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University of Delaware Library Institutional Repository



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DSpace at UD >

Welcome to DSpace, The University of Delaware Library Institutional Repository.

The creation of the University of Delaware Library Institutional Repository is made possible through a grant from the Unidel Foundation.

University of Delaware faculty and staff are invited to consider placing their research in the Institutional Repository. Please click on policies to learn more.

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Communities in DSpace

Browse collections by selecting one of the communities below:

Applied Demography and Survey Research

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Center for Composite Materials

Center for Energy and Environmental Policy

Center for Historic Architecture and Design

Center for Marine Policy

Center for Material Culture Studies

Climatological Data: Maryland and Delaware

Delaware Education Research and Development Center

Department of Biological Sciences

Department of Civil and Environmental Engineering

Department of English

Department of Food and Resource Economics

Department of Foreign Languages and Literatures

<u>Department of Mathematical Sciences</u>

Department of Sociology and Criminal Justice

Disaster Research Center

Institute for Public Administration

Library

Office of Graduate Studies

Office of the Provost

Sea Grant College Program

What is in DSpace?

University of Delaware research in digital form, including technical reports, working papers, conference papers, images, and more.

Is this all of UD's research?

No. For published research go to DELCAT: The University of Delaware Library catalog, or go to Library Databases, or Electronic Journals.

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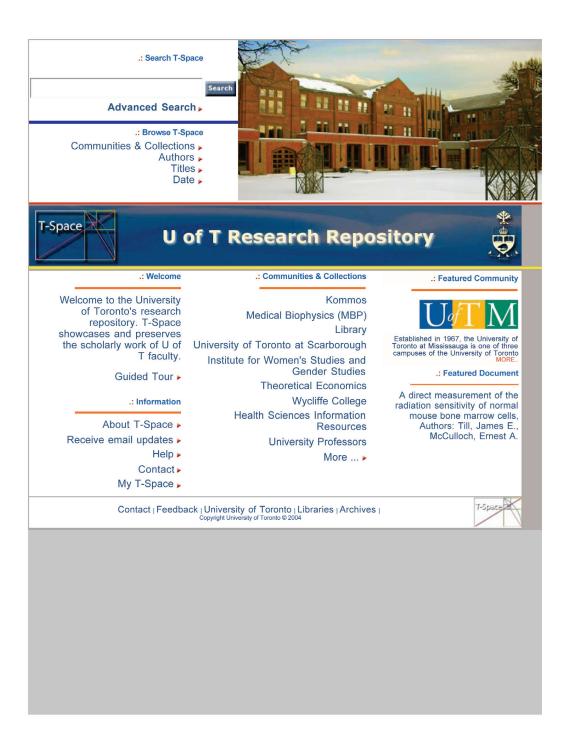
http://archimede.bibl.ulaval.ca/archimede/pages/home/index.jsf



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http://tspace.library.utoronto.ca/



IR Usage Statistics

https://scholarsbank.uoregon.edu/dspace/statistics





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University of Oregon Scholars' Bank >

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Monthly reports: 01/2005 | 02/2005 | 03/2005 | 04/2005 | 05/2005 | 06/2005 | 07/2005 | 08/2005 | 09/2005 | 10/2005 | 11/2005 | 12/2005 | 01/2006 | 02/2006 | 03/2006 | 04/2006 | 05/2006 | 06/2006

Statistics for University of Oregon Scholars' Bank on scholarsbank.uoregon.edu

Apr 1, 2005 to Jun 29, 2006

General Overview | Archive Information | Items Viewed | All Actions

Performed | User Logins | Words Searched | Averaging Information | Log

Level Information | Processing Information

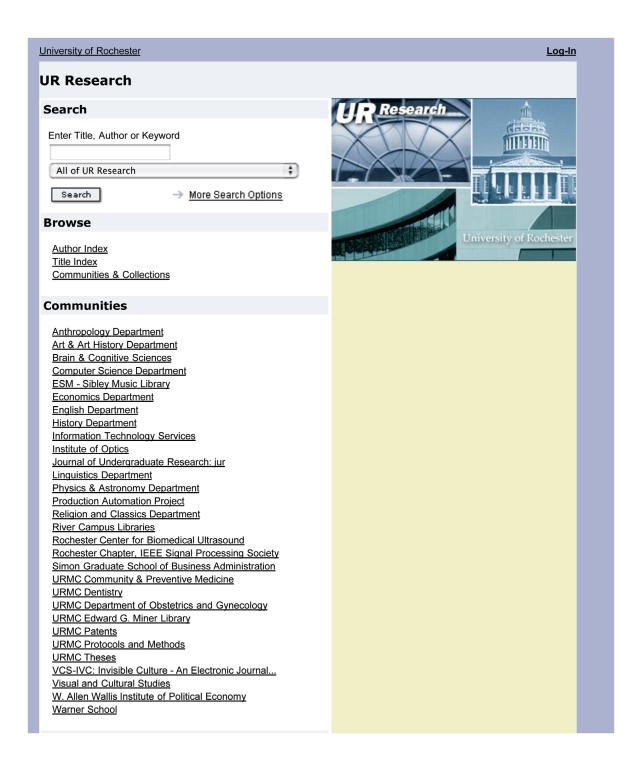
General Overview

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Items Archived	1,956
Bitstream Views	234,913
Item Views	367,930
Collection Views	105,121
Community Views	48,042
User Logins	2,195
Searches Performed	21,150
Licence Rejections	0
OAI Requests	30,399

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Repository Policies

- Who Can Join
- · Whose Papers Can Be Included in the Repository
- Appropriate Submissions
- Peer-Reviewed Series
- Seminar Series
- · Removing a Paper
- Author Review
- Author Agreements
- Persistent Access
- Copyright

Who Can Join

Any University of California research unit (ORU or MRU), institute, center, or department is elegible to join. A UC unit is one governed by the University of California Regents.

Whose Papers Can Be Included in the Repository

Content does not have to be authored by UC faculty to be included in the eScholarship Repository. For example, a unit may use the repository to post papers from a conference they sponsor, which includes faculty from UC and other institutions. All that is required is that the sponsoring unit decides that the content is appropriate for the repository.

Appropriate Submissions

Any content is appropriate if all applicable policies are followed (e.g., copyright), it is technically feasible (the content can be posted using existing format types, etc.), and the sponsoring unit decides it is appropriate. We do not accommodate the posting of bibliographic citations or abstracts alone, without the referenced paper. If you have any questions, please contact us at help@repositories.cdlib.org.

Peer-Reviewed Series

The eScholarship Repository infrastructure also supports peer-reviewed series and journals. If you are interested in using the repository for peer-reviewed content, visit our information page, which will help you decide whether this is the right forum for your scholarship. Your campus eScholarship liaison is also a useful resource.

Seminar Series

A seminar series can be established within any department, center, or research unit participating in the Repository. Creation of schedules and uploading of content is managed by the administrator of the sponsoring unit. If you are interested in hosting a seminar series in the Repository, visit the "About the Repository Seminar Series" page. Any questions can be addressed to help@repositories.cdlib.org.

Removing a Paper

Authors may request that the unit system administrator remove their paper, or a version of their paper. However, once a paper is deposited in the repository, a citation to the paper will always remain. The exception is peer-reviewed series and journals, where removal is not allowed.

For example, if an author decides they don't want a working paper to appear on the repository anymore, they ask the system administrator at their unit to remove the paper, which hides it from public view. Instead of the paper appearing in the repository, there is instead a citation saying that this paper—by this person, published on this date, with this URL—has been removed. This means the URL never disappears, though a paper may be removed.

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http://repositories.cdlib.org/escholarship/policies.html

The repository allows faculty to show the progression of their research, should they so desire. Ten different versions of papers could be posted on the repository, with all of them visible. Or the faculty member could ask the repository administrator to remove the 9 earlier versions, leaving only the most recent one visible. However, in addition to the current version, there would be 9 citations showing that there had been 9 earlier versions available, published on these dates, with these titles, etc.

If a paper is being removed because of subsequent journal publication, please consult the Copyright section below.

Author Review

This is a step whereby authors are given the opportunity to review the PDF after the paper has been uploaded to the system but before it is posted. Since the system can automatically create a PDF from a Word or RTF document, in some cases it's especially important that the author check the PDF one more time. It is up to each unit whether or not they want to have author review. The exception is peer-reviewed series and journals, where author review is required.

Author Agreements

In the agreement signed by the unit director or department chair, the participating unit guarantees that they will obtain certain assurances from their authors. Suggested language for an author agreement is provided.

Persistent Access

The California Digital Library's commitment to provide persistent access to content in the eScholarship Repository applies only to material housed on servers maintained directly or under contract by the CDL. Links and access to content of any format referenced outside the eScholarship Repository cannot be guaranteed by the CDL or eScholarship Repository.

Copyright

Authors retain the copyright for all content posted in the repository. The author agreement specifies a nonexclusive right to use. This means the author is free to reuse the content elsewhere.

If a working paper is published in a journal—either in the same form or, more commonly, in revised form—many journals allow the working paper to continue to be made available, especially when it is for educational/scholarly noncommercial use. Unfortunately, some journals do require that the working paper be removed. Others grant exceptions for something like the eScholarship Repository; they just need to be asked. It is up to the faculty member to check the terms of their agreement with the journal to see what is allowed. Individual journal policies vary widely. The RoMEO Project (Rights MEtadata for Open archiving) has compiled a list of many journals "Copyright Policies" about "self-archiving."

If you are interested in including a reprint of a journal article on your repository site, the faculty member should check their agreement with the journal to see if it is allowed. If it would not violate copyright, you're welcome to do so.

You are the gatekeeper for your repository site, and it is up to you to decide what is appropriate—as long as it doesn't violate copyright and conforms to eScholarship Repository policies.

For more information on copyright issues as they relate to the topic of reshaping scholarly communication, please see the UC Libraries site.

Any library interested in printing a repository paper for their permanent collection should contact the center, department, or research unit responsible for posting the paper. The unit can then gain copyright clearance from the paper's author/s. Information on how to contact the unit can be found under the "Policies" link for that unit's repository site. Permission does not need to be obtained for linking to repository content.







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Introduction

The purpose of the UNL Repository is to publicize, disseminate, and preserve the scholarly work of current UNL scholars to educate and inform the world. It is intended to provide access to this work as broadly as possible, and for as long as possible.

Who Can Join?

Any University of Nebraska research unit, department, lab, center, or institute is eligible to join. Hereafter, any of these is referred to as the " unit" in this document.

Whose Papers Can Be Included in the Repository?

The unit will decide what content is appropriate for their part of the repository

(e.g., journal article postprints, conference papers, technical reports, preprints, working papers, senior design papers, simulations, programs, etc.).

While content does not have to be authored by UNL faculty to be included in the Repository, there does need to be a UNL affiliation. For example, a unit may use the Repository to post papers from a conference they sponsored, which includes some UNL authors and many from other institutions. All that is required is that the sponsoring UNL unit decides that it is appropriate for their part of the Repository. The repository will feature the work of the current UNL community, but units can work with the Libraries on policies for their areas.

Appropriate Submissions

The unit working with the UNL Libraries reviews guidelines on content and sets policy for their unit. Any content is appropriate if all applicable policies are followed (e.g., copyright), it is technically feasible (the content can be posted using existing format types, etc.), and the unit decides it is appropriate. We do not accommodate the posting of bibliographic citations or abstracts alone without the referenced paper. If you have any questions, please contact Paul Royster at projecter@unit.edu.

