview (Adviser ID,
Personal Statement ID)

Adviser

- Adviser ID
- Adviser Name

Scenario 4: Adds a reference

Scenario description

25. When Anne has finished her work on the Personal Statements and discussed some of the items with her tutor, she gives permission within her e-Portfolio for her academic referee at college (the head of her year group) to write a reference.[11] The college has a policy that academic references can be drafted at any point during the autumn and winter terms, and for convenience students are asked to permit the creation of a link to the draft reference by mid November. Anne has given her tutor and her academic referee access to the Personal Statement items (see Scenario 3), which they use to inform the reference.

26. Within the reference the academic referee (advised by Anne's tutor) comments on the major sections of the Personal Statements, providing links from his reference into the appropriate Personal Statement items. He confirms that Anne has shown her commitment to HE by attending Engineering master classes at the local university. He includes a hyperlink in the reference to the relevant Personal Statement item and suggests that Anne includes a hyperlink to the master class page on the university's website in her comment.

27. Anne adds this link as a final refinement. When she has finished her formal application, she asks her tutor to review it prior to completion of the reference and formal submission. Her tutor adds a further link from the reference to the part of Anne's e-Portfolio that lists her academic achievements.

28. Adviser access to Anne's e-Portfolio is read only, although the adviser will be able to comment on Anne's Personal Statement items by linking his or her comments to the items. The adviser retains the ability to amend comments he or she has authored.

---

[11] This section describes the production of a reference at step 4 of the Personal Profiling Service set out on Page 2 of Annex 2. The Use Case Specification on page 21 covers either the production of a reference or formative comments for how the learner could improve the application.

UML model references

Use Case specifications:
[Add a reference](#)
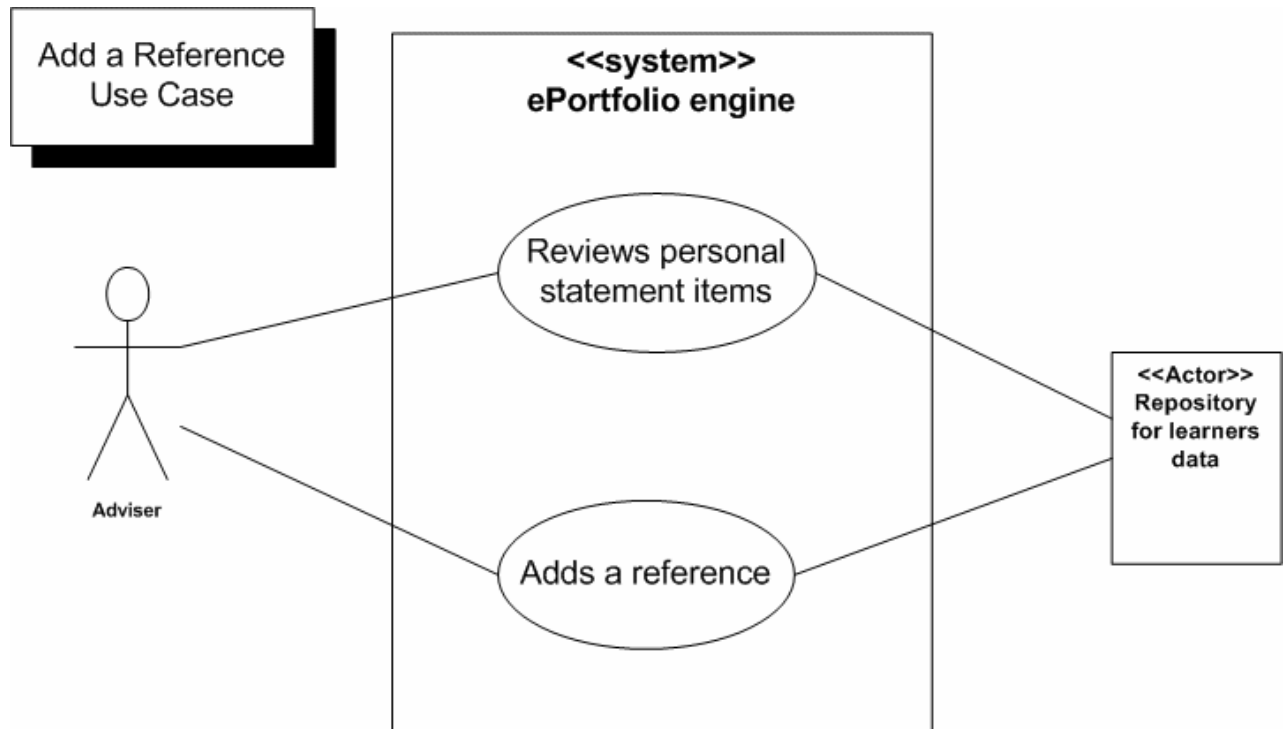
29. This class diagram describes a generic 'add a comment' action by an adviser. The 'add a reference' activity is a special case of 'add a comment'.

Class Diagram: Add comment

Personal Statement Item

- Learner ID
- Personal Statement Item ID = getNextPersonalStatementItemID()
- Next Personal Statement Item ID
- Entry Profile Item ID
- ePortfolio Item ID
- is Finalised By Learner: Boolean = False
- Personal Statement ID

<<constructor>> +PersonalStatementItem(Personal Statement Item ID)

+ editEPortfolioItem(not is Finalised By Learner)
- getNextPersonalStatementItemID()
+ enterHyperlink()
+ authoriseReview(Adviser ID)

Access Rights

- Personal Statement Item ID
- Adviser ID

<<constructor>> + AccessRights(Personal Statement Item ID, Adviser ID)
+ notifyAdviser(Learner ID, Personal Statement Item ID)

—Authorises review—
1   0..*

Notifies authorisation

Adviser Comment

- Learner ID
- Adviser ID
- Personal Statement ID

+ DisplayAsHTML()
+ GetTemplate()
+ DisplayStatement()

contains

reviews

1

Adviser

- Adviser ID
- Adviser Name

1

0..*

Personal Statement

- Learner ID
- Course ID
- Personal Statement ID

+ GetPersonalStatementItems()
+ DisplayAsHTML()
+ GetTemplate()
+ authoriseReview (Adviser ID)
+ DisplayComments (Personal Statement ID)

1
{ordered}

1   0..*
reviews

Comment on Personal Statement

+ GetTemplate(Personal Statement)
+ DisplayStatement(Personal Statement ID)

Comment on Personal Statement Item

- Personal Statement Item ID

+ GetTemplate(Personal Statement Item)
+ DisplayStatement(Personal Statement Item ID)

0..*

1..*

Reference

- Approved:Boolean = No

+ ApproveReference(Approved : Boolean=Yes)

Scenario 5: Submits an application via UCAS

# Scenario description

30. When Anne is ready to submit a formal application via UCAS, she logs into the college e-Portfolio system and obtains a UCAS ID via the UCAS website.[12] Her contact details are passed from her e-Portfolio to UCAS automatically as part of this process, and she receives a UCAS username and password, which will enable her to track the progress of her application via the UCAS website from within the college e-Portfolio system, as well as a unique UCAS Personal ID, which identifies her throughout all her use of UCAS services.

31. A UCAS Apply template held within the college e-Portfolio system is populated automatically with all the relevant information about Anne, including the Personal Statements. Anne now reviews how her UCAS application will look on-screen. She approves it for transmission to UCAS. As the college participates in UCAS' college-based version of the UCAS Apply service, her application will be reviewed and approved by a designated adviser (in this case, her academic referee). If any problems are discovered (e.g. parts of the application incomplete or inaccurate), it will be referred back to Anne for amendment.

UML model references

Use Case specifications:
    Submit application to UCAS

---
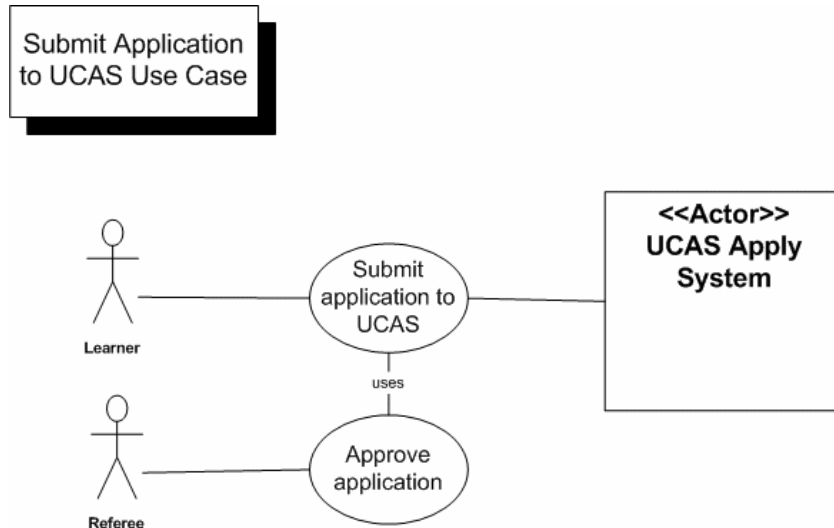
[12] This section describes Step 1 of the UCAS Business Process set out on Diagram 5 on page 6 of Annex 2.

