

Using OAIS for Curation

OAIS (Open Archival Information Systems Reference Model — ISO 14721:2003) provides a generic conceptual framework for building a complete archival repository, and identifies the responsibilities and interactions of Producers, Consumers and Managers of both paper and digital records. The standard defines the processes required for effective long-term preservation and access to information objects, while establishing a common language to describe these. It does not specify an implementation, but provides the framework to make a successful implementation possible, through describing the basic functionality required for a preservation archive. It identifies mandatory responsibilities, and provides a standardised method to describe repository functionality by providing detailed models of archival information and archival functions.

Short-term Benefits and Long-term Value

The OAIS Reference Model can be used as a planning tool to facilitate long-term implementation of digital preservation. Using the Reference Model as a checklist, from the inception of an archival repository project, can help to:

- Design a system which is both sustainable and viable and can fulfil a repository's business model
- Reduce design work by ensuring that all issues and responsibilities, both inside and outside of the repository, are addressed at the planning stage
- Ensure that policies, guidelines and agreements exist which will embed preservation into an organisation's workflow
- Increase cooperation between stakeholders, as responsibilities will be fully understood and the repository will fulfil their requirements
- Identify human responsibilities, computer aided processes and automated processes
- Enable discussion and comparison with other organisations' systems through shared terminology, operational procedures and architectures
- Engender trust in the repository, and open the possibility of future certification as a *Trusted Digital Repository* ¹

Following the OAIS Functional Model will ensure that all major functions required for successful repository architecture are included:

- Data objects are appropriately Ingested, Archivaly Stored and Managed
- Administrative procedures are in place for the overall operation of the archive
- Planning for preservation takes place; including migration planning, software decisions, implementing standards and creating ingest methodologies
- Data objects continue to be accessible to those who need to use them

Following the OAIS Information Model will:

- Ensure that the necessary supporting information, (Metadata) to enable effective control and preservation of a data object, and record relationships between them, is collected or created
- Ensure that any information needed to interpret a data object (Representation Information) is collected and assigned appropriately

HE/FE and e-Science Perspective

“The establishment of the OAIS (Open Archival Information System) reference model offered the AHDS a framework upon which to base its repository. Layered upon this the AHDS has a range of Preservation Handbooks, Ingest Manuals and metadata tools to assist AHDS staff.”

Alastair Dunning in *The Tasks of the AHDS (Arts and Humanities Data Service): Ten Years On*, Ariadne, Issue 48, July 2006

“Recommendation B16: Institutions, Research Councils and universities acting alone or in consortia should be encouraged to adopt OAIS-compliant archives and to institute methods to assess curation of academic digital assets.”

Philip Lord and Alison Macdonald p75 *e-Science Curation Report: Data curation for e-Science in the UK: an audit to establish requirements for future curation and provision prepared for: The JISC Committee for the Support of Research (JCSR) (2003)*

Roles and Responsibilities

Choosing to use the OAIS Reference Model, as a template for information preservation, demonstrates a long-term commitment to ensuring that relevant workflows and architectures are in place for information to remain available to those who need to use it (the Designated Community). The Reference Model clearly identifies an organisation’s requirement to set overall policy and ensure that mandatory responsibilities are followed:

- Negotiate for and accept appropriate information from information Producers.
- Obtain sufficient control of information provided to the level needed to ensure Long-Term Preservation.
- Determine, either by itself or in conjunction with other parties, which communities should become the Designated Community and, therefore, should be able to understand the information provided.
- Ensure information preserved is independently understandable to the Designated Community. It should be understandable without needing the assistance of the experts who produced the information.
- Follow documented policies and procedures which ensure that the information is preserved against all reasonable contingencies, and which enable the information to be disseminated as authenticated copies of the original or traceable as the original.
- Make the preserved information available to the Designated Community.

Additional Resources

ISO 14721:2003 *Space data and information transfer systems — Open archival information system — Reference model* — French and English versions available for purchase in paper or PDF format from: <http://www.iso.org/iso/en/ISOOnline.frontpage>. Research libraries may have subscriptions to ISO or British Standards Online: <http://www.bsonline.bsi-global.com/server/index.jsp> which enable registered users to download copies free. See appropriate staff at your institution.

NASA/Science Office of Standards and Technology (NOST) — *OAIS Official website*: <http://nost.gsfc.nasa.gov/isoas/>. Links to the full text of the standard prior to ISO ratification and is essentially the same: <http://public.ccsds.org/publications/archive/650x0b1.pdf>

Alex Ball, *Briefing Paper: the OAIS Reference Model*, UKOLN, University of Bath (February 2006)

Cornell University Library, *Online Tutorial: Digital Preservation Management: Implementing Short-term Strategies for Long-term Problems. Module 4B: The OAIS Reference Model*: <http://www.library.cornell.edu/iris/tutorial/dpm/foundation/oais/index.html>

ERPANET, *OAIS Training Seminar*, Reports and presentations from the 2002 Erpanet OAIS Training Seminar, Copenhagen (2002)

Brian F. Lavoie, *The Open Archival Information System Reference Model: Introductory Guide*, Digital Preservation Coalition Technology Watch Series Report 04-01 (January 2004): http://www.dpconline.org/docs/lavoie_OAIS.pdf

¹RLG/OCLC (Research Libraries Group/Online Computer Library Center) and NARA (US National Archives and Records Administration) are developing a methodology for certifying *Trusted Digital Repositories*. Currently in draft format, the *Audit Checklist for Certifying Digital Repositories* uses the work of OAIS as its foundation. The Digital Curation Centre is participating in this initiative: http://www.rlg.org/en/page.php?Page_ID=580