

<b>Cover Sheet for Proposals</b>	<b>JISC Capital Programme</b>		
<b>Name of Capital Programme:</b>	<b>Institutional innovation projects in lifelong learning and workforce development</b>		
<b>Name of Lead Institution:</b>	<b>The University of Hull – Department of Engineering</b>		
<b>Name of Proposed Project:</b>	<b>Personalised systems supporting IPD and CPD<sup>1</sup> within a professional framework (CPD-Eng)</b>		
<b>Name(s) of Project Partner(s):</b>	Doncaster College and East Riding College		
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<b>Length of Project:</b>	<b>24 Months</b>		
<b>Project Start Date:</b>	1 <sup>st</sup> April 2009	<b>Project End Date:</b>	31 <sup>st</sup> March 2011
<b>Total Funding Requested from JISC:</b>			
<b>Funding Broken Down over Financial Years (Mar–Apr):</b>			
<b>Mar 09</b>	<b>Apr 09 – Mar 10</b>	<b>Apr 10 – Mar 11</b>	
<b>£0</b>			
<b>Total Institutional Contributions:</b>			
<b>Outline Project Description:</b>			
<p>This project will develop a personalised, 'learner controlled' online environment to support an individual's continuing professional development (CPD) and the staff CPD review process. At its centre is a scalable, interoperable and robust access and identity management system that will integrate and control access to personal e-portfolio technologies.</p> <p><b>CPD-Eng</b> will create a personalised continuing professional development pilot in the field of Engineering, integrating and improving existing systems in the areas of reporting, resource and process management. CPD-Eng will also support the relationships between the lifelong and work-based learner, training institution(s), knowledge exchange, regulatory bodies (EC<sup>uk</sup>), professional bodies and employers.</p> <p><b>CPD-Eng</b> will provide the innovative, personalised infrastructure that will support the work-based learner through a new suite of flexible pathways to professional qualifications for the engineering professional, integrating real and online worlds and enabling learning to take place 'whenever and wherever'.<sup>2</sup></p>			
I have looked at the example FOI form at Appendix A and included an FOI form in the attached bid (Tick Box)	<input checked="" type="checkbox"/>	YES	NO
I have read the Circular and associated Terms and Conditions of Grant at Appendix B (Tick Box)	<input checked="" type="checkbox"/>	YES	NO

<sup>1</sup> Initial/Qualifying professional development - The structured professional development undertaken by an individual in order to meet the requirements for registration with a professional body. Continuing professional development. - The systematic maintenance, improvement and broadening of knowledge and skills, and the development of personal qualities necessary for the execution of professional duties throughout working life.

<sup>2</sup> Blurring the boundaries: how technology is changing the way we experience learning - <http://www.oakleigh.co.uk/page/3749/White-Papers/Whitepaper-Articles/Blurring-the-boundaries%3A-how-technology-is-changing-the-way-we-experience-learning>

## Personalised systems supporting IPD and CPD within a professional framework - (CPD-Eng)

### C. - Fit to programme objectives and overall value to the JISC community

#### C.1 Rationale

The concept behind the project is to integrate systems that support personalised IPD/CPD, applicable to professional frameworks. The project will result in the creation of an exemplar system and identify key features in the flexible pathways to qualifications within the engineering professional framework at the University that facilitate the successful development of **CPD-Eng**. This has the potential to be applied to frameworks relevant to other professional bodies and institutions. *(paragraphs within the vision 14,18)*

**CPD-Eng** will stimulate and inform change in the provision of lifelong learning and workforce development relating to the engineering sector within the University and its partners<sup>3</sup> through enhanced capacity, increased knowledge and improved skills in the use of technology.

To support these activities, the **CPD-Eng** project will further develop a personalised system that builds on the work completed in the JISC funded 'Identity supporting personalised progression spaces'<sup>4</sup> project. A portal system has been established alongside an Identity Management (IDM) system that allows self-service management of the learner's identity. **CPD-Eng** will develop a robust and scalable approach to interoperability, access and identity management that is both easy to use and seamless, allowing the learner to control their personal e-portfolio-type technologies and share the content within them with whom they choose. *(paragraphs 18,19)*

By taking personalised ownership of career decisions and focusing the learner's professional development, **CPD-Eng** will assist the learner to:

- be better able to recognise opportunity
- be more aware of the trends and directions in engineering and society
- become increasingly effective in the workplace
- be able to help, influence and lead others
- be confident of their future employability
- have a fulfilling and rewarding career.

By adhering to agreed national and Europe wide standards, information will be capable of being transferred easily from one system to another, reflecting the increasing mobility of the lifelong learner. *(paragraph 20)*

**CPD-Eng** has been conceived with the objective of drawing lessons from and building upon other JISC activity in the Core Middleware/eInfrastructure and 'Portals and Presentation' Programmes. The implementation of a coherent approach to access and identity management on a sub-regional basis, in particular, will model a route to eventual sub-regional membership of the UK Shibboleth Federation that others may wish to follow.