Class Diagram: Submit Application to UCAS

Adviser Comment
- Learner ID
- Adviser ID
- Personal Statement ID

+ DisplayAsHTML()
+ *GetTemplate()*
+ *DisplayStatement()*

Personal Statement
- Learner ID
- Course ID
- Personal Statement ID

+ GetPersonalStatementItems()
+ DisplayAsHTML()
+ GetTemplate()

◄ reviews

1

0..*

Comment on Personal Statement

+ GetTemplate(Personal Statement)
+ DisplayStatement(Personal Statement ID)

UCAS Apply choice
- Personal Statement
- Learner ID
- UCAS Personal ID
- Reference
- [other data items from e-Portfolio]
- Course ID
- [other course details]
- Finished:Boolean = No

+ FinishChoice(Finished : Boolean=Yes)

Identifies ◄

0..*

1

Reference
- Approved:Boolean = No

+ ApproveReference(Approved : Boolean=Yes)

UCAS registration
- UCAS Personal ID
- username
- password
- [other personal identifiers]

1..6

Makes application ▲

1

1

Short Listed Course
- learnerID
- Position In List : Integer = getNextPositionInList():Integer
- Course Title
- Course ID
- Provider Name : String
- Next Position In List : Integer

<<constructor>> + ShortListedCourse()
+ displayAsHTML()
- getNextPositionInList() : Integer
+ listShortListedCourses()
+ deleteCourse()
+ makeUcasChoice(Course ID, Personal Statement ID, Learner ID)

1

1

UCAS Apply application
- Finished:Boolean = No
- Approved:Boolean = No

+ displayAsHTML()
+ FinishApplication(Finished : Boolean=Yes)
+ ApproveApplication (Approved : Boolean=Yes)
+ SubmitApplication()

1

List item

1..* {ordered}

Is listed with

A35

Glossary

| TERM	DEFINITION
Adviser	Any member of staff, including a tutor or other individual who can be given access to a learner's e-Portfolio for review purposes.
Assertion	A statement made by the learner about his or her achievements, aspirations or reflections
e-Portfolio management system	Used in this UML to describe any type of personalised web space for the learner that has the described type of interoperability functionality.
e-Portfolio-enabled	A service (for instance a storage service or Web Service) that can be linked to an e-Portfolio computer system to do useful things.
College e-Portfolio system	Short hand for any college e-Portfolio management system.
Course Entry Profile	See Entry Profile (qv)
Entry Profile	A collection of attributes of a course set by admissions staff that describes the preferred personal characteristics to be held by students on the course.
Higher Education Institution (HEI)	University or college offering higher education courses
Learner	A student or potential student, who owns the e-Portfolio information. The main actor in the narrative.
Personal Statement	A series of assertions about him or herself made by a learner. Usually used as part of a presentation e-portfolio.
Presentation e-Portfolio	A set of assertions and / or evidence created by a learner from his or her e-Portfolio for summative assessment or review by another party.
Tutor	An adviser responsible for creating a reference for the learner.

USE CASE SPECIFICATIONS

Use Case Specification - Add a comment or reference

NAME OF USE CASE: Use Case Specification - Add a comment or reference

PROJECT: e-Portfolio for Lifelong Learning Reference Model

Author	Alan Paull
Creation Date	15 July 2006
Last Update Date	17 July 2006
Version	0.2
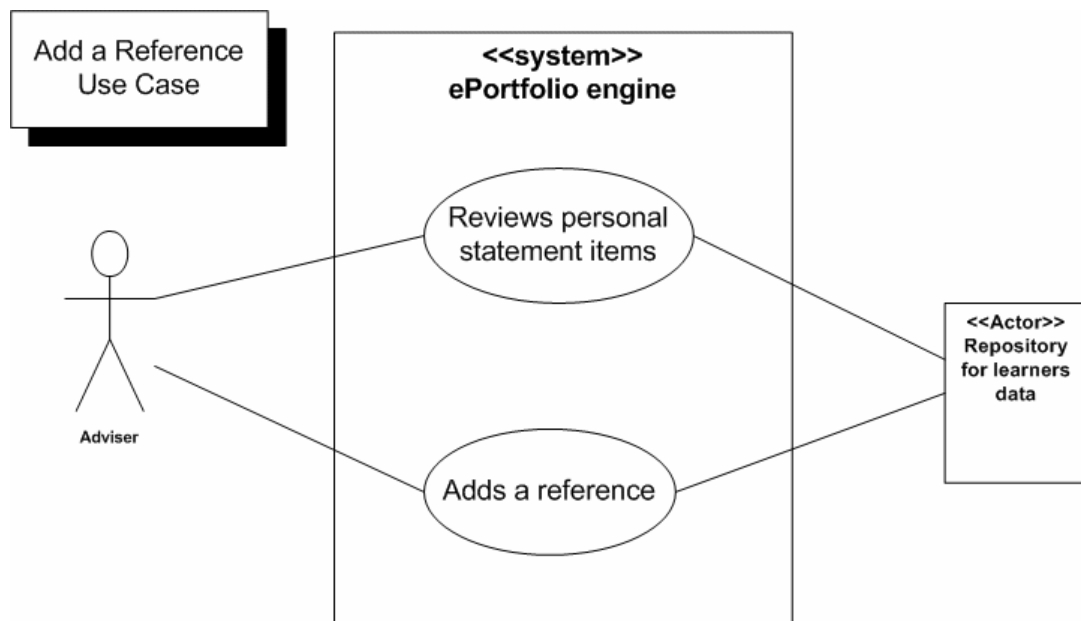
DESCRIPTION

This Use Case describes how an adviser makes comments on Personal Statement items. These comments might include either formative comments to help the student improve the application or a reference for the university and either general comments on a whole Personal Statement or individual comments on a Personal Statement item.

NARRATIVE

This Use Case starts when the adviser views a Personal Statement on screen to comment on it.

The adviser selects an option to add a comment about the Personal Statement to the learner's e-Portfolio. The system presents the adviser with space for his or her comment on screen. The adviser keys the comment and selects a save option. The system saves the comment and links it to the Personal Statement item.

The Use Case ends when the comment and link have been saved.

CONDITIONS

Preconditions	Learner has created a Personal Statement. Adviser is already logged in, so known to the system. Adviser has been given access to the Personal Statement items by the learner and this has been checked by the system. Adviser has been notified of the permission by the e-Portfolio engine. The Personal Statement item is already on screen.
Successful end condition	Comment and link between Personal Statement item and comment saved.
Failed end condition	Adviser cancels the operation.
Primary Actors	AdviserTutor
Secondary Actors	e-Portfolio enabled repository for learners data
Trigger	Adviser selects option to make a comment against the Personal Statement item.
Included Use Cases	None

MAIN FLOW

ADVISER	e-PORTFOLIO ENGINE
1. Views the Personal Statement item. 2. Selects option to make a comment against it.	
	3. Presents an on screen template for the comment.
4. Keys and edits comment. 5. Selects option to save the comment.	
	6. Creates a record for the comment, including a link to the Personal Statement item. 7. Creates a notification to the learner that a comment has been made. 8. Confirms that comment has been saved successfully. End of Use Case.

ALTERNATIVE SCENARIO: ADVISER WRITES A REFERENCE.

CONDITIONS

Preconditions	Learner has created a Personal Statement. Adviser is already logged in, so known to the system. Adviser has been given access to the whole Personal Statement by the learner and this has been checked by the system. Adviser has been notified of the permission by the e-Portfolio engine. The whole Personal Statement is already on screen.
Successful end condition	Comment and link between the whole Personal Statement and reference saved.
Failed end condition	Adviser cancels the operation.

ADVISER	E-PORTFOLIO ENGINE
1. Views the whole Personal Statement. 2. Selects option to create a reference against it.	
	3. Presents an on screen template for the reference.
4. Keys and edits reference. 5. Selects option to save the reference.	
	6. Creates a record for the reference, including a link to the Personal Statement. 7. Creates a notification to the learner that a reference has been made. This is done only when the reference is first saved, not on subsequent edits. 8. Confirms that reference has been saved successfully. End of Use Case.

BRANCHING ACTION FOR ALTERNATIVE SCENARIO

The approver does not have to be the adviser that wrote the reference, but could be for instance the Head of Sixth Form.

| ADVISER	E-PORTFOLIO ENGINE
5.1 Selects option to approve the reference.	
	5.2 Updates the record for the reference to show that it has been approved. 5.3 Creates a notification to the learner that the reference has been approved. 5.4. Confirms that changes have been saved successfully. End of Use Case.