Unit Agreements

The unit agrees to disseminate information regarding the procedures and policies for the repository, including author responsibilities regarding copyright, as set forth by the Libraries and communicated through written documents, correspondence, and training sessions.

Author Agreements and Copyright

Authors retain any copyright they have for all papers posted in the repository. When depositing material into the repository, each submitter agrees to the following:

I hold the copyright to this document, or have been authorized by the copyright holder(s) to upload it for distribution, and agree to permit this document to be posted in (Name of the Collection), and made available to the public in any format in perpetuity.

I warrant that the posting of the work does not infringe any copyright, nor violate any proprietary rights, nor contain any libelous matter, nor invade the privacy of any person or third party, nor otherwise violate Repository policies.

For more information about copyright, please refer to the repository copyright guidelines for authors. See also our copyright infringements policy.

Removing or Updating a Work

The Repository is meant to be a permanent scholarly record and once a paper is deposited anywhere in the Repository a citation to the paper will always remain.

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http://digitalcommons.unl.edu/policies.html

However, authors may request that the unit repository administrator remove their paper, or a version of their paper. They may also request that an updated version be posted. Posting updated versions along with the original material is the way the Repository allows faculty to show the progression of their research.

Persistent Access and Migration

The Libraries will provide persistent access to Repository content, but it does not guarantee persistent functionality. If determined necessary by the Libraries, the current set of tools used for the Repository may be replaced. The Libraries will preserve all deposited contents through migration.

Peer-Reviewed Series

It is possible for the UNL Repository to support peer-reviewed series. If you are interested in starting a peer-reviewed series, contact repository@unl.edu, so we can help you decide whether this is the right forum for your scholarship.

(Adapted from the University of California eScholarship agreement and the University of Pennsylvania Library's ScholarlyCommons@Penn agreement)).

Policy last changed April 2005

For Authors: How to Determine if Your Work can be Submitted to DigitalCommons@UNL

IF YOU RETAIN COPYRIGHT

If you retain copyright to the work in question, you should be able to submit it to DigitalCommons@UNL. Your work will receive increased visibility while raising the prestige of the University of Nebraska. Proceed to directly submit a paper via your account, or review the help if needed.

If you share the copyright with other authors, check with them to make sure they also approve of the work being archived and made available at DigitalCommons@UNL.

IF YOU DON'T RETAIN COPYRIGHT

If you do not retain copyright, but rather the publisher does, you should check publisher copyright policies to determine what is allowed to be submitted to an institutional repository. We recommend that you use the SHERPA list.

While the listing of publishers is growing, it does not cover all publishers. For this reason, we have been collecting policies from publishers' web sites, as well as contacting publishers directly when their policy is ambiguous or when it does not address the institutional repository scenario. Please contact us if you have questions.

A number of publishers allow the post print (the post print is defined as the post-peer reviewed version of the article that is accepted by the publisher for final publication) to be submitted to an institutional repository, but not the publisher's PDF version

NOTE: With appropriate citation credit, the IEEE and MRS do allow UNL authors to submit the publisher PDF versions of papers to DigitalCommons@UNL.

If You Don't Know Who Publishes Your Journal

Because of mergers and acquisitions, it is sometimes difficult to identify the parent company for a journal. The RoMEOSoton site allows you to input the journal name to look up the publisher. This site's information on publisher's policies is not as current as the SHERPA site, so we recommend that you only use RoMEOSoton to identify the publisher, and not its policies.

HOW TO INCLUDE CITATION INFORMATION

When you submit an article, in addition to entering descriptive information such as the author (s), title, date, keywords, and abstract, it is important to include citation information as well. This should be noted in the Comments...section when you submit

DOI - Digital Object Identifier

If you want or are required to refer to the publisher's final version of a paper, you can turn a DOI into a URL by prefixing http://dx.doi.org/ to the front of the DOI the publisher specifies. Or, use CrossRef's free DOI lookup. You have to either enter

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the Journal Title or the ISSN (they recommend title), and either the first named author or the first page number. The more information you input, the fewer results you will need to look through.

Questions?

Copyright Infringement Policy for DigitalCommons@UNL

Repository contributors are responsible for adhering to the copyright policies of the University of Nebraska-Lincoln, which includes adherence to federal copyright law. In general, we will assume good faith on the part of repository contributors, educate our contributors on their rights and responsibilities with respect to copyright, and act quickly to remedy copyright problems if they come up.

In order to prevent problems with allegations of copyright infringement involving DigitalCommons@UNL, we will:

- Educate our users about the requirements of copyright law, copyright consideration for materials previously or subsequently posted in scholarly journals and other forums, and fair use.
- Make it clear that submissions to DigitalCommons@UNL should comply with UNL's policies on copyright and applicable copyright laws.
- Include in the documentation for DigitalCommons@UNL are links to UNL's policies on copyright and acceptable use of computing resources
- Require submitters to the repository warrant that their submissions do not infringe copyright. (This is part of the submission process.)

In the event that an interested party makes specific allegations of copyright infringement regarding material posted in the repository, with sufficient information to be substantially in compliance with the DMCA notification requirements, we will:

- Forward such correspondence to: UNL's designated DMCA copyright agent, the administrative contact for the unit under which the allegedly infringing material was posted, and the authors of the allegedly infringing material.
- Remind authors and unit administrators of their rights and responsibilities concerning copyright and scholarly expression.

Upon the request of UNL's copyright agent, the unit administrator, or the authors, we will:

- Disable access to the full text of the allegedly infringing item.
- Retain the item record and metadata (with a note that the full text is not available at present).
- At our discretion we may choose to publicize the correspondence alleging infringement.
- Ensure that the authors and unit administrators are notified of their counter-notification rights under the DMCA.
- Restore access to the full text if such counter-notification is given.

In the event that we discover that specific material in DigitalCommons@UNL is posted in infringement of copyright, but we have not received actual notice from an interested party as described above, we will:

- Report our discovery, and the reason for our judgment that the item is infringing, to the administrative contact for the unit under which the allegedly infringing material was posted, and the authors of the allegedly infringing material.
 Remind authors and unit administrators of their rights and responsibilities concerning copyright and scholarly expression.
- Request a warrant confirming that the material is not infringing.
- If we do not receive one in a reasonable time period, at our discretion disable access to the full text as described above.

Generally, discovery of infringement should involve positive evidence of infringement. We should not presume that authors have not obtained special permission to use copyrighted material in their submissions. Nor should we presume that academic research publication violates anti-circumvention provisions of the DMCA.

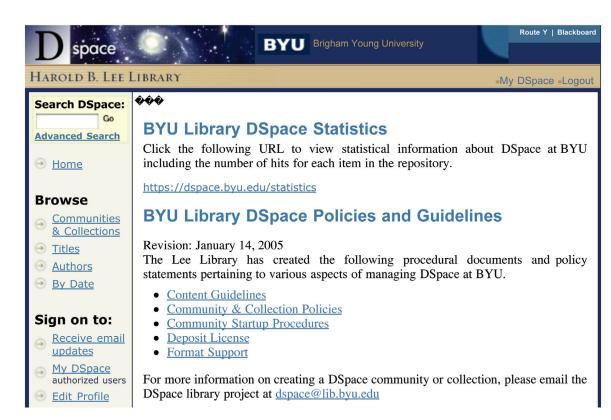
In any of the events described above, we will retain all correspondence related to the alleged or apparent infringements.

Policy last changed April, 2005

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IR Deposit Agreements	

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Deposit License



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If the submission contains material for which you do not hold copyright, you represent that you have obtained the necessary permission of the copyright owner to grant the rights required by this license, and that such third-party material is clearly identified and acknowledged within the text or content of the submission. You also represent that your submission does not, to the best of your knowledge, infringe upon anyone else's copyright.

If the submission is based upon work that has been sponsored or supported by an agency or organization other than BYU, you represent that you have fulfilled any right of review or other obligations required by any contract or agreement with such agency or organization.

Because there are patent implications when publishing new innovations and discoveries, please be advised first, before publishing, to consult with the Technology Transfer Office (2-6266) and the Office of the General Counsel (2-6727).

BYU will clearly identify your name(s) as the author(s) or owner(s) of the submission, and will not make any alteration, other than as allowed by this license, to your submission. You will retain copyright ownership of the submission.

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http://www.grad.uwaterloo.ca/forms/Thesis/authorsdeclaration.pdf

NOTE:

The following Author's Declaration is required as a separate page in the opening pages of your thesis. Please copy the following statement and incorporate it into a separate page in your thesis. (The statement below replaces the standard "Author's Declaration" page used in paper submissions.)

AUTHOR'S DECLARATION FOR ELECTRONIC SUBMISSION OF A THESIS

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

I understand that my thesis may be made electronically available to the public.

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IR Metadata Policies	

http://www.ku.edu/~scholar/docs/metadata.shtml

[back to Policies & Advanced Topics]

Describing a Resource (Metadata)

Listed below are the fields you can use to describe a submission to KU ScholarWorks. Only a title is required, but the more descriptive information (metadata) you provide, the easier it will be to locate and cite your work.

KU ScholarWorks uses a metadata format called the Dublin Core Library Application Profile (DC-Lib). More information about the Dublin Core is available at http://dublincore.org.

Fields available during the submission process:

Field Name	Definition/Scope Note
Authors	A person, organization, or service responsible for the content of the resource. Enter the last name followed by the first name for individuals.
Title	Title statement/main title.
Other Titles	Alternative titles, such as an abbreviation or a translation.
Date of Issue	Date of publication or distribution; only displays if previously published or publicly distributed box checked during submission.
Publisher	Entity responsible for publication, distribution, or imprint; publisher of the previously issued instance of the work; only displays if <i>previously published or publicly distributed</i> box checked during submission.
Citation	Bibliographic citation for works that have been published as a part of a larger work, e.g. journal articles, book chapters; only displays if previously published or publicly distributed box checked during submission.
Series/Report No.	Series name and number within that series, if available; used for working papers, technical reports, etc.
Identifiers	Select from ISSN, Other, ISMN, Govt Doc#, URI, ISBN, and enter the standard number.
Туре	Select one or more: Animation; Article; Book; Book Chapter; Dataset; Learning Object; Image; Image, 3-D; Map; Musical Score; Plan or blueprint; Preprint; Presentation; Recording, acoustical; Recording, oral; Software; Technical Report; Thesis; Video; Working Paper; Other.
Language	Select: English (United States); English; Spanish; German; French; Italian; Japanese; Chinese; (Other); N/A (for non-language material)

Subject Keywords	Key words or phrases that describe the intellectual content of the work.
Abstract	Abstract or summary.
Sponsors	Information about sponsoring agencies, individuals, or contractual arrangements (such as funding codes) for an item.
Description	Any descriptive information not in the abstract (such as number of pages in a document, date and location of a presentation, etc.)