**CPD-Eng** will also potentially contribute to the further elaboration, or provide additional validation of, Service Genres, Expressions and/or Usage Models for the eFramework, particularly in a trans-institutional context.

**CPD-Eng** will also contribute to the JISC Business and Community Engagement programme in response to the strategic aim no.5 of the 2007-9 strategy.

#### C.2 National perspective

The Engineering Council UK (EC<sup>uk</sup>) released the new version of its highly commended standard for professional engineering competence, UK-SPEC<sup>5</sup> on 18<sup>th</sup> December 2008. Speaking at the launch, EC<sup>uk</sup> Chair, Professor Fidler, said: "The Engineering Council is

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<sup>3</sup> Doncaster College and East Riding College.

<sup>4</sup> ISPPS validates a series of widely used and tested mature open-source software components and tools developed in the context of lifelong learning within the workplace.

<sup>5</sup> UK-SPEC (UK Standard for Professional Engineering Competence)

broadcasting our ambition to strengthen and grow the UK's engineering capabilities as a modern industrial nation." George O'Neill [Chair of EC<sup>uk</sup> Registration Standards Committee], introducing the new version, said: **"The revisions reflect the fact that we live in a world where lifelong learning and career development are the norm. Professional structures have to recognise this."**

The Engineering Council EC<sup>uk</sup> has developed a model 'work-based pathway to professional engineering qualifications'. The projected impact is that the number of individuals accessing these qualifications would increase and as a result there would be a growth in professionally qualified engineers. This clearly links to one of Yorkshire Forward's priority sector key objectives (see C.3). Higher Education Institutions' (HEIs') close links with industry are an important feature of involvement in stage 2 of the EC<sup>uk</sup> project and the University of Hull has an excellent record of employer engagement within the engineering sector. Future developments will include providing flexible pathways towards Incorporated Engineer status (IEng). (paragraphs 15,23,25)

### **C.3 Regional perspective**

Advanced Engineering and Materials (AEM) is a priority sector in the Yorkshire & Humber region. The region is recognised all over the world for its expertise in high-precision engineering, metals and alloy production, and the high-quality design and manufacturing of components for a wide range of global industries.

Yorkshire Forward's AEM team is working towards raising the level of technology employed in the sector and major investment is underway in five new technology 'capacity-building' centres within the region<sup>6</sup>. This is accompanied by the development of a comprehensive skills programme which will support the region's high-level skills requirements in the AEM priority sector. The key objectives which have been highlighted by the RDA are:

- To improve the supply and quality of graduates
- To develop leadership skills which will lead to innovation
- To increase the take-up of education subjects linked to the economic success of the sector.

A number of significant employers (KCom Group, Corus, Clugston Group, Doosan Babcock Energy, Logan Teleflex (UK) Limited) and Yorkshire Forward are fully engaged with the development of these opportunities. The University/Partner Colleges and employers involved recognise the existing skills and expertise of lifelong and work-based learners, gained now or in the future through physical or virtual networks. Technology will be used to support the processes involved in designing learning opportunities, recognising and accrediting prior experience and learning, and investigating other ways of enabling learners to demonstrate their suitability for their course. (paragraphs 15,17)

### **C.4 Institutional perspective**

The University of Hull is establishing a regional employer/academia professional engineering centre - The Engineering Professional Development Centre in the Yorkshire and Humber region. The centre will provide a service for aspiring professionals<sup>7</sup> in engineering that will link aspects of formation and threshold competencies; academic qualifications, work-based learning and responsible professional experience.

The University of Hull's Department of Engineering, the University's Knowledge Exchange, regional Lifelong Learning Networks, Partner Colleges and the Institution of Engineering and Technology all fully support this development. (paragraphs 23,25)

### **C.5 Opportunities for enhanced personalised development**

Learners will be well supported through a range of online and face-to-face mechanisms by University and work-based staff and mentors. Work-based mentors (Professional Engineers) and other relevant staff within employing organisations will have the information and support

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<sup>6</sup> <http://www.yorkshire-forward.com/helping-businesses/priority-sectors/aem> <http://www.aemyorkshire.com/>

<sup>7</sup> Initially aspiring to CEng level, but the intention is to widen the services to those also aspiring to IEng.

they need from the University/Partner Colleges and peers to become fully engaged in supporting and following the progress of work-based learners. (paragraph 16)

Learners will record and reflect on their personal and professional development achievements on an ongoing basis, and share these with employers, professional bodies, peers and educational institutions as they choose. (paragraph 16)