Use Case Specification - Assign access rights to e-Portfolio items

NAME OF USE CASE: Use Case Specification - Assign access rights to e-Portfolio items

PROJECT: e-Portfolio for Lifelong Learning Reference Model

Author	Alan Paull
Creation Date	12 July 2006
Last Update Date	17 July 2006
Version	0.2
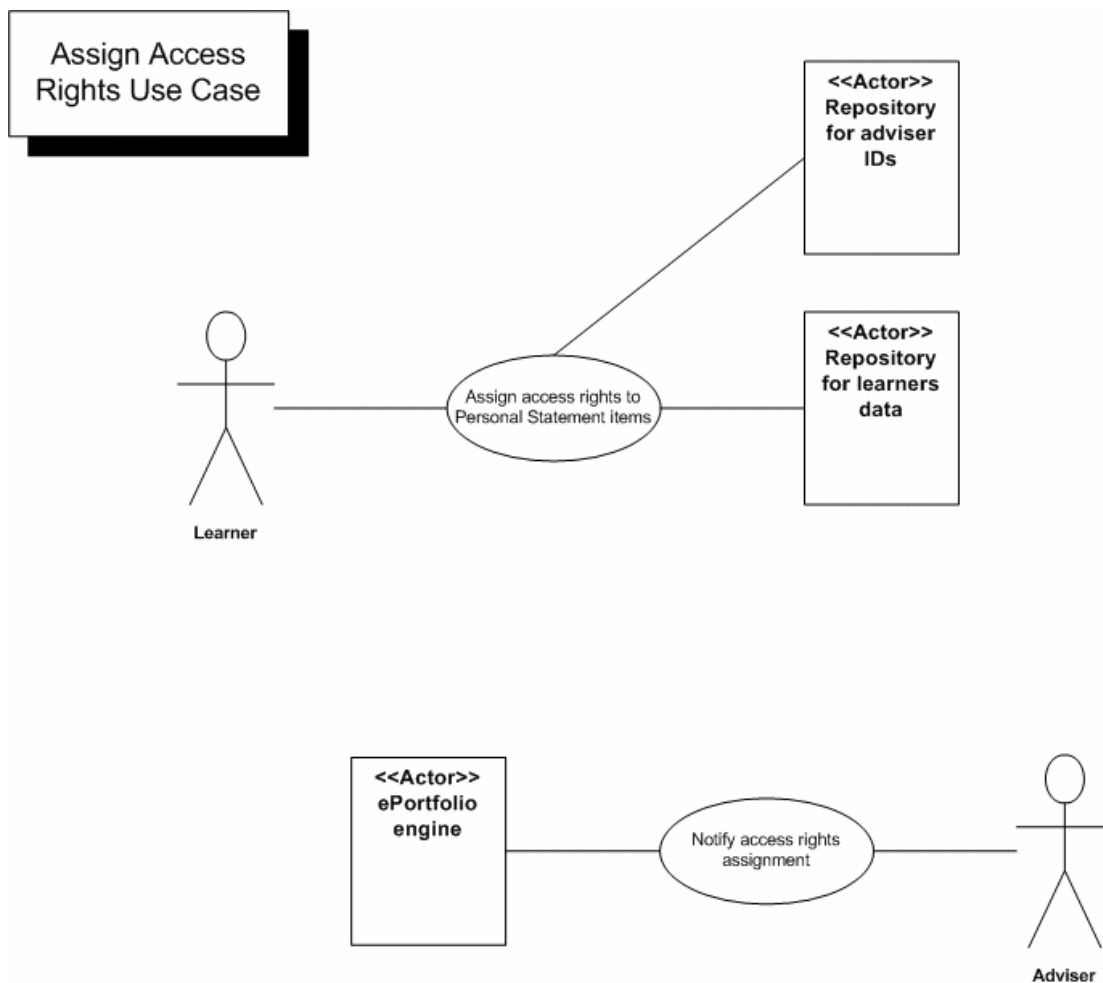
DESCRIPTION

This Use Case shows how a learner assigns permission to review a specific Personal Statement item to an adviser.

NARRATIVE

This Use Case starts when the learner selects a Personal Statement item in order to amend its access rights.

The learner views the Personal Statement item on screen. She can select a 'review' option, which brings up a pre-populated list of authorised individuals, who might be asked to review her Personal Statement item. She selects one or more individuals and confirms her choices.

The e-Portfolio engine notifies the adviser(s) automatically.

CONDITIONS

Preconditions	E-Portfolio engine has access to a list of advisers. An appropriate authorisation system, e.g. Shibboleth or LDAP, is available to handle security issues. At least one e-Portfolio item stored in an e-Portfolio enabled repository. Learner logged into e-Portfolio system and viewing a Personal Statement. It is assumed that an adviser logs into the e-Portfolio management system, which gives him or her authority to review any items marked with his or her ID. Therefore there is no need for additional password protection of individual items.
Successful end condition	Personal Statement item marked as available for review by specified individuals. Adviser(s) notified.
Failed end condition	No change to data, confirmed by an on screen message to the learner.
Primary Actors	Learner
Secondary Actors	e-Portfolio enabled repository
Trigger	The learner selects an option to give access rights to an adviser.
Included Use Cases	None

MAIN FLOW

LEARNER	E-PORTFOLIO ENGINE
1. Selects option to give access rights to Personal Statement item.	
	2. Retrieves list of advisers from repository for adviser IDs.
	3. Shows list of advisers.
4. Selects one or more advisers.	
	5. Requests confirmation of selection.
6. Confirms selection.	
	7. Creates an access rights record for each selected adviser.
	8. Notifies advisers. Use Case ends.

ALTERNATIVE SCENARIO: ACCESS RIGHTS FOR ALL PERSONAL STATEMENT ITEMS IN A SINGLE

PERSONAL STATEMENT

LEARNER

1. Selects option to give access rights to whole Personal Statement.

E-PORTFOLIO ENGINE

2. Retrieves list of advisers from repository for adviser IDs.
3. Shows list of advisers.

4. Selects one or more advisers.

5. Requests confirmation of selection and indicates they will be applied to all Personal Statement items in the Personal Statement.

6. Confirms selection.

7. Creates an access rights record for each selected adviser for each Personal Statement item in the Personal Statement.
8. Notifies advisers [could be a new Use Case]. Use Case ends.

Use Case Specification - Create Personal Statement

NAME OF USE CASE: Create Personal Statement

PROJECT: ePortfolio for Lifelong Learning Reference Model

Author	Alan Paull
Creation Date	14 June 2006
Last Update Date	17 July 2006
Version	Draft 0.2
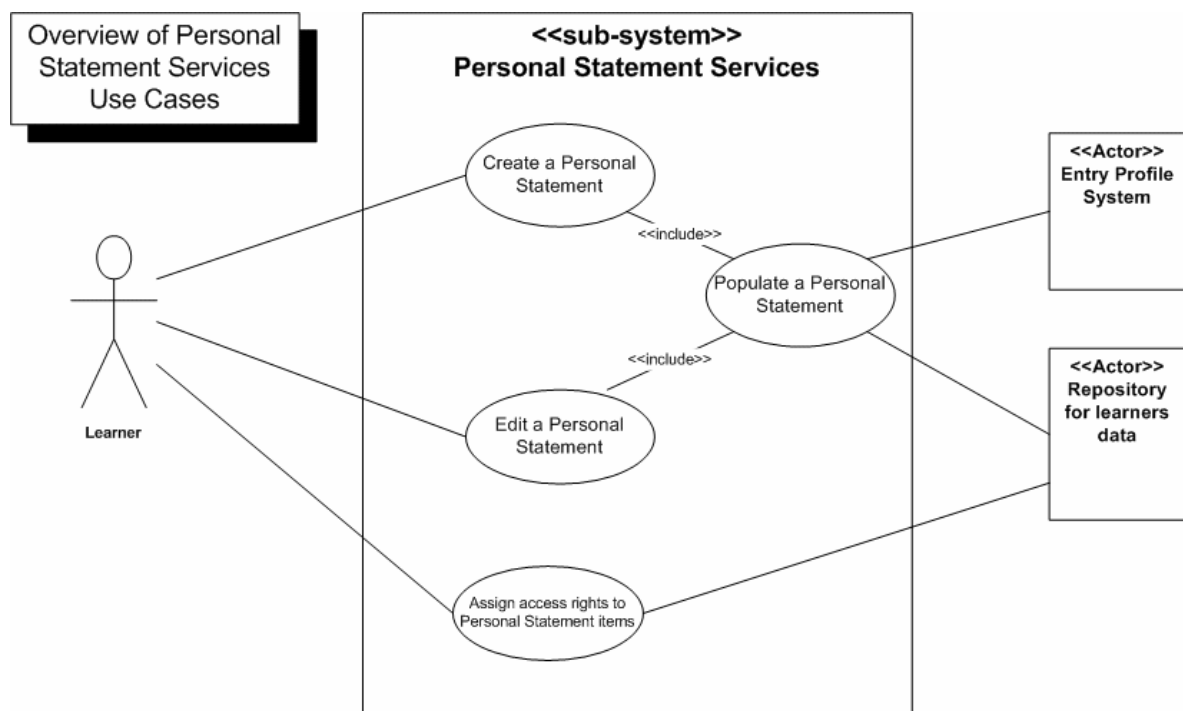
DESCRIPTION

The learner selects a course from her short list, in order to make a Personal Statement against this course Entry Profile.

NARRATIVE

This use case starts when the learner selects one of the courses from her short list for the purpose of creating or revising a Personal Statement against the course Entry Profile.

The action of selecting the course for this purpose presents the learner with a template for the Personal Statement. The e-Portfolio engine will fetch the Entry Profile data from the Entry Profile System and populate the template, displaying appropriate blank spaces for the learner to insert assertions.

This use case ends when the Personal Statement template has been loaded with the Entry Profile data and pointers stored in the e-Portfolio repository.

CONDITIONS

Preconditions	Course Information System is e-Portfolio enabled. Location of Course Information System is known and accessible. Learner is logged into her personal web space in the e-Portfolio engine. e-Portfolio enabled repositories are available. Short list of at least one course already created and visible to the learner. e-Portfolio engine has appropriate templates to display short list and Personal Statements.
Successful end condition	Personal Statement items are stored in an e-Portfolio enabled repository. Personal Statement states the course against which it has been made.
Failed end condition	No Personal Statement made.
Primary Actors	Learner
Secondary Actors	None
Trigger	Learner selects course on short list.
Included Use Cases	Populate a Personal Statement

MAIN FLOW

| LEARNER	E-PORTFOLIO ENGINE	ENTRY PROFILE SYSTEM
1. Selects a course from her short list.		
	2. Receives course identifiers.	
	3. Loads Personal Statement template.	
	INCLUDE :: POPULATE A PERSONAL STATEMENT	
	4. Displays populated Personal Statement template.	
	5. Stores pointers to Entry Profile items, pointers to (blank) Personal Statement items and learner identifiers.	
6. Use case ends when learner views populated Personal Statement template.		

