JISC Grant Funding 03/10

Cover Sheet for Proposals *(All sections must be completed)*	JISC

Name of JISC Initiative:	**Distributed VLE**
Name of Lead Institution:	The Open University
Name of Proposed Project:	DOULS (Distributed Open University Learning Systems)
Name(s) of Project Partners(s) (except commercial sector – see below)	**n/a**

This project involves one or more commercial sector partners	**Name(s) of any commercial partner company (ies)** **n/a**

Full Contact Details for Primary Contact:

Name: Niall Sclater
Position: Director of Learning Innovation
Email: n.l.sclater@open.ac.uk
Tel: 01908 654527
Fax:
Address: The Open University, Strategy Unit, Walton Hall, Milton Keynes, MK7 6AA

Length of Project:	**18 Months**		
Project Start Date:	1 July 2010	**Project End Date:**	31 December 2011

Total Funding Requested from JISC: [redacted]

Funding requested from JISC broken down across Financial Years (Aug-July)

Aug09 – July10	**Aug10 – July11**	**Aug11 – July12**
[redacted]	[redacted]	[redacted]

Total Institutional Contributions: [redacted]

Outline Project Description

This project will help the OU and other institutions in the JISC community progress towards a more distributed virtual learning environment in an informed way based on user evaluation and research. A learning systems roadmap for the Open University will then be finalised and implemented at scale, developing several key areas of functionality, notably personalisation, user-generated content creation and e-portfolio functionality. Interfaces between the institutional VLE, Moodle, and key externally-hosted systems such as Google Apps for Education will be developed. VLE services and data will be made available for consumption via social and personal systems such as Facebook and iGoogle. All code developed will be open source and conform to interoperability standards where appropriate. All project documentation and findings will be made available freely to the JISC community. A considerable amount of work has already been done in preparation for this project and expert staff across the university will be involved.

I have looked at the example FOI form at Appendix A and included an FOI form in this bid	**YES**
I have read the Funding Call and associated Terms and Conditions of Grant at Appendix B	**YES**

Distributed Open University Learning Systems (DOULS)

1. Appropriateness and Fit to Programme Objectives and Overall Value to the JISC Community

i) Many institutions face critical decisions in their deployment of learning systems. There is disillusionment with some VLEs, in their functionality, robustness and support models. Students are becoming familiar with online systems such as the BBC website or iGoogle which offer a high degree of personalisation in the functionality that can be selected, the appearance of content and the ways in which users can present themselves to others. At the same time communication among students and staff using Facebook and other social software held outside the "walled garden" of the institution continues to grow.

ii) Increasing cost pressures on all institutions and reduced funding for many mean that the return on investment from VLE licence costs is being increasingly scrutinised. Meanwhile institutions are beginning to deploy cloud solutions for part of their student (and in some cases staff) IT provision. Free hosting of email, document storage and communications applications, with a service level agreement from Google or Microsoft, are attractive options for IT services departments wishing to concentrate on core business.

iii) These forces lead to a model of provision which will inevitably no longer be based solely on monolithic virtual learning environments such as Blackboard or Moodle and it is imperative that institutions begin to plan future provision of learning systems on a more distributed basis.

iv) DOULS aims to help the OU and other institutions in the JISC community progress a range of technical issues in order to move towards more distributed virtual learning environments in an informed way. The project aims in particular to:

1. Enhance the OU learning systems roadmap, with applicability to other institutions wishing to develop linkages between their VLEs and external systems
2. Understand the implications for institutions and users of the provision of cloud services alongside institutional VLEs
3. Enhance several key areas of learning systems functionality, notably personalisation, user-generated content creation and e-portfolio
4. Develop the interfaces between the institutional VLE (Moodle) and externally-hosted systems such as Google Apps, iGoogle and Facebook

v) The University has already begun preparatory work, commissioned by the Vice Chancellor and the Pro-Vice Chancellor (Learning, Teaching and Quality) on a learning systems roadmap with input from key units across the University. Enhancing the VLE at the OU is fundamental to the institution's Learning and Teaching Strategy, and other strategic priorities. The roadmap has been informed by a range of personas of likely future users of the systems (see section 2.5), which will be built on further from user evaluation and research in this project. A wide range of requirements from users across the institution has resulted in the selection of five key areas for learning systems innovation: personalisation, user-generated data creation, e-portfolio, Google Apps deployment and mobile provision. The initial vision and principles for these areas is outlined at http://sclater.com/blog/?p=413. DOULS will enable these areas to be further understood, for detailed user requirements to be gathered in each area, for technical implementation to be planned appropriately and for appropriate widgets and documentation to be produced for the OU and the wider JISC community.

