JISC Project Plan Template

Overview of Project

1. Background

Virtual lightboxes—image manipulation and comparison tools that are widely accessible through commercial and open sources—have not yet reached their potential for use by educational and scholarly communities because (a) they do not yet allow for integration of images with metadata; and (b) they have not been integrated into online databases, such as those provided by museums and other archives.[1] A far greater problem is that museum databases have, on the whole, not been designed for interoperability with outside or "third-party" tools. As a result, lightboxes must be fitted to museum collections on a case-by-case basis, making reuse of standard tools impossible, and excluding the use of tools to make comparisons across collections and databases. The Virtual Lightbox for Museums and Archives (VLMA) aims to overcome both limitations. It will not only allow users to compare, integrate, and export discrete assemblages of images and text, but will also implement a modular extensible resource-discovery server, which will (a) expose services in a modular fashion, enabling museums to use plug-in mapping interfaces to expose their data; and (b) make use of current open standards (RDF and OAI) to make collection metadata available (thus ensuring that the server-client relationship is not tied to any one particular software implementation). It is hoped that the creation of VLMA—a 'resource-discovery' tool for museum collections—will encourage collections to expose their data in standards-compliant fashion.

Since 2001 staff and volunteers at the Ure Museum of Greek Archaeology at the University of Reading have developed a comprehensive electronic database of its holdings, with text descriptions and images of its artefacts interrelated with archival documentation. The database may be exported in XML and is made available to staff and visitors through a web interface. We have already incorporated an open source Virtual Lightbox[2] into our database search pages so that users may compare and contrast images. Work on the Ure Museum's Database (hereafter UMD) has also laid the groundwork for an RDF implementation: the database assigns each object its own URL and exposes metadata in a consistent fashion, thus making RDF maps relatively easy to construct. Through our partnership with the Max Planck Institute for the History of Science, Berlin, we have tested integration with other resources: we successfully added the UMD to the ECHO portal (= European Cultural Heritage Online: http://echo.mpiwg-berlin.mpg.de) and exposed its image resources using the ECHO digilib tool. The Ure Museum developers are thus well placed to pilot, exhibit, and test the proposed VLMA.

[1] Two projects that have informed us that they are experimenting with incorporating virtual lightboxes into their material are the Centre for Computing in the Humanities (Kings College, London) and the Perseus Project (Tufts University, USA), which has experimented with the same Virtual Lightbox that we have adopted. We have seen no evidence of progress on the former, and the staff member responsible for lightbox integration on the latter project—Dr. Thomas Milbank—has terminated his employment with the Perseus Project.

[2] Designed by the Maryland Institute for Technology in the Humanities, University of Maryland (http://www.mith2.umd.edu/products/lightbox/

2. Aims and Objectives

Aim:
To investigate and create structures and methods to enable a Virtual Lightbox for Museums and Archives (VLMA) through which users may compare, integrate, and export discrete assemblages of images and text from online resources such as those provided through Museum databases.

Objectives:

- Adapt an existing open-source Java applet/application—Virtual Lightbox[2] to a tool through which learners and teachers may
    - Collect their 'examples' from one or more databases.
    - Organise them as desired, with the opportunity to add further content.
    - Export into the desired format (e.g., email, printout, Word, PPT, or Blackboard).

- To implement a modular extensible resource-discovery server, which will
    - Expose services in a modular fashion (on the model of the Jabber server), enabling museums to use plug-in mapping interfaces to expose their data.
    - Develop and document an RDF vocabulary for museum website resources.
    - Make use of current open standards (OAI as well as RDF) to make collection metadata available (thus ensuring that the server-client relationship is not tied to any one particular software implementation).

3. Overall Approach

Strategy
For this project we are building on existing open source resources that are not hindered by issues of copyright and access, as detailed below. This should save time and thus maximise the productivity of our small staff.