Additional metadata fields available to Collection Administrators from within the KU ScholarWorks administrative interface:

Element	Definition/Scope Note
contributor.advisor	Used primarily for thesis advisor
contributor.editor	Editor for the resource
contributor.illustrator	Illustrator of the resource
contributor.other	Use for contributor not covered by other contributor types.
coverage.spatial	Spatial characteristics of content
coverage.temporal	Temporal characteristics of content
date.copyright	Date of copyright
date.created	Date of creation or manufacture of intellectual content if different from date.issued
date.submitted	Recommended for theses/dissertations
Identifier	Catchall for unambiguous identifiers not defined by qualified form; use identifier other for a known identifier common to a local collection instead of unqualified form.
description.provenance	The history of custody of the item since its creation, including any changes successive custodians made to it.
description.statementofresponsibility	To preserve statement of responsibility from MARC records.
description.tableOfContents	A table of contents for this item.

i .	
description.uri	Uniform Resource Identifier pointing to a description of this item.
Format	Catchall for any format information not defined by qualifiers.
format.medium	Physical medium.
Relation	Catchall for references to other related items.
relation.isFormatOf	References additional physical form
relation.isPartOf	References physically or logically containing the item.
relation.hasPart	References physically or logically contained item.
relation.isVersionOf	References earlier version.
relation.hasVersion	References later version.
relation.isBasedOn	References source.
relation.isReferencedBy	Pointed to by a referenced resource.
relation.requires	Reference resource is required to support function, delivery, or coherence of item
relation.replaces	References preceding item.
relation.isReplacedBy	References succeeding item.
relation.uri	References Uniform Resource Identifier for related item.
subject.classification	Catchall for value from local classification system; global classification systems will receive specific qualifier.
subject.ddc	Dewey Decimal Classification Number
subject.lcc	Library of Congress Classification Number
subject.lcsh	Library of Congress Subject Heading
subject.mesh	Medical Subject Headings
subject.other	Local controlled vocabulary

UNIVERSITY OF TEXAS AT AUSTIN

http://www.lib.utexas.edu/dls/metadata/registry/index.html



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University of Utah Institutional Repository Metadata Best Practices - Draft Version 0.4

University of Utah Institutional Repository Metadata Subgroup



University of Utah Institutional Repository Metadata Best Practices

Draft Version 0.4 May 2006

Version	Date	Changes Made
0.4	2006-05-03	4.10 Format – Clarified U of U comment; 4.15 Relation – Corrected APA format in examples; 4.20 Award – Element deleted
0.3	2006-04-05	3.2 Additional elements listed; 3.3.5 Character Encoding – Unicode not supported in CDM; 3.3.7 File Naming Conventions – Under review; 4.1 Title – Input Guideline 6 clarified; 4.2 Creator – Mandatory; Input Guideline 3 consistent name entry; 4.5 Publisher – U of U for unpublished works, name of commercial publisher if their pdf or author's copy as per contract; 4.7 Date Original – Comment removed; 4.8 Date Digital – Comment removed; 4.10 Format – Additional element instances for refinements; 4.13 Source – Comment added; 4.15 Relations – Refinements; New example added; 4.16 Coverage – Comment added; 4.17 Rights Management – Comment modified and example added; 4.18 Contributing Institution – Comment added; 4.19 Publication Type – Element added; 4.20 Award – Element added; 4.21 Scanning Technician – Element added; 4.22 Metadata Cataloger – Element added
0.2	2005-11-03	Updated throughout to reference CDPDCMBP rather than WS DCMBP, which is no longer available
0.1	2005-07-25	Initial draft

IRmetadataBPv0p4.doc

Last Modified 2006-05-09

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UC LIBRARIES Digital Preservation Repository



Overview of the UC Libraries Digital Preservation Repository (DPR)

The University of California Libraries Digital Preservation Repository (DPR) supports the long-term storage, and management of digital objects. Content submitted to the DPR must support research, teaching, or learning.

Preserving an object is the joint responsibility of the California Digital Library (CDL) and submitters. When negotiating a submission agreement and setting up an account, both the CDL staff and submitters work together to define the nature of the objects, establish rights, and determine user access roles.

The CDL is responsible for checking submission errors, controlling user access, and retaining deposited objects and versions in perpetuity. Submitters are responsible for choosing the objects they wish to deposit in the DPR and for making decisions about removing or replacing any of their objects or versions. If at some point submitters are unable to manage their objects, they can negotiate with the DPR to withdraw as active participants.

Submission and access to the DPR are possible through an HTML user interface, a CDL-supplied Java-client library, and a web-services interface that uses the SOAP protocol. A persistent identifier (ARK) is automatically assigned to any object that does not already have one upon submission. The services and associated storage are based at the California Digital Library (CDL).

Submission Considerations

When preparing objects for submission, consider the following:

Rights

The submitter must have the right to authorize the deposit of the digital objects (which includes the right to copy) for preservation purposes. There are three categories of rights:

- · Content that is in the public domain.
- · Copyright that is held by the submitter.

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http://www.cdlib.org/inside/projects/preservation/dpr/DPRoverview.pdf

Overview of the UC Libraries Digital Preservation Repository (DPR)

 Permission that is obtained by submitter from the copyright holder, allowing the deposit of the object.

METS Format

Each object, consisting of one or more files, is deposited with a "wrapper" data structure that includes some descriptive metadata and an inventory of the object's component files.

The XML-based "wrapper" format that is used is called the Metadata Encoding and Transmission Standard (METS), for which the Library of Congress is the maintenance agency.

The transmission of an object begins when the METS file is submitted to the DPR interface. This file references all the object's component files either on a web server or on physical media (CDs or hard drives) that the DPR can access.

Dublin Core Elements

In addition to the metadata listed on your submission agreement (for example, format and submitter's identifier), the DPR requires four elements from the submitter. These "kernel" elements, derived from a subset of the Dublin Core, are needed for minimal object description (who, what, when, and where). The DPR then records and may add information about the origin of the object ("provenance").

Unique Identifiers

An object saved in the DPR must have a globally unique persistent identifier in the form of Archival Resource Key (ARK) that provides a long-term, stable association between a string of characters and an object. It is used for addressing the object and for obtaining a basic description of it. Once assigned, the persistent identifier is flagged so that it is never reassigned, even if an object is removed entirely. A record will always be kept describing the object so that the association between the identifier string and the object will never be broken.

Object Versions

Using the same ARK, the object can exist in the DPR with as many versions as needed. Like the object itself, each new version must be self-contained: it must include new versions of all the object's component files. Versions can be removed and replaced at will. Access rights for a version are defined at the object level.

The submitter must determine if two submissions are versions of the same object or two different objects (with different ARKs). Therefore, the object can be entered into the DPR in one of two ways:

http://www.cdlib.org/inside/projects/preservation/dpr/DPRoverview.pdf

Overview of the UC Libraries Digital Preservation Repository (DPR)

- A version of a previously deposited object
- A distinct object

Primary vs. Alternate Object Identifiers

Each object has a *primary object identifier*. Upon first deposit, if an object does not have an ARK as a primary identifier, one is assigned and returned to the submitter for future reference. The CDL can provide your institution with software for generating and maintaining your own ARKs if you wish, in which case you may submit your existing ARK with the object when you deposit it.

Each object can also be deposited with an *alternate object identifier*, which may be a local identifier that you want to continue using. You are responsible for the uniqueness and persistence of your alternate object identifier. You may use either identifier to reference your object.

Format

There are no format restrictions. However, in order to ensure the long-term usability of the object's content, structure, and functionality, it is recommended that each object's files be in a format recognized by JHOVE. This step examines the format and generates structural and technical metadata that could assist in future migration efforts.

DPR Standards and Practices

The DPR relies on community-wide standards and practices as much as possible in both the digital-library community (METS, Dublin Core, ARK) and the wider computing community (Java, XML). The design of the DPR has been influenced by two seminal efforts in the digital preservation community: the OAIS reference model and the PREMIS metadata activities.

Interfaces

Users can prepare objects for submission by interacting with the DPR in the following ways, depending on their needs.

Web-Based User Interface

The HTML browser interface that the DPR supplies is a simple option that is ideal for becoming familiar with DPR functionality.

Java API

The Java API employs a DPR-supplied Java client library that submitters can use with their own Java programs, allowing them to plug the DPR into systems

http://www.cdlib.org/inside/projects/preservation/dpr/DPRoverview.pdf

Overview of the UC Libraries Digital Preservation Repository (DPR)

of their own, thereby tailoring it to meet their local needs. The Java-client library implements the upper layer of the DPR Application Program Interface (API). This is ideal for bulk processing.

Note: The following Java toolkit is used: Sun Microsystems' *Java Web Services Developer Pack (WSDP)*.

SOAP Interface

The DPR API relies on a lower layer CDL-supplied SOAP interface.

Note: SOAP is an XML-based protocol allowing interoperability between software programs. That is, programs written in one language can communicate with programs written in another language.

Therefore, applications written in any language can interact directly with the DPR using SOAP (with Attachments). For assistance with this implementation, contact dprsupport-leucop.edu.

Differences between File Backup Systems and DPR

File Backup Systems	DPR
Files are backed-up on recyclable tapes and are	
rarely retained for more than one year.	explicitly removed by the submitter.
Previous file versions, if saved at all, are recycled even sooner.	
Backups are created by recording updated	The DPR selectively records coherent, platform-
computer files indiscriminately.	independent objects. An initial examination during the
	submission agreement negotiation establishes that
	objects should be preserved if they benefit the UC
	community. Subsequently, the submitter has control over
	the objects it wishes preserved in the DPR.
Backups made on one platform may not work when retrieved onto a different platform.	File and record dependencies are minimized by packaging related files in one object.
Even if you were able to recover a file containing digital content from your backup	Platform dependencies are minimized by requiring that deposited objects conform to the standards-based, non-
tapes, you might find it unusable without the	proprietary specifications.
supporting files and database records.	Unlike ordinary computer files, each object is assigned a
There are no guarantees that older files	globally unique persistent identifier.
available on specific computer platforms can	
be used today.	

Overview of the UC Libraries Digital Preservation Repository (DPR)

Future Plans

Many preservation issues are still being investigated by CDL and the rest of the digital library community.

Migration Issues

A primary reason that the DPR supports multiple object versions is to implement future format migration (that is, conversion to more viable contemporary formats).

- DPR is generating (via JHOVE) standardized file format identifiers to anticipate this need. It is also looking into sustainable funding models to support potential migrations.
- · Scheduled Check of DPR Objects

DPR performs file checksums when objects are deposited. The goal is to create a schedule for periodically accessing each DPR object, recomputing the checksums, reporting discrepancies, and repairing any damage found.

Replicated Storage of Objects

Various storage systems will be tested that support redundancy and geographic replication.

- The Storage Resource Broker (SRB) system, which is a product of the San Diego Supercomputer Center, is being explored as a way to replicate storage among the UC campuses and non-UC library partners. SRB currently functions as the DPR's storage layer, but its full functionality has not been utilized. It is important to gain some practical experience with SRB during the DPR pilot phase before exploring further possibilities.
- Refreshing (rewriting) objects periodically.
- · Desiccated Data

As a protection against technical or financial obstacles to future format migration, we are considering a supplemental strategy involving low-tech preservation derivatives for document-like objects. In particular, this calls for the generation of a small number of derivative versions in highly sustainable formats, including both plain text files and raster image files.

These derivative versions are "dried up" representations of the original documents that undoubtedly lose many features in this process—animation and hotlinks in the case of a raster image, and fonts, colors, and inline-graphics in the case of a text—but they retain the essential document properties. This type of desiccated data has proven to be among the most long-lived digital formats. Ingested along with the original format, this strategy may provide a high degree of stability as we confront a future of uncertain funding for all but the most valuable of older materials.

• There are currently no plans to support emulation of objects.