vi) A key element of the institution's intended migration from a monolithic architecture (in line with Model 2 in MacNeill & Kraan, 2010 – see Call for Projects) to a more distributed, service-oriented architecture is the ability to exploit third party web-available services and to deliver these via browsers and other mechanisms (such as RSS feeds) on a variety of platforms and devices. This means that the OU infrastructure needs to migrate from its current locally-hosted, web-delivered model to become both a consumer and provider, in line with MacNeill & Kraan's Model 5.

vii) This approach is relevant to learning systems across the HE community, and the project will enable us to accelerate our delivery of the connections between various systems – and to provide guidance and code for other institutions in the JISC community.

viii) The OU has customised Moodle considerably but needs to ensure that it continues to remain aligned with core Moodle developments and to evaluate the changed architecture available with Moodle 2.0. DOULS will also build on the work already scheduled within the ASPECT project (EU-funded) to start to use the Icodeon IMS Common Cartridge platform – which offers routes for sharing full cartridges and learning assets via the Icodeon URL syntax. It will also build on the work completed by the JISC-funded TELSTAR project which built an interface between Refworks and Moodle.

ix) The project will enable the OU to extend further the experiences and code that we have been able to share with the HE community as part of the institution's adoption of Moodle. The OU has also recently made the decision to deploy Google Apps for Education for all students and is now working with Google to enhance the accessibility of these applications. The project will allow the OU to commit to creating widgets – and to share our expertise as we develop interfaces with Google Apps, Facebook and other social networking tools at scale. Widgets developed under DOULS will be made available to very large numbers of OU students and staff as well as the wider community; the OU VLE is currently visited by 50,000 unique users per day. High quality, well-tested code is the norm for such developments at the OU given the serious consequences of any bugs. The widgets are intended to remain part of the extended VLE and be in use, and potentially continue to be enhanced, long after the end of the funded project. This will be a key measure of the project's success, as will the level of uptake by users.

x) In addition to working with other projects within the Distributed VLE Initiative to ensure that our activities are aligned, we will document and share experiences gained through this project via the JISC e-Framework, the details of our contributions will be clarified with the e-Framework Community Engagement team during the initial period of the project.

xi) This proposal addresses the following issues specifically mentioned in paragraph 15 of the call:

- Allowing for reuse and open publishing of learning materials; linking with an institutional repository – exploring links with our open access repositories such as OpenLearn and other systems
- Enabling relevant data from the VLE and student record systems to be used within other systems such as e-portfolios – this is at the heart of our proposal, looking for example at the connections between Moodle and Google Apps

xii) The proposal also intends to adopt the following technical approach, as detailed in paragraph 16 of the call:

- The VLE providing some of its data and functionality as widgets/and or plug-ins to be consumed in other environments

xiii) The main benefits to the OU and the JISC community of the project will be:

- Progressing a learning systems roadmap based on user and technical evaluations
- Developing a greater understanding of how connections can be built between the VLE and other systems to meet user requirements
- Implementing those linkages to meet user needs and enhance the student experience
- Engaging with the JISC community as part of e-Learning Programme activities to gain from and contribute to the experience of other projects
- Maintaining a leading role in learning systems architecture research.

2. Quality of Proposal and Robustness of Workplan

i) The project will run for 18 months from July 2010. Key tasks and deliverables are outlined in the workplan below.

Project plan, timetable and deliverables

ii) This will be presented in more detail in the full project plan once the project commences.