BRANCHING ACTION

4.1 Displays error.

4.2 Use case ends.

Use Case Specification - Edit a Personal Statement

NAME OF USE CASE: Edit a Personal Statement

PROJECT: e-Portfolio for Lifelong Learning Reference Model

Author	Alan Paull
Creation Date	14 June 2006
Last Update Date	17 July 2006
Version	Draft 0.2
Diagram	Use Case diagram
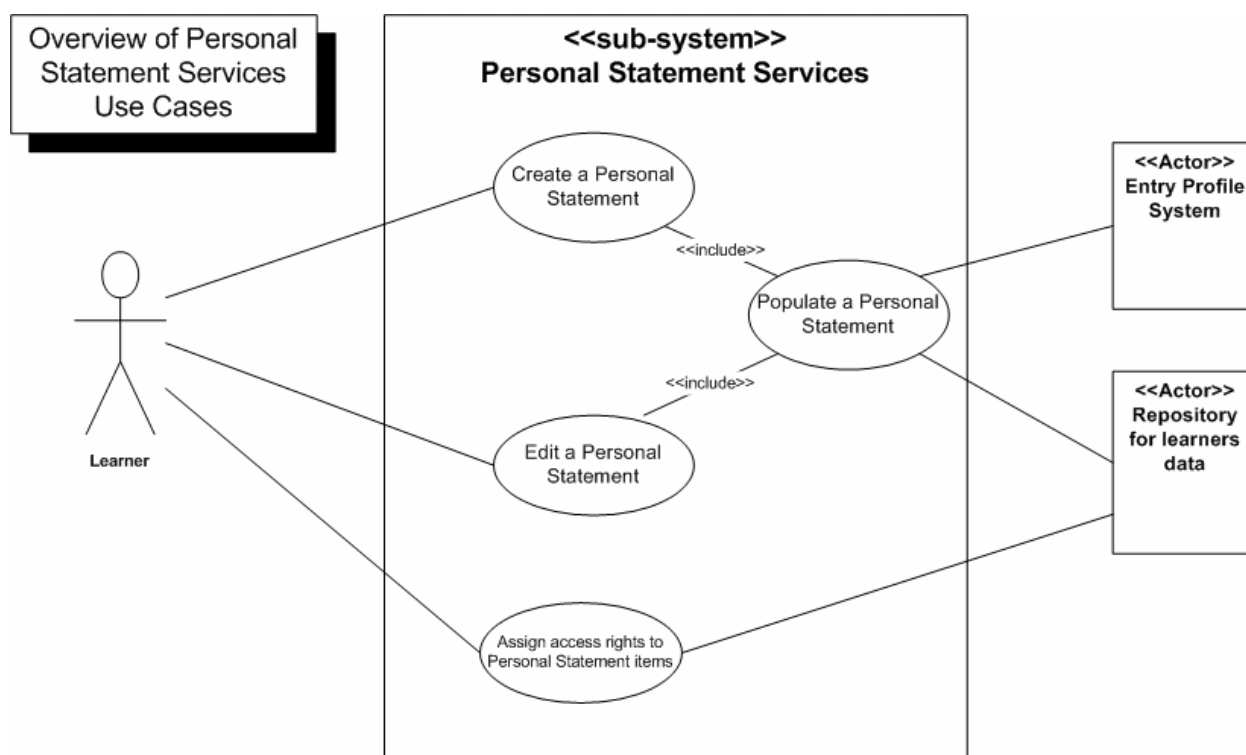
DESCRIPTION
The learner selects a course from her short list, in order to review and revise a Personal Statement against this course Entry Profile.

NARRATIVE

This use case starts when the learner selects one of the courses from her short list for the purpose of reviewing or revising a Personal Statement against the course Entry Profile.

The action of selecting the course for this purpose presents the learner with a template for her to use to review or revise (edit) her Personal Statement. The e-Portfolio engine will fetch the Entry Profile data from the Entry Profile System and populate the template, and it will also fetch the learner's assertions data matching the course from a

repository and populate the template.

The learner can amend any of the Personal Statement items, add new ones and discard unwanted ones. The learner can also delete the Personal Statement.

This use case ends when the Personal Statement items have been stored in the e-Portfolio enabled repository for the learner's data.

CONDITIONS

Preconditions	Course Information System is e-Portfolio enabled. Location of Course Information System is known and accessible. Learner is logged into her personal web space in the e-Portfolio engine. e-Portfolio enabled repositories are available. e-Portfolio engine has pointers to the course Entry Profile and to the learner's assertions. Short list of at least one course already created and visible to the learner. e-Portfolio engine has appropriate templates to display short list and Personal Statements.
Successful end condition	Revised Personal Statement items are stored in an e-Portfolio enabled repository. Personal Statement states the course against which it has been made.
Failed end condition	Personal Statement items not updated.
Primary Actors	Learner
Secondary Actors	None
Trigger	Learner selects course for Personal Statement revision.
Included Use Cases	Populate a Personal Statement

MAIN FLOW

LEARNER	e-PORTFOLIO ENGINE	REPOSITORIES
1. Selects a course from her short list.		
	2. Receives course identifiers.	
	3. Loads Personal Statement template.	
	INCLUDE :: POPULATE A PERSONAL STATEMENT	
	4. Displays populated Personal Statement template.	
	5. Prompts learner to revise, delete or create new Personal Statement items.	
6. Revises, deletes or creates new Personal Statement items.		
7. Chooses to save Personal Statement.		
	8. Passes data to repositories for storage.	
	9. Stores pointers to Entry Profile items, pointers to revised Personal Statement items and learner identifiers.	
		10. Stores revised Personal Statement items.
11. Use case ends when learner exits Personal Statement template.		

Use Case Specification - Get Course Information

NAME OF USE CASE: Get Course Information

PROJECT: e-Portfolio for Lifelong Learning Reference Model

Author	Alan Paull
Creation Date	14 June 2006
Last Update Date	17 July 2006
Version	Draft 0.2
Diagram	Use Case diagram
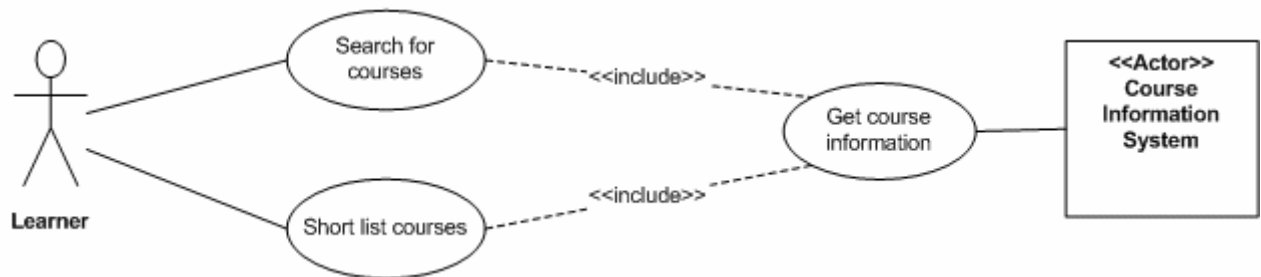
DESCRIPTION
The Actor (e-Portfolio engine) fetches data on specific courses, using the Course Information System, which returns data for the courses meeting the search criteria.

NARRATIVE

This use case starts when the e-Portfolio engine receives search criteria to enable a search for HE courses using the e-Portfolio enabled course discovery service.

The e-Portfolio engine sends search criteria to the Course Information System, which in response returns courses information for matching courses. At a minimum this will the course identifiers.

This use case ends when search results are received.

CONDITIONS

Preconditions	Course Information System is e-Portfolio enabled. Location of Course Information System is known and accessible. Match between search criteria provided by ePortfolio Engine and required by Course Information System.
Successful end condition	Course list viewable on screen. No storage required.
Failed end condition	No courses returned.
Primary Actors	e-Portfolio engine
Secondary Actors	None
Trigger	Learner asks e-Portfolio engine to search for courses.
Included Use Cases	None

MAIN FLOW

e-PORTFOLIO ENGINE	COURSE INFORMATION SYSTEM
1. Validates the search criteria inputs using Data Validation Rules [xref]. 2. Connects to Course Information System. 3. Sends search criteria to Course Information System.	
	4. Searches data using search criteria. 5. Returns search results, according to Business Rules [xref].
6. Receives search results.	

BRANCHING ACTION

| e-PORTFOLIO ENGINE	COURSE INFORMATION SYSTEM
	5.1 No courses found. Returns no results with appropriate message.
5.2 Displays message re no courses found.	

