

## JISC DEVELOPMENT PROGRAMMES

### Project Document Cover Sheet

#### CD-LOR PROJECT PLAN: Public Version

#### Project

<b>Project Acronym</b>	CD-LOR	<b>Project ID</b>	
<b>Project Title</b>	Community Dimensions of Learning Object Repositories		
<b>Start Date</b>	1 June 2005	<b>End Date</b>	31 May 2007
<b>Lead Institution</b>	University of Dundee		
<b>Project Director</b>	Prof. Allison Littlejohn		
<b>Project Manager &amp; contact details</b>	Sarah Currier Centre for Academic Practice and Learning Enhancement University of Strathclyde, 50 George Street, Glasgow G1 1QE Tel.: +44 (0)141 548 4573 Fax: +44 (0)141 553 2053 E-mail: <a href="mailto:sarah.currier@strath.ac.uk">sarah.currier@strath.ac.uk</a>		
<b>Partner Institutions</b>	University of Strathclyde; Intrallect Ltd.		
<b>Project Web URL</b>	<a href="http://www.dundee.ac.uk/fedsoc/inlet/projects/cd-lor/">http://www.dundee.ac.uk/fedsoc/inlet/projects/cd-lor/</a>		
<b>Programme Name</b>	Digital Repositories (03/05)		
<b>Programme Manager</b>	Neil Jacobs		

#### Document

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#### Document History

Version	Date	Comments
1.0 Public	15.09.05	Final version: Public version.

## Community Dimensions of Learning Object Repositories (CD-LOR) Project Plan

### Overview of Project

#### 1. Background

The CD-LOR project will identify and analyse the factors that influence practical uptake and implementation of learning object (LO) repositories within a range of different learning communities,

and make its findings available in a range of ways for the benefit of UK higher and further education. This section looks at the background and motivation for the project.

## **1.1 Background information**

### ***Learning Objects***

Definitions currently in use for the term “learning object” mainly cluster around the idea of a highly granular digital resource developed to meet a single learning objective. LOs may be aggregated to form larger units, and may be incorporated into a range of learning activities, be they entirely online, within blended learning, or classroom based. Key to the idea of LOs is that they should be durable, interoperable, reusable and shareable. Although they are developed with their educational purpose in mind, their ability to be incorporated within a range of pedagogical approaches is important. However, the CD-LOR project does not intend to work within a narrow or rigid definition of LOs; rather, the stakeholder communities involved in the project, in particular the associate and collaborative partners, will have their own definitions of what constitutes a useful chunk of teaching and learning material. The concept that CD-LOR will explore is the usefulness of repositories of such teaching and learning materials in support of learning communities. The term “LO repository” is intended as useful shorthand, rather than prescriptive.

### ***Learning Object Repositories***

LO repositories have emerged in recent years to support the storage, management, sharing and reuse of teaching and learning resources within and across learning communities. Although there is a growing body of research devoted to the LO concept, the implementation of LO repositories within learning communities is still relatively immature. Recently there has been a shift in focus “in an attempt to identify and analyse the factors that influence practical uptake and implementation of learning objects”<sup>1</sup>. Koper et al (2004)<sup>2</sup> found that, in spite of the growing availability worldwide of reusable LOs and LO repositories, educators still have to “cope with major problems when trying to find, retrieve, adapt or use materials”. Their own experience was that “efforts required to reuse objects in most cases outweigh possible advantages. This is especially true when the objects are developed in different institutions. In many cases, course developers have decided that it is easier to (re-)create the materials themselves rather than reusing them from others.” Koper et al therefore developed a theoretical framework based on social science research to describe the requirements for the development of a successful LO exchange community.

## **1.2 Need**

### ***Needs of e-Learning Communities***

The above references point to an expressed need within the e-learning community internationally for more information and recorded experience around how learning communities can best be supported by repositories. CD-LOR will build on current R&D work, including that noted above, and related LO repository work within such initiatives as the JORUM+ development project, the Stör Cùram development project, the HLSI repository, and the WM-Share project. It will synthesize existing evaluative work both nationally and internationally, and take advantage of the availability of a number of LO repository initiatives in the UK and Ireland to test solutions to emerging community requirements in support of the uptake and embedding of LOs.

Specific questions to be asked include: “What incentives are there to share educational resources? What factors will influence the uptake and implementation of reusable learning objects within different communities of practice? What are the barriers and drivers that encourage teachers and learners to engage with the learning object economy?”<sup>3</sup> Reference will also be made to the UKOLN/AHDS Digital Repositories Review and the X4L Review Final Report, both of which include key questions for LO repository communities.

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<sup>1</sup> Campbell, Lorna M. (2003) Engaging with the learning object economy. In: Littlejohn, A. (Ed.) Reusing online resources: a sustainable approach to e-learning. London, Kogan Page. p.36

<sup>2</sup> Koper, R. et al (2004) Building communities for the exchange of learning objects: theoretical foundations and requirements. In: ALT-J Research in Learning Technology, vol.12,no.1 (Mar. 2004), pp21-35.

<sup>3</sup> Ibid., p.37

### ***Needs of Educational Institutions***

Additionally, as Pollock and Cornford's ESRC study on the theory and practice of the virtual university found, failures in implementing e-learning are often brought about by "difficulties in co-ordinating a wide range of actors across a large organisation made up of diverse and disparate entities (i.e. departments and service units)"<sup>4</sup>. With this in mind, CD-LOR will ground its work on LO repositories and the communities they serve within the wider context of institutional policies, strategies, systems and workflows, to ensure the widest possible successful uptake of the project outputs. It will simultaneously investigate the micro view within institutions, in terms of investigating the personal information management strategies of individual stakeholders, primarily teachers, to ascertain how repositories might build upon their existing practices and workflows.

## **2. Aims and Objectives**

### **2.1 Aims**

CD-LOR aims to investigate barriers and enablers to successful embedding and use of LO repositories, in support of teaching and learning, within a diverse range of learning communities. Such communities include those based in individual and federated institutions and those that exist across institutions (regionally, nationally and internationally), e.g. discipline based communities, or communities coalescing around use in teaching and learning of particular formats, such as sound files.

Thus CD-LOR will assist the JISC in laying "a firm evidence-base on which to build Phase Two of the Programme (2006/7)"<sup>5</sup> by focusing on the social and cultural dimensions of LO repositories within learning communities, in support of *Objective ii* of JISC Circular 03/05. However, some parts of the project will also address *Objective i* (by collaborating with any funded thematic studies whose remit overlaps with outputs of this project) and *Objective iii* (by developing use cases and software plug-ins and tools where prioritised by the project).

### **2.2 Objectives**

CD-LOR will achieve its aims by:

1. Creating a typology of learning communities, mapping their characteristics in relation to their use (or potential use) of LO repositories;
2. Identifying possible drivers, barriers and enablers to uptake and embedding of LO repositories within such communities;
3. Prioritising, developing, implementing and testing a range of potential solutions to barriers in live test-beds with real learning communities;
4. Producing use cases, case studies and a set of structured guidelines on LO repository implementation within learning communities;
5. Producing recommendations for institutional managers on wider policy, strategy, systems and workflow issues;
6. Developing institution-wide use cases linking LO repositories to wider information management processes;
7. Investigating and reporting on personal resource management practices and strategies of individual stakeholders within learning communities.
8. Making recommendations to JISC for ongoing research and development.