UNIVERSITY OF CALIFORNIA CDL

http://www.cdlib.org/inside/projects/preservation/dpr/DPRoverview.pdf

Overview of the UC Libraries Digital Preservation Repository (DPR)

Further Information

For further information, see:

- DPR User Interface Guide
- DPR Java Developer's Toolkit Guide
- CDL Digital Preservation Repository

http://www.cdlib.org/inside/projects/preservation/dpr/

- JSTOR/Harvard Object Validation Environment
 - http://hul.harvard.edu/jhove/jhove.html
- Nice Opaque Identifiers

http://www.cdlib.org/inside/diglib/noid/

• Reference Model for an Open Archival Information System (OAIS)

http://ssdoo.gsfc.nasa.gov/nost/wwwclassic/documents/pdf/CCSDS-650.0-B-1.pdf

For help with implementation:

Contact dprsupport-l@ucop.edu

University of Illinois at Urbana-Champaign

IDEALS Digital Preservation Support Policy

Committed to building and maintaining collections for the use of students, faculty, scholars, and the public long into the future, the University of Illinois at Urbana-Champaign assumes an obligation to ensure long-term access to the materials deposited into IDEALS and their intellectual content, but also acknowledges the inherent challenges involved in preserving digital content.

To this end, the IDEALS Digital Preservation Support Policy defines the categories of preservation support available and provides specific information about where different file formats fit. Our ability to preserve digital objects deposited in IDEALS is dependent, among other things, on the file format used, whether it is proprietary or publicly available, the number of software platforms that support the file format, and whether there are embedded files or dynamic references within the digital resource. This policy is subject to change as new and emerging technologies impact our ability to preserve deposited content.

All digital objects deposited to IDEALS will receive a basic level of preservation. Basic preservation means that IDEALS will: strive to ensure that the bitstream (the 1's and 0's that make up the digital file) remains exactly the same over time, assign a persistent, permanent identifier, create preservation metadata, maintain onsite and offsite backup copies, and perform regular virus and file corruption checks and periodic refreshments by copying files to new storage media.

IDEALS categorizes digital objects into four categories of preservation support. These categories are defined below.

Category 1 - Full Support

Digital objects in Category 1 receive the highest level of preservation support. IDEALS will make its best effort to maintain full functionality of objects found to meet the Category 1 criteria. Full functionality is defined as preserving the *viability* of the original bitstream (the 1's and 0's that make up the digital file) so that information must be intact and readable, the *renderability* of the resource so that the resource is viewable by humans and processable by computers, and the *understandability* of the resource so that the resource is interpretable by humans. Formats fitting the Category 1 criteria will be monitored for changes that might warrant transformation or reassessment. An example of a Category 1 digital object is a tiff (.tiff) image file or a plain text file (.txt).

The criteria for Category 1 support are that the object:

- Is in a format this is publicly documented;
- Is in a format this is widely adopted;
- Is in a format that may be rendered by multiple software packages; and

Contains no embedded files or dynamic references.

Category 2 - Intermediate Support with Assurance of Full Functionality

Digital objects in Category 2 receive intermediate preservation support and will be normalized or transformed to a format that will receive Category 1 support to ensure that the renderability and understandability of the object will be available via the normalized version. Intermediate preservation support means that the original digital object will receive the basic level of preservation, and the original digital object will be monitored for changes that might warrant migration or transformation to a newer or more stable format. An example of a Category 2 digital object is a Microsoft Word file without any embedded files.

The criteria for Category 2 support are that the object:

- Is in a format that is widely used;
- Is in a format that is of enough public and/or commercial interest that tools are likely to be available to migrate them to successor formats;
- · Contains no embedded files, dynamic references, or other; and
- Can be transformed to a Category 1 format without any loss of renderability or understandability.

Category 3 – Intermediate Support without Assurance of Full Functionality

Digital objects in Category 3 receive intermediate preservation support and may be normalized or transformed to a format that will receive Category 1 support with probable loss of functionality or renderability due to issues like embedded files or dynamic content. Intermediate preservation support means that the original digital object will receive a basic level of preservation, and the original digital object will be monitored for changes that might warrant migration or transformation to a newer or more stable format. An example of a Category 3 digital object is a Microsoft Excel file containing macros and references to external files that cannot be normalized to a comma separated text file without loss of functionality.

The criteria for Category 3 support are that the object:

- · Is in a format that is widely used;
- Is in a format that is of enough public and/or commercial interest that tools are likely to be available to migrate them to successor formats; and
- Cannot be reliably transformed to a Category 1 format without any loss of renderability or understandability. In most cases, either tools are unavailable to ensure reliable and repeatable transformation to a Category 1 format, or the object contains embedded files or dynamic references which cannot be successfully transformed.

Category 4 - Basic Support Only

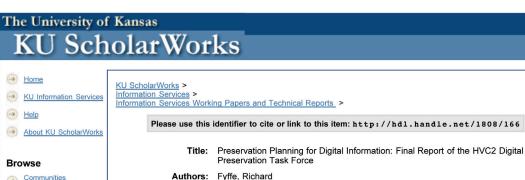
Digital objects in Category 4 receive only the basic preservation support available to all digital objects within IDEALS. Basic preservation means that IDEALS will: strive to ensure that the bitstream (the 1's and 0's that make up the digital file) remains exactly the same over time, assign a persistent, permanent identifier, create preservation metadata, maintain onsite and offsite backup copies, and perform regular virus and file corruption checks and periodic refreshments by copying files to new storage media. The original object will be preserved 'as-is', with no guarantee of transformation, migration to later formats, or renderability. This is often called 'bit-level' preservation, since only the original 'bits'- the 1's and 0's - are preserved. If the object depends on a particular version of software, there is no guarantee that the original object will still be usable when that software is no longer available. IDEALS makes no guarantees that objects with Category 4 support will be monitored for migration or transformation support. Category 4 support usually applies to digital objects written in highly specialized, proprietary formats (often usable only in a single software environment), formats no longer widely utilized, and/or formats about which little information is publicly available. An example of a Category 4 digital object is the Kodak Photo CD (.pcd) format that is proprietary.

The criteria for Category 4 support are that the object:

- Is in a highly specialized, proprietary format, often usable only in a single software environment;
- Is in a format about which little information is publicly available;
- · Is in a format that is no longer widely utilized; or
- Does not meet the criteria for any of Categories 1-3.

Any format not yet reviewed and evaluated by IDEALS will receive Category 4 support on deposit. A different category may be assigned after format review takes place.

Preservation Action	Category 1	Category 2	Category 3	Category 4
Provision of persistent identifier for object and/or its metadata	X	X	X	X
Creation of preservation metadata	X	X	X	X
Secure storage and backup	X	X	X	X
Regular fixity checks	X	X	X	X
Regular virus checks	X	X	X	X
Periodic refreshment to new storage media	X	X	X	X
Transformation to a Level 1 format with full functionality	N/A	X		
Transformation to a Level 1 format without full functionality	N/A	N/A	X	
Storage of original digital object	X	X	X	X
Strategic monitoring of format for changes	X	X	X	
Migration to successive format upon obsolescence	X	X	X	



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Preservation Task Force

Fyffe, Richard

Ludwig, Deborah Roach, Mary Schulte, Becky Warner, Beth Forrest

Digital preservation Keywords: Information architecture

Technical architecture Information policy

Information lifecycle management

Data stewardship Issue Date: 11-Nov-2004

Abstract: Digital preservation is the ongoing process of managing data for continuing access and use. The University of Kansas Digital Preservation Task Force was charged in

October 2003 to explore the implications of a University commitment to the preservation of digital assets, both academic and administrative. The report emphasizes actions the University should take; it is not a primer on digital preservation. We recommend, over a three-year timeline, implementation of the following components in a university-wide digital preservation program: • An integrated technical architecture designed around the whole lifecycle of digital information, from creation forward. • Definition and assignment of a set of specific roles or functions exercised by staff within the University, and development of a set of policies to guide those roles. • Education for faculty, staff, and administrators in the basic concepts and challenges in digital preservation and training in information management practices

that will contribute to the ongoing availability of digital files.

Appears in Collections: Information Services Working Papers and Technical Reports

URI: http://hdl.handle.net/1808/166

Files in This Item:				
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Appendix K - Digital Preservation Website.pdf	Appendix K	169Kb	Adobe PDF	View/Open
Appendix J - Digital Preservation Curriculum rev.pdf	Appendix J	187Kb	Adobe PDF	View/Open
Appendix I - Process Architecture Infrastructure rev.pdf	Appendix I	107Kb	Adobe PDF	View/Open
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Appendix F - Lifecycle Management Roles and Processes.pdf	Appendix F	195Kb	Adobe PDF	View/Open
Appendix E - Data collection manual draft 2.pdf	Appendix E	204Kb	Adobe PDF	View/Open
Appendix D - Definition of Digital Asset.pdf	Appendix D	81Kb	Adobe PDF	View/Open

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Appendix C - Working Summaries and Background Information.pdf Appendix C 550Kb Adobe PDF View/Open

Appendix B - HVC2 Digital Preservation Task Force Membership.pdf Appendix B 104Kb Adobe PDF View/Open

Appendix A - HVC2 Digital Preservation Charge 9-24-03.pdf Appendix A 70Kb Adobe PDF View/Open

Preservation Planning for Digital Information.pdf Report 674Kb Adobe PDF View/Open

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VU e-Archive Supported Formats

The formats listed below as "supported" are those that Vanderbilt Libraries recognize and will support as part of the preservation and migration of the VU e-Archive. Formats listed as "known" are familiar, but their support and migration are not guaranteed. "Unknown" means that we do not recognize the format, and although we can store it, we will probably not be able to migrate it. If a format is not listed here, check with your VU e-Archive administrator.

FORMAT SUPPORT LEVELS

Name	Extensions	MIME Type	Support Level
Unknown		application/octet-stream	unknown
Adobe PDF	Pdf	application/pdf	supported
XML	Xml	text/xml	known
Text	txt, asc	text/plain	supported
HTML	htm, html	text/html	supported
Microsoft Word	Doc	application/msword	supported
Microsoft Powerpoint	Ppt Ppt	application/vnd.ms-powerpoint	known
Microsoft Excel	Xls	application/vnd.ms-excel	supported
MARC		application/marc	known
JPEG	jpeg, jpg	image/jpeg	supported
GIF	Gif	image/gif	known
image/png	Png	image/png	known
TIFF	tiff, tif	image/tiff	supported
AIFF	aiff, aif, aifc	audio/x-aiff	known
audio/basic	au, snd	audio/basic	known
WAV	Wav	audio/x-wav	known
MPEG	mpeg, mpg, mpe	video/mpeg	known
MP3	mp3	audio/video	known
RTF	Rtf	text/richtext	supported
Microsoft Visio	Vsd	application/vnd.visio	known
FMP3	Fm	application/x-filemaker	known
BMP	Bmp	image/x-ms-bmp	known
Photoshop	psd, pdd	application/x-photoshop	known
Postscript	ps, eps, ai	application/postscript	supported
Video Quicktime	mov, qt	video/quicktime	known
MPEG Audio	mpa, abs, mpega	audio/x-mpeg	known
Microsoft Project	mpp, mpx, mpd	application/vnd.ms-project	known
Mathematica	Ma	application/mathematica	known
LateX	Latex	application/x-latex	known

VANDERBILT UNIVERSITY

http://www.library.vanderbilt.edu/dspace/VU%20e-Archive%20Supported%20Formats.htm

TeX	Tex	application/x-tex	known
TeX dvi	Dvi	application/x-dvi	known
SGML	sgm, sgml	application/sgml	known
WordPerfect	Wpd	application/wordperfect5.1	known
RealAudio	ra, ram	audio/x-pn-realaudio	known
Photo CD	Pcd	image/x-photo-cd	known

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IR Proposals	

UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

Illinois Digital Scholarship: Preserving and Accessing the Digital Past, Present and Future

A White Paper prepared jointly by The University of Illinois Library and CITES University of Illinois at Urbana-Champaign

> Michael Grady, CITES William Mischo, Library Beth Sandore, Library

> > 7 April, 2004

Executive Summary

Since the University's establishment in 1867, its scholarly output has been issued primarily in print, and the University Library and Archives have been readily able to collect, preserve, and to provide access to that output. Today, technological, economic, political and social forces are buffeting all means of scholarly communication. Scholars, academic institutions and publishers are engaged in debate about the impact of digital scholarship and open access publishing on the promotion and tenure process. The upsurge in digital scholarship affects many aspects of the academic enterprise, including how we record, evaluate, preserve, organize and disseminate scholarly work. The result has left the Library with no ready means by which to archive digitally produced publications, reports, presentations, and learning objects, much of which cannot be adequately represented in print form. In this incredibly fluid environment of digital scholarship, the critical question of how we will collect, preserve, and manage access to this important part of the University scholarly record demands a rational and forward-looking plan—one that includes perspectives from diverse scholarly disciplines, incorporates significant research breakthroughs in information science and computer science, and makes effective projections for future integration within the Library and computing services as a part of the campus infrastructure.