Use Case Specification - Populate a Personal Statement

NAME OF USE CASE: Populate a Personal Statement

PROJECT: e-Portfolio for Lifelong Learning Reference Model

Author	Alan Paull
Creation Date	14 June 2006
Last Update Date	17 July 2006
Version	Draft 0.2
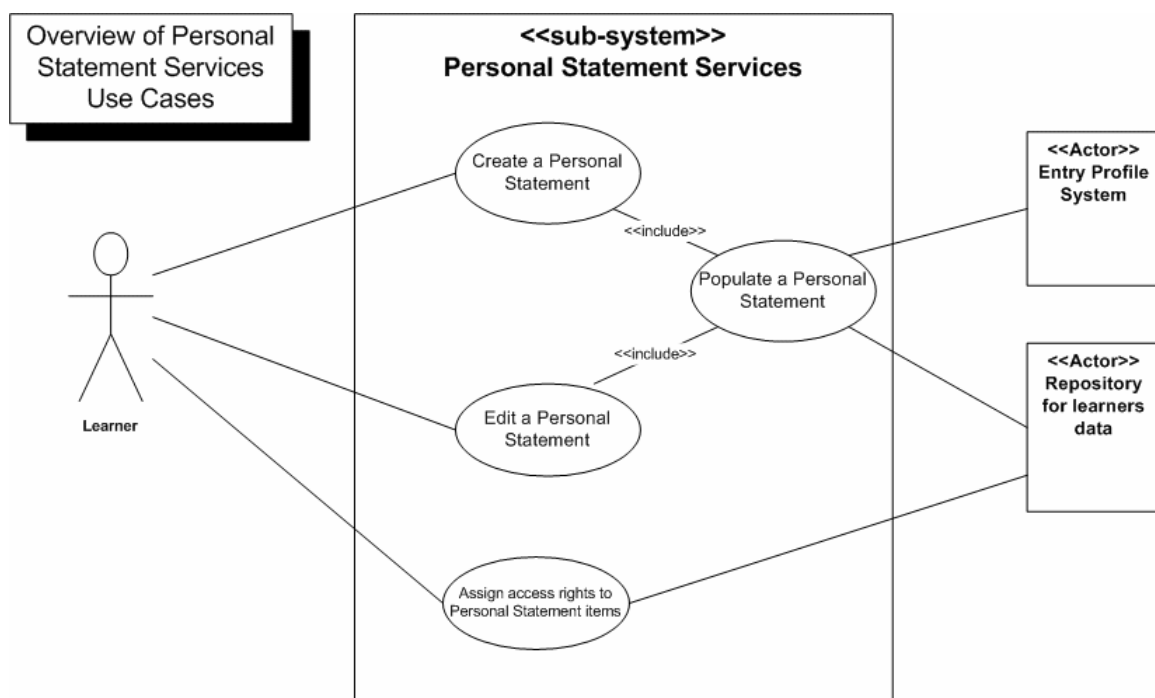
DESCRIPTION
e-Portfolio engine puts Entry Profile data from Entry Profile System and e-Portfolio items from e-Portfolio repository into a Personal Statement template.

NARRATIVE

This use case starts when the e-Portfolio engine is requested to display the Personal Statement.

The e-Portfolio engine fetches the course Entry Profile and Personal Statement data from the appropriate repositories and displays the data in the Personal Statement template. When fetching the Personal Statement data, the e-Portfolio repository verifies the learner's identity.

This use case ends when the revised Personal Statement has been stored.

CONDITIONS

Preconditions	Entry Profile System is e-Portfolio enabled. Location of Entry Profile System is known and accessible. Course identity, Personal Statement item pointers and learner identifier are available. System for verifying learner identity is available on e-Portfolio repository system.
Successful end condition	Personal Statement viewable on screen.
Failed end condition	Error returned.
Primary Actors	e-Portfolio repositoryEntry Profile System
Secondary Actors	None
Trigger	e-Portfolio engine requests Personal Statement data.
Included Use Cases	None

MAIN FLOW

E-PORTFOLIO ENGINE	ENTRY PROFILE SYSTEM	E-PORTFOLIO REPOSITORY
1. Connects to Entry Profile System. 2. Sends course identifiers to Entry Profile System.		
	3. Searches data using course identifiers. 4. Returns Entry Profile items, according to Business Rules [xref].	
5. Receives Entry Profile items. 6. Populates Personal Statement template with Entry Profile items. 7. Connects to e-Portfolio repository. 8. Sends Personal Statement item pointers and learner identifier to e-Portfolio repository.		
		9. Verifies learner identity. 10. Returns Personal Statement items.
11. Receives Personal Statement items. 12. Populates Personal Statement template with Personal Statement items.		

Use Case Specification - Search for Courses

NAME OF USE CASE: Search for Courses

PROJECT: e-Portfolio for Lifelong Learning Reference Model

Author	Alan Paull
Creation Date	14 June 2006
Last Update Date	17 July 2006
Version	Draft 0.2
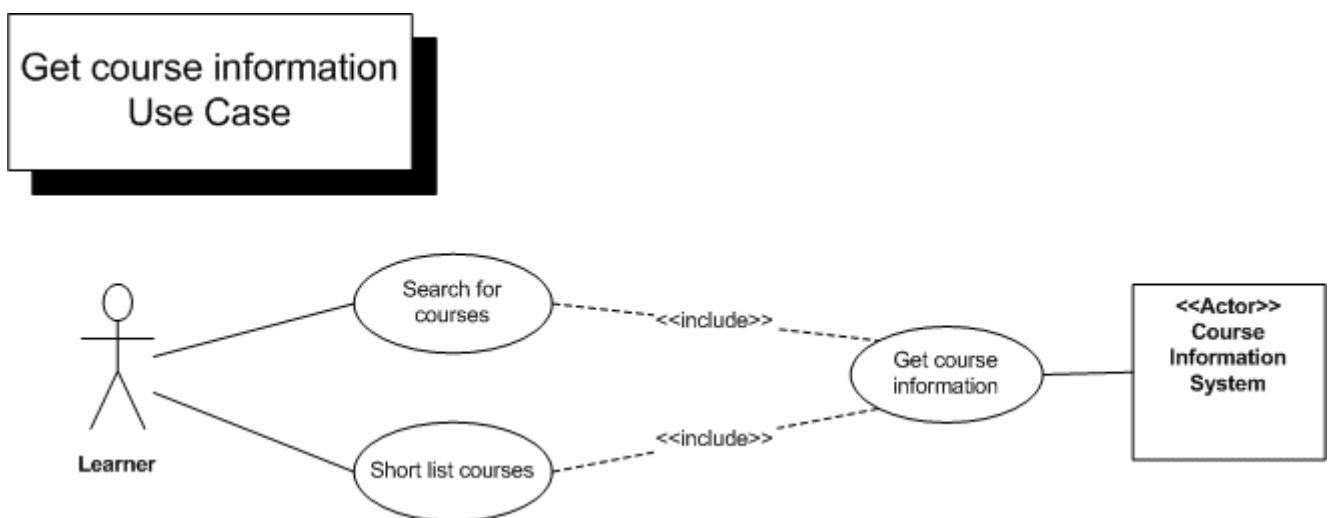
DESCRIPTION
The Actor (learner) searches for HE courses using a course discovery service. The Course Information System returns data that identifies the courses meeting the learner's search criteria.

NARRATIVE

This use case starts when the learner elects to search for HE courses using the e-Portfolio enabled course discovery service.

She calls up a course discovery search page, enters the criteria for her search and the Course Information System returns the search results.

This use case ends when the learner ends a session of searching for courses.

CONDITIONS

Preconditions	Course Information System is e-Portfolio enabled. Location of Course Information System is known and accessible. Match between search criteria provided by ePortfolio Engine and required by Course Information System.
Successful end condition	Course list viewable on screen. No storage required.
Failed end condition	No search results.
Primary Actors	Learner
Secondary Actors	None
Trigger	Learner elects to search for HE courses.
Included Use Cases	Get Course Information

MAIN FLOW

LEARNER	e-PORTFOLIO ENGINE	COURSE INFORMATION SYSTEM
1. Selects course discovery service.		
	2. Connects to Course Information System. 3. Displays search template. 4. Prompts for search criteria.	
5. Supplies search criteria.		
	INCLUDE :: GET COURSE INFORMATION 6. Displays search results.	
7. This use case ends when the learner views the search results.		

BRANCHING ACTION

LEARNER	e-PORTFOLIO ENGINE	COURSE INFORMATION SYSTEM
	6.1 No search results. Displays error message.	
6.2 This use case ends when the learner views the error message.		

Use Case Specification - Short list courses

NAME OF USE CASE: Short list courses

PROJECT: e-Portfolio for Lifelong Learning Reference Model

Author	Alan Paull
Creation Date	07 June 2006
Last Update Date	17 July 2006
Version	Draft 0.2
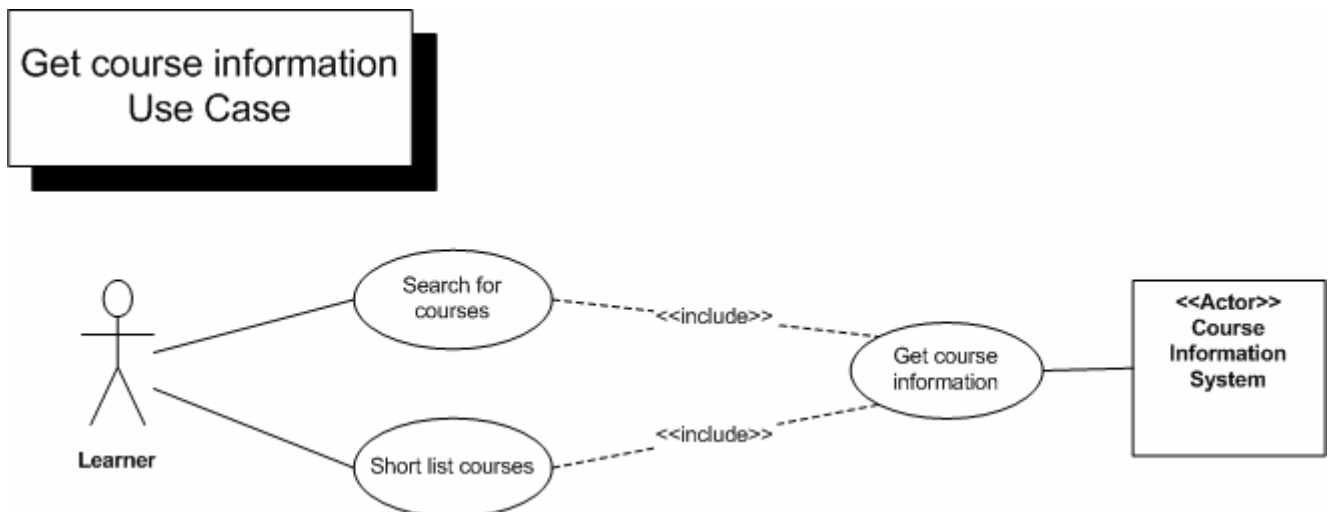
DESCRIPTION
The Actor (learner) wants to change her short list.