## **3. Overall Approach**

### **3.1 Strategy / Methodology**

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<sup>4</sup> Pollock, N. & Cornford, J. (2000) Theory and practice of the virtual university. In: Ariadne (Issue 24)

<sup>5</sup> JISC Circular 03/05 Full Text: Call for Projects in Digital Repositories, p.2

### **Overall Strategy and Methodology**

CD-LOR will achieve its aims, objectives and outputs through a process of five inter-linked workpackages (see *Appendix B: Workpackages 2-6*). The project's overall strategy is to begin with desk research, which will inform, and be evaluated by, consultation with stakeholders, represented primarily by the project associate partners, but with a number of collaborative partners, and individual experts on the Steering Group taking part also. This consultation will identify specific drivers, barriers and potential enablers to the uptake and embedding of LO repositories. Possible technical and process/workflow solutions to those barriers will be prioritised by the stakeholders, and implemented and evaluated in pilot studies within the associate partners' learning communities and repositories. Further desk research and consultation will be carried out by CD-LOR in parallel to this work, to provide wider and deeper context, reviewing current institutional policy and strategy relevant to LO repositories, e.g. institution-wide knowledge management strategies, as well as investigating personal resource management strategies of individual stakeholders within institutions. Throughout the project, structured guidelines for the implementation and evaluation of LO repositories within learning communities will be developed, beginning with the initial mapping of communities and issues, and subject to revision as stakeholders are consulted and solutions are evaluated.

### **Methodology: Step by Step**

1. Initial desk research (see *Appendix B: Workpackage 2*) will principally involve a literature review of characteristics of learning communities in relation to LO repositories. This will include relevant educational and social sciences research, and, for up-to-date grass-roots data, an analysis of documentation produced by LO repository R&D communities (e.g. the CETIS Metadata & Digital Repositories SIG JISCmail discussion list archive). Evaluative and other outputs from recent and current projects such as the JISC DeL WM-Share and HEA projects and the X4L projects will also be gathered and synthesized within this review.

2. This review will inform a mapping of learning community types currently supported by LO repositories, and a comparative description of models of LO repository use (e.g. some learning communities require payment for use of LOs, while some are free to authorised users, and others are openly available to all). The output from the review and mapping activities will be a draft report elucidating current LO repository models and practices, and beginning to link types of learning communities with specific enablers, barriers and drivers to the uptake and embedding of LO repositories. This report will also form the basis for the structured guidelines produced (see *Appendix B: Workpackage 6*).

3. The above desk research will be extended and evaluated through stakeholder consultation utilising the input of the associate and collaborative partners, and the wider HE/FE community, to validate its outputs. An initial workshop will be carried out to build on the desk research report, and the output will be a final version of the report detailing barriers and possible solutions identified.

4. Priorities for implementing and testing the solutions identified will be developed in consultation with the associate and collaborative partners, the wider programme, and JISC. Both technical and procedural/workflow use cases will be developed, implemented and tested within the associates' LO repositories/learning communities. This will result, if appropriate, in technical outputs in the form of technical recommendations and software plug-ins and tools with documentation. Additionally, both technical and process/workflow solutions tested will result in refined use cases, case studies and evaluation reports on each solution.

5. Running parallel to, and feeding into and from the above steps, CD-LOR will review, through desk research, current institutional policy and strategy relevant to LO repositories, e.g. institution-wide knowledge management strategies. This will include looking at intra-institutional policy, strategy, systems and workflows, e.g. library management strategy for supporting e-learning. Additionally, this review will look at personal resource management strategies of individual stakeholders within institutions, via desk research, interviews and a survey. The review will be designed to investigate such questions as: How does an individual lecturer find, create and store their teaching resources?; and How do they share them with other staff in their department or subject area? Outputs from this step will support the work of the rest of the project by ensuring a good fit for solutions tested and guidelines produced with the wider institutional context and the micro-context of individual community members' working and learning practices. They will also include a report on the findings of the review; institution-wide use cases to feed into wider repository and e-learning initiatives; and recommendations for senior managers within institutions.

6. Finally, a public draft of the structured guidelines will be released, followed by a stakeholder evaluation period on all public deliverables before final release versions.

### **3.2 Important issues to be addressed**

The overarching issue to be addressed is how to usefully implement and embed LO repositories to support teaching and learning in different contexts. The CD-LOR project's methodology will elicit and prioritise specific issues to be investigated. However, current research and experience gives some clues as to the kinds of issues that will be likely to emerge:

*1. Changing roles of stakeholders.* As LO repositories are taken up in support of teaching and learning, the work practices and roles of teachers and other staff are likely to change; indeed they already are changing in response to a number of drivers, including those related to the increasing ubiquity of e-learning. For example, some staff might be more involved in resource preparation, others in resource sharing and still others in metadata creation or resource evaluation. This raises issues about allocation of roles and staff time, and about institutional recognition and rewards.

*2. The organisation of institutions and use of LO repositories.* In order to realize the full benefits from LO repositories, it is necessary to understand how institutions and their internal and external relationships function, alongside understanding how the grass-roots practices of teachers and learners operate within institutions. Changes in institutional processes (and by implication related changes in the social organisation and culture of the institution) may be necessary; there may also be ways in which LO repositories can adapt to fit current practices and workflows. This will require that the implementation of repositories be linked to individual and institutional strategies at a variety of levels.

*3. Digital rights management.* Widespread use of repositories will depend on institutions, LO contributors and users having confidence that intellectual property rights are upheld. Current UK IPR law creates barriers to optimal use of LO repositories for easy sharing of LOs; these barriers could have a number of solutions within workflows, user education, and cultural change.

*4. Quality of learning objects.* Where a learning community is using a repository to share LOs they have created, there are likely to be issues about the quality of those LOs. On one hand users want access to high quality resources, on the other they may be reluctant to share their own resources if they feel restricted by quality assurance mechanisms (e.g. if a peer review system within a repository was seen to allow overly harsh criticism). Different quality assurance procedures and workflows may also be needed at different stages in a LO's lifecycle.

*5. Metadata creation workflows.* Research has indicated that who creates metadata, and how, may be a key trust issue for repository use. For instance, a repository that relies on poor tools and untrained, unsupported users to create all its metadata may end up with a poor reputation across the community because resources are difficult to find. However, resource creators often have important knowledge that must be captured in the metadata so workflow management is important. Moreover, if metadata requirements on LO contributors are seen as too difficult or time-consuming, no LOs may be shared at all.

Although this list is indicative of many of the major issues that are likely to be identified, not all of these will be investigated in this project. CD-LOR will collaborate with related projects in the programme to support prioritisation of issues and avoid duplication. In addition, the project will monitor and communicate with those involved in the programme who are working in similar areas around different repository types, such as research data repositories or e-Print archives, to identify synergies in solving common problems and so on.

### **3.3 Scope and boundaries**

As with the issues to be addressed, the scope and boundaries of the project will largely be determined by the priorities identified by the stakeholder communities, particularly the project associates. However, it should be noted that CD-LOR's focus is on the ways in which learning communities may utilise the support of LO repositories, rather than technical issues, interoperability standards or traditional information management approaches.

The way a repository is used depends upon the nature of the community it serves and how it is organised. This involves such issues as:

1. The motivations of community members;
2. Members' roles, status and relationships within the community;
3. What the rewards and incentives are for sharing and using LOs within that community;
4. Who controls resource access and use;
5. The size of the community and its effectiveness;
6. The distance of members from each other (e.g. is face to face communication possible?);
7. Community ground-rules and how these develop and are supported;
8. The reconciliation of multiple agendas;
9. The rhythm of the community and its maintenance;
10. Whether the community is perceived as open or closed, etc.