Activity	Task	Date																	
		Jul-10	Aug-10	Sep-10	Oct-10	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11	Nov-11	Dec-11
Organisation	Detailed project plan developed																		
	Website & blog set-up																		
	External contract finalised																		
	Steering Group meetings set-up																		
Vision	Desk research undertaken																		
	User scenarios developed																		
	Technical model developed																		
	Initial usability research																		
	Development plan produced plus initial integration developments																		
	Development testing & release																		
	Internal staff workshop																		
	6 monthly report																		
Investigation	Web delivery developments																		
	Usability and accessibility research & testing																		
	Review & update user scenarios																		
	Update development plan																		
	Development testing & release																		
	Developer guidelines & user documentation																		
	6 monthly report																		
Development	Developments to range of devices/environments																		
	Usability and accessibility detailed testing																		
	Development testing & release																		
	Developer guidelines & user documentation																		
	Dissemination event to JISC/HE/FE community																		
	Final report																		

iii) The *visioning stage* of the project will start with a review and consolidation of internal work and research around the OU VLE. Desk research will then be undertaken comparing the internal vision with VLE developments internationally in and outside of the sector, to produce a final vision of the direction of the OU's VLE (including accompanying user scenarios and personas). Meanwhile development investigations will have commenced looking at the possibilities for Google Apps for Education integration with the current installation of Moodle. Once undertaken, these investigations will be extended to look at the integration possibilities with Moodle 2. Usability research with students and tutors will be required to test the vision and understand their current use of OU VLE tools compared to non-OU tools/environments, as well as to gain user reaction to early prototypes of envisaged tools. An internal staff workshop (including academics, administrator and tutors) will be held to disseminate findings to date and consult on the final plans of the next stages of the project.

iv) Developments integrating, for example, Google Apps and Moodle and further user testing are the main activities of the *investigation stage* of the project. This phase is primarily about getting early versions of widgets into the OU VLE and evaluating how students and tutors who use these change their behaviours compared to those who are simply using the existing VLE tools and non-OU tools/environments. Usability findings will inform the next phase of developments which will focus on delivering widgets to a range of devices/environments e.g. mobile devices, Facebook and iGoogle.

v) The *development stage* of the project will work towards the creation of a new standard model for delivering the OU's curriculum via the VLE. Detailed student user testing and evaluation will be needed to ensure the widgets are fit for purpose and can then be mainstreamed into the OU VLE. A dissemination and consultation event with the JISC/HE/FE community will be held to share approaches, documentation, developments and ideas for the future.

vi) Project deliverables will be:

- Personas and user scenarios
- Technical model
- Report on key functions, roles, activities and ICT at the OU
- Report on vision for future learning systems – based on desk research, Moodle and cloud technical investigations and evaluations, user research and internal and external consultation events – which will form the basis of a learning systems roadmap and will provide the analysis and benefits of the approach taken
- A range of open source widgets for distributed learning systems, along with code and developer guidelines to allow integration between Moodle, Google Apps and Facebook
- Associated documentation to be made available to the JISC community, fully documented and tested at scale with large numbers of students
- Regularly updated project blog to report on project progress and lessons learnt, available by RSS feed
- Internal staff workshop and final dissemination event to JISC community
- Two interim 6-monthly reports and a final report incorporating an analysis of the approach taken and a case study illustrating the extent to which the original scenario was realised.

vii) Critical success factors for this project include:

- a new standard model for delivering the OU's curriculum via the VLE is adopted
- new functionality is exploited by a range of VLE users
- widgets, code and developer guidelines are reused by the JISC, Moodle and Google communities.

Project management arrangements

viii) Robust project management structures and procedures are in place for this project, based on existing OU infrastructures and influenced by considerable experience in running JISC and other externally-funded projects. The main developer and other staff involved in the recent TELSTAR project will be deployed. The chair of the steering group, Niall Sclater, will convene quarterly project steering group meetings with key representatives from around the University. He will also have regular communication with the project manager who will manage all staff input, budget, scheduling, risks, dissemination and availability of deliverables to JISC and the community, and communication with the JISC programme manager.

Risk register

ix) Project risks and their mitigating strategies are outlined below.