The continuing professional development opportunities (MSc modules/courses) are designed to meet the standard demanded by UK-SPEC (UK Standard for Professional Engineering Competence) for registration as a Chartered Engineer (CEng). The Engineering Professional Development Centre (EPDC) will also be offering a range of training courses in the area of Mechanical, Electronic, Electrical and Plant Engineering, Industry Standard 3D Modelling, Stress Analysis, Finite Element Analysis and Stress Concentrations, Product Design Management Techniques, Logistics and Supply Chain Management (in collaboration with the University of Hull's Logistics Institute). The University/Partner colleges are also working closely with local employers (e.g. Corus) on the development of CPD opportunities. These opportunities are available to lifelong and work-based learners, consisting of a range of study hours, differing course lengths and attendance patterns. Learning activities and assessments will relate to the learner's own employment or other contexts and recognise the value of collaborative work. (paragraph 15)

Appropriate support to develop skills for lifelong learning and employability will be available in the light of the learner's needs. (paragraph 16)

Although **CPD-Eng** will work initially with learners in the engineering field, the expectation is that the online environment and identified key features can subsequently be applied to other sectors involved in offering professional qualifications, such as in the Health sector e.g. Hull York Medical School. This will be possible once a structure and concept have been developed, tested, piloted and evaluated (see *sustainability*).

Evaluation of the project will be undertaken against a benchmark of existing practice and activities, which will be based on research led by the Centre for Lifelong Learning (CLL) at the University of Hull. The CLL research contribution to evaluation of the project will also consider factors influencing the successful outcome and activities of the project which need to be taken into account when extending the pilot to other sectors. (WP5)

## C.6 Technical overview

Without the management of identity, no form of personalisation - provided, adapted or adaptive - is possible. Information about an individual's identity, their roles and their affiliations is required to provide targeted information to a user in a personalised environment.

The deployment of Sun's Identity Management software provides the necessary building blocks to construct the identity access infrastructure required by **CPD-Eng**. This should be seen as one of the steps towards membership of the UK Shibboleth Federation, although such membership is outside the scope of **CPD-Eng**.

**CPD-Eng** will integrate established systems to create a seamless, learner-centred environment. The project will result in the provision and coherent presentation of services, including desktop tools, which are both personal and personalised for learners and educators within the consortium partnership<sup>8</sup>, as well as the engineering sector.

Integration of systems within the **CPD-Eng** environment will include:

- (a) eBridge - the University of Hull institutional VLE (Sakai) and Partner College VLEs – for flexible academic/module delivery
- (b) Systems that allow the recording of achievement - ePortfolio systems (open source or commercial) that use the emerging European standards for learner achievement records LEAP2A<sup>9</sup> for learner-authored portfolio-related information
- (c) Study skills support

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<sup>8</sup> The project partners – Doncaster College, East Riding College and the University of Hull

<sup>9</sup> [http://wiki.cetis.ac.uk/LEAP2A\\_specification](http://wiki.cetis.ac.uk/LEAP2A_specification) (paragraph 20)

- (d) Tools to facilitate the discovery and use of JISC resources and library management systems based on the outputs of the CREE 2 project
- (e) Access to a variety of general information, including IAG and support for employability.

## C.7 Stakeholder Map

Category	Sub-category
Sponsors	JISC, HEFCE, University of Hull
Stakeholders	Employers – KCom Group, Corus, Clugston Group, Doosan Babcock Energy, Logan Teleflex (UK) Limited The Institution of Engineering and Technology Yorkshire Forward – RDA, North Lincolnshire Council, Greater Economic Success Group, Sector Skills Councils, HETA, Regional LLN partner institutions
Users	HE Students, member institutions: FT, PT, mature, campus-based, work based, community based. HE Staff, member institutions: administrative, learning, support, academic, mentors, management, outreach. Employers and professional bodies 'Guest' users
Other Interested Parties	LLN National Forum, JISC Community, Professional Bodies, EC <sup>uk</sup> , ESCalate Centre for International ePortfolio Development Higher Education Academy Engineering Subject Centre, The Training Gateway

## D – Work plan

### D.1 WP 1 Project management

**CPD-Eng** activity will be co-ordinated through a project manager reporting to a representative steering group drawn from partners and with acknowledged authority. This group will meet no fewer than four times per year. A project working group will meet on a fortnightly basis to undertake detailed planning and monitor progress against objectives and decide on adjustments to the project plan. This will also ensure that sufficient emphasis on engaging with the engineering community is seen as a priority.

#### *Deliverables*

1. *Effective project management for the duration of the project, ensuring the project delivers the expected outcomes and identifies appropriate opportunities for sustainability.*

### D.2 WP 2 Community Engagement & Dissemination

Under its Royal Charter, EC<sup>uk</sup> grants licences to some 33 engineering institutions allowing them to assess candidates for inclusion on its register of professional engineers and technicians, and accredit academic programmes and professional development schemes.

With advice obtained from EC<sup>uk</sup>, **CPD-Eng** will develop effective community engagement with selective relevant institutions and these will be clearly defined; clarifying who and why they are engaged. Methods of engagement will allow accountability and maximise involvement. Effective organisation of engagement processes will enable realistic, achievable milestones within time and resources constraints.<sup>10</sup> Communications between all partners will be relevant, clear and timely, with systems in place to allow this to be effective throughout the project.