Learning communities differ in their cohesiveness; some communities are tightly knit with members having close connections, high motivation to share, and a good degree of trust and shared values, whereas other communities may be loosely confederated, with group membership being more transient and conditional. Therefore, key factors that inhibit LO repository utilisation may differ between one community and another, although some will also be common across learning communities, and across the wider repository problem space encompassing such related initiatives as e-Print archives, image databases, research databanks, etc.

The scope of this project is therefore determined by the learning community perspective from which it is approaching repository issues rather than by a set of issues named for inclusion or exclusion.

### **3.4 Critical Success Factors**

The success of the CD-LOR project depends upon:

- a) The associate and collaborative partners' identification and articulation of problems surrounding the cultural dimensions of communities' use of repositories;
- b) The interoperability and usability of software developed;
- c) The flexibility of the project team and project plan in keeping up with rapidly evolving developments in the LO repositories scene, so that outputs meet the needs of the wider community.

## **4. Project Outputs**

### **4.1 Deliverables**

1. *Report* (including literature review) on current LO repository models and practices, with a mapping of types of learning communities to drivers, barriers and enablers to uptake and embedding.
2. *Use cases* describing use of LO repositories within learning communities and mapping potential enablers and solutions to barriers, with prioritised use cases refined through testing of solutions.
3. *Software plug-ins and tools* (with *documentation*) and *Technical recommendations* for technical solutions developed based on use cases prioritised by learning communities.
4. *Evaluation reports* on tested technical and non-technical solutions.
5. *Case studies* presenting tested technical and non-technical solutions.
6. *Use cases* describing wider institutional incorporation of LO repositories within institutional knowledge and information management strategies and other relevant systems and workflows.
7. *Report* on institutional and personal knowledge management review.
8. Institutional strategy and policy *recommendations*.
9. *Structured guidelines* for those setting up or evaluating LO repositories, based around a set of questions designed to elicit the relevant drivers, barriers and enablers for the particular learning community type as identified in *Deliverable 1: Report*.
10. *Recommendations* to JISC for further research and development.

### **4.2 Knowledge and experience**

Outputs of CD-LOR in terms of increased knowledge and expertise for the UK HE and FE communities will be as follows:

1. Through the development and dissemination of the project deliverables in close collaboration with staff from the eight associate partners, and with the collaborative partners where appropriate, CD-LOR will enhance the knowledge and understanding within UK and international HE and FE communities of how best to implement and evaluate LO repositories from a teaching and learning perspective.
2. By providing wide access to reports, case studies and guidelines on how different learning communities utilise repositories, and on how proposed solutions to barriers were tested and experienced within such communities, CD-LOR will give the educational community concrete evidence to build on in their own practice.
3. Through recording both repository specific and institutional use cases from real learning communities, CD-LOR will provide grassroots support for wider technical developments such as the JISC e-Learning Framework, international standards development and the development of repository software and services.

## 5. Project Outcomes

The outcomes of CD-LOR will include:

1. Enhancement of teaching and learning for communities of educators and learners across UK HE and FE through improving their access to high quality teaching and learning materials via LO repositories.
2. Enhancement of institutional management of LOs and repositories through provision of evidence and support for decision-making and planning.
3. Increased understanding of the role repositories may play in supporting teaching and learning.

## 6. Stakeholder Analysis

The following table lists key stakeholder groups and individuals who have potential interest in CD-LOR outcomes, or will be affected by them, or whose support/approval is essential, along with an assessment of their importance.

Stakeholder	Interest / stake	Importance
Wider HE/FE e-learning community	<ul style="list-style-type: none"> <li>- Ease of access to teaching and learning resources that support their educational and practical needs.</li> <li>- Greater understanding of role and uses of LO repositories in supporting their educational and practical needs.</li> </ul>	High
JISC	<ul style="list-style-type: none"> <li>- Access to evidence on which to base future research and development around repositories, pedagogy and related learning technology areas.</li> </ul>	High

<p>Project partners (Universities of Dundee and Strathclyde)</p>	<ul style="list-style-type: none"> <li>- Wide success in dissemination and uptake of project outputs increasing positive reputation of partners.</li> <li>- Development of organisational understanding of LO repositories and learning communities which may be applied internally.</li> <li>- Development of experience and knowledge of staff in area of LO repositories and learning communities.</li> <li>- Increase in networking, collaboration and commercial opportunities through positive relationships with associate and collaborative partners.</li> </ul>	<p>High</p>
<p>Project partners (Intrallect Ltd.)</p>	<ul style="list-style-type: none"> <li>- Wide success in dissemination and uptake of project outputs increasing positive reputation of partners.</li> <li>- Development of organisational understanding of LO repositories and learning communities which may be applied to their wider business.</li> <li>- Development of experience and knowledge of staff.</li> <li>- Increase in networking, collaboration and commercial opportunities through positive relationships with associate and collaborative partners.</li> <li>- Enhancement of product research and development.</li> </ul>	<p>High</p>
<p>Project associate partners</p>	<ul style="list-style-type: none"> <li>- Identifying, prioritising, developing and testing enablers and solutions to barriers in support of their own LO repository developments and the learning communities they serve.</li> <li>- Increased networking and collaborative opportunities through work with wider project and HE/FE community.</li> <li>- Continuous access to outputs of project in support of their own repository developments.</li> <li>- Wide success in dissemination and uptake of project outputs increasing positive reputation.</li> </ul>	<p>High</p>
<p>Project collaborative partners</p>	<ul style="list-style-type: none"> <li>- Continuous access to outputs of project in support of their own repositories work.</li> <li>- Dissemination and uptake of their own outputs within the wider HE/FE communities through synthesis in project outputs.</li> <li>- Increased networking and collaborative opportunities through work with wider project and HE/FE community.</li> <li>- Wide success in dissemination and uptake of project outputs increasing positive reputation.</li> </ul>	<p>Medium</p>
<p>Institutional managers</p>	<ul style="list-style-type: none"> <li>- Access to evidence-based recommendations and guidelines for implementation and embedding of LO repositories in support of their institutions' teaching and learning activities.</li> </ul>	<p>High</p>

Library managers and staff in UK HE and FE	<ul style="list-style-type: none"> <li>- Access to useful, evidence-based recommendations and guidelines for implementation and embedding of LO repositories.</li> <li>- Understanding of institution-wide and personal information management issues enhancing their work supporting teaching and learning.</li> <li>- Access to wider range of resources to offer to their users.</li> </ul>	Medium
Wider repositories community (e.g. institutional repositories; research data repositories, etc.)	<ul style="list-style-type: none"> <li>- Access to evidence on repository embedding and use, some of which may be transferable to their own communities.</li> </ul>	Medium
Software development community	<ul style="list-style-type: none"> <li>- Access to open source software, and evidence (including evaluation reports, technical recommendations and use cases) on which to base future development of software for e-learning.</li> </ul>	Medium
Technical standards development community	<ul style="list-style-type: none"> <li>- Access to use cases as basis for support of future standards development.</li> </ul>	Low