- We are adapting a preexisting Virtual Lightbox[2], which is attractive because
    - It already exists and has been tested by at least one other humanities content provider[1] as well as ourselves.
    - It is an open source tool.
    - It works as both an applet and an application.
    - It is built using a platform-independent language (Java).
    - The codebase is programmed in a straightforward manner and thus easily leveraged for further development.
    - The use of an already existing codebase will encourage the modularity of the project.
- We are analysing and, if necessary, modifying the structure of a preexisting museum database, UMD, which is attractive because:
    - UMD details objects that are owned by the University of Reading and Museum of Reading, both of which institutions are committed to making their resources publicly accessible.
    - UMD is quite small (less than 2000 text descriptions and 10,000 images).
    - UMD is comprised of images as well as text descriptions and archival documentation and thus represents (most) different types of information provided by museum databases.
    - UMD may be exported in XML and thus converted to a variety of formats.
    - A web interface for UMD is in development.
    - We have successfully incorporated the Virtual Lightbox into UMD search pages.

  - UMD assigns each object its own URL and exposes metadata in a consistent fashion, thus making RDF maps relatively easy to construct.

Issues to be addressed

- Independent/Institutional learners: the proposed VLMA will be made available to institutions who wish to employ it, yet it aims to enhance the learning experience of the independent learner, both through its employment as a teaching tool and its use by individual learners.
- Access to resources:
  - VLMA will make institutional resources (e.g. museum databases) more readily available to learners working independently.
  - VLMA will freely provide tools/access to teachers in preparing learning materials.
  - We will register the prototype on Sourceforge as an open-source project from the start, so as to ensure
    - Its availability after project completion.
    - Open access to the source code as well as relevant project documentation.
- Interoperability
  - The VLMA prototype will have a distributed open-standards-driven architecture (it leverages an existing open-source Java applet/application)
  - The VLMA prototype will consist of client software that will access server-side resources for key services such as resource discovery.
  - Server-side resources will be
    - Implemented as interfaces to enable plug-and-play modularity.
    - Programmed in a platform-independent way, allowing distribution to other collections.
  - Users of VLMA will be enabled to export desired content into the desired format (e.g., email, printout, Word, PPT, or Blackboard).
  - The project will make use of current open standards (OAI as well as RDF) to ensure that the server-client relationship is not tied to any one particular software implementation.

Scope / boundaries

- The project will focus on tools and structure that enable implementation of VLMA on the Ure Museum website, utilizing data on the UMD. We expect to test interoperability among European partners in ECHO, although full integration among ECHO partners on the ECHO website may require work beyond the scope of this project.
- Emphasis will be on developing the client side of the software: server side implementation will remain at a prototype stage.
- The main focus of effort on the server side will be the definition of an interface using RDF, XML, and automatic resource discovery.

Critical Success factors

- Incorporation of image and text into the Virtual Lightbox
- Ability to export discrete assemblages of data into a variety of outputs, including those commercially available (e.g. PPT, Blackboard)
- An RDF vocabulary and resource syndication mechanism for museum collections that will be accessible to and therefore usable by museum curators without a high level of IT knowledge/support
- Ease of use by learners at a variety of ages, as well as teachers

4. Project Outputs

- A webpage for VLMA, which will explain its goals, document its progress, and make the tool available to others.

- VLMA
    - Applet hosted on the Ure Museum webpages and through the ECHO portal
    - Prototype and relevant project documentation published on Sourceforge as an open-source project
- White paper documenting an RDF vocabulary for publishing the Ure Museum website's resources
- Core project documents as required by JISC