**CPD-Eng** will report progress through a variety of communities and staff will be actively encouraged to submit abstracts of findings to relevant conferences

#### *Deliverables*

1. *Community engagement Plan – August 2009*
2. *Dissemination/marketing Plan. – March 2010*

<sup>10</sup> **References:** Arnstein, S. R. (July 1969) 'A Ladder of Citizen Participation,' *JAI/P*, Vol. 35, No. 4, pp. 216-224.  
Joseph Rowntree Foundation (July 2006) 'The value added by community involvement in governance' from <[www.jrf.org.uk/knowledge/findings/government/pdf/0406.pdf](http://www.jrf.org.uk/knowledge/findings/government/pdf/0406.pdf)> (3 January 2007). Khamis, C. (2000) 'Establishing Community Forums That Make a Difference', *Local Economy*, 15, (3), 264-267.

### D.3 WP 3 User requirements analysis

WP3 will produce an initial baseline report of the processes and practice employed within the Professional Engineer framework under development by the University of Hull, which has been inspired by the EC<sup>uk</sup> MSc in Professional Engineering, reviewing prior work and key lessons relevant to the project. There will also be a review of the employer engagement work undertaken by the University of Hull's Centre for Lifelong Learning (CLL), funded by the Centre for Recording Achievement, to help further inform user requirements. Refining best practice within e-technology use will enable both employer and employee to engage in higher level learning, reflection and development. CLL is collating and synthesising data at different programme levels to provide a broad view of sector practice in lifelong learning and workforce development. The initial baseline report, which will include findings from this review, will be completed in the first three months of the project.

The project team will be working with the Centre for International ePortfolio Development at the University of Nottingham and LeapAhead LLN, as both have experience in the use of ePortfolios in the work place. It would be expected that **CPD-Eng** would evaluate the work that has been undertaken in this area, especially the JISC funded JOSEPH project. The work and key messages from the JISC funded Support Point<sup>11</sup> project will also be used to inform the report

The results from this report will be used to identify the first phase of work. To ensure that the first iterations of the **CPD-Eng** system and subsequent evaluation can be completed, the subsequent rounds of evaluation also allow for further iterative developments of **CPD-Eng** system functionality.

The nature of lifelong and work based learning can mean that significant benefits to the learner are gained through the use of mobile technologies. An investigation of the potential of these technologies will be completed as part of the project.

The community engagement officer will organise both focus and working groups throughout the life of the project to ensure that user-centred design principles are followed, from initial wireframes (see Appendix C) to systems implementation, including working with learners, employers, educators, project stakeholders, interested external communities, technical, and marketing staff.

The companies involved in the provision of the work-based MSc programme in Professional Engineering, developed by EC<sup>uk</sup> will be approached with a view to investigating their systems. These all use some form of recording and method for reviewing learning and experience in management development and professional accreditation. Along with these systems **CPD-Eng** will review the outcomes and lessons of previous projects and initiatives with the aim of embedding previous JISC funded products into the system portal to enhance the learner experience e.g. SOLVS<sup>12</sup> and CV Builder<sup>13</sup>

#### *Deliverables*

- 1. A baseline report on cross-institutional processes and practice within the University's work-based MSc programme; and a review of prior work and key lessons relevant to the focus of the project - May/June 2009*
- 2. Report on potential of mobile technologies – March 2010*
- 3. Phase 2 user requirements gathering report – September 2010*
- 4. A report of prior work and key lessons relevant to the focus of the project – May 2009*
- 5. Systems analysis. – dependent on 1 and 2 findings*

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<sup>11</sup> <https://learning.staffs.ac.uk/web/guest/home>

<sup>12</sup> <http://web.mac.com/garfield.southall/iWeb/SOLVS/Welcome.html>

<sup>13</sup> <http://www.ntu.ac.uk/cvbuilder>

#### D.4 WP 4 Pilots

The exact nature of the **CPD-Eng** pilots will be determined following the initial gathering of requirements and an evaluation of the potential for integrating the required systems. There will be two stages of pilots; the first going live after the initial requirements gathering, the second ready for the start of the 2010/2011 academic session. The second pilot will continue to be used after the project has completed, as detailed in the section on sustainability.

Appropriate system support and user guides will be developed to assist users, along with a suitable induction package enabling users to develop the necessary skills.

##### *Deliverables*

- (1) *User guides and induction package – October 2009/September 2010*
- (2) *Initial pilot: months 8 – 14 - November 2009 – May 2010*
- (3) *2nd pilot: September 2010 onwards.*

#### D.5 WP 5 Evaluation, Reflection and Reporting

To ensure ongoing monitoring of the project's activities and outcomes, this work package will operate from the launch of the first pilot to the end of the project, evaluating the experiences of educators, mentors and learners; both the University of Hull and Partner Colleges. Two phases of evaluation will take place during the project, aligning with identified stages of the pilots. The evaluation will hold focus groups and, where appropriate, individual interviews to gather reflections and experiences of the **CPD-Eng** systems; processes and practices developed during the project to support lifelong learning and workforce development.

