

JISC Circular 01/07: Repositories and Preservation Briefing Paper

Repositories and Preservation Programme

Supplement to Circular 01/07 Appendix F Repositories and Preservation Calls <http://www.jisc.ac.uk/circular0107>

Digital Repositories: a network for learning and research

Introduction

This briefing paper sets out additional information that should be taken into account when submitting proposals to the Repositories and Preservation Programme calls in response to JISC circular 01/07, April 2007, (Appendix F). It contains some supplementary information that is referred to in the call for proposals, as well as references to additional information on standards, related reports and the programme.

Contents

About the Programme	2
Work Currently Funded under the Programme	2
Background	2
The Information Environment	2
The Information Environment Architecture	4
JISC Programme Context	5
Key Reports	6
Technical Guidelines	6
Guidance for Start-Up and Enhancement Projects	7
JISC Website Resources for Project Planning	8
Contacts.....	8

Details of the April 2007 Circular, the Calls for Projects, and the Briefing Day are available from <http://www.jisc.ac.uk/capital>

About the Programme

The Repositories and Preservation Programme builds upon extensive development and implementation in the areas of digital repositories, preservation and the JISC Information Environment¹ more broadly. Its vision is to “establish a network of digital repositories and services, in order to significantly improve content use and curation.”

Bidders should find it useful to look at the objectives, scope and shape of the programme, to see the range of work taking place.

For further information, see the **Programme webpages**².

Work Currently Funded under the Programme

A list of projects and studies funded under the Programme is available to download from the programme webpages. Where projects are working in similar areas, discussion and collaboration is very valuable, and projects are encouraged to form links across the programme.

Bidders to all strands in the Repositories and Preservation Call (Appendix F) should note that some work is already funded in each strand, and should seek to complement the current work. Building on other projects' outputs and experiences is always welcomed, and bidders may wish to contact existing projects in scoping their project proposals.

In particular, bidders for the Strand C Interoperability Demonstrator projects (Ia) and the Strand D Rapid Innovation Projects (IIc) should note where relevant activity may already be taking place within projects.

For further information see the **Funded Projects Update**, downloadable from the Programme webpages³.

Background

The Information Environment

The Information Environment is part of the broader context to the Repositories and Preservation programme. The Information Environment will help to realise the potential of digital resources and networked services for learning and research. It will do this by helping to improve access and integration of these resources and services so the range of research and learning activities that users wish to undertake are more effectively supported. The JISC Information Environment⁴ (IE) has been in development now for five or so years.

The Information Environment has a number of activities that underpin it and continue to develop and implement this vision. These are:

- A technical architecture⁵ that supports resource discovery and curation of digital resources.

1 JISC Information Environment <http://jisc.ac.uk/ie>

2 The Repositories and Preservation Programme http://www.jisc.ac.uk/programme_rep_pres

3 The Repositories and Preservation Programme http://www.jisc.ac.uk/programme_rep_pres

4 Information Environment http://www.jisc.ac.uk/whatwedo/themes/information_environment

5 <http://www.ukoln.ac.uk/distributed-systems/jisc-ie/arch/>

- A set of technical standards⁶ that support the interoperability of resources and the integration of networked services.
- A set of development programmes⁷ in the areas of portals, resource discovery, digital preservation, repositories, shared infrastructure services and so on
- A number of national services in use e.g. Zetoc⁸, JORUM⁹ and services in development e.g. Ethos¹⁰ and the Information Environment Service Registry (IESR)¹¹.

The intention is that the Information Environment (IE) will allow:

- easy access and delivery of heterogeneous and distributed resources in flexible ways;
- connections between, and use of different types of resources whether raw research data, catalogues, publications or learning materials;
- the development of good practice in the curation of digital resources including creation, dissemination and preservation;
- an approach that supports the presentation and use of resources within universities and colleges and in a distributed manner; so whether the end user is in a library, working from home using a virtual learning environment, using a virtual research environment or using a handheld device they can use resources easily.