This report recommends that the campus take action now to do two things: 1) create a reliable and easy to use repository service to preserve, manage, and provide persistent and widespread access to the digital scholarship faculty and students now produce; and, in parallel, 2) initiate with faculty, students, departments, and colleges the discussions that will enable them to make changes in publication models that involve institutional and disciplinary archiving and the retention of their own copyright to their scholarship, thereby maintaining the authority of scholarship within their respective disciplines.

The greater part of this report focuses on the development of a repository service and its technical underpinnings. We recommend that the Library and CITES serve as trusted agents in the development and implementation of this service, recognizing also that there will be a number of rich opportunities for technology research collaborations with units on the UIUC campus as well as the Chicago and Springfield campuses. To accomplish this goal, the University Library and CITES pledge \$1.3 million of in-kind and cash resources over a six-year period, and we request an equivalent amount of support from the campus to implement the repository, for a total investment of \$2.6 million over six years.

In this report we recommend that the initial collection efforts focus on digital materials that do not pose copyright or other intellectual property issues. However, we strongly urge that the University now begin to address the more challenging issues associated with developing new models for faculty and institutional ownership and widespread access to their own peer-reviewed digital scholarship. If the campus chooses to address these challenges, scholars here and at other academic institutions will reap much greater intellectual rewards in the long-run. We urge the campus to consider seriously this proposal to catalyze a faculty-driven initiative to re-shape

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UNIVERSITY	OF ILLINOIS AT URBANA-CHAMPAIGN
	scholarly publishing and the mechanisms used for its dissemination, as well as a much-
	scholarly publishing and the mechanisms used for its dissemination, as well as a much- needed understanding of the role of technology in digital archiving.

Challenges and Benefits

The University Library and Archives have been responsible for collecting, preserving and providing access to the scholarly output of the University since its inception in 1867. The majority of this output has been in print. With the advent of digital scholarship, faculty and students at academic institutions world-wide are re-defining their output relationships within the world of scholarly communication (with publishers and professional societies). They increasingly post publications, working papers, and research reports on Web sites, or make their preprints available in digital form through professional society Web sites. Scholars, academic institutions and publishers are engaged in debate about the impact of digital scholarship and open access publishing on the system of recognizing significant research in the disciplines, as well as on the promotion and tenure process. Publishers are examining their valueadded role in the refereeing and editing process, as well as issues related to the ownership, management of, and access to the archival record of digital scholarship that is created by individual scholars. Further, all parties seek reliable, permanent places to archive these digital publications, as well as the supportive information for this research--datasets, instructional materials, field notes and interviews, performances and creative works, interviews, simulations--all of which comprise the scholarly record of a career, regardless of institutional affiliation, as well as the provenance of the research.

The upsurge in digital scholarship has left the Library with no ready means by which to archive digitally produced publications, reports, presentations, video, audio, and learning objects. It is insufficient in most cases to preserve only the print version of a digital work because increasingly print cannot represent the interrelationships among documents that can be created using digital works. In this incredibly fluid environment of digital scholarship, the critical question of who is responsible for collecting, preserving, and managing access to this important part of the University scholarly record demands a rational and forward-looking plan—one that includes content from diverse scholarly disciplines, incorporates significant research breakthroughs in information science and computer science, and makes effective projections for future integration within the Library and computing services as a part of the campus infrastructure.

In this paper we outline a collaborative plan aimed at enabling the University of Illinois to preserve, manage, and provide access to the digital works and learning materials created by scholars on the University of Illinois at Urbana-Champaign campus. This report recommends that the Library and CITES serve as trusted agents for the University in the joint development and management of a repository service for the campus, recognizing also that there will be a number of rich opportunities for collaboration with units like GSLIS, Computer Science, Electrical Engineering, and NCSA that have the potential to greatly enrich the repository service model. We also recommend that the campus initiate with faculty, students, departments, and colleges the discussions that will enable them to play a key role in shaping publication models that involve institutional and disciplinary archiving, thereby maintaining the authority of scholarship within their respective disciplines.

The first phase of this initiative would involve the development of a digital repository as a proof of concept that would provide a suite of underlying services. This model would be developed using existing repository software that is available from other institutions under open-source licenses. The development of a testbed repository architecture would present numerous opportunities for externally funded applied and basic research in data mining, secure knowledge management, information architectures, information retrieval, and metadata creation and processing. The lessons learned in the first phase would provide a basis for a second phase, where a quality production service would be developed, along with the definition of requirements to make the service permanent. The third and final phase of this project would involve institutional broad-based commitment and permanent adoption. Our long-term target (six years) is to produce a useful service that is widely deployed and actively used across campus. In achieving this goal, the University Library and CITES would pursue collaborations with a variety of partners on campus, and also the Chicago and Springfield campuses, including content providers and technology developers such as the Graduate School of Library and Information Science, NCSA, Computer Science, and Electrical and Computer Engineering. We have also initiated a conversation with the UIC Center for Data Mining, which can prove fruitful in future phases of the proposed work with research datasets.

Setting in place a process to preserve digitized and born-digital research and other individual and institutional output will require several programmatic activities:

- Involving faculty in determining what types of output ought to be included in a repository;
- Working with faculty to develop new organizational models for preserving and providing access to their peer-reviewed publications and other forms of scholarship;
- Conducting a systematic survey across campus of colleges, units, and programs that could potentially contribute to an institutional repository;
- · Developing criteria for the selection and inclusion of digital content;
- Differentiating between access and preservation in repository setup and digital object life cycle;
- Developing methods to simplify the deposit, description, and location of materials within the repository:
- Collaborating with publishers and government agencies in content preservation efforts and metadata harvesting activities.

The benefits of a repository service for digital scholarship are many, as already outlined by a number of peer institutions. The University of California eScholarship program¹ cites a number of benefits that would be directly transferable to the University of Illinois environment:

 Free to the University of Illinois: Research units, centers, or departments would be able to use this technology to make their publications widely accessible and to ensure that they would be preserved in digital form.

¹ The University of California eScholarship Repository. "Repository benefits." URL: http://repositories.cdlib.org/escholarship/benefits.html.

- Promising alternative to commercial ventures or self-publishing.
- Permanence from the University's commitment to maintaining persistent access to content that is stored in the repository.
- Increased visibility of faculty research and the department or unit. The
 repository would bring many new readers to the content, and to the related
 faculty or unit's web site(s). Persistent links to the publication as well as the
 related faculty or unit web sites would be provided as part of the repository
 service.
- World-wide accessibility using the Open Archives Initiative (OAI protocol for metadata harvesting). This protocol would make the content discoverable from a variety of locations with no extra work on the part of the author.

The Work Plan in the final section of this paper provides more information about the ways in which we propose to address the above activities. Clearly, librarians and archivists cannot achieve the goals represented in a repository effort alone—rather this must be a concerted effort involving scholars and their research, as well as the expertise of technologists and information science researchers, and institutional policy makers. This is as much a social change as it is a technical development. The goal of enabling the creation of scholarship in preservable form will require leadership at all levels, across the subject domains. The development of a repository for digital scholarship will provide the capability for the University to play an integral and new role in the distribution and provision of access to faculty and student scholarship. With the technical capability will come the concomitant need for faculty discussion across the disciplines to develop selection as well as access policies, and to determine what level of significance the repository will play in the dissemination of scholarly output apart from traditional publishing channels.

We approach this endeavor with the knowledge that simply building a service for the deposit of digital scholarship will not ensure that it will be used by faculty and students for the purpose of preserving and providing access to their works for the long-term. To be more specific, faculty and student investment in the concept must be based on the assumption that the content in the repository has undergone some sort of widely recognized vetting process, in order to ensure its value to one or more discipline, and to the University. For this reason, this report recommends that campus-wide discussions focusing on how to get high quality scholarship into the repository need to take place simultaneous to the work on building the service that Library and CITES propose here.

Background

Defining Systems and Methods for Preserving Digital Scholarship

In her recent work *New Model Scholarship*, Abby Smith warns that academic institutions are in danger of not being able to preserve important digital scholarship across the disciplines because the digital documents and media that faculty and students develop cannot in their current forms be preserved by librarians and archivists with the tools that we currently possess. The questions posed by Smith in her recent report are being echoed throughout academic libraries and archives world wide:

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How do we know what the value of these digital objects is and may be decades hence?

How do we anticipate and address the technical needs of fragile digital objects over time?

Who is responsible for preservation, and how is it financed?

Smith points out that while most scholars rely on librarians and archivists to collect, preserve, and provide access to important resources upon which they base their research, the practice of digital scholarship has changed the interdependencies in this traditional model, placing the burden on the scholar for the creation, delivery, and management of "preservable" digital objects:

"...the task is not only to invent tools that foster productive use of the Web as a medium of scholarship and teaching but also to create material in preservable form."

Further, once digital objects exist in a preservable form, they need to be archived in some type of system that will allow the content of the files to be managed and accessible so that it can be used over time, regardless of the software application that must be used in order to view, interact with, or otherwise experience the digital content. Recently the phrase "institutional repository" has emerged to describe the handful of software systems (both open source and commercially produced) that are geared at the archiving and long-term management of digital content. Some of these products are well-known and have been developed by academic institutions or by professional societies to address the very problem that is outlined in the preceding paragraphs (e.g., DSpace, co-developed by MIT and Hewlett-Packard; FEDORA, co-developed by the University of Virginia and Cornell University; EPrints, developed by a faculty member at the University of Southampton).

As Smith and others involved in digital archiving have indicated, librarians and archivists cannot achieve this goal alone—rather this must be a concerted effort involving scholars and their digital output, as well as the expertise of technologists and information science researchers, and institutional policy makers. This is as much a social change as it is a technical development. The goal of enabling the creation of scholarship in preservable form will require leadership at all levels, across the subject domains.