## 7. Risk Analysis

Risk	Probability (1-5)	Severity (1-5)	Score (P x S)	Action to Prevent/Manage Risk
The range or scope of issues contributing to the success or failure of LO repositories is too large to investigate within the project.	5	4	20	<ul style="list-style-type: none"> <li>- Prioritise investigation in consultation with the project associates, Steering Group and JISC via the Programme Manager, and with project deadlines in mind.</li> <li>- Liaise with other initiatives (both within and outwith the JISC DR Programme) to avoid duplication of effort.</li> </ul>
Do not get the needed cooperation from project associates.	2	5	10	<ul style="list-style-type: none"> <li>- There is specific budgetary allocation to support the participation of project associates.</li> <li>- Events involving the project associates will be designed so that associates will get some immediate benefit from attending.</li> </ul>
Team member leaves is absent long-term through illness.	2	5	10	<ul style="list-style-type: none"> <li>- Existing project team and associates use wide professional network to find replacement, or reallocation of budget to ensure deliverables accomplished by consultancy from associate and collaborative partners.</li> <li>- For significant delays, renegotiation of deliverables and deadlines with JISC.</li> </ul>

Associate partner withdraws from project.	3	3	9	<ul style="list-style-type: none"> <li>- There are eight associates in all; this provides a cushion of experience and test-beds should this occur.</li> <li>- There are a number of collaborative partners who would be able to step in as associate partners and have the budget reallocated to them should JISC and the Steering Group deem this appropriate.</li> <li>- Alternatively, the budget allocated to the leaving partner could be used to do further development and evaluation with existing partners, or to make up shortfall in other key areas should they arise.</li> </ul>
Project team not kept up-to-date with developments within learning communities.	2	4	8	<ul style="list-style-type: none"> <li>- There will be a project associates' JISCmail list including an area for all documentation. The project team will use this, along with personal contact where needed, to keep in touch with associates and other partners.</li> </ul>
Decisions made by partners without the knowledge of all project members.	2	4	8	<ul style="list-style-type: none"> <li>- Regular meetings, JISCmail lists and the Steering Group will ensure that the whole team agrees decisions.</li> </ul>
Collaborative partners don't cooperate or make resources available in a timely fashion.	2	4	8	<ul style="list-style-type: none"> <li>- Involvement in JISCmail associates' list to keep them informed and engaged</li> <li>- Project team to make personal contact where necessary</li> <li>- Offering incentive in form of involvement in and takeup of outputs.</li> </ul>
Commercial partner Intrallect goes bust.	1	5	5	<ul style="list-style-type: none"> <li>- Renegotiation of deliverables and deadlines with JISC.</li> <li>- Project continues with development of non-technical solutions.</li> <li>- If budget recoverable from Intrallect, reallocation of some technical deliverables by consultancy from other relevant sources.</li> </ul>

## 8. Standards

While CD-LOR will not dictate the standards and specifications used by the project associates within their own repository developments, appropriate international standards and specifications will be adhered to in the software developed by the project for the associates, and in any existing tools used. Such standards will include those for accessibility, interoperability, authentication, Web and digital rights management, as mandated by JISC. For example, if software is needed which pertains to digital rights then an appropriate standard to use might be ODRL (Open Digital Rights Language). Although the predominant repository software being used by CD-LOR project associates is intraLibrary, CD-LOR aims to, where possible, implement solutions that could be used by any standards-compliant system. See *Section 10: IPR* of this plan for further details on CD-LOR's open source policy.

In addition, the project outputs will be made available on a website according to JISC standards guidelines for accessibility, preservation, file formats, and so on. Use cases will be delivered in the format specified by JISC.

Finally, CD-LOR will document its use of standards, and where there is doubt about the most appropriate standard to use, or where a standard may be impractical, will consult with the Steering Group and JISC to determine a solution. It should be noted that, because the focus of CD-LOR is on the enhancement of learning communities via the use of LO repositories, the needs of learning communities take precedence over strict technical requirements. However, if this does lead to a conflict and a decision not to use a given standard, this will be fed back not only to the JISC community but to the relevant standards development community.

## 9. Technical Development

New software will only be developed if it is established that there is no free software that meets CD-LOR's needs. Such new software will be developed using an agile methodology, including the application of the principles of design-by-contract and test-first programming. Every method used in the software will have an associated set of unit tests, which are designed to cover all possible success and failure conditions. Running the unit tests on the development machine immediately reveals any knock-on consequences of code changes in one class to other parts of the software code base. The unit tests will be run daily on Windows, Linux and Solaris integration machines, to ensure consistent performance across a range of platforms.

## 10. Intellectual Property Rights

While outputs of the project will remain the sole or joint intellectual property of those organisations who contribute to their creation, such outputs will be made widely and freely available to the educational community in perpetuity, in accordance with JISC requirements, including JISC's open source policy. Any software developed by any of the full partners will remain the intellectual property of that participant but will be made available under the GNU LGPL free of charge to UK HE and FE. Full details of CD-LOR's IPR policy in relation to the project partners are covered in *Section 9* of the *CD-LOR Consortium Agreement*.

## ***Project Resources***

### 11. Project Partners

#### *Lead partner:*

##### **University of Dundee**

Contact: Professor Allison Littlejohn, Faculty of Education and Social Work (Project Director).

#### *Partners:*

##### **University of Strathclyde**

Contact: Sarah Currier, Centre for Academic Practice and Learning Enhancement (Project Manager).

##### **Intrallet Ltd.**

Contact: Dr. Peter Douglas.

#### *Associate partners:*

The associate partners will provide test-beds for CD-LOR's work involving real learning communities. They all have LO repositories in various stages of development in support of a wide range of community types:

1. **Edinburgh University's LORE (Learning Object Repository for Edinburgh).** Institutional LO repository serving the three colleges/schools of Edinburgh University. *Contact: Sarah McConnell.*
2. **UHI Millennium Institute.** Has LO repository serving a confederated institution made up of 14 FE colleges across geographically distributed and rural areas, where distance learning is key, and includes both Gaelic and English language medium. *Contact: UHI's Learning Materials Manager John Casey.*
3. **Aberdeen University.** Recently purchased LO repository software intraLibrary to collect and share institutional LOs including outputs from previous JISC projects; they also use D-Space for their ePrint archive. *Contact: Dr. Colin Calder.*
4. **University of Ireland, Galway.** Currently piloting LO repository systems for a range of materials across a number of European languages, along with training materials for programmes on learning technologies, a masters programme in higher education practice, and a spread of disciplines across all faculties. They are also partners in the national Irish Digital Learning Repository Project, which is currently identifying a number of pilot subject discipline networks which will be funded to develop and share electronic content and will be online soon. *Contact: Dr Iain MacLaren, Director of the Centre for Excellence in Learning & Teaching (CELT) at the National University of Ireland, Galway.*
5. **Stòr Cùram (Scottish Institute for Excellence in Social Work Education).** National LO repository serving nine HEIs teaching social work in Scotland. *Contact: Neil Ballantyne, Learning Technology Manager.*
6. **JORUM.** National LO repository service funded by the JISC to support and complement local and regional repositories across all subject areas in the FE and HE sectors. *Contact: Moira Massey, EDINA Learning and Teaching Co-ordinator.*
7. **IVIMEDS: The International Virtual Medical School.** LO repository project involving 34 institutions involved in medical education across 14 countries. *Contact: Prof. Ron Harden at Dundee University.*
8. **The Spoken Word Project.** JISC/NSF international (UK/US) project focusing on repositories for a single media type (sound files) for use in education. They are working with intraLibrary, Fedora and REPOS repository software across the three partner institutions which include Glasgow Caledonian, Northwestern and Michigan State universities, alongside the BBC Sound Archive. *Contact: David Donald, Project Manager.*

### **Collaborative partners:**

CD-LOR will work with a range of other LO repository projects and initiatives throughout the length of the project. These will include past and existing JISC-funded projects (e.g. relevant DeL projects such as WM-Share and the HEA DeL projects; X4L and X4L2 projects; JORUM); related projects in the Digital Repositories Programme (namely: ASK, GRADE, Rights and Rewards in Blended Institutional Repositories, SHERPA Plus, UK Collaboration for a Digital Repository, SPIRE, PROWE, TrustDR, RepoMMan); and other projects such as the CETL-RLOs, the Cambridge University collaborative LO project UCEL, and the European Commission's LIFE project. Where projects are finished and disbanded, CD-LOR will liaise with the relevant JISC Programme Manager, or, in the case of non-JISC projects, any named contact that can be found, to elicit any outputs or evaluative work for synthesis into CD-LOR's investigations.