NARRATIVE

This use case starts when the learner views her short list, in order to search for HE courses using the course discovery service, so that she can add a course to her short list.

She views her existing short list then calls up a course discovery search page, enters the criteria for her search and the Course Information System returns the search results.

The learner can create or amend a short list of courses that she wishes to consider further, so that she can subsequently use the information in the application process. She is able to add or remove a course from her short list or change the order.

This use case ends when the learner ends a session of modifying her short list.

There is a breakdown of this use case into 'Add course to short list' (Main Flow), 'Remove course from short list' and 'Move course to different position in short list'. These are shown as alternative scenarios in this use case specification.

CONDITIONS

Preconditions	Course Information System is e-Portfolio enabled. Location of Course Information System is known and accessible. Learner is logged into her personal web space in the e-Portfolio engine. e-Portfolio enabled repositories are available. e-Portfolio engine has appropriate templates to display short list.
Successful end condition	Populated and / or amended short list.
Failed end condition	Original short list.
Primary Actors	Learner
Secondary Actors	None
Trigger	User elects to change short list.
Included Use Cases	Search for Courses

MAIN FLOW

LEARNER	e-PORTFOLIO ENGINE	COURSE INFORMATION SYSTEM
1. Selects short list.		
	2. Verifies learner identity.	
	3. Displays learner's short list.	
	INCLUDE :: SEARCH FOR COURSES	
4. Marks a course on returned results for addition to short list.		
	5. Adds course to end of short list.	
	6. Displays short list.	
7. Views amended short list.		
	8. Prompts for confirmation that change is acceptable.	
9. Confirms amended list.		
	10. This use case ends when the e-Portfolio engine stores the amended list.	

ALTERNATIVE SCENARIO #1: LEARNER REMOVES COURSE FROM SHORT LIST
CONDITIONS

Preconditions	Learner has a short list containing at least one

	course. Learner logged into personal web space in e-Portfolio engine. No action required from Course Information System.
Successful end condition	One less course in short list.
Failed end condition	Original short list unchanged.

LEARNER
1. Selects short list.

E-PORTFOLIO ENGINE

    2. Verifies learner identity.
    3. Displays learner's short list.

4. Selects course.
5. Selects delete operation.

    6. Displays proposed deletion and asks for confirmation.

7. Confirms delete operation.

    8. Deletes course from short list and removes Personal Statement items associated with course.

9. Views amended short list.

    10. Prompts for confirmation that change (including deletion of Personal Statement items) is acceptable.

11. Confirms amended list.

    12. This use case ends when the e-Portfolio engine stores the amended list and deletes any associated Personal Statement items.

ALTERNATIVE SCENARIO #2: LEARNER MOVES COURSE TO DIFFERENT POSITION IN SHORT LIST
CONDITIONS

	Learner has a short list containing at least two courses. Learner logged into personal web space in e-Portfolio engine. No action required from Course Information System.
Preconditions	
Successful end condition	Amended short list.
Failed end condition	Original short list.

LEARNER
1. Selects short list.

E-PORTFOLIO ENGINE

    2. Verifies learner identity.
    3. Displays learner's short list.

4. Selects course.

5. Selects move operation.

6. Displays proposed move and asks for confirmation.

7. Confirms move operation.

8. Moves course to different position in short list.

9. Views amended short list.

10. Prompts for confirmation that change is acceptable.

11. Confirms amended list.

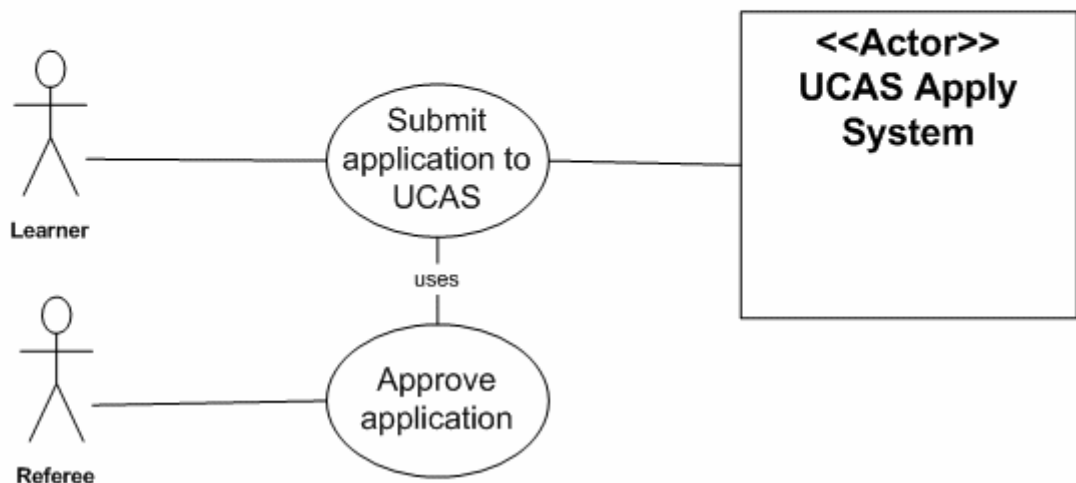12. This use case ends when the e-Portfolio engine stores the amended list.

Use Case Specification - Submit Application to UCAS

NAME OF USE CASE: Use Case Specification - Submit Application to UCAS

PROJECT: e-Portfolio for Lifelong Learning Reference Model

Author	Alan Paull
Creation Date	15 July 2006
Last Update Date	17 July 2006
Version	0.2

DESCRIPTION
This Use Case describes how a Personal Statement and associated reference are submitted to UCAS.

NARRATIVE

This Use Case begins when the learner has finished the Personal Statements that will form the basis of the UCAS application. This is signified by calling up a UCAS Apply template, placing the Personal Statements into the choice frameworks of the application and indicating that the UCAS Apply choice is finished.

In this scenario we have assumed that the learner applies through the auspices of the college, which means that her tutor verifies the application and appends a reference.

Once all the choices (up to 6) have been verified by the learner, the application is

approved by the referee and sent to UCAS.

Note that this process differs in many respects from the current system operated by colleges within the UCAS domain. At the present time (2006 entry) each application carries a single Personal Statement and reference, rather than one per choice.

CONDITIONS

Preconditions	The learner has already registered with the UCAS website, a precondition of making an electronic application. This process gives a learner a username and password as well as a Personal ID that uniquely identifies the learner. Tutor / referee has already been given access rights to the Personal Statements and UCAS application.
Successful end condition	Receipt of UCAS application acknowledged by UCAS Apply system.
Failed end condition	Operation cancelled or error generated.
Primary Actors	LearnerUCAS Apply System
Secondary Actors	
Trigger	Learner calls up the UCAS Apply template.
Included Use Cases	Review UCAS application (not specified in this project)

MAIN FLOW

LEARNER	e-PORTFOLIO ENGINE	REFEREE
1. Selects option to call up UCAS Apply template.		
	2. Verifies learner identity. 3. Loads UCAS Apply template. 4. Presents UCAS Apply template on screen.	
5. Selects short list of courses.		
	6. Verifies learner identity. 7. Displays learner's short list.	
8. Selects up to 6 courses from short list to include in UCAS application.		
	9. Saves UCAS Apply choice records, including Personal Statement text.	
10. Selects option to mark each UCAS Apply choice		

as finished.

11. Marks each UCAS
Apply choice as finished.

INCLUDE :: REVIEW UCAS APPLICATION

12. Selects option to
indicate that application is
finished.

13. Records that UCAS
application is finished.
14. Notifies referee that
learner has finished UCAS
application.

15. Logs into e-Portfolio
system.
16. Selects learner's UCAS
application.

17. Displays learner's
UCAS application.

18. Views application.
19. Selects option to
approve application.

20. Confirms approval.

21. Selects option to send
application to UCAS.

22. Despatches application
to UCAS.
23. Notifies learner and
referee that application has
been despatched. Use Case
ends.

SERVICE DEFINITIONS

Service Definition for Get Entry Profile service

Name	Service Definition for Get Entry Profile service
Project	e-Portfolio for Lifelong Learning Reference Model Project
Author	Alan Paull
Creation date	4 July 2006
Last update date	12 July 2006
Version	0.1

INTRODUCTION

UCAS Web Services will apply the UKLeaP Standard (standard number: 04/30098152 DC BS 8788-1; standard title: UK Lifelong Learner Information Profile (UKLeaP); Part 1. UK Lifelong Learner Information Profile (UKLeaP); Guide. Url: http://www.bsonline.bsi-global.com/) where possible. For information also see: http://www.imsglobal.org/xsd/, and http://www.cetis.ac.uk/profiles/uklip/schemas. At present, the UKLeaP standard is still in draft, and has not yet been finalised. Once this standard is complete, we will finalise the mappings to our xml schema.