Additionally, this work package will produce an analysis of the project and other reports identified by JISC, including a user requirements analysis and transferable models. An independent consultant will be employed to assist with the evaluation, whilst also providing a valuable external view on the project. Towards the end of the project period, evaluation will focus on what changes have occurred in the University of Hull and Partner Colleges, which could be linked to project activities, and whether any benefits have been realised, referencing back to the baseline reports completed in WP3. Evaluation will also be supported by TechDis, who will provide accessibility expertise.

Evaluation of the forthcoming Sakai 3 will also take place, to consider the levels of functionality that this release may give to enhance the experience for the learner.

##### *Deliverables*

- (1) *Evaluation of User requirements analysis (WP3) – June/July 2009*
- (2) *Phase 1 evaluation of the innovations implemented (access management) and their consequent benefits for the lifelong and work-based learners, tutors, mentors, EC<sup>uk</sup> and institutional experiences – May/June 2010*
- (3) *Phase 2 evaluation of learners, tutors mentors, EC<sup>uk</sup> and institutional experiences (as above) – February/March 2011*
- (4) *Project evaluation report – February/March 2011*
- (5) *Report on transferable models – April/May 2010*
- (6) *Report on user needs and user interactions – July 2009 and July 2010*
- (7) *Report on Sakai 3 capabilities to integrate into the development system. – March 2010*

#### D.6 WP 6 Access management

This work package will build on the ISPPS deployment of Identity Management services at Hull based around the Sun IDM stack. **CPD-Eng** will place the learner at the centre, allowing easy and seamless access for the learner, and allowing them to control the level of access to their personal data for their mentors, assessors, employers and professional bodies (Appendix B). The system will allow access to differing personal systems including e-portfolio-type

technologies to support continuing professional development and staff review, as identified in WP 2.

**CPD-Eng** will identify a set of core attributes required for personalisation that can be commonly provided by all the project partners. These attributes will be mapped to the eduPerson standard as mandated by the JISC UK Federation.

This work package will also investigate the self-containment nature of smart cards which makes them resistant to attack, as they do not need to depend upon potentially vulnerable external resources. Because of this, smart cards are often used in applications which require strong security protection and authentication. Investigation will look at the feasibility of using this technology as a means to store standards based personal learner records/data.

**CPD-Eng** would investigate the progress of the government's work on Managing Information Across Partners (MIAP) and the issuing of a Unique Learner Number (ULN), and the feasibility of their integration into the system. If this is not possible, the project will follow the eduroam practice of `username@institution.ac.uk`.

#### *Deliverables*

- (1) Learner centre access management system – October/November 2009*
- (2) Learner control of multiple views of content for viewing by others – March/April 2010*
- (3) Feasibility study into the use of smart card technology for the storage of personal information involved in the Professional Engineering framework – September 2010*

### **D.7 WP 7 Systems integration**

The most important integration will be with eBridge and Partner College VLEs. This will be achieved through the creation of a generic dashboard concept with functionality identified as part of User Requirements (WP2).

ePortfolio integration will require the ability to query the IDM about an individual, allowing the **CPD-Eng** system to display the correct content and provide a single 'sign on' mechanism from the **CPD-Eng** to ePortfolio tools, removing the need/barrier of asking users to 'sign in' twice.

The ISPPS project established an institutional web-based portal, or meta-portal, which provides "dashboard" views of differing learning environments, access to a range of tools, and enables aggregation of external services and applications. This is based on the widely used uPortal framework and incorporates a series of portlets, providing access to eBridge (Sakai), together with portlet outputs of JISC related projects such as the CREE and XCRI-CAP<sup>14</sup> coursefinder portlets. This software has been fully tested and established through the ISPPS project and is in use within the community. It offers a coherent anchor point for part of a lifelong learning or work-based journey, including aggregating content from, and enabling interfaces to, a number of different organisations and virtual "places".

Structured to conform to emerging European standards (i.e. LEAP2A) systems will enable learners and those who support them to link up with other learners, workplace mentors, experts and academic staff within the University and Partner Colleges. Where necessary, **CPD-Eng** will have the ability to integrate with other learning environments, other systems and applications.

WP3 will ultimately inform the evaluation of the many employer-based systems in existence and their requirements and processes that enable full integration.

#### *Deliverables*

- (1) eBridge - dashboard integration with single 'sign on' – August 2009*
- (2) Integration with other internal systems as listed in WP3*
- (3) Integration with external work-based systems – throughout the project*
- (4) Integration with EC<sup>uk</sup> systems – throughout the project.*

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<sup>14</sup> <http://xcri.org> (paragraph 20)

## D. 8 WP 8 Data exchange and interoperability

The learner is personally in control of the information in these systems and what is visible to whom. This work package will look at protecting the privacy of learners and the processes they will be using to share evidence of achievement with different audiences, while the confidentiality of intellectual property and other information belonging to the employer is protected.