Description	Likelihood	Impact	Mitigation Strategy
Loss of key staff during project	Medium	High	Draw on wide range of development and project management expertise at the OU
Lack of senior management engagement	Low	High	The VC and the PVC-LTQ are already fully supportive of this activity
Development delays	Medium	Medium	Ensure experienced staff and robust project management in place
Lack of buy-in from staff and students	Medium	Medium	Promote the considerable advantages to learners of these developments

IPR and sustainability

x) IPR in all products will rest with the OU. However all code will be made available as open source under the GNU General Public License and all project documentation published as open content. Enhancements to Moodle will be made available via the conventional Moodle contributions route (as has been the case with a very significant number of Moodle developments made by the OU over the last four years); in all other cases the software will be made available via the DOULS project website, to be available for a period of at least three years after the end of the project. Deliverables will also be deposited in repositories as advised by JISC such as the InnovationBase.

xi) All code developed is envisaged to be of real use to OU and other students and thus will form part of the continually evolving learning systems of the OU. The software developed will be maintained by the Open University as part of the ongoing VLE development programme.

Example user scenario

xii) The following scenario was largely developed in consultation with key stakeholders, most of whom will be on the steering group for this project.

Cindy Goldstein is a secondary school history teacher. She is 35 and lives in Bristol. She discovers the OU when looking for content on iTunes U. She has always wanted to go to Spain so downloads a few introductory Spanish podcasts. They seem to be very professionally produced and Cindy is intrigued to find out that you can study Spanish online at a reputable University with very high student satisfaction rates.

Cindy uses the Internet most nights at home, researching topics for her pupils to discuss, connecting with her friends and relatives across the US, and shopping. She uses many online resources in class and is used to receiving and marking her students' work digitally. She uses iGoogle as a way of aggregating the various applications and information sources about which she wishes to keep updated. She logs onto Facebook most nights and she's intrigued to see that the OU appears to have a particularly active community there where you can connect with other students.

Cindy signs up for the introductory Spanish course and is immediately able to access the module website which points her to a group for all OU students of Spanish in Facebook. There she finds an application called "Find a study buddy" and resolves to use it later to find a fellow student to practice Spanish with. When the course starts she sees a link from the module website to Google Apps where a Google group has been set up automatically for all the students in her tutor group, some of whom have already started to share information about themselves and photographs of trips to the Spanish speaking world.

Cindy finds that her Google calendar has been populated automatically with key dates for events such as online tutorials and assessments. She also sees that she is required to build an eportfolio using Google Apps and is easily able to share elements of it with other students in her tutor group. When the deadline comes for submitting her eportfolio for assessment there is a simple facility to send it to the OU's assignment handling system.

Cindy likes to use iGoogle and finds she can view key data from her Spanish module this way. She is easily able to import blocks from the module website for module news and forums so she can see at a glance if anything has been updated.

xiii) An external consultant (from Effortmark Ltd), who has previously been commissioned by the University to work on personas has agreed to work on the project to develop further personas and user scenarios encompassing informal and formal learning.

3. Engagement with the Community

i) **Internal OU community**: There are already various mechanisms for engagement with the OU community around the requirements gathering, development and roll-out of new learning technologies, notably:

- The Learning Innovation Strategy Group: meets every two months and has representation from key personnel in all faculties and relevant administrative units. Reports from the project will be sent to the group and members' input on the direction and outputs of the project sought. Members have a responsibility to consult and disseminate throughout their units.
- The Tripartite Group: comprises representation from the students' association, from tutors and from the centre of the University. This group will be kept informed of the project, opinions sought and new functionality disseminated to students and tutors via its members.

ii) The internal staff workshop (including academics, administrator and tutors) planned to be held six months into this project will enhance the existing mechanisms for OU-wide consultation.

iii) **User community**: new functionality will be advertised and documented on StudentHome, TutorHome and staff intranet websites which are widely accessed by their consituency groups around the University. Tools built under this project will be made available along with scheduled releases of other VLE functionality and disseminated using the standard, well-understood mechanisms.

iv) **External community**: In addition project staff are well connected to the UK elearning, Moodle and Google user and developer communities, and will ensure appropriate engagement and dissemination with these, as well as participating fully in dissemination and networking events around the JISC e-Learning Programme (staff time has been allocated for this within the project budget). All deliverables will be disseminated and made freely available to this community (see 2.x above), to others in which we are heavily engaged such as the Moodle, OER and e-learning standards communities, and the emerging Google Apps educational community.

v) The project website, project blog and JISC E-Learning Programme events will be the core channels of dissemination to the eLearning and JISC community. The planned dissemination and consultation event with the HE/FE community at the end of the project will share the final outputs, approaches, documentation, developments and ideas for the future.