Institutional Repositories: Definition and Significance

In the ARL Bi-monthly newsletter of February, 2003, Clifford Lynch defines the role of repositories in the academic setting, and he identifies groups who are responsible for implementing them, as well as the concerns and caveats that institutions must bear in mind when developing these structures. Lynch views institutional repositories as "...a set of services that a university offers to the members of its community for the management and dissemination of digital materials created by the institution and its community members." Lynch emphasizes, however that the institution's commitment to the stewardship of these materials is perhaps more important than the actual service model:

"[A]n institutional repository is a recognition that the intellectual life and scholarship of our universities will increasingly be represented, documented, and shared in digital form, and that a primary responsibility of our universities is to exercise stewardship over these riches: both to make them available and to preserve them. An institutional repository is the means by which our universities will address this responsibility both to the members of their communities and to the public. It is a new channel for structuring the university's contribution to the broader world, and as such invites policy and cultural reassessment of this relationship."

Lynch also reinforces the points that institutional repositories must be easy to use or contribute to, and that once a repository is established, faculty, staff, and students would view it as both an essential and continuing commitment by the institution to the stewardship of digital materials of enduring value.

"Faculty who choose to rely on institutional repositories to disseminate and preserve their work are placing a great deal of trust in their institution and in the integrity, wisdom, and competence of the people who manage it. We need to ensure that our institutional repositories are worthy of this trust. "

Institutional Repository Development Efforts

Once created, digital collections can be daunting to manage. Simply storing discrete digital objects in the computer's file system and providing access to those objects through hand-made web pages or a manually maintained database may be an adequate strategy for smaller projects, but it is not a practical model for larger collections. With larger collections come a number of new problems: multiple communities of users, complex relationships among digital objects, compound digital objects, shared behaviors and other types of object-class attributes.

To address these issues, there has been in recent years considerable investigation into and development of digital object repositories—but even so, digital object repositories are still in early stages of development, their architectures are still being specified, and as a community, we have relatively little experience with them. Projects are already under way in a number of our peer institutions.

According to a report issued by Mark Ware in January 2004 for the UK-based Publisher and Library/Learning Solutions (PALS) group, there are approximately a dozen digital object repository software systems that use different hardware and software platforms as well as different operating procedures and strategies. While a few commercially-developed long-term archiving solutions exist (e.g., Documentum²), the majority of software developed in the past several years is freely-available as open source, and has been developed and implemented in either academic or not-for-profit settings. Some systems (e.g., EPrints³) focus on enabling institutional self-archiving of publications and working papers. EPrints was first made available for download in 2001, and it is reported to be the most widely used repository system. Others

³ URL: http://www.eprints.org

² URL: http://www.documentum.com

(DSpace⁴, FEDORA⁵, Greenstone⁶) provide a mix of functions that enable the archiving of text, video, audio, and other media. Early reports from our peer institutions suggest that one repository system may not fit all needs, and that different formats of digital content (text, audio, video, still images, data sets, simulations, etc.) may require management using different repository tools.

DSpace is a digital repository system that was developed jointly by MIT Libraries and Hewlett-Packard to capture, store, index, preserve, and redistribute the intellectual output of a university's research faculty in digital formats. DSpace is now freely available to research institutions world-wide as an open source system that can be customized and extended. Subsequent funding from the Andrew Mellon Foundation in 2003 has supported the D-Space Federation, a group of seven institutions implementing DSpace and participating in its further development (Cambridge University, Columbia University, Cornell University, MIT, Ohio State University, the University of Rochester, the University of Toronto, and the University of Washington).

The Fedora project, jointly developed by the University of Virginia and Cornell University, was funded in 2001 by the Andrew W. Mellon Foundation to build an open-source digital object repository management system based on the Flexible Extensible Digital Object and Repository Architecture (Fedora). The new system demonstrates how distributed digital library architecture can be deployed using web-based technologies, including XML and Web services, and it supports such applications as institutional repositories, digital libraries, content management, digital asset management, scholarly publishing, and digital preservation.

The use of institutional repositories and the breadth and depth of their content have been topics of considerable speculation. The PALS report by Ware surveyed approximately 45 institutional repositories in existence world-wide that provide information about their holdings in a standard format, using the Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH). The survey revealed that the total number of documents on the 45 sites was approximately 42,700, which were divided roughly into the following categories:

- 22% e-prints
- 20% theses and dissertations
- 58% other documents—including "grey literature"—technical reports and working papers—and a collection of digital images.

The repository implementations to date have clearly focused their efforts on collecting the "grey literature," e-prints for which there are few or no rights issues, and theses and dissertations. Ware also noted that no research datasets were found in this survey, although colleagues at several early adopter institutions indicate that they preparing to address this issue. The subjects covered by the 45 repositories surveyed by the Ware report include physics, mathematics, computer science and economics, with small amounts of documents in linguistics, philosophy and some humanities.

URL: http://www.dspace.org
 URL: http://www.fedora.info

⁶ URL: http://www.greenstone.org

Open Access Publishing and Archiving Peer-Reviewed Scholarship

The results of the Ware report, as noted above, are somewhat disappointing in terms of the slow uptake and use of repositories among academic and other research institutions. One of the fundamental drawbacks of institutional repositories from the faculty perspective is that many do not contain peer-reviewed scholarship, and therefore they do not represent significant research archives. The Budapest Open Access Initiative (BOAI) is to date the major international movement, supported by the Soros Foundation, that serves to promote the provision of open and free access to the refereed scholarly literature. At its core, the BOAI proposes that scholars and research institutions world-wide form an alliance to make peer-reviewed journal articles and other support materials (unreviewed preprints, working papers) freely-accessible through the Internet:

By "open access" to this literature, we mean its free availability on the public internet, permitting any users to read, download, copy, distribute, print, search, or link to the full texts of these articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. The only constraint on reproduction and distribution, and the only role for copyright in this domain, should be to give authors control over the integrity of their work and the right to be properly acknowledged and cited.

Proponents of the Open Access Initiative suggest that the provision of free access to peer-reviewed journal literature ought not to be equated with "costless" production, but that the true cost of online production of these materials is far less than current pricing suggests, and that scholars, along with academic institutions and research organizations, now ought to work together to reduce production costs as well as increase accessibility of their works.

Preparatory Technical Work

Several activities currently under way on the Urbana campus are aimed at exploring the development of digital archiving capability. The University Library and CITES began a series of conversations late in 2002 about building a suite of repository architectures that could preserve, on a long-term basis, UIUC scholarly research output, significant educational materials, and historically significant institutional events and information. These conversations culminated in an agreement between the two units to develop this white paper. Further, Library and GSLIS faculty have been engaged in externally funded research projects that focus on areas where prerequisite knowledge would be required--repository creation, automatic metadata generation, and data mining. Through informal contact we know of faculty in other units who are engaged in related research. The proposed work has the potential to encourage collaborative research to solve a number of challenges that have yet to be addressed.

⁷ Budapest Open Access Initiative: http://www.soros.org/openaccess/index.shtml.

⁸ Odlyzko, Andrew. "The Economics of Electronic Journals." First Monday: Peer Reviewed Journal on the Internet. Vol.2 No.8 - August 4th. 1997; URL:

http://firstmonday.org/issues/issue2_8/odlyzko/index.html

One of the outcomes of these joint conversations is the understanding that we need to develop a reliable technical infrastructure to support the management, storage and delivery of materials that are in current use, as well as addressing the long-term storage and preservation of scholarship and learning materials that are deemed to have significant institutional value. The ability to share and re-purpose (within and beyond the University of Illinois community) scholarly and learning content is a concurrent need that must be considered in constructing a repository. Work on various aspects of the technology that supports inter-institutional sharing is under way in a number of major regional and national research and educational support organizations, including the NSF Internet 2 Middleware initiative, the Committee on Institutional Cooperation's (CIC) interest in creating a repository for Native American Indian materials, and the Digital Library Federation's (DLF) recently announced Distributed Open Digital Library (DODL) initiative. Building a robust institutional archiving program is already a critical factor in the University's ability to support faculty participation in these cutting-edge initiatives.

In the fall of 2003, the University Library, GSLIS, NCSA and several external partners, including OCLC, an alliance of seven state libraries, and several academic institutions, submitted a proposal to the Library of Congress NDIIPP (National Digital Information Infrastructure Preservation Program) to support a three-year grant to develop automatic data harvesting methods and to test them with current open-source digital repository architectures (FEDORA, D-Space, Greenstone) and one commercial system (OCLC Digital Archive). These awards will be made some time in the early spring of 2004. Should the University receive this award, the proposed research, evaluation, and tool development would significantly advance any local institutional repository efforts the campus might initiate.

The University Library has also been working with NCSA and NARA (National Archives and Records Administration) to develop automatic data mining and extraction methods for full-text archival documents (e.g., email). These techniques will be of critical importance in making it easy for faculty, students, and staff to participate in and contribute to an institutional archiving service that represents rich locally-developed content. Both NARA and the San Diego Supercomputing Center (SDSC) have collaborated with increasing funding to develop storage and retrieval models for long-term data archiving, and we believe that there is significant potential for the University and NCSA to explore data archiving and data mining partnerships with the SDSC.

Related Campus and University Efforts

The proposed effort can leverage the current work of several initiatives that are implementing technologies that are either key to an institutional repository's operation, or will serve as convenient conduits for depositing content. There are two technology building blocks that must be in place for an institutional repository to be implemented—secure, flexible, and reliable storage, and robust identity management. In addition to this, an institutional repository will have an impact on the planning for future information architecture and networking. A potential campus portal, and the Illinois Compass learning management systems could serve as highly visible and easy-to-use conduits for depositing content into a repository. The specific CITES services and projects that might be leveraged are NetFiles, Illinois Compass, the directory

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services effort, a possible portal pilot, cross-campus efforts to better align IT strategies and leverage resources across the entire University, and planned networking infrastructure upgrades.

NetFiles is the recently deployed centrally supported file storage system for students, faculty. Individuals have their own file storage area, and can control access to their files through a web browser or a specific software interface. The focus is on space for individuals, although providing file space for "groups" (e.g. a Registered Organization, a research group, a unit) is under consideration.

Illinois Compass, the Urbana campus enterprise deployment of the WebCT Vista learning management system, will provide the framework, service platform, and delivery mechanism for online resources for courses. This will include both traditional (timetable) and non-traditional courses.

The campus and University have also been investigating the needs and requirements for a portal deployment, including several committees that have gathered much input from significant constituencies, and have evaluated portal software alternatives. A portal pilot effort beginning some time in the next few months seems likely. An IR implementation need not be linked to a campus community portal. However, the efforts could be coordinated to work seamlessly--the portal could serve as one of several convenient points of entry for searching the content in the institutional repository. A campus portal could serve as one of several high profile points where faculty, staff and students could submit content to the repository.

Through the use of NetFiles and Compass, faculty and students have the potential to build up large collections of digital content. Similarly a portal effort is also likely to encourage faculty, staff and student creation and sharing of digital content.

Moving from ubiquitous file storage to the secure and well-managed storage environment will require both planning and new resources. None of the services discussed above provides information retrieval or management functions—either short-or long-term. While most of these digital objects will not be of long term institutional value, some number will be of enduring value to the campus.

An institutional repository deployment will require a sufficient middleware infrastructure to support it, particularly in managing and controlling access and access rights. CITES is planning to re-design its directory services infrastructure to provide more timely and accurate data that is used to authorize appropriate access to services and systems at both the campus and unit levels. Key goals are to create a flexible, scalable, framework that is lower in management cost than the current structure, and to support key interoperability standards and a rich variety of standard information access protocols.