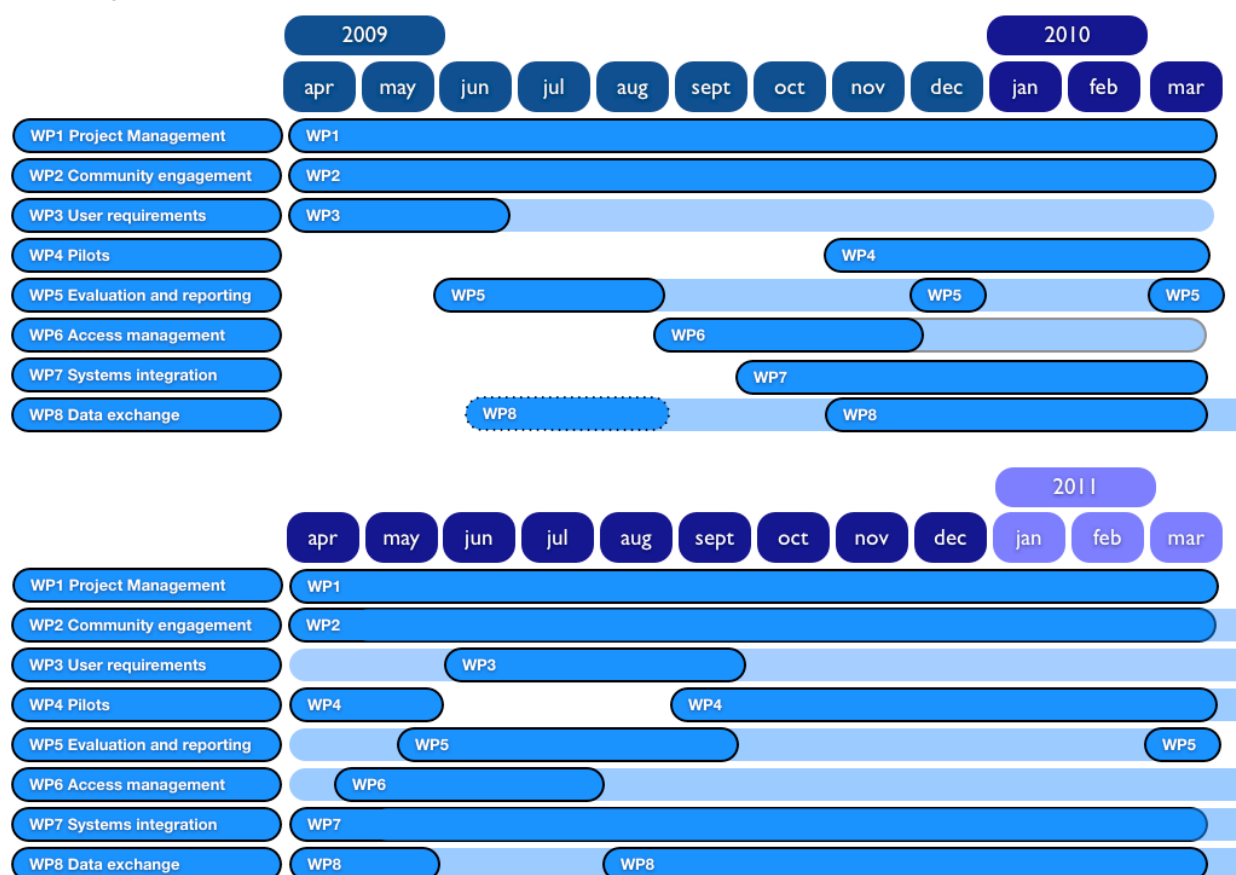
This will take into account technical, pedagogical, legal and administrative issues, and issues of control, ownership and provision of software.

Software accessibility standards or guidelines can be regarded as not particularly intuitive or easy to use. **CPD-Eng**, therefore, will work with TechDIS to ensure that any accessibility and usability barriers in systems are identified and resolved.

### Deliverables

- (1) Mapping of internal/external systems – WP 3 will initially supply information, with this completed in August 2009
- (2) Achieving Accessibility standards – March 2010
- (3) Compliance with Data Protection regulations.

## D.9 Project Schedule



## D.10 Statement of IPR

The primary focus of **CPD-Eng** is the re-use and integration of software components. It is not intended to retain any IPR over the documentation detailing this, but the reverse; it will be made available under an appropriate Creative Commons licence. In the event of specific software outputs being produced by the project, they will be licensed under the Apache Licence Version

2.0. This is endorsed by the Open Source Initiative<sup>15</sup>. It allows any commercial or non-commercial exploitation of the software and is widely recognized as being one of the most liberal licences in circulation. Several OSS communities are currently converging around this licence. Full licence at: <http://www.apache.org/licenses/LICENSE-2.0>.