The Repositories and Preservation programme is one of the activities that JISC is funding that will contribute to the development and implementation of the Information Environment. For example the architecture set out below has a provision layer – repositories form part of this provision layer. The Programme is also funding projects that aim to provide shared infrastructure services (also shown as a layer in the architecture below). For example, the September 2006 call funded a pilot licence registry project. Such a registry is a potential shared infrastructure service. The repositories search project that is being funded through this programme will form part of the fusion and presentation layers of the architecture. It is also possible to see that the architecture could be extended to provide preservation services such as a file format registry which could be a shared infrastructure service. There are also a lot of organisational, policy and practice issues that surround the curation, provision and use of resources. These activities are not part of the architecture but they support the implementation of the architecture and also the ultimate goal of easy and flexible use for learning and research. Despite this general point, with regard to organisational and policy issues, some services in the architecture will help, for instance, the licence registry referred to above will assist in the implementation of licence policies. In addition, the aim of the architecture in achieving flexible interoperability should mean easier embedding into workflow and practice.

⁶ <http://www.ukoln.ac.uk/distributed-systems/jisc-ie/arch/standards/>

⁷ http://www.jisc.ac.uk/whatwedo/themes/information_environment

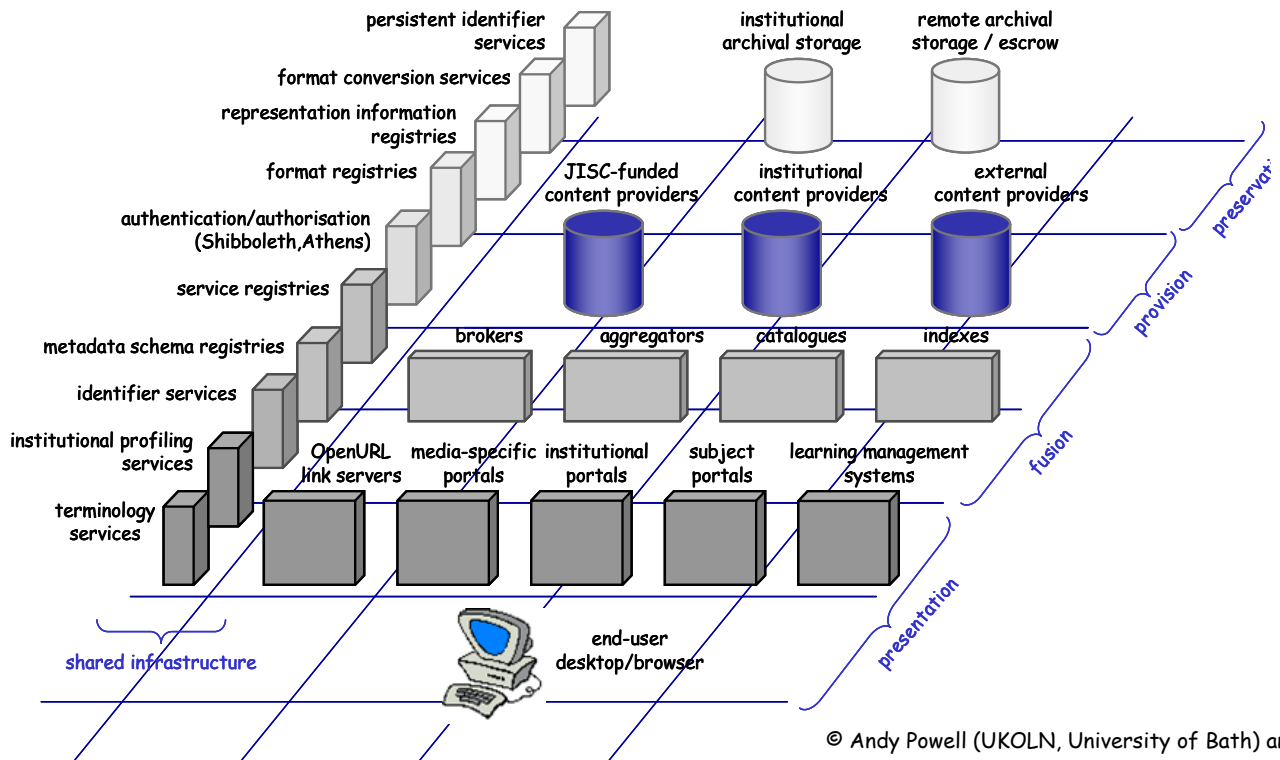
⁸ Zetoc provides access to the British Library's Electronic Table of Contents <http://zetoc.mimas.ac.uk/>