5. Project Outcomes

- Value to the HE/JISC community
    - VLMA will be made available to HE institutions and other owners of museums and archives as a means of encouraging the use of their resources.
    - VLMA will likewise benefit institutions through encouraging links between it (and especially its museums and archives) and teachers and students in other schools, colleges, and universities who will make use of resources in part through the use of this tool.
- VLMA addresses the aims espoused by JISCs e-learning and pedagogy programme:
    - To provide the post-16 and HE community with accurate, up-to-date, evidence- and research-based information (particularly in the form of our white paper)
    - To promote the application and development of e-learning tools and standards to better support effective practice.
- How this project addresses community needs/meets priority areas for public funding:
    - Virtual Museums, e.g. JISC funded projects at Fitzwilliam Museum, Cambridge, and Petrie Museum, UCL, are developing without tools to enable users to bring the data gained from them directly into their teaching and learning.
    - Existing 'virtual' lightboxes that are commercially or freely available are aimed at modifying and at best captioning images, but do not allow users either to reference collection specific metadata or to incorporate them in the learning and teaching processes of sorting images and incorporating them with text in a presentation format/lesson plan.
    - Most virtual lightboxes are obtained at a significant cost that is not consistent with the (negligible) budgets of national museums, let alone university museums and archives.
    - No existing virtual lightboxes utilise automatic resource-discovery. The introduction of this important new technology will greatly increase the possibility for interaction between collections and the teaching/learning public by overcoming the considerable obstacles currently faced by collection syndication and access.

6. Stakeholder Analysis

Stakeholder	Interest / stake	Importance
Java programmers	Knowledge of code/analysis	high
Ure Museum users	Beneficiaries of tools developed/resources made available	high
Other IT professionals interested in image/text manipulation	Knowledge of benefits gained/lessons learned	high
JISC	Funding source/Knowledge aggregate	high
UoR PVC for teaching and learning	Provider of staff	medium

	time/resources and representative of potential users	
Director of MPIWG-Berlin	Provider of staff time and representative of potential users	medium
UoR IT staff	Providers/beneficiaries of staff time/resources	low
Other museum professionals/archive providers	Potential beneficiaries of knowledge/tools developed	variable
Researchers/Independent learners	Beneficiaries of tools developed/resources made available	variable
Teachers/Students/Librarians	Beneficiaries of tools developed/resources made available	variable
ECHO partners	Beneficiaries of tools developed	variable

7. Risk Analysis

Risk	Probability (1-5)	Severity (1-5)	Score (P x S)	Action to Prevent / Manage Risk
Staffing	3	5	15	Liaise regularly with staff to assess enthusiasm for work/progress made
Organisational	2	4	8	Liaise regularly between institutional partners; seek flexibility with staff arrangements if necessary
Technical	4	5	20	Emphasise significance of knowledge outputs/ documentation rather than software outputs
External suppliers	1	1	1	
Legal	1	1	1	

8. Standards

Type of standard		Reason for adoption
Metadata	Dublin Core RSLP	We seek to conform to Dublin Core, because is being developed as a generic metadata standard for use by museums, among other online information providers. We endeavor to conform to RSLP, which is intended to facilitate the simple description of metadata (collections, locations and agents) such as is contained in our database.
Terminology & controlled vocabulary	ICOM-CIDOC/Getty Other museum initiatives	ICOM and Getty have combined forces and created a resource guide to international museum standards with which any digital museum initiative should consult/comply as necessary. We will also consult with other organisations, such as the Petrie Museum, who have a JISC-funded project (AVM) to OAI to museum collections for the purposes

		of disclosure through data harvesting.
Interoperability	OAI JISC Interoperability Focus	OAI develops and promotes interoperability standards that aim to facilitate the efficient dissemination of content, such as harvesting We will consult with Interoperability Focus, an activity that embraces cultural heritage organizations, such as museums and archives, as well as libraries, in the national discourse on metadata, distributed systems, and networking.
Semantic web compatibility	RDF/XML	RDF allows multiple metadata schemes to be read by humans and to be parsed by machines
Learning / general	CETIS IMS Global Learning JISC Information Environment	To the extent possible in this project, and in subsequent work, we will endeavour to adhere to CETIS LT standards, which should make it easier for students and educators to move, share, and therefore benefit from study materials. We will also consult the specifications of the IMS global learning consortium, as we are an international project that potentially reaches out to a global audience. We will adhere to standards and protocols that make up the JISC IE technical architecture, to the extent required, for our project to work well in the JISC information environment.
Web (HTML/XML)	W3C	Our web pages are HTML 4.01 strict and employ valid CSS, and thus support the internationalisation of web documents.
Accessibility for the disabled	W3C W3C-WAI	See above: Our cascading style sheets allow users to change colour and style of our web pages to suit their needs. Consistent navigation, with 'skip navigation' links allow those with screen-readers to use our web pages. We will check that our web pages conform to WAI guidelines and other disability accessibility concerns in consultation with TechDis.