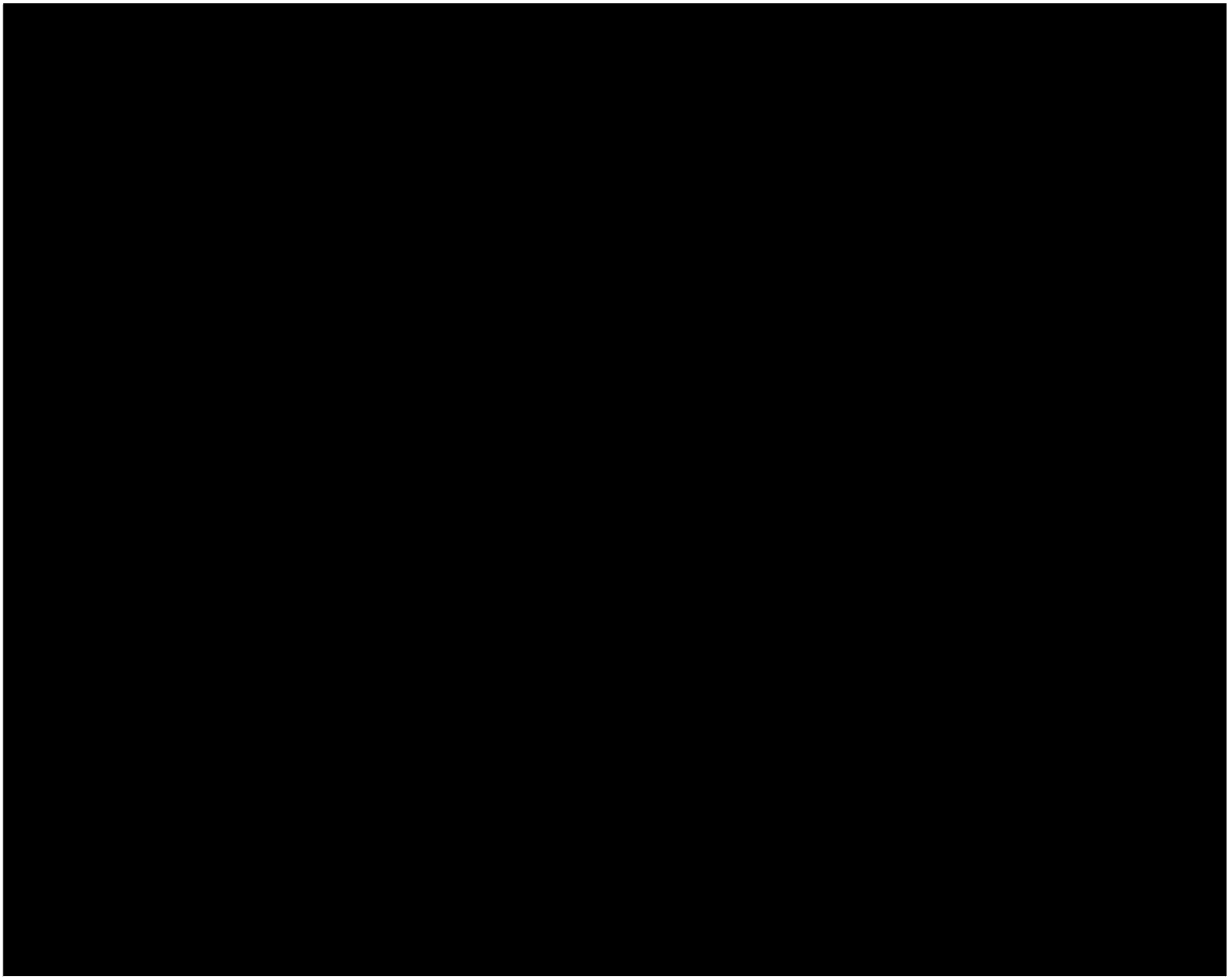
vi) An initial stakeholder analysis is included below.