⁹ Jorum is a free online repository service for teaching and support staff in UK Further and Higher Education Institutions <http://www.jorum.ac.uk/>

¹⁰ - EThOS (Electronic Theses Online Service) is a project that aims to deliver a fully operational, easily scaleable and financially viable electronic theses service, and supporting infrastructure. <http://www.ethos.ac.uk/>

¹¹ <http://iesr.ac.uk/>

The Information Environment Architecture

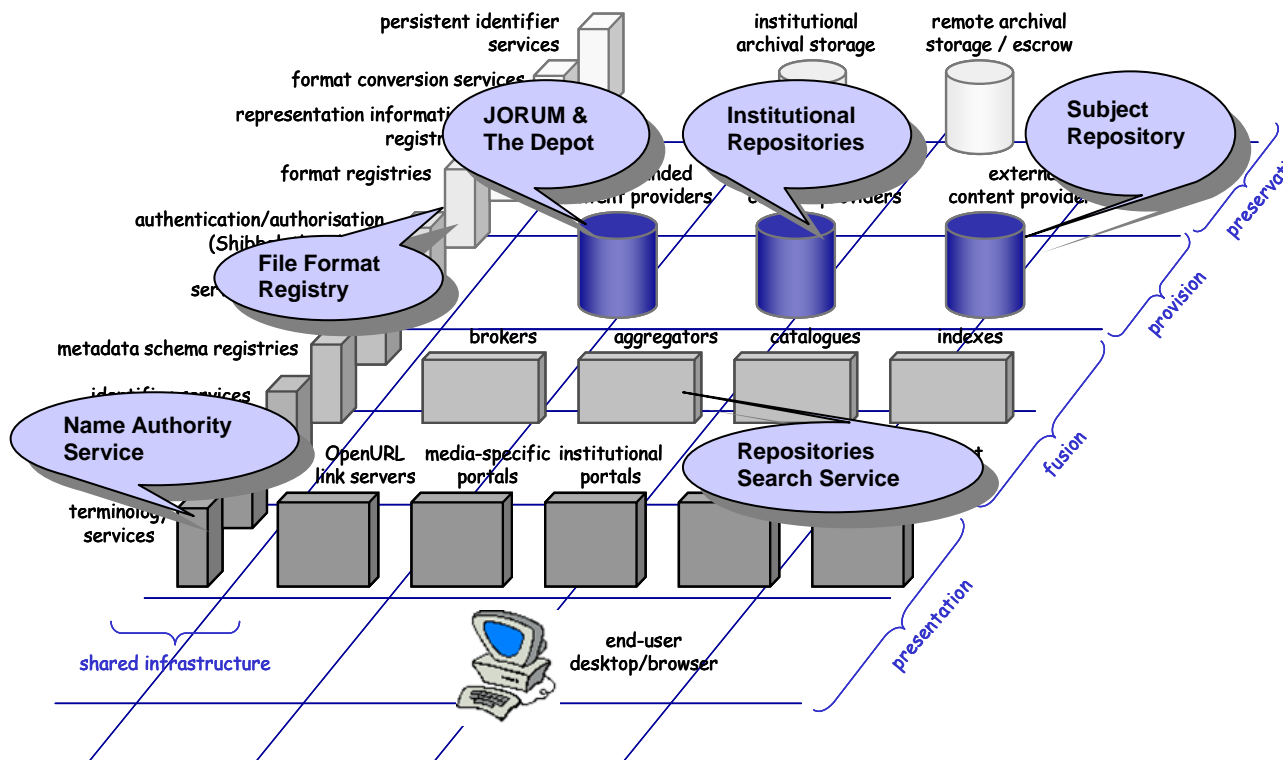


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Note SAML technologies and Shibboleth services will be implemented at different levels within the architecture and not as a single shared infrastructure service in same way ATHENS is.