9. Technical Development

- **XML:** The VMLA will extend the existing use of XML in the UMD, in order to ensure interoperability and consistent access to data.
- RDF: The VMLA will also syndicate its datasets and tools by means of RDF (http://www.w3.org/RDF/), in order to allow automatic resource discovery in an implementation-independent fashion.
- **OAI:** The VMLA will also make use of existing open standards for metadata-sharing maintained by the OAI (http://www.openarchives.org/), in particular its implementation of the Dublin Core Standard (http://www.openarchives.org/OAI/openarchivesprotocol.html http://dublincore.org/). The use of OAI and oai_dc will maximize interoperability by setting a fairly low hurdle for basic access.
- **Java:** Both the VMLA itself and the server-side prototype for resource-syndication will be built with Java to ensure maximum cross-platform interoperability. While Java is not yet (and may never be) an open standard, it is currently the most widely implemented platform-independent language, and has had many open source applications (e.g. the Apache Foundation http://www.apache.org/). We believe that developing in Java is the best way to guarantee maximum use, survivability, and reusability of our product.
- **Open source / GPL**: Both the source code and compiled versions of the VMLA and the server prototype will be made available under a Gnu Public License (http://www.gnu.org/copyleft/gpl.html) and will be made freely accessible both on the Ure Museum's website and on the Sourceforge open-source repository

(http://sourceforge.net/). The GPL has been chosen because it currently represents the best chance of ensuring continued unrestricted reuse of code bases.

10. Intellectual Property Rights

- The open-source Java applet/application, Virtual Lightbox, is owned by the Maryland Institute for Technology in the Humanities, University of Maryland (where it was devised): we have already sought and received their permission to use and adapt this tool.
- Images of objects owned by the Museum of Reading (ca. 300 on long-term loan to the Ure Museum) may be made publicly available through this project only at the discretion of that Museum. We are in the process of establishing formal loan agreements with this organisation.

Project Resources

11. Project Partners

University of Reading:

- Ure Museum: Amy C. Smith (Curator, VLMA Project Director)
- IT Services: D.M. Roch (Director): *Before the launch of the e-learning tools programme (7 September 2004) we will obtain letter of agreement from Mr. Roch that his department/staff is supporting our project as a subcontractor*

Max Planck Institute for the History of Science (MPIWG), Berlin:

- Brian Fuchs (Researcher, VLMA Programming Manager)

The support letter signed by Prof. Dr. Jürgen Renn, Executive Director of MPIWG-Berlin, on 29 June 2004, and submitted with the project proposal, constitutes a letter of collaboration with the University of Reading. Before the launch date (7 September 2004) will obtain signatures of Prof. Dr. Renn as well as Prof. David Rice, the PVC for Teaching, UoR, agreeing to this consortium.

12. Project Management

The entire project team (see below) will meet physically at least twice (at the beginning and near the end of the project) and virtually (through internet chat) at least once a month. While the Project Director will coordinate and monitor activity and communication, she and the Programming Manager will work in a collaborative/advisory manner, and each will supervise the Programmer with regard to specific tasks, as noted below.

The unpaid consultant and members of the advisory group (who will also serve as 'champions') will be consulted for suggestions and advice, as required.