From XML-Link technical manual

1. This document describes a service for obtaining a UCAS Entry Profile for a Higher Education course. It should be read alongside its Web Service Description Language (WSDL) file and other project material relating to the "Narrative for a learner making an application to a higher education institution", part of the e-Portfolio for Lifelong Learning Reference Model Project.

2. This service definition is based on the current UCAS XML-Link Web Service. XML-Link is specified by UCAS through a technical manual and WSDL file and covers applicant data and management data. The technical manual for XML-Link is available to UCAS member institutions for download from the HE staff section of the UCAS web site: http://www.ucas.com. For security reasons UCAS' XML-Link WSDL file is only provided to authorised institution members of UCAS who have requested to use it.

3. This service definition refers to current UCAS course data structures, but many of the complexities of these structures have been ignored (for example specific vocabularies), because they would be covered by detailed implementation design and development, and they will be subject to change as a result of projects already started in this area within UCAS.

4. No usability requirements have been included in this service definition, which is limited to system-to-system requirements.

SYSTEM DEFINITION

5. This service enables a remote computer system to obtain Entry Profile information for a specified course at a particular Higher Education Institution (HEI) from UCAS. From the UCAS system perspective, it is externally facing and available over the Internet. It is assumed that the service would be implemented as a web service.

INTERFACE DEFINITION

6. Access to the Get Entry Profile service would be via UCAS' web site, an already existing interface usable by UCAS member institutions. It is envisaged that this would be alongside the XML-Link service, which is accessible via a secure server at UCAS. As no implementation details are currently being specified, this is indicated as 'https://ucas.com/...' within the details for this service.

7. The system that is using the Get Entry Profile service requires its own client, ideally from within its e-Portfolio engine, to invoke the methods of the service.

Login authentication

8. No login process is defined. This process could be specified as a separate service, or integrated within the service itself, which is the approach taken by the existing XML-Link service. It has been assumed that HTTPS with a username and password would be used in a real-world implementation.

Defining the web service

9. This service is presented as a simple Web Service with two processes:

- getEntryProfileRequest – specifies the course and institution for which an Entry Profile is demanded.

- getEntryProfileResponse – replies with the all the Entry Profile items for that course and institution. This will normally consist of multiple Entry Profile item records.

10. The formal definition of the Get Entry Profile Web Service is contained within an operational WSDL file. This file defines the data types, message formats and operations provided by the Web Service.

11. Data types: While the data types are specific to current UCAS internal systems, it is envisaged that a UCAS-flavoured XCRI format would be implemented. In the meantime a mapping from a UCAS-flavoured XCRI to

current UCAS formats has been developed. See MapXcriUCAS.xls.

12. Message formats: describe the data being passed.

13. Operations: describe the transport protocols and sequence of processes.

14. Transport protocol: SOAP, as defined in the SOAP v1.1 encoding schema at http://schemas.xmlsoap.org/soap/encoding/. This is the method used in XML-Link, and the current release of UCAS' Web Services uses encoded RPC-oriented services (Remote Procedure Call).

15. Port: the real port on ucas.com will depend on implementation details, so has not been fully defined. Port type has been defined as EntryProfilePortType and not as an XML-LinkPortType, although this may be a possible future development.

WSDL

16. See GetEntryProfile.wsdl file.

17. While UCAS has implemented responses to data requests as arrays encoded in SOAP packages within the XML-Link service, this WSDL file is limited to showing the data items, rather than the full implementation as arrays.

18. This is a light-weight Web Service, so no attempt has been made to combine it with others within this domain.

DATA DICTIONARY

Data Elements

| XCRI REQUEST	GENERIC	UCAS	NOTES
organization.identifier	Provider identifier	inst_code	This is a UCAS identifier, e.g. A20. It is more stable than institution name, but could be replaced by UKRPN. Published widely.
spec.code(year_code)	Year of Entry	year_code	Year of entry of the course.
spec.code(jacs_code)	JACS Code	course_code	Used to identify courses in UCAS applications. Published widely.
RESPONSE			

organization.dc:title	Provider name	full_name	
spec.code(year_code)	Year of Entry	year_code	Year of entry of the course.
spec.code(jacs_code)	JACS Code	course_code	Joint Academic Coding System (subject classification)
spec.dc:title	Course Title	full_title	
requirement.description	Entry Profile Item		Output from a transformation of UCAS source data. Each Entry Profile Item must be constructed from the UCAS profile_text and profile_header tables, each block of text being identified by a sequence number (line_no), the course_no, an item_no and a year_code. The text itself is either a line_text field or a blank line, identified by line_type (T or B).
requirement.identifier	Entry Profile Item Identifier	item_no	Internal ID for Entry Profile item used in UCAS system
	Heading for Entry Profile Item	header	Each Entry Profile Item has a header in the UCAS system. Part of Entry Profile Item.
		line_text	Each Entry Profile Item may have multiple blocks of text. Part of Entry Profile Item.

19. An Entry Profile is a collection of Entry Profile Items, each of which has a header and multiple blocks of text. Each course has zero or one Entry Profiles.
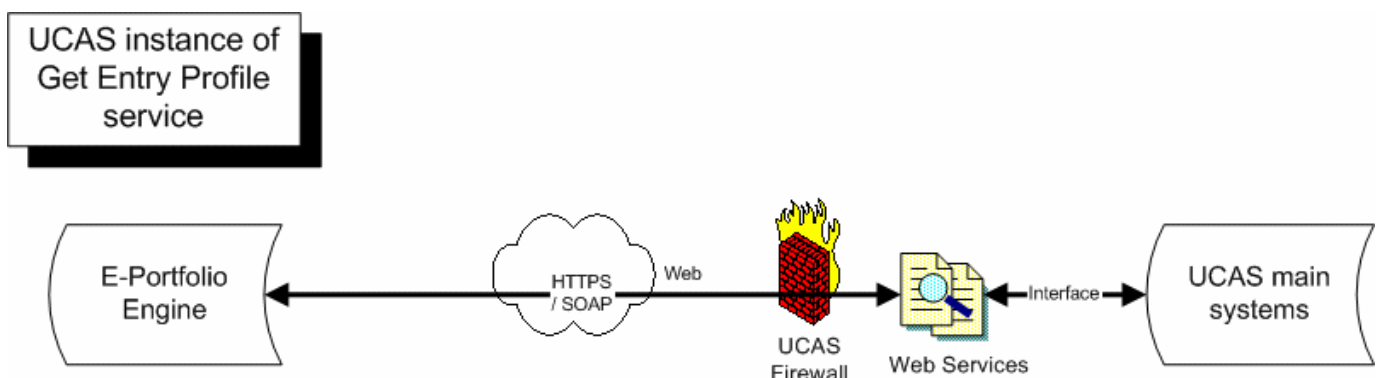
UML Use Case diagram
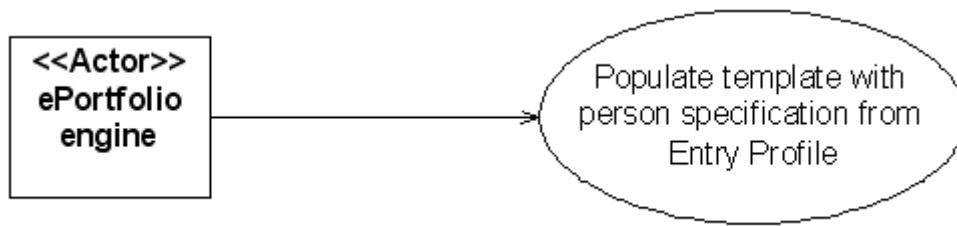
UML Class diagram
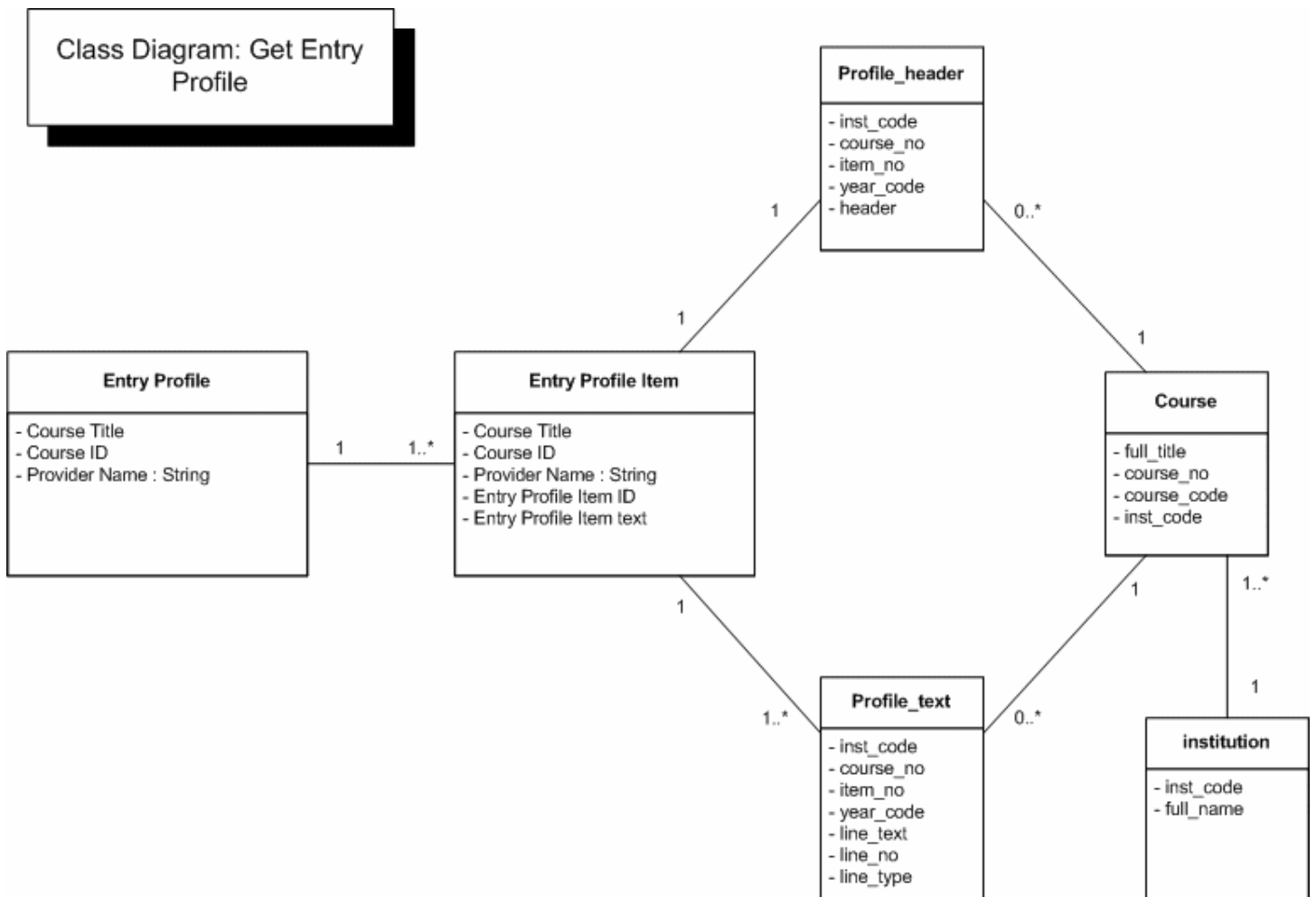
Data Flow