Further, there are a number of current cross-campus committees investigating ways to better align our IT strategies and leverage our diverse resources. The Common Architectural Vision and Road Map (CAV) committee and the Data Centers committee are particularly of note in relationship to an IR effort. The coordination of cross-campus data management, storage and networking efforts could be the key to a successful and reliable institutional repository deployment that is both effective and

disaster tolerant. Now is an appropriate time to investigate the needed infrastructure to support the storage systems that would ensure long-term viability of digital objects managed within an institutional repository.

Needs Assessment and Recommended Starting Point

The experiences of MIT and the other DSpace implementers, and the results of the PALS survey suggest that there are compelling needs for archiving a number of categories of digital scholarship, including peer-reviewed journal publications, working papers, research reports, web sites, databases and datasets, theses and dissertations, audio and video of performances and creative works. While the list may seem endless, virtually all institutions currently implementing institutional repositories have taken a similar approach that has targeted print publications for their initial efforts, following in subsequent phases with multimedia objects, research datasets, and other materials comprised of complex formats.

A recent informal needs assessment carried out in the fall of 2003 by the Library suggests that the initial pilot study ought to focus on collecting scholarly output—and more specifically, the "grey literature"-- publications, reports and working papers that emanate from scholars and programs at the University. This category would include publications from centers, institutes, or initiatives with an outreach (public, scholarly) component that publish (or self-publish) on a consistent basis their research or promote their work using print and electronic publications. This group recommends that the pilot study focus on preserving published digital materials, primarily full-text documents (encoded with a standard schema or not encoded), html documents, or Adobe Acrobat .pdf documents, where access rights have been cleared. This would include discrete works that fit the specific metaphor of a "publication."

An informal survey of the UIUC Web pages yielded a number of examples of initial target areas for seeking document contributions to a digital archive. The Web site "Research Centers, Institutes and programs" provides a starting point that includes both web sites and publications for campus units (http://www.publications.uiuc.edu/info/research.html). There are also a number of

college or departmental publications and technical reports that summarize or provide in-depth information about research programs (e.g., Summary of Engineering Research-- http://www.engr.uiuc.edu/Publications/engineering_research/2003/);

Further conversations with peer institutions indicate that it must be easy for faculty to identify the objects that are deposited, otherwise the repositories will not be utilized effectively. This suggests that we need to develop the means to make it easy to generate the information about objects, whether that be routines that extract and generate metadata automatically, or the use of desktop tools that simplify the process of description and deposit for faculty, students, and administrators.

Although we recommend that the initial testbed repository development be oriented toward textual materials, we recognize that a fully-developed repository service would need to expand in later phases to accommodate a variety of digital content in standard formats, including video, audio, still images, computer simulations, and numeric data. In particular, because of the increased requirements by federal agencies related to data archiving, research data sets for federally funded projects

ought to be considered for inclusion in a repository as soon as it is feasible. We recommend that the scope of the first phase be limited to contain costs, but also to be able to evaluate whether the repository adequately meets a limited set of requirements before expanding its functionality and scope.

One of the difficult paradoxes of preserving digital scholarship is the fact that the material that is at the highest risk is that which is often the most difficult to preserve (e.g., multimedia materials, research datasets, performances, simulations.) In our investigation of the ground-breaking work on establishing institutional repositories, we have found that most institutions have made the initial investment in text documents, for which reasonable digital preservation guidelines already exist. For this reason, the University could adopt the perspective that our organizational investment in an institutional repository not be one that is self-contained, but rather one in which we seek to develop a network of partners with expertise in the preservation and management of different types of digital content-geospatial datasets, video and audio, encoded texts, still images, etc. The University is in a unique position to forge partnerships with NCSA and the San Diego Supercomputing Center that have the potential to enhance the digital preservation services we can offer to the University of Illinois community, and we have initiated informal conversations with these organizations to investigate the development of a common agenda for the preservation of digital scholarship.

We also wish to acknowledge that one of the oft-stated goals of institutional repository systems is to collect and archive the locally produced scholarly works of the institution's faculty and students that are at present typically published in refereed journals and conference proceedings. Indeed, institutional repositories have been proposed as an alternative scholarly communication infrastructure to the present publisher and professional society based scholarly publishing system that is responsible for the dissemination and archiving of research and scholarly literature. However, this has broad implications for promotion and tenure and raises questions with regard to copyright and intellectual property rights and institutional responsibility for multiauthored works. Up to this point, institutional repository systems have had limited success in attracting the journal/conference scholarly works, and the role of institutional repositories within the evolving scholarly publishing model remains an open question. One of the recommendations of this report is that the campus take up this question and look to identify faculty in those disciplines who are both willing and interested to make substantive changes in their approaches to producing peerreviewed scholarly publications. There are many potential solutions to this challenging problem, and not all disciplines will arrive at the same solution. Although the MIT DSpace implementation did not begin with peer-reviewed journal publications, MIT is experimenting with a mechanism called "journal overlay" that tracks the actual publication in a peer-reviewed journal of a document that was deposited in the DSpace repository prior to publication.

Work Plan

This report recommends that the Library and CITES jointly develop and manage a repository service for the UIUC campus, recognizing also that there will be a number of rich opportunities for technology research collaborations with units like GSLIS, Computer Science, Electrical Engineering, and NCSA that have the potential to greatly

enrich the repository service model. In this model, the Library would serve as the campus agent and point of contact for developing the repository and its content, and CITES would provide the support for scalable storage solutions, a flexible identity management framework (authentication and directory services), and advice on integration with related campus systems, including a portal and the Illinois Compass learning management system. We envision that a campus advisory group would oversee the development of policies governing the deposit of content into the repository. At this stage, there is not a substantial amount of cost data available from the implementations at peer institutions. Early reports from MIT, which is now in the second full year of their DSpace repository implementation, as well as informal discussions with peer institutions, suggest that full implementation and widespread participation will require a multi-year commitment. Based on the facts that UIUC represents a similar, distributed environment, with a substantial focus on research both within and across a variety of disciplines, we have outlined a six-year work plan, which is detailed below. The budget detail for the project is included in Appendix A.

Several common needs have emerged from the information we have gathered from peer institutions that are implementing one or more institutional repository software systems in campus-wide efforts:

- Governance: The project must receive guidance from faculty groups whose discussions determine the core content that is included in the repository.
 These groups would also provide advice on user needs, policy, and operations;
- Coordination: The implementation requires someone to coordinate the contribution of content from academic units to the repository;
- Technical support: The project requires dedicated technical support to implement the repository software and to scale up the pilot to a production service;
- Storage solutions: The computing centers will require additional resources to develop flexible, scalable, and reliable storage solutions;
- Reduce contribution barriers: Technical resources must be devoted to developing methods that make the contribution of content as simple as possible;
- Find content easily in the repository: The project needs to develop automatic
 methods for capturing and generating metadata—information that describes the
 digital objects in the repository. This will enhance our ability to manage the
 information and make it more accessible to the user community.

Phase 1: Duration--2 years

The first phase of the proposed project will focus on two critical components, which we recommend be carried out during the same two-year time frame: 1) developing the underlying infrastructure of an institutional repository service for the campus; and 2) conducting campus-wide discussions focusing on how to get high quality scholarship into the repository. The focus will be on identifying content, formulating collection development, selection, and appraisal policies and submission standards, selecting and configuring the system(s), coordinating how we get digital objects into the repository, demonstrating the function of the system, preparing documentation, and evaluating

the pilot study. A number of specific activities will take place during this time, including the following:

- Campus-wide discussions with faculty to determine what types of output ought to be included in a repository;
- Appoint groups to advise on policy, content selection, and operational activities;
- Early adopter faculty groups/departments/colleges develop new organizational models for preserving and providing access to their peer-reviewed publications and other forms of scholarship:
- Library discussions of the role of the Library and Archives in providing a repository, and the development of a set of working principles and policies for content selection and workflow, in conjunction with campus faculty discussions:
- Conduct a systematic survey across campus of colleges, units, and programs that could potentially contribute to an institutional repository;
- Identify content to be included in pilot study; provide user support to enable
 the submission of the content and generation of metadata to discover the
 content in an online retrieval system;
- Focus on the development of underlying or "core" services:
 - Implement one or more digital repository systems;
 - Develop capabilities for University of Illinois pilot groups to submit and access materials in the repository;
 - Host and preserve pilot faculty materials—identify needs for expanding this capability:
 - Identify a baseline for creating ongoing support for UIUC contributors, monitor and back up systems, respond to user questions and suggestions;
 - Create data entry templates and mechanisms to make metadata creation simple for contributors
 - Develop and test automatic metadata extraction schemes to simplify metadata creation and information discovery and retrieval in the repository;
- Develop training and informational programs about the purpose and use of the repository for students, faculty, librarians, CITES, and staff in campus units who are involved with the content submission process;
- Develop and refine evaluation questions:
 - Will this solution work across disciplines to support preservation of and access to digital scholarship?
 - How do we evaluate the ways in which faculty use these systems and how do we determine what kind of finding tools and archiving functions are both valued and useful services?

Phase 2: Duration-2 years

Activities:

- Build and expand campus-wide quality production service for digital materials based on outcomes from Phase 1;
- Expand the scope of the services policy on content selection to include additional formats, based on ongoing priorities identified by the community advisory process;

- Encourage externally funded research projects using the testbed;
- Develop a service and a cost model for managing large-scale research datasets and multimedia content (incorporate the cost of preserving research data, where required by sponsors or desired by researchers, into grant proposal budgets at the campus level);
- Investigate a potential service and a cost model to support open access digital archiving for partner institutions;
- Report on the viability of the repository service model, selection policies, systems, refresh schedule.
- Investigate fundamental digital archiving issues, including semantic and functional migration requirements, version control, rights management, scholarly communication issues.
- Investigate partnership arrangements for a digital archiving network—archiving back-ups, content sharing.

Phase 3: Duration 2 years

Activities:

- Define partnership requirements for a digital archiving network.
- Develop cost and service models for ongoing support.
- · Institutional commitment to permanent service
- Test and evaluate available and sensible solutions to fundamental digital archiving issues.
- Develop ongoing service level agreements.
- · Review storage model and revise plans where necessary.

Background Readings:

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Ware, Mark. Pathfinder Research on Web-based Repositories. Final Report. Publisher and Library/Learning Solutions (PALS) Group, January, 2004; URL: http://www.palsgroup.org.uk/.



OhioLINK Digital Resource Commons

Save, Discover, and Share Your Resources and the Resources of the World

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Executive Summary

OhioLINK's Digital Resource Commons (DRC) vision is to leverage statewide economies of scale with a content repository service that enables all OhioLINK members and other Ohio institutions to rapidly publish and comprehensively access the wealth of research, historic and creative materials produced by Ohio's scholarly communities. The DRC service will accept, preserve, present, and mediate administration of the educational and research materials of participating institutions. Member institutions can create, use, and manage content stored and preserved on OhioLINK servers without redundant and costly local investments; in doing so, the entire membership can reap the benefits of locally-created content and share in the challenges and burdens of ensuring long-term preservation access.

The OhioLINK DRC will have capabilities to meet the needs of Ohio's scholars and researchers:

- Institutional Repository: Research portfolios such as pre-prints, post-prints or working papers
- Web-Mediated Peer Review Electronic Journals: Supporting open access selfarchiving and publishing
- Electronic Theses and Dissertations: Web-mediated submission, tracking, acceptance, and publication of student works
- Learning Object Repository: Connected to a campus' Collaborative Learning Environment (CLE) for storage and retrieval of course content
- Online Exhibition System: Digital library platform for libraries, archives, and special collections

A virtually unlimited variety of digital file types and formats will be supported including text, data sets, image, audio, video, streaming video, multimedia presentations, animations, and simulations. Repository visitors will be able to search within collections or across institutional, location, and subject boundaries to gather materials for their research. This statewide access dimension adds significant value to the contribution of institutions. A DRC community will also be able to take advantage of a wide variety of visitor tools such as open commentary (a la blogs or guestbooks), annotation/enhancement (offer new information or suggest changes to descriptions), and an overlay of community knowledge (such as reader recommendation services and shared ad hoc collections).