Because the collaborative partners will contribute in a variety of ways, the method of involvement will differ; some initiatives will take part in associate partner events, some will share research outputs, some may volunteer to test solutions. In some cases, contacts will work with CD-LOR by sitting on the project Steering Group. Collaborative partners will be acknowledged on the project website and where appropriate in the final outputs of the project. New collaborative partners may be identified throughout the life of the project and their invitation to involvement will be first agreed by the Steering Group and Programme Manager.

## **12. Project Management**

### **Project Team:**

*Project Director:* Professor Allison Littlejohn, University of Dundee

*Project Manager:* Sarah Currier, University of Strathclyde

*CD-LOR Research Fellow:* Anoush Margaryan, University of Dundee

*Intrallect Ltd. Consultant:* Dr. Peter Douglas

*Consultant on Educational Communities:* Dr. David Nicol, University of Strathclyde

### ***Project Steering Group:***

#### ***Members:***

Professor Allison Littlejohn, University of Dundee (Project Director)

Sarah Currier, University of Strathclyde (Project Manager)

Dr. Peter Douglas (Intrallect Ltd.)

Neil Jacobs (JISC Digital Repositories Programme Manager)

Kerry Blinco (Australian e-learning projects, DEST and IMS)

Tom Boyle (CETL-RLOs)

John Casey (UHI Millennium Institute; TrustDR Project)

Mike Clarke (HEA; Connect Portal)

John Cook (CETL-RLOs)

Mike Dodds (JORUM)

Mike Halm (LionShare Project, Pennsylvania State University)

Tore Hoel (Norwegian eStandards Project)

Mark Kornbluh (JISC/NSF Spoken Word Project, Michigan State University)

Dawn Leeder (UCEL Project, Cambridge University)

Linda Malek (IVINURS, University of Dundee)

Lou McGill (JISC DeL and SHEFC Transformation Projects Programme Manager)

Charles Oppenheim (JISC Digital Repositories Advisory Panel; Rights and Rewards Project, Loughborough University)

Ben Ryan (Kainao)

Christine Sinclair (University of Strathclyde, Centre for Academic Practice and Learning Enhancement)

Peter Sloep (Open University of the Netherlands; Dutch e-learning projects)

Amber Thomas (JISC DeL Project: WM-Share)

Further members have been invited and have not yet responded at the time of writing the Project Plan. It is intended that new members beyond these invitees may be co-opted onto the Steering Group in future with the approval of the Management Group and the existing Steering Group.

The CD-LOR Steering Group will oversee the direction of the project and support the team in ensuring deliverables are met and the budget adhered to. The Steering Group will include as core members the JISC Digital Repositories Programme Manager, the Project Director, Project Manager and an Intrallect representative. The remainder of its membership will represent a range of stakeholders and experts, bringing together experts on educational communities with experts on digital repositories, and involving major projects and initiatives from the UK and abroad. The Group will provide input in the form of suggestions on references, contacts, and methodologies; feedback on project outputs; and help with determining how changes in the wider e-learning and repositories environment may necessitate renegotiation of the project plan.

The Steering Group will have its own JISCmail list and file area for discussion and sharing of resources and project documents; if deemed necessary they will also meet remotely via teleconference or videoconference. Where Steering Group members are in attendance at events coinciding with the presence of the CD-LOR team, informal consultation may be arranged. However, to limit the call on Steering Group members' time, such remote and informal meetings will only happen where specific issues need attention.

Any major changes to the project plan, the consortium agreement, or membership of the project associates group will need to be agreed by a simple majority of the Steering Group as well as by the JISC. Quorum for the Steering Group shall be seven members. Because the Steering Group will not be meeting face-to-face, votes may be taken by email or teleconference or videoconference.

### 13. Programme Support

CD-LOR’s Project Manager also sits on the Programme Advisory Panel and will be taking up a 0.5FTE post as Programme Support Officer from November 2005. In addition, a number of Advisory Panel members will sit on the Steering Group. It is likely therefore that Programme Support will be easily obtainable throughout the life of the project. The type of support most needed will be identification of relevant research and development work and outputs, and contact with related projects and initiatives. Training offered by the Programme in UML will also be actively taken up by a number of project team members.

### 14. Budget

The budget is held by the lead partner Dundee University, who will allocate the stated amounts to the other partners Strathclyde University and Intrallect Ltd. The split between the three partners has been agreed in the *CD-LOR Consortium Agreement*. The Project Manager, based at Strathclyde University, will manage the budget. The project associates have been allocated a small budget, split between travel / subsistence and consultancy, the latter to cover any work they carry out over and above attendance at events, such as use case development or case study authoring. Their budgetary allocation is held as part of Strathclyde’s budget and managed by the Project Manager. The amounts allocated per associate are intended to be flexible as it is anticipated that different associates will have different needs.

In the event of associate partners carrying out consultancy paid for from the CD-LOR budget, an agreement shall be drawn up and signed by Strathclyde University and the associate partner’s institution regarding the work to be carried out, ensuring that the terms of the CD-LOR Consortium Agreement are adhered to by the associate partner receiving funds.

## Detailed Project Planning

### 15. Workpackages

Six workpackages will be carried out by CD-LOR as follows:

1. Project management
2. LO repositories and learning communities
3. Identifying solutions
4. Testing solutions
5. Institutional and personal resource management context
6. Structured Guidelines and Final Report

The timetable and details of these workpackages are given in *Appendix B*.

### 16. Evaluation Plan

CD-LOR will take part in any Programme evaluation activities as instructed by the Programme Manager. In terms of the project’s own evaluation plan, formative evaluation is built into the methodology, which involves the testing and evaluation of outputs of the workpackages with stakeholders. Summative evaluation will be achieved through the evaluation of the final outputs by the wider educational community and/or the JISC as appropriate. Evaluation of individual deliverables is detailed in the following table:

Timing	Factor to Evaluate	Questions to Address	Method(s)	Measure of Success
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<p>Oct. 05 – Feb. 06</p>	<p><b>Deliverable 1:</b> <i>Report</i> (including literature review) on current LO repository models and practices, with a mapping of types of learning communities to drivers, barriers and enablers to uptake and embedding.</p>	<ul style="list-style-type: none"> <li>- Does report cover all known repository issues and research findings?</li> <li>- Does report adequately describe existing learning community types?</li> <li>- Is mapping of community types to repository issues complete?</li> </ul>	<p>Workshop; Associates' email list; Steering Group email list</p>	<p>Approval of associate and collaborative partners and Steering Group.</p>
<p>Dec. 05 – Nov. 06</p>	<p><b>Deliverable 2:</b> <i>Use cases</i> describing use of LO repositories within learning communities and mapping potential enablers and solutions to barriers, with prioritised use cases refined through testing of solutions.</p>	<ul style="list-style-type: none"> <li>- Do use cases conform to good practice in use case presentation (as defined in JISC requirements for use cases)?</li> <li>- Do use cases describe an adequate number of usage scenarios, covering known uses and desired uses for LO repositories?</li> </ul>	<p>Associates' email list; Steering Group email list; JISC DigRep Programme Support Team.</p>	<p>Approval of associates, and collaborative partners, Steering Group and JISC DigRep Programme Support Team. Use in development of JISC eLF and e-Framework.</p>
<p>Mar. 06 – Feb. 07</p>	<p><b>Deliverable 3:</b> <i>Software plug-ins and tools</i> (with <i>documentation</i>) and <i>technical recommendations</i> for technical solutions developed based on use cases prioritised by learning communities.</p>	<ul style="list-style-type: none"> <li>- Do software plug-ins and tools conform to standards?</li> <li>- How well do software plug-ins and tools meet the needs of learning communities they were developed for?</li> <li>- How well do software plug-ins and tools overcome the barriers to repository use they were designed to solve?</li> <li>- How useful are documentation and recommendations?</li> <li>- In what ways were the plug-ins and tools successful and where were further gaps and problems identified?</li> </ul>	<p>Standards conformance testing against W3C Recommendations for Accessibility; Depending on standard, validation against the schema/dtd; Project Team to work with associates in implementing and evaluating use of plug-ins and tools; Associates carry out evaluation with users.</p>	<p>Evaluation Report summarising what works and what doesn't in overcoming barriers to repository use in learning communities. Use of this report in e-learning community.</p>
<p>Jun. 06 – Feb. 07</p>	<p><b>Deliverable 4:</b> <i>Evaluation reports</i> on tested technical and non-technical solutions; <b>Deliverable 5:</b> <i>Case studies</i> presenting tested technical and non-technical solutions.</p>	<ul style="list-style-type: none"> <li>- Are evaluation reports and case studies useful and readable for the e-learning community?</li> <li>- Do they summarise all the successes, failures and identified issues and gaps from the testing of solutions to barriers?</li> </ul>	<p>Project Associates' list; Steering Group; JISC DigRep Programme Support Team; dissemination to and feedback from wider e-learning community via presentations and email lists.</p>	<p>Approval of associate and collaborative partners, Steering Group, JISC DigRep Programme Support Team, wider e-learning community.</p>

Apr. 07	<b>Deliverable 6:</b> Use cases describing wider institutional incorporation of LO repositories within institutional knowledge and information management strategies and other relevant systems and workflows.	<ul style="list-style-type: none"> <li>- Do use cases conform to good practice in use case presentation (as defined in JISC requirements for use cases)?</li> <li>- Do use cases describe an adequate number of usage scenarios involving LO repositories within wider information management strategies etc.?</li> </ul>	Project Associates' list; Steering Group; JISC DigRep Programme Support Team; evaluation by selected institutional managers (including library managers, systems managers, etc.).	Approval of associates and collaborative partners, Steering Group and JISC DigRep Programme Support Team; selected managers. Use in development of JISC eLF and e-Framework.
Apr. 07	<b>Deliverable 7:</b> Report on institutional and personal knowledge management review.	- Does the report adequately describe a useful range of institutional and personal knowledge management strategies relevant to LO repositories?	Project Associates' list; Steering Group; JISC DigRep Programme Support Team; evaluation by selected institutional managers; dissemination to wider e-learning community via presentations and email lists.	Approval of associate and collaborative partners, Steering Group and JISC DigRep Programme Support Team; selected managers; wider e-learning community.
Apr. 07	<b>Deliverable 8:</b> Institutional strategy and policy recommendations.	- Are the recommendations useful and readable for institutional managers?	Project Associates' list; Steering Group; JISC DigRep Programme Support Team; evaluation by selected institutional managers; dissemination to and feedback from wider e-learning community via presentations and email lists.	Approval of associate and collaborative partners, Steering Group and JISC DigRep Programme Support Team; selected managers; wider e-learning community. Use by e-learning community.
Feb.- Mar. 07	<b>Deliverable 9:</b> Structured guidelines for those setting up or evaluating LO repositories, based around a set of questions designed to elicit the relevant drivers, barriers and enablers for the particular learning community type as identified in Deliverable 1.	<ul style="list-style-type: none"> <li>- Are the guidelines useful and readable for those members of the e-learning community setting up or evaluating LO repositories?</li> <li>- Do the guidelines adequately represent the findings of the project's desk research and testing of solutions?</li> </ul>	Project Associates' list; Steering Group; JISC DigRep Programme Support Team; dissemination to wider e-learning community via presentations and email lists.	Approval of associate and collaborative partners, Steering Group and JISC DigRep Programme Support Team; wider e-learning community. Use by e-learning community.

Apr. – May 05.	<b>Deliverable 10: Recommendations</b> for further research and development.	- Does JISC find these recommendations useful in developing further programme work in LO repositories and related areas?	JISC	Approval of JISC. Incorporation of recommendations into JISC strategy and development.
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## 17. Quality Assurance Plan

For most of the project deliverables (i.e. reports, use cases, case studies, guidelines and recommendations), their quality will be determined by their fitness for purpose as outlined in section 16: *Evaluation Plan*, which details how the stakeholder communities will be consulted for review and comment throughout the life of CD-LOR.

For any software that is developed by CD-LOR, additional quality assurance methodologies will need to be developed in order to comply with not only fitness for purpose, but also adherence to specifications, standards and accessibility legislation. How this will be done is partially covered under section 9. *Technical development*. More detailed quality assurance planning for software outputs will depend upon what CD-LOR ends up developing in response to the initial stakeholder requirements. Once use cases are prioritised for development, the project team, associates and Steering Group will decide to what level of complexity and “finish” to develop the software within CD-LOR’s time frame and resources. At that stage, a quality assurance plan for each software plug-in or tool will be agreed and documented.

## 18. Dissemination Plan

CD-LOR will disseminate news of its activities, findings and outputs to, and call for input from, the appropriate sectors of the UK and international HE and FE communities through: production and distribution of flyers; attendance and presentations at relevant meetings, conferences and workshops; publication of articles, research papers and reports; a project website; and announcements on relevant email lists, as follows:

Timing	Dissemination Activity	Audience	Purpose	Key Message
JISC Programmes Meetings (six-monthly from 7/8 July 2005 to end of project)	Attendance; informal dissemination through conversation and A4 poster	JISC community	Raise awareness of project’s existence, objectives and contact details; elicit contacts and resources; at later meetings, disseminate and evaluate outputs.	At first meeting: project’s name, aims and objectives, and contact details. Later: project outputs.
June 2005- - Oct. 2005	Flyer based on A4 poster for JISC Programmes Meeting	Various educational communities; see below for details.	Raise awareness of project’s existence, objectives and contact details	Project’s name, aims and objectives, and contact details.
ALT-C 2005 (Sept. 2005)	Attendance; informal dissemination through conversation and handing out project flyer	UK e-learning community	Raise awareness of project’s existence and objectives; elicit resources.	Project’s name, aims and objectives, and contact details.