Service Definition for Get e-Portfolio Items Service

Name	Service Definition for Get e-Portfolio Items Service
Project	e-Portfolio for Lifelong Learning Reference Model Project
Author	Alan Paull
Creation date	4 July 2006
Last update date	16 July 2006
Version	0.1

INTRODUCTION

> Seamless transition requires a unified approach to learner data and systems across sectors and Government services, including the devolved administrations. There are many complex challenges and sensitive issues to address, such as privacy, authentication, data protection, and legacy systems.
> *"Towards a Unified e-Learning Strategy", DfES consultation document, July 2006*

1. This document describes a service for fetching a learner's e-Portfolio Items relevant to a specified Personal Statement. It should be read alongside the Populate Personal Statement Service Definition other project material relating to the "Narrative for a learner making an application to a higher education institution", part of the e-Portfolio for Lifelong Learning Reference Model Project.

2. This Service Definition defines a generic system-to-system interface, data elements and data flows to permit an e-Portfolio engine to get items of e-Portfolio data from an e-Portfolio enabled repository. The data items are refer to UKLeaP Assertions

3. No usability requirements have been included in this Service Definition, which is limited to system-to-system requirements.

SYSTEM DEFINITION

4. This service enables an e-Portfolio engine to get all e-Portfolio Items previously constructed by a learner for a single Personal Statement. It forms part of a wider function to populate a structured Personal Statement.

INTERFACE DEFINITION

5. The service would be available as a method of accessing a repository containing the e-Portfolio data items. Access would be instigated by the local e-Portfolio engine, which might be a local complete e-Portfolio system. The service is invoked by the e-Portfolio engine when the learner seeks to view an

existing Personal Statement. The Personal Statement data held locally permits the local system to identify and fetch the relevant e-Portfolio Items, which may be stored locally or remotely.

6. This service is initiated by the e-Portfolio engine on receipt of a Learner ID and a set of e-Portfolio Item IDs relevant to a single Personal Statement for that learner.

7. It is assumed that e-Portfolio items data either local or remote e-Portfolio enabled repositories.

Defining the service

8. This service encompasses the following processes:

- Connection to the e-Portfolio repository.

- Verification of learner identity.

- getEportfolioItemsRequest – specifies the set of e-Portfolio items data for the Personal Statement Items in the selected Personal Statement.

- getEportfolioItemsResponse – replies with the e-Portfolio item data for the Personal Statement Items in the selected Personal Statement.

9. Connection: This will involve appropriate authentication, which is an implementation detail and not covered further in this specification.

10. Verification: This will depend on login and security protocols not covered further in this specification.

11. The formal definition of the getEportfolioItemRequest and getEportfolioItemResponse services is contained in an operational WSDL file.

WSDL

12. See GetEportfolioItems.wsdl file.

13. This is a light-weight Web Service, so no attempt has been made to combine it with others within this domain.

14. Transport protocol: SOAP, as defined in the SOAP v1.1 encoding schema at http://schemas.xmlsoap.org/soap/encoding/, has been assumed.

15. No error-handling is included in this service definition.

DATA DICTIONARY

Data Elements

| UKLeaP REQUEST	GENERIC	NOTES
UKLeaP sourcedid in LearnerInformation / ContentType / Referential	Learner ID	Identifies learner; this should be a unique identifier, so would use sourcedid in the learnerInformation structure in UKLeaP; could be a Unique Learner Number (ULN) if established.
UKLeaP Assertion / ContentType / indexid	ePortfolio Item ID	Identifies a specific ePortfolio Item; Request would be for all the relevant items for a specific Personal Statement
RESPONSE		
UKLeaP sourcedid in LearnerInformation / ContentType / Referential	Learner ID	Identifies learner; this should be a unique identifier, so would use sourcedid in the learnerInformation structure in UKLeaP; could be a Unique Learner Number (ULN) if established.
UKLeaP Assertion	ePortfolio Item	Holding element for ePortfolio item components. Multiple ePortfolio items are expected.
UKLeaP Assertion / ContentType / indexid	ePortfolio Item ID	Identifies a specific ePortfolio Item; Request would be for all the relevant items for a specific Personal Statement
UKLeap Assertion / Description	ePortfolio Item Text	Learner's text. This could be any media, using the Full.Media linking element in UKLeaP. For simplicity this specification refers to text only.

UML Use Case diagram
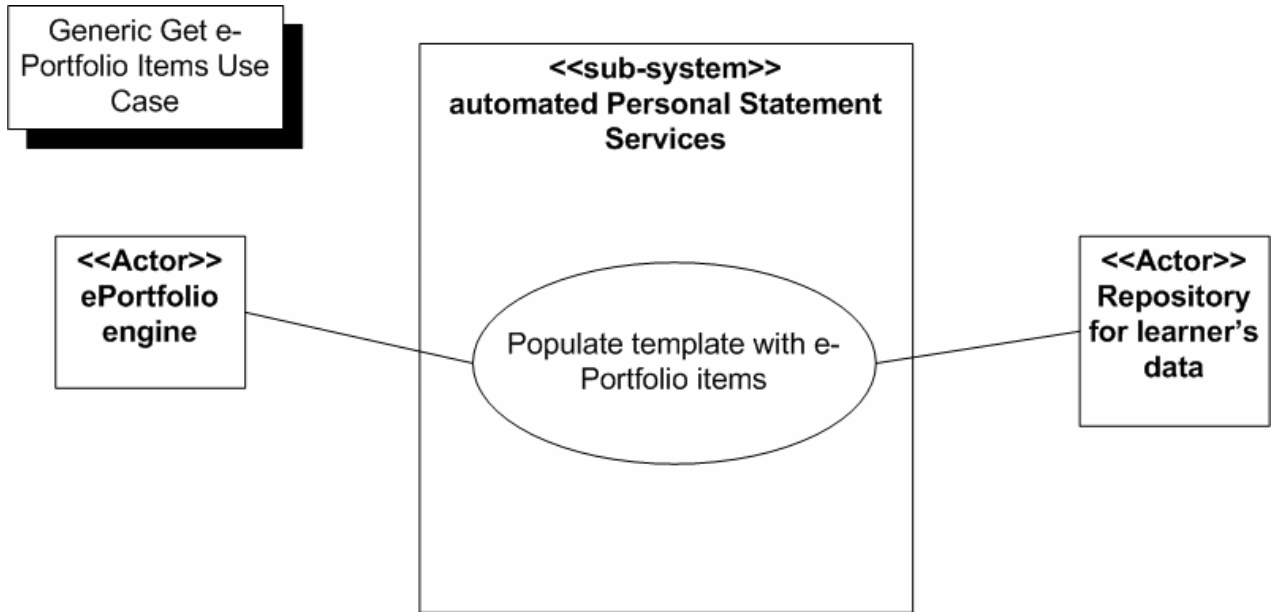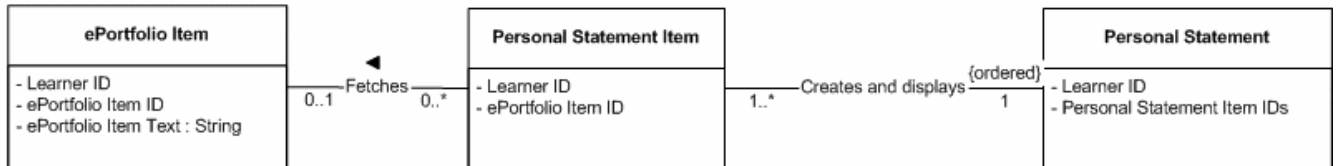
UML Class diagram

16. This UML Class diagram shows the Personal Statement class as well as the two classes directly involved in this service, because the Personal Statement class provides the Personal Statement Item identifiers that determine the ePortfolio Item IDs used for fetching. This process is covered within the Populate Personal Statement specification.

Data Flow