Example of repository-related services in the Information Environment



For further information, see the Information Environment sections on the JISC website¹² and the UKOLN website¹³.

JISC Programme Context

As well as digital repositories the JISC has been active in the development of digital preservation. For a number of years distinct programmes of activity in digital preservation have been undertaken. However, as far as possible digital preservation should be integrated into other activities that form part of the digital environment for learning, teaching and research. As part of this new programme, Repositories and Preservation, digital preservation will be as integrated as far as possible within the management and use aspects of digital repositories. It is important however to understand that the JISC is not only interested in digital repositories and how they support digital preservation, the JISC's vision is much wider than this and this programme intends to support other aspects of digital preservation that may fall outside of digital repositories. The name of the programme reflects the importance of digital preservation as a key element in the management and use of digital assets.

For further information, see the **Background section on the Programme webpages**¹⁴

¹² JISC: Information Environment http://www.jisc.ac.uk/whatwedo/themes/information_environment

¹³ Information Environment <http://www.ukoln.ac.uk/distributed-systems/jisc-ie/arch/>

¹⁴ The Repositories and Preservation Programme: Background http://www.jisc.ac.uk/whatwedo/programmes/programme_rep_pres/rep_pres_background

Key Reports

JISC has commissioned a number of studies that identify the key issues to address in building an interoperable network of repositories in the UK. Bidders should refer to these where appropriate.

- Digital Repositories Roadmap: Looking Forward¹⁵
- Linking UK Repositories¹⁶
- Information Environment Shared Infrastructure Requirements Synthesis¹⁷
- State-of-the-art Review of Terminology Services and Technology¹⁸

For further information on these reports, see the **Key Documents section on the Programme webpages**¹⁹

Technical Guidelines

The JISC Repositories and Preservation Programme projects are encouraged to adopt relevant standards in order to improve interoperability between repositories, content and services.

Bidders under the Repositories and Preservation Programme should familiarise themselves with the technical standards for the JISC Information Environment²⁰ and the service oriented approach of the JISC e-Framework for Education and Research²¹.

The e-Framework for Education and Research is an international initiative, led by JISC, to explore the potential benefits of applying a service oriented approach to the provision of ICT infrastructure for education and research, and where successful to support its broader adoption by institutions and their suppliers. Guidance for projects on engaging with the eFramework is available from the programme webpages²².

Where projects carry out technical development, this should as far as possible be done within the service-oriented approach of the e-Framework, and, where possible, should expose and consume functionality via web services. However other technical approaches are permissible, where appropriate, e.g. where existing standards are already in use (such as Z39.50), where Web services (SOAP or REST) do not yet meet performance or functional needs (such as for secure transactions). Other projects that will not be providing services themselves are encouraged to use web service-enabled tools and applications within their own environment. All projects should be able to contribute to the knowledge base which the e-Framework is developing. This can include domain, practice and process models, scenarios and use cases, and good practice guidelines on the internal and cross-institutional implementation of the technology, as well as information about the service definitions they have used or developed.

The Information Environment approach fits within that of the e-Framework. In effect the Information Environment architecture includes a sub set of the e-Framework services and is a

¹⁵ Digital Repositories Roadmap: Looking Forward : http://www.jisc.ac.uk/uploaded_documents/digital-repositories-review-2005.pdf

¹⁶ Linking UK Repositories http://www.jisc.ac.uk/uploaded_documents/Linking_UK_repositories_report.pdf

¹⁷ Shared Infrastructure Services requirements synthesis http://www.jisc.ac.uk/circular04_06_Shared_Infrastructure_Services_Review

¹⁸ State-of-the-art Review of Terminology Services and Technology http://www.jisc.ac.uk/circular04_06_Terminology_Services_and_Technology

¹⁹ The Repositories and Preservation Programme: Key Documents http://www.jisc.ac.uk/whatwedo/programmes/programme_rep_pres/rep_pres_keydocs

²⁰ JISC Information Environment <http://www.ukoln.ac.uk/distributed-systems/jisc-ie/arch/standards>