Stakeholder	**Know-ledge of project**	**Position**	**Inte-rest**	**Quantity of resource**	**Ability to mobilise resource**	**Pow-er**	**Leadership**
OU Students Association	High	Supporter	Very high	2	2	4	Highly influential with student body
Learning Innovation Strategy Group	High	Supporter	High	3	3	9	Can help to shape project and build awareness across OU
Associate Lecturers	Low	Moderate supporter	Low	2	2	4	Some ALs will be highly supportive. Many will be uninterested
Moodle community	Low	Supporter	High	1	2	2	Many Moodle users will find this functionality useful
Google	High	Supporter	High	3	3	9	Likely to take a strong interest and could publicise widely
UK HE/FE elearning community	Med	Moderate supporter	Med	1	2	2	Users of Moodle, Google etc likely to be very interested, as will those moving to distributed architectures

4. Budget

i) This project will be governed by the existing OU learning and teaching groups, members of which have expertise in the OU VLE.

ii) Costs required for this project are outlined below. The non-staff costs include the external consultancy from Effortmark Ltd.



5. Previous experience of the Project Team

i) The project team comprises a number of highly experienced staff, with considerable experience of VLE architectures, development and deployment.

ii) **Niall Sclater (Chair of the Steering Group)**

Niall is Director of Learning Innovation at the Open University and previously directed the University's VLE Programme. Working in educational technology since 1992, he was previously Head of e-Learning at Strathclyde University. He has published widely in the area of VLEs and has led a number of JISC and other projects including Clyde Virtual University, Technologies for Online Interoperable Assessment (TOIA), the CETIS Assessment Special Interest Group and Mediterranean Virtual University. Further information is at www.sclater.com

iii) **James Davies (Project manager)**
James is a Media Project Manager in Learning Teaching Solutions at the Open University. He joined the Science Media Team in LTS in 2004 and has a track record of successful delivery of projects to time and budget, including multiple offline and online applications. James is currently seconded as a Media Operations Manager at the OU, responsible for the media teams that work with the Science and MCT Faculties.

iv) **Jason Platts (Technical developer)**
Jason is a Lead Technical Developer in the VLE development team at the Open University. He has been developing e-learning software solutions for the commercial, educational and public sectors for over 12 years. Jason has developed software for numerous award wining projects and most recently worked on the JISC funded TELSTAR project; which integrated external APIs into a VLE. He has an interest in emerging web-technologies and is currently busy developing new features for the Open University's Moodle-based VLE.

v) **Caroline Jarrett (External usability consultant from Effortmark Ltd)**
Caroline is an independent usability consultant. After 13 years as a project manager of computer systems integration projects, she founded Effortmark Limited in order to concentrate on 'what systems are for' instead of 'how the system is put together'. She has worked extensively with the Open University on their websites. Caroline has also tutored for the Open University in Project Management and in User Interface Design and Development. She is the author of "Evaluation in Practice" and "Usability in Organisations", two of the units of the Open University course 'User Interface Design and Evaluation'. She is co-author of the textbook based on the course: "User Interface Design and Evaluation", 2005, published by Morgan Kaufmann/Elsevier.

vi) **Anne Jelfs (Usability expert)**
Anne is a Learning and Teaching Development Manager in the Institute of Educational Technology at the Open University. Her work primarily focuses on evaluation, usability and the development of eLearning. Anne's particular interests are in qualitative data collection including observational studies of human computer interaction.

vii) **Chetz Colwell (Accessibility expert)**
Chetz is a Project Officer in the Learning and Teaching Development team of the Institute of Educational Technology at the Open University. Her role is to support OU web and software developers in making their materials accessible to students with disabilities, and to conduct research on the accessibility of new technologies, including conducting student evaluations.