#### D.11 Risks

Factor	Likelihood	Impact	Mitigation Strategy
Failure to recruit staff	Medium	High	Minimise number of staff to be recruited. Ensure recruitment cycle begins as rapidly after project approved as possible. Ensure remuneration adequate to level of responsibility and expertise. Use specialist recruitment agency if necessary. Other staff seconded from other duties and additionally trained as triage solution.
Underestimate difficulty of specific technical development	Low	Medium	Close integration with OSS community effort to mobilise additional resource to bear on problem space.
Difficulty integrating with data sources for identity	Medium	High	Deploy Identity Management software based on open standards. Direct engagement with systems specialists.
Difficulty integrating the numerous electronic systems within the Engineering framework	Medium	High	Work with the various Engineering institutions to develop a concept concerning the creation and adoption of Standards (i.e. LEAP2A)
Project fails sufficiently to engage engineering communities	Low	High	Staff within the University of Hull, particularly the Knowledge Exchange will ensure that the 'learner voice' is represented throughout the project, inclusive of the broad diversity (including geographic) of learners represented within the partnership.

#### D. 12 Sustainability and growth plan

In the years following the conclusion of the **CPD-Eng** project, the resulting infrastructure from the project will be integrated within the newly formed Engineering Professional Development Centre and supported by the University of Hull.

*"The University (Hull) is particularly interested in this (CPD-Eng) because it can eventually use the Flexible Framework for masters level provision."* (Professor Peter Lutzeier, PVC (Learning and Teaching)).

The University is currently reviewing its provision of PDP and an ePortfolio sub-group has been formed to provide a recommendation for an institutional ePortfolio system. The **CPD-Eng** project will provide feedback to the ePortfolio sub-group as it gains experience with the technologies and user communities involved in the project.

**CPD-Eng** will develop links with the digital repository (**eDocs**<sup>16</sup>) at the University, which has been designed to cope with the management of all types of digital content. Development to date has been enabled through JISC-funded projects, and full institutional support is being actively sought. Formal institutional trials for collections of e-theses and exam papers have been undertaken and the repository is under consideration for use in managing Committee papers and scanned documents. The variety of content being managed is high, and we expect this to continue. Notwithstanding the benefit formal institutional support would bring, the repository will be maintained as far as practical for the long-term management of the content within it.

The University has had a portal in production for six years now. This is based on the open source uPortal software. The University has a continuing commitment to the support of its portal using this software, which would be extended as appropriate to the outcomes of the **CPD-Eng** project. Similarly, the University has an open source VLE, Sakai, which it has a continued commitment to, and which will also support the scalability and sustainability of this project.

The University's Business and Community Knowledge Exchange has a proven track record of working with external partners and the wider community. It will work closely with and

<sup>15</sup> <http://www.opensource.org>

<sup>16</sup> <http://edocs.hull.ac.uk/muradora/welcome.jsp;jsessionid=E6E7AF3C49FC267AB9A864743549B662>

disseminate to private and public sector partners to both assist sustainability of the project and ensure, where possible, broader integration and accessibility with the project infrastructure.

Although **CPD-Eng** will work initially with learners in the engineering field at the University, the expectation is that it can subsequently be applied to other sectors involved in offering professional qualifications, such as Health within the Hull York Medical School.

## E. 1 - Engagement with the Community

It is vital that the project works closely with the engineering community and that the vision is a shared vision of enabling the work-based learner to engage with the concepts around IPD, CPD and the University of Hull's Professional Engineering framework. Without this measure of buy-in, it would be impossible to put the necessary underpinning Identity Access Management processes and technical infrastructure in place. The project will work closely with project partner administrative and technical staff to ensure this level of buy-in is consolidated and extended.

The University of Hull has a proven track record of involving a variety of end-users in the software design and implementation process<sup>17</sup>.

**CPD-Eng** will organise focus and working groups throughout the partners to ensure that user-centred design principles are followed, from initial wireframes (see Appendix C) to systems implementation and includes;

- ensuring that application functionality and content is desirable and compelling [Learners]
- determining the learning and resource discovery content made available to learners, and the degree of personal access management which will be enabled [Learners]
- determining component integration and design of appropriate visual appearance/s [technical and marketing staff]

Outputs from each of these discrete but related constituencies will be published as project deliverables. (WP3)

## E.2 Dissemination

The University of Hull has a proven track record of participating in JISC related and other dissemination activities during the lifespan of funded projects and beyond, and working flexibly with programme staff to ensure the maximum community benefit is obtained from funded activity. In addition to reporting directly to the eLearning Capital Programme and potentially contributing to eFramework Service Genres, Expressions and/or Usage Models, it is clear that **CPD-Eng** outputs may well be of significant interest to the Portals and Presentation Programme, and broader Information Environment work, including Core Middleware /Infrastructure. As far as possible, **CPD-Eng** will work with the JISC Executive to ensure that appropriate lessons are carried into these areas of work, whilst recognising that the project funding profile is designed to support active engagement with the eLearning Capital Programme and making contributions to the eFramework. (*paragraph 22*)