LIFE Project Expert Workshop on Learning Object Repositories Interoperability (Sept. 2005)	Attendance of Project Manager; informal dissemination through mentioning and handing out project flyer	LO repository experts involved in LIFE Project	Raise awareness of project's existence and objectives; elicit resources.	Project's name, aims and objectives, and contact details.
CETIS Joint Metadata & Digital Repositories SIG / Pedagogy Forum Meeting (Sept. 2005)	Attendance of Project Manager; brief presentation; informal dissemination through conversation and handing out project flyer	UK HE/FE e-learning community with interest in repositories and pedagogy	Raise awareness of project's existence and objectives; elicit resources	Project's name, aims and objectives, and contact details.
KRN Project Workshop on "Innovations in the Reuse of Electronic Learning Materials: Enabling Communities of Practice" (Sept. 2005)	Attendance of Project Manager; presentation; project flyer	International educational community with interest in LO repositories and communities.	Raise awareness of project's existence and objectives; elicit resources	Project's name, aims and objectives, and contact details.
Oct. 2005 onwards	Project website.	Educational community.	Raise awareness of project's aims, objectives, activities and outputs; contact details for project.	Project's name, aims and objectives, and contact details; project outputs, deliverables, documents, etc.
Oct. 2005 – May 2007	Project flyers/brochures	Educational community	Raise awareness of project's existence and objectives; elicit resources.	Project's name, aims and objectives, and contact details.
Oct. 2005 – Feb. 2006.	News items in institutional newsletters	Dundee and Strathclyde University staff, and Intrallect customers.	Raise awareness of project's existence and objectives	Project's name, aims and objectives, and contact details.
Oct. 2005 – Feb. 2006	Press releases	Wider educational community	Raise awareness of project's existence and objectives	Project's name, aims and objectives, and contact details.

Oct 2005 – May 2007	Announcements on relevant email lists	Educational community interested in e-learning, interoperability, pedagogy, learning communities, etc. depending on list.	Raise awareness of project's existence and objectives; elicit resources, feedback, discussion on project's activities; promote events and outputs; evaluation of final outputs.	Project's name, aims and objectives, and contact details; project progress; interim project outputs; final outputs.
ALT-SURF Spring Conference and Research Seminar on repositories. (April 2006)	Attendance of project team member(s); possible presentation of project work so far.	UK/Dutch e-learning community interested in repositories.	Raise awareness of project's existence and objectives; elicit resources; feed into wider repository developments.	Interim outputs and findings.
Networked Learning Conference 2006	Attendance of project team member(s); involvement on symposium on repository developments.	International e-learning community.	Raise awareness of project's existence and objectives; elicit resources; feed into wider repository developments.	Project progress; interim project outputs.
ALT-C 2006 (Sept. 2006)	Attendance; project poster; possible submission of paper (depends on acceptance)	UK HE/FE e-learning community	Raise awareness of project's existence and objectives; elicit resources; disseminate and evaluate outputs	Project progress; interim project outputs.
2006-2007	Journal articles and papers (e.g. ALT-J; JIME; information science journals etc.)	E-learning and information management academic communities.	Disseminate findings.	Interim outputs and findings; Final outputs and findings.
2006-2007	Project deliverables	UK HE/FE, international HE/FE	Disseminate outputs and findings.	Interim outputs and findings; Final outputs and findings.
ALT-C 2007	Attendance; possible poster; possible submission of paper (depends on acceptance); possible demonstration of software	UK HE/FE e-learning community	Share project's outcomes with community.	Project outputs and findings.

Relevant CETIS SIG meetings and CETIS conferences throughout life of project (2005-2007)	Attendance; presentations on progress and interim and final outcomes on project; project flyers	UK HE/FE e-learning community with interest in interoperability	Raise awareness of project's existence and objectives; elicit resources; disseminate and evaluate outputs; feed into wider repository developments.	Project progress; project outputs.
Presentations, posters, workshops and demonstrations at other relevant fora as identified throughout life of project, e.g. conferences, workshops, working meetings.	Attendance; presentations on progress and interim and final outcomes on project; project flyers; informal dissemination through conversation	Communities with interest in e-learning; repositories; learning communities; pedagogy and repositories; information and knowledge management in HE/FE etc.	Raise awareness of project's existence and objectives; elicit resources; disseminate and evaluate outputs and findings.	Project progress; project outputs

## 19. Exit/Sustainability Plan

Project Outputs	Action for Take-up & Embedding	Action for Exit
1. <i>Report</i> (including literature review) on current LO repository models and practices, with a mapping of types of learning communities to drivers, barriers and enablers to uptake and embedding.	Project website; dissemination via project workshop; presentations.	Available on project website; incorporation into output 9: <i>Structured Guidelines</i> .
2. <i>Use cases</i> describing use of LO repositories within learning communities and mapping potential enablers and solutions to barriers.	Project website; dissemination via project associates email list; inclusion in Programme use cases; presentations.	Available on project website; available via Programme outputs.
3. <i>Software plug-ins and tools</i> (with <i>documentation</i> ) and <i>technical recommendations</i> for technical solutions developed based on use cases prioritised by learning communities.	Use by associate partners; possible use by collaborative partners; evaluation disseminated as below under output 4: <i>Evaluation reports</i> .	Available via project website and Intrallect website; as part of associate and relevant collaborative partners' repository services.
4. <i>Evaluation reports</i> on tested technical and non-technical solutions.	Project website; dissemination via relevant email lists.	Available via project website; relevant associate and collaborative partners' repository documentation.
5. <i>Case studies</i> presenting tested technical and non-technical solutions.	Project website; dissemination via relevant email lists.	Available via project website.
6. <i>Use cases</i> describing wider institutional incorporation of LO repositories within institutional knowledge and information management strategies and other relevant systems and workflows.	Project website; dissemination via relevant email lists; inclusion in Programme use cases; presentations.	Available on project website; available via Programme outputs.
7. <i>Report</i> on institutional and personal knowledge management review.	Project website; dissemination via relevant email lists; dissemination via relevant email lists; feeds into output 8: <i>Recommendations</i> .	Available on project website.
8. Institutional strategy and policy <i>recommendations</i> .	Project website; dissemination to relevant institutional managers in UK HE/FE (e.g. e-learning managers; library managers etc.); dissemination via relevant email lists.	Available on project website; available on JISC website.
9. <i>Structured guidelines</i> for those setting up or evaluating LO repositories, based around a set of questions designed to elicit the relevant drivers, barriers and enablers for the particular learning community type as identified in Deliverable 1.	Project website; dissemination via relevant email lists; presentations.	Available on project website; available on JISC website.

<b>Project Outputs</b>	<b>Why Sustainable</b>	<b>Scenarios for Taking Forward</b>	<b>Issues to Address</b>
Use cases (repository specific and institution-wide)	Useful beyond life of project for standards and framework development; system development	Making available via project website; making available via DigRep Programme and eLF; making available to standards bodies where applicable (via CETIS/UKOLN).	Ongoing refinement of use cases; adding new use cases in this area.
Software plug-ins and tools	Useful beyond life of project for Project Associates' repository developments; for other repository developments.	Open sourcing; making available via project website; making available via Intrallect website.	Ongoing testing and development of software.
Reports, case studies and guidelines.	Useful beyond life of project to inform wider community R&D; to support implementation, use and management of repositories and learning communities.	Making available via project website; making available via JISC website/archiving.	Updating of guidelines as the repositories scene develops.
Recommendations for institutions	Useful beyond project to inform institutional strategy and policy.	Making available via project website; making available via JISC website/archiving.	Updating of recommendations as the repositories scene develops.