²¹ JISC e-Framework for Education and Research <http://www.e-framework.org/>

²² JISC e-Framework guidance for projects http://www.jisc.ac.uk/whatwedo/programmes/programme_eframework/engagement

proposed implementation of services that support discovery to delivery and curation. A useful way to see how this works is Andy Powell's draft discovery to delivery reference model²³

Repository service developers must adopt the Information Environment standards. Particularly relevant standards and specifications are:

- Dublin Core for metadata²⁴
- OAI-PMH for harvesting²⁵
- UK LOM Core for learning resource metadata²⁶
- Scholarly Works application profile²⁷

Projects should also be aware of further emerging standards and frameworks such as:

- OAIS framework²⁸
- Trusted Repositories model²⁹

This list is provided as a rough guide, and successful bidders will be supported in further exploration of appropriate standards. For example METS³⁰ and MPEG 21 DIDL are relevant for complex objects and will be relevant to projects. JISC-funded projects are part of a development community, and should engage with standards issues where possible, exploring specifications for innovative developments. Projects will be expected to work with the JISC Development services, UKOLN and CETIS, in the area of interoperability and standards and specifications.

It is anticipated that programme structures will support the sharing of lessons and the specifying and testing of technical standards and specifications. As the programme develops the JISC will require that projects test and adopt solutions to develop a national infrastructure for repository curation and discovery services. This will be based on the IE but the IE will be further refined and implemented through the programme activity and in particular with reference to services for digital repositories, preservation and shared infrastructure services. The JISC recognises that the implementation of standards is not always simple: there is often room for interpretation; standards are maturing at different rates; and developers may need to customise standards for local requirements. Standards should not be a constraint on projects: they should improve interoperability, save time and effort, and ensure that the education sector can benefit from individual projects. In the long term, widespread adoption of standards will improve the user experience.

Bidders should refer to the main Capital Call paper³¹ for requirements for projects to engage with Open Standards, Software Outputs and the eFramework.

Guidance for Start-Up and Enhancement Projects

Bidders to the Start-Up and Enhancement Strand should read the information on the strand webpages about suggested activities and approaches within this strand of projects.

It should be noted that projects under strands IIa and IIb should address organisational, legal, cultural and sustainability issues as well as technical aspects of their projects.

For further information, see the **Start-Up and Enhancement Strand section of the Programme webpages**³².

23 Discovery to delivery reference model. <http://www.ukoln.ac.uk/distributed-systems/jisc-ie/arch/dlf/>

24 Dublin Core <http://dublincore.org/>

25 OAI-PMH <http://www.openarchives.org/OAI/openarchivesprotocol>

26 UK LOM Core <http://zope.cetis.ac.uk/profiles/uklomcore>

27 Scholarly Works application profile http://www.ukoln.ac.uk/repositories/digirep/index/Eprints_Application_Profile

28 OAIS framework <http://public.ccsds.org/publications/archive/650x0b1.pdf>

29 Trusted Repositories model <http://www.rlg.org/legacy/longterm/repositories.pdf>

30 METS <http://www.loc.gov/standards/mets/>

31 April 2007 Capital Call paper <http://www.jisc.ac.uk/circular0107>

32 The Repositories and Preservation Programme: Start-Up and Enhancement Strand http://www.jisc.ac.uk/whatwedo/programmes/programme_rep_pres/repositories_sue

JISC Website Resources for Project Planning

JISC projects are expected to adhere to the JISC Programme Management Framework³³ as set in the terms and conditions of grant once funding is approved. This includes regular reporting and attendance at programme related meetings.

Contacts

Further Information is available from the JISC Development Group. The following people form the team managing the Repositories Preservation Programme:

Rachel Bruce, Programme Director, Information Environment
Helen Hockx-yu, Programme Manager, Digital Preservation
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Balviar Notay, Programme Manager, Resource Discovery, Portals and Presentation
Amber Thomas, Programme Manager, Digital Repositories
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Email the Repositories and Preservation Programme Team with any questions and queries:
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³³ JISC Project Management Guidelines http://www.jisc.ac.uk/proj_manguide