Project Team:

Project Director (7 hours/week): Dr. Amy C. Smith (a.c.smith@reading.ac.uk; tel. 0118 378 6990)

- Prepare the project plan
- Coordinate and manage project work
- Monitor project progress and performance
- Ensure that project outputs are delivered on time
- Identify risks, problems, and issues, and escalate them as appropriate
- Manage communication within the project and with the programme manager
- Prepare progress, final, and other reports
- Arrange meetings and write the minutes
- Manage project resources, including the budget

- Coordinate work on any legal agreements, e.g. consortium, vendor, or license agreements
- Maintain the project web site in cooperation with the programmer
- Supervise maintenance of project documentation

Programming Manager: Mr. Brian Fuchs (fuchs@mpiwg-berlin.mpg.de; tel. 0049 30 22667111)

- Create general design and prototype
- Create programming workplan
- Supervise programmer in implementation of workplan, documentation repository, open-source repository, and codebase maintenance.
- Advise on project documentation

Programmer (full time): Mr. Leif Isaksen (li103@soton.ac.uk; tel. 0770 9546407)

- Implement programming workplan
- Implement and maintain documentation repository
- Maintain open-source repository
- Maintain codebase and release schedules
- Oversee maintenance of project server
- Maintain the project web site in cooperation with the project director
- Maintain project documentation

Other:
Unpaid consultant (occasional): Dr. Thomas Milbank: Archaeologist/Computer programmer

- Mr. Milbank, who has worked with the Virtual Lightbox in implementing it for use with archaeological content, has offered his advice and services, as needed, on a *pro bono* basis.

Advisory Group:
Prof. Dr. Jürgen Renn, Executive Director, MPIWG-Berlin
Ms. Simone Rieger, ECHO Manager, MPIWG-Berlin
Prof. David Rice, Pro-Vice Chancellor for Teaching, UoR
Mr. D. Michael Roch, Director, IT Services, UoR
Dr. Julia Phelps, Centre for Development of Teaching and Learning, UoR

13. Programme Support

We would appreciate advice from the Programme Manager on the following issues:

- Documentation
- Meeting JISC requirements
- Extending the project
- Making contact with related projects

14. Budget

The budget reflects changes from that submitted with the project proposal, as requested by the Programme Managers.

As discussed with the JISC Programme Manager, UoR IT Services will provide specialist web server support (including maintenance) for the project.

Detailed Project Planning

15. Workpackages

*Use the workpackages template to plan the detailed project work and attach as Appendix B. Clearly indicate project deliverables and reports (in **bold**), when they are due, phasing of workpackages, and*

explain any dependencies. You may also attach a Gantt chart, diagram, or flowchart to illustrate phasing.

16. Evaluation Plan

Indicate how you will evaluate the quality of the project outputs and the success of the project. List the factors you plan to evaluate, questions the evaluation will answer, methods you will use, and how success will be measured. Expand as appropriate on how you will conduct the evaluation.

Timing	Factor to Evaluate	Questions to Address	Method(s)	Measure of Success

17. Quality Assurance Plan

Explain the quality assurance procedures you will put in place to ensure that project outputs comply with JISC technical standards and best practice, and what will constitute evidence of compliance.

Timing	Compliance With	QA Method(s)	Evidence of Compliance
	Fitness for purpose		
	Best practice for processes		
	Adherence to specifications		
	Adherence to standards		
	Accessibility legislation		

18. Dissemination Plan

Explain how the project will share outcomes and learning with stakeholders and the community. List important dissemination activities planned throughout the project, indicating purpose, target audience, timing, and key message.

Timing	Dissemination Activity	Audience	Purpose	Key Message

19. Exit/Sustainability Plan

Explain what will happen to project outputs at the end of the project (including knowledge and learning). Focus on the work needed to ensure they are taken up by the community and any work needed for project closedown, e.g. preservation, maintenance, documentation.

Project Outputs	Action for Take-up & Embedding	Action for Exit

List any project outputs that may have potential to live on after the project ends, why, how they might be taken forward, and any issues involved in making them sustainable in the long term.

Project Outputs	Why Sustainable	Scenarios for Taking Forward	Issues to Address

Appendixes

Appendix A. Project Budget

Appendix B. Workpackages

JISC Project Management Framework
22 December 2003