6. Previous experience of the Steering Group

i) In addition to the Chair of the Steering Group, the Project manager and Technical developer, the following comprise the Steering Group, who are already experienced members of existing teaching and learning groups that will govern this project.

ii) **Ross MacKenzie (Strategic Development Manager in LTS)**
Ross is a Strategic Development Manager in Learning and Teaching Solutions at the Open University. He has a PhD in Physics and carried out post-doctoral research in Materials Science at Cornell University and at the University of Oxford. Ross joined the Open University in 1995 as a software designer and over the last 15 years has contributed to the development of a wide range of online learning and teaching systems. Ross currently leads the teams responsible for the development and support of the Open University's learning and teaching systems. Ross is also active in the international e-learning standards community, having been a member of the IMS Global Learning Consortium Learning Technology Advisory Council, and co-chairing the IMS project group on Student Induction to e-Learning.

iii) **Liz Burton-Pye (Developments Manager in LIO)**
Liz is Developments Manager in the Learning Innovation Office responsible for taking forward innovation and mainstream projects at a university wide level. She joined the Open University in 1999 having come from teaching where her last post was as deputy-head of Sociology at Shrewsbury 6th Form College. Whilst at the OU, Liz has had a range of posts at both faculty and university-wide level. These include course manager in the Faculty of Education and Language

Studies (FELS), ICT Project manager in the Learning Schools Programme (with responsibility for managing the production of curriculum and language DVDs). Following this she then moved to the Institute of Education Technology (IET) as ICT course manager before becoming Media developments manager in Health & Social Care (HSC). In addition to her work at the OU, she has also been a consultant to the Further Education Funding Council (FEFC) and has worked with Marks & Spencer on a business/education exchange programme.

iv) **Will Woods (Senior Learning and Teaching Technologies Manager in IET)**
Will Woods is Senior Learning and Teaching Technologies Manager in the Institute of Educational Technology at the Open University (UK). He has an honours degree in Computer Science and further professional qualifications including MCSE (Microsoft Certified Systems Engineer) and is a Chartered IT Provider (British Computer Society accredited). He is Technical Director on a number of e-learning projects including the (JISC funded) Learning Design project. Will has worked in the Open University for seventeen years. His background is researching technologies in the support of education and as part of EMERG (Electronic Media in Education Research Group) he developed a number of online course prototypes. Will is an active participant on a number of enterprise OU initiatives including OUVLE (Virtual Learning Environment) and ECMS (Electronic Content Management System) projects and most recently the OU adoption of cloud computing and has worked in an advisory capacity with external partners in developing new courses for the university. In 1998 Will worked as a senior consultant to Sheffield Hallam University responsible for the development and roll-out of their Virtual Campus project. His current role is largely in the exploration, development and management of systems to support and enable learning and teaching. Will has published and presented papers on knowledge systems, Learning Design and online course presentation. For more information visit his website at http://iet.open.ac.uk/people/w.i.s.woods

v) **Martin Weller (Professor of Educational Technology)**
Martin Weller is Professor of Educational Technology at the Open University. He chaired the OU's first major online course with 12,000 students, and has been the Director of the VLE and SocialLearn projects. He was part of the team that initiated the OpenLearn project and has been involved in two EU projects looking at the deployment of OERs in developing countries. His research interests are in the impact of new technologies, learning environments and digital scholarship. He blogs at http://edtechie.net

vi) **Gill Needham (Associate Director, Information Management and Innovation in the Library)**
Gill's current post is Associate Director, Information Management and Innovation in the Open University Library. Since joining the Open University in 1998 she has taken a leading role in developing the Library's electronic services to its 200,000 students, has launched and developed an Information Literacy Strategy for the University and has been a major author on three Open University courses. Previously she worked for 15 years in the National Health Service, initially as a librarian and then subsequently as an R&D Specialist in Public Health, responsible for promoting Evidence Based Practice and public involvement in healthcare decision making. Gill was Project Director of the JISC-funded PROWE project, as part of the Digital Repositories Programme.