## Appendix B. Workpackages

WORKPACKAGES	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
<i>June 05 to May 07</i>	0 6	0 7	0 8	0 9	1 0	1 1	1 2	0 1	0 2	03	04	05	06	07	08	09	10	11	12	01	02	03	04	05
<b>1: Project Management</b>																								
<b>2: LO repositories and learning communities</b>																								
<b>3: Identifying solutions</b>																								
<b>4: Testing solutions</b>																								
<b>5: Institutional and personal resource management context</b>																								
<b>6: Structured Guidelines and Final Report</b>																								

Project start date: 01-06-2005

Project completion date: 31-05-2007

Duration: 24 months

Workpackage and activity	Earliest start date	Latest completion date	Outputs	Milestone	Responsibility

WORKPACKAGE 1: Project Management  <b>Objective:</b> To plan, set up and manage the project; monitor progress; and maintain communications within project partners, and with the JISC and other relevant communities such as CETIS	01.06.05	31.05.07			
1.1 Communicate with and report to JISC	1.06.05	31.05.07	Progress reports; Completion report; Final report	Final Report	AL, SC
1.2 Finalise project plan and budget, including evaluation, QA, risk management, IPR, dissemination, accessibility and exit strategies.	1.06.05	31.07.05	Project plan	Project Plan	SC, AL, PD
1.3 Finalise consortium agreement	1.06.05	30.06.05	Consortium agreement		AL, SC, PD
1.4 Form Project Steering Group	1.06.05	31.07.05	Steering Group in place		AL
1.5 Recruit staff (1.0 FTE Researcher @ Dundee)	1.06.05	30.08.05	Staff in post		AL
1.6 Project Manager in post (0.5 FTE - Sarah Currier @ Strathclyde)	1.08.05		Staff in post		AL
1.7 Manage dissemination activities	1.09.05	31.05.07	JISC web page, project web site, publications, presentations, etc.	Web Site	SC, AM
1.8 Manage budget	1.06.05	31.05.07	Financial reports within Progress and Final reports		SC
1.9 Manage communications between 3 full partners, 8 associates, collaborative partners and Steering Group	1.06.05	31.05.07	JISCmail lists; occasional meetings		SC
1.10 Identify and invite involvement of collaborative partners.	1.07.05	31.12.05	E-mail, telephone and personal contact.		SC, AL
WORKPACKAGE 2: LO repositories and learning communities  <b>Objective:</b> To identify current LO repository models and practices in relation to learning community types	1.06.05	30.11.05			

2.1 Literature review on characteristics of learning communities in relation to LO repositories	1.06.05	30.09.05	Literature review		AL, DN
2.2 Analysis of documentation produced by LO repository communities (e.g. archives of CETIS SIG email lists; SIG minutes, IMS/SCORM discussions, alt-i-lab outputs) and recent and current related projects (e.g. X4L, WM-Share).	1.06.05	30.09.05	LO repository community issues section of literature review		AL, DN, AM
2.3 Analysis and synthesis of 2.1 and 2.2 identifying current LO repository models and practice, and mapping a typology of communities to barriers and facilitators to embedding LO repositories.	1.10.05	30.11.05	<b>Draft report</b> , incorporating literature review, on current LO repository models and practice, mapping types of learning communities to facilitators and barriers to embedding of LO repositories		AL, DN, AM
<b>WORKPACKAGE 3: Identifying solutions</b>	<b>20.10.05</b>	<b>28.02.06</b>			
<b>Objective:</b> <i>To identify solutions to barriers to embedding in relation to learning community types</i>					
3.1 Consultation with stakeholders, including associate partners and collaborative partners (related projects and initiatives within and outwith JISC) through workshops, structured interviews, etc., to extend and evaluate output of Workpackage 2, and to identify possible solutions.	20.10.05	28.02.06	Workshop; Interviews; <b>Final report</b> on current LO repository models and practice, mapping types of learning communities to barriers and facilitators to embedding of LO repositories	<b>Communities / Repositories Report</b>	PAs, AL, DN, SC, AM, PD
3.2 Develop use cases to represent possible solutions to barriers faced by specific learning community types.	1.12.05	28.02.06	<b>Draft use cases</b>		PAs, AL, DN, SC, AM, PD
<b>WORKPACKAGE 4: Testing solutions</b>	<b>1.03.06</b>	<b>31.01.07</b>			
<b>Objective:</b> <i>To prioritise potential solutions to barriers and test them within learning communities</i>					

4.1 Prioritise use cases from 3.2 for development and testing in consultation with project associates and wider JISC Programme (including Programme Manager).	1.03.06	31.03.06	Selection of use cases for development and testing		PAs, PD, AM
4.2 Develop and implement new LO repository services, workflows and procedures (technical and non-technical) based on use cases from 4.1.	1.04.06	30.09.06	New repository services and processes, including <b>software plug-ins and tools</b> , to support project associates' learning communities	<b>New Software</b>	PAs, PD
4.3 Evaluate implementations of use cases and refine use cases	1.06.06	30.11.06	<b>Evaluation reports; Refined use cases</b>	<b>Evaluation Reports; Use Cases</b>	PAs, PD, AM
4.4 Write case studies on implementations	30.11.06	31.01.07	<b>Case studies</b>	<b>Case Studies</b>	PD, AM, PAs
4.5 Write technical recommendations and documentation for any software plug-ins and tools developed.	30.11.06	31.01.07	<b>Documentation and technical recommendations</b>		PD
WORKPACKAGE 5: Institutional and personal resource management context  <b>Objective:</b> <i>To report on institutional strategies and policies and personal resource management strategies relevant to LO repositories,</i>	1.10.05	31.03.07			
5.1 Review institutional strategies and policies relevant to LO repositories; Interview key management personnel	1.10.05	30.04.06	Interviews; <b>Review report</b>		SC, AM
5.2 Investigate personal resource management strategies of individual stakeholders within learning communities.	1.10.05	30.04.06	Personal resource management report section in <b>Review report</b>		SC, AM
5.3 Develop recommendations on organisational and staff development policies and strategies	1.03.07	30.04.07	<b>Policy and strategy recommendations for institutions on setting up LO repositories</b>	<b>Recommendations</b>	AL, SC, AM
5.4 Develop institutional use cases.	1.03.07	30.04.07	Institutional use cases	<i>Use Cases</i>	SC, AM

WORKPACKAGE 6: Structured Guidelines and Final Report	1.09.05	31.05.07			
<b>Objective:</b> <i>To report on all findings of the project and provide a set of structured guidelines to LO repository implementation for different types of learning communities, for the benefit of key stakeholder groups, including institutional managers, LO repository initiatives and projects, and the JISC and the wider communities it serves</i>					
6.1 Draft structured guidelines to support: 1. setting up a new repository for a learning community and 2. evaluating existing repositories in relation to the communities they serve.	1.09.05	31.01.07	<b>Draft Structured Guidelines</b>		AL, DN, SC, AM, PAs
6.2 Community evaluation of Structured Guidelines (through associates, Steering Group, wider JISC events and focused dissemination and request for feedback).	1.02.07	31.03.07	<b>Final version: Structured Guidelines on LO Repositories for Learning Communities</b>	<b>Structured Guidelines</b>	SC, DN, AM, PAs
6.3 Develop recommendations for further research.	1.03.07	31.03.07	<b>Draft Recommendations for Further Research and Development</b>		AL, DN, SC, AM
6.4 JISC review of recommendations for further research; complete final recommendations.	1.04.07	31.05.07	<b>Final Recommendations for Further Research and Development</b>	<b>Recommendations</b>	JISC, SC
6.5 Release of all final documentation from the project; Final report to the JISC.	1.04.07	31.05.07	<b>Final Report incorporating: Financial statement</b>	<b>Final Report</b>	SC

## Members of Project Team:

AL = Allison Littlejohn (Project Director)

SC = Sarah Currier (Project Manager)

AM = Anoush Margaryan (Project Research Fellow)

DN = David Nicol (Educational Communities Consultant)

*PD = Peter Douglas (Intrallect Ltd. Consultant)*

*PAs = Project Associates*