**CPD-Eng** will also report progress through the variety of communities engaged by the University of Hull and Partner Colleges. These include, but are not limited to:

- the JASIG and JASIG UK
- Sakai communities.
- JISC CETIS ePortfolio SIG, EIfEL community
- LLN community – JISC CETIS Lifelong Learning SIG, National LLN Engineering, eSystems and Employer Engagement work strands
- TechDIS, and the JISC CETIS Accessibility SIG

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<sup>17</sup> The JISC funded PORTAL and CREE projects provide examples of this, together with published user requirements analysis around institutional portal deployment.

- Engineering Council UK
- Higher Education Academy Engineering Subject Centre
- Regional Development Agency – Yorkshire Forward. (Digital 2020)

The University is happy to consider any augmentation of this work by negotiation with Programme management staff or the JISC Executive.

## **F - Budget**

*Data Protected*

## **G. 1 - Previous Experience of the Project Team**

The University of Hull has participated in, or led, the following JISC funded projects; ISPPS (eLearning Capital Programme), CREE, VSM (Video Sound and Moving Image) (Portals and Presentation Programme), REPOMMAN, RIDIR, REMAP (Repositories Programme), ISIS, ASSIS, WebPA (eLearning and eLearning Capital Programme/s), FREMA (eFramework Reference Model), eRESS (Virtual Research Environment Programme).

## **G.2 Directly Incurred Staff**

## Appendix A

### FOI Withheld Information Form

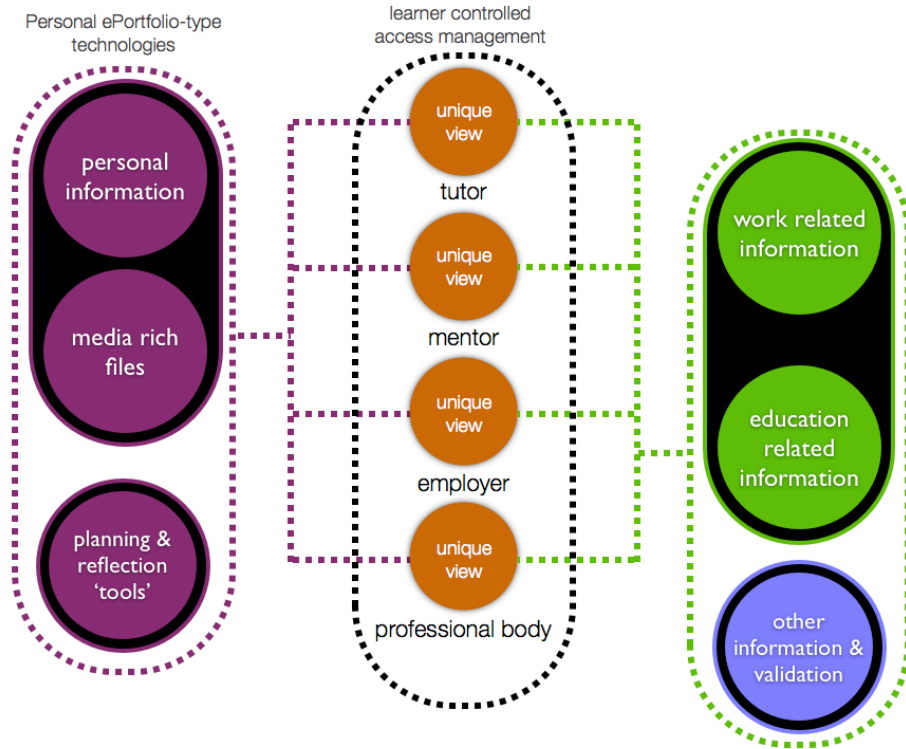
We would like JISC to consider withholding the following sections or paragraphs from disclosure, should the contents of this proposal be requested under the Freedom of Information Act, or if we are successful in our bid for funding and our project proposal is made available on JISC's website.

We acknowledge that the FOI Withheld Information Form is of indicative value only and that JISC may nevertheless be obliged to disclose this information in accordance with the requirements of the Act. We acknowledge that the final decision on disclosure rests with JISC.

<b>Section / Paragraph No.</b>	<b>Relevant exemption from disclosure under FOI</b>	<b>Justification</b>
Budget	s.40 Personal Information	Contains information about living individual's personal financial details (salaries), the disclosure of which could contravene the 1988 Data Protection Act.

Please see <http://www.ico.gov.uk> for further information on the Freedom of Information Act and the exemptions to disclosure it contains.

## Appendix B – Access Management



## Appendix C - CPD-Eng Wireframe