The DRC will offer flexible control to institutions and communities within institutions to define how content is added, preserved, and displayed to repository users. The ability to 'brand' content to a particular community or institution will be offered while retaining the ability to search for content across the entire repository. To the end user it will appear to be the institution's repository -- as if it were hosted on an institution's own servers.

Participating institutions can set flexible access rights for repository content. Using the Shibboleth distributed access management protocol, multi-tiered security levels can be defined, allowing content (or particular derivatives of content) to be shared only to the extent desired. Planned access options include: worldwide, OhioLINK members, single institution, department, course/section, workgroup, and peer disciplines. The latter could be used, for instance, to make content available to all of the anthropology students

KENT STATE UNIVERSITY

http://info.drc.ohiolink.edu/ExecutiveSummary

in the state. The DRC can be configured to allow **authors as well as community editors/moderators to define the access rights** to repository objects.

A rich set of content management tools are planned for the DRC. It will support a variety of workflow scenarios, including simple institutional repository publishing, web-mediated peer review, and electronic journal publishing as well as tools such as Optical Character Recognition (OCR), semi-automated video segmenting, and descriptive record enhancement. Objects added to the DRC will automatically be assigned a unique identifier such that content can be referenced and cited worldwide. Descriptive records will be available in international standard XML formats such as the Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH).

Repository content will be stored on **enterprise class servers** and storage networks. These servers are located close to the OARnet internet backbone ensuring **maximum** availability and **speed**. A large storage area network will allow for **virtually unlimited storage space** while regular offsite tape and disk backup will ensure the safety and security of content. The DRC offers not only a promise of high availability for today's needs, but also the **commitment to long-term preservation** to this primary source material.

The DRC is positioned to become the premier point for the discovery of knowledge by and about Ohio's scholars. In conjunction with the other parts of the Ohio Board of Regents "Technology Initiative" grant funding, the DRC is one piece of a larger effort to build the Ohio Digital Commons for Education -- a powerful vision for the future of learning and research in the state of Ohio.

By Peter Murray at 2006-01-26 09:50 | email this page | printer friendly version

QSpace Home

QSpace - Queen's Institutional Repository Project Plan

Background: new models of scholarly communication

The development and growth of institutional digital repositories arose in response to the major changes in scholarly communication. The new model - scholarship that is born digital - constitutes an important source for present and future research and teaching. The other major force in shaping the new model is the expansion of the World Wide Web as both a highly effective vehicle for publishing and distributing this material, and as a medium for shaping research and learning "objects" in a variety of formats. The rapid rise in the cost of commercial scholarly journals was another major impetus in developing new models in scholarly publishing.

These transformations in scholarly communication have resulted in a growing body of digital materials accessible, in many instances, only from the desktops and Web sites of individual faculty and graduate students. Data sets, teaching materials and other valuable unpublished digital resources are being lost or made inaccessible because individual scholars lack the expertise or resources to preserve and distribute them.

Institutional Repositories:

An institutional repository is a digital collection of a university's academic/creative output. Institutional repositories collect, preserve, and make accessible the data and knowledge generated by academic institutions. Institutional repositories also form part of a larger global system of repositories, which are indexed in a standardized way, and searchable using one interface, supporting the foundation of a new scholarly publishing model.

Institutional repositories benefit scholars and the institution by bringing timely access, broader dissemination, increased use, and enhanced professional visibility of scholarly research, teaching materials and a wide range of creative output while potentially raising the institutional profile. A growing number of universities around the world, such as the Massachusetts Institute of Technology (MIT), the University of California, and University of Toronto have developed and are running institutional repositories, while many others are in the planning stages.

With their mission to support learning and scholarship and their expertise in collection access and management, libraries are playing a leading role in the development of institutional depositories.

In Canada, the Canadian Association of Research Libraries has initiated a pilot project with 13 Canadian university participants including the University of Toronto, McGill, Queen's and the University of Montreal, to share experiences and expertise from their individual repository projects, leading to the development of a network of inter-operable institutional repositories which will help realize the dream of a national digital library for the benefit of scholars and researchers across the country.

One of the recommendations arising out of the Symposium on the Future of Scholarly Publishing held at Queen's in April 2002, and reported to Senate, was that Queen's should establish such an institutional

QUEEN'S UNIVERSITY

http://library.gueensu.ca/webir/planning/g space planning document.htm

repository. This recommendation is now being acted upon by the Senate Library Committee which established a Planning Team, co-chaired by Sam Kalb (Library) and by the chair of the Senate Library Committee, initially Laura Murray, John Osborne since Sept. 2003. The activities and deliberations of the Planning Team are available at the **Queen's IR Portal web site:**

http://library.queensu.ca/webir/planning/qspace-project.htm.

QSpace Objective

To establish an innovative institutional digital repository to collect, preserve, and enable distribution of research, teaching and learning material generated by Queen's scholars, teachers and researchers. It will reflect the Queen's goal to "Foster scholarship and interdisciplinary teaching and learning", the library's goals to support learning and excellence in teaching and research (an extension of the consortial "Scholar's Portal" to digital publications) and provide a stable long-term storage and content management system to house academic materials in a variety of digital formats.

QSpace Project

Objective:

To implement a pilot project for the purposes of gathering the necessary data to develop a business plan for a sustainable repository with a scalable technology platform and service infrastructure, including estimates of scope and costs for acquisition and operating of a full system.

Goals:

- Attracting contributors and users through: information meetings, demonstrations, publicity, and building a critical mass of discipline-based content by attracting a small number of committed early adopter departments or other academic groups within the university.
- Identifying, and possibly prototyping, some customizations through: discussion with participants, experience of other DSpace users; focus customization to match available implementation resources.
- Assessing long-term viability of the repository software used in the project through: surveys of
 participating contributors, and users and by developing a comprehensive operating budget that
 accommodates long-term needs and objectives discovered by related projects at other organizations.
- Identifying and documenting needs and concerns of community and individual contributors and users through: survey results and feedback compiled by Project Coordinator and by open discussion forums and focus groups.
- Discovering and enumerating policy decisions including data formats, persistence of content (how permanent), licensing agreements and copyright issues - through: Project Coordinator working with participants and via the IT Planning Team.
- Identifying core competencies required to launch and operate a full-scale repository through: developing a base of local experience, shared and augmented with colleagues at comparable research institutions, pilot implementation, and participation in DSpace forum, and careful project

documentation of implementation lessons to be preserved once the project programmer/analyst leaves.

- Developing a base of local experience shared and augmented with colleagues at comparable research institutions.
- Raising awareness about the benefits of a repository within the Queen's community; helping instill
 confidence of Queen's colleagues and community through: maintaining reasonable, consistent levels
 of service and support throughout the pilot.
- **Produce a budget for a continuing service** through: observation and extrapolation from elements of pilot:

0	implementation and customization effort
0	number and size of contributions
0	number and activity of accessors
0	contributor assistance effort required
0	customization level requested
0	solicit requirements from interested people who decide not to contribute
0	contentious policy decisions
0	staffing requirements including administration

Governance & Cooperation:

Under the governance of the Senate Library Committee, the project will be planned and steered by the Institutional Repository Planning Team, administered by the Library system (Project Coordinator: Sam Kalb) in collaboration with Information Technology Services (ITS) and supported by the University's producers and users of digital scholarly materials. The project staff will liaise with colleagues at University of Toronto's T-Space repository, MIT and other institutions who have already established DSpace repositories. Sam Kalb will continue to act as Queen's liaison to the CARL Institutional Repository Pilot Project.

Parameters for the pilot:

Parameter	Description
Duration	One year
Scope	Up to @2,000 items of 10Mbytes each
Digital formats	To assess the software and needs of the Queen's community, the project will accept a variety of digital format
Hardware	Sun Fire V100, includes: 550MHz UltraSPARC IIi with 256KB Cache, 1GB DRAM, 1 * 40GB. IDE 7200rpm Hard Disk, CD-ROM, 2 * Ethernet 10/100 ports, 2 * USB Ports, Removable Configuration Card, AC Power Supply. no keyboard, no mouse port, no graphics, no audio. no PCI Slot. Includes 19inch rackmount kit. Solaris 8 & Lomlite2 pre-installed; automatic tape backup will be performed from a second location; long term storage and server requirements will be determined by the pilot.

Software	DSpace: After extensive investigation, the Planning Team agreed to pursue the open source DSpace system as the vehicle for Queen's repository project. DSpace , developed by MIT and Hewlett Packard, is widely supported by the academic community in North America and beyond, including University of Toronto. The software is designed to accommodate a wide range of digital formats and can be customized to meet varying needs of contributing communities. DSpace conforms to international protocols for open exchange of scholarly information (OAI) and is freely available as open source software.
	DSpace uses a system of persistent identifiers for each title. This would allow the documents and their metadata to be transported to another server or software system without changing the web links to each title. Most importantly, it would allow a community, participating in the project, to maintain a repository of their titles even if the project did not expand into a full institutional repository.
Staffing	Project Coordinator: Sam Kalb. Oversee management, direction and documentation of the project, working in conjunction with the (ITS) technical project supervisor; in consultation with the IR Planning Team; reporting to the Senate Library Committee.
	Grade 7 programmer/ analyst to be hired for 12 months – install, configure and provide technical support for DSpace. Staff time dedicated to the repository project: .5 fte. The other .5fte will be dedicated to other ITS projects.
	Supervision of technical implementation and infrastructure support including project staff by existing ITS staff.
	Liaison with university communities, metadata support, user training & documentation by Sam Kalb and other Library staff.
Content	To fully assess the needs of the Queen's academic community and the challenges posed by different content, the project will accept: preprints, published articles (with copyright approval), technical reports, conference papers, dissertations, teaching materials (incl. lecture notes, visualizations and simulations) presentations, images, audio/video and multimedia.
Contributors	While all faculty will be welcome to contribute, a project goal is to elicit participation from at least 2-3 early adopter communities (e.g. departments, faculties, research centres, programs, etc.) to build a critical mass of discipline-based content.
	The Planning Team has already identified two community participants who are quite excited about the project:
	Faculty of Education [type of material for contribution still to be determined]

Queen's graduate dissertations. School of Graduate Studies has agreed to include masters and doctoral dissertations on a voluntary basis.

Interest has also been expressed by the SWAMP Project (Engineering) and other individual faculty member who have heard about the impending repository project.

Publicity/Communications

Presentations

- VP/Deans meetings, faculty/departmental meetings, committees
- Campus Presentation: possible speakers: K. Shearer from CARL, Rea Devakos from U of T, MacKenzie Smith from MIT's DSPACE

Targeted & general

Faculty (e.g. DC & Library reps)

Staff

News articles (e.g. The Gazette, Library & Queen's web sites)

Project Costs

Category	Item	Cost
Hardware	Sun Fire V100, N19-UUE1-9S-102EX1	\$2,065 (+17% discount which will cover taxes)
Software	There are no charges for the open source software	
Project Staffing	Grade 7 programmer/ analyst to be hired for 12 months Library ITS	\$50,000 \$25,000 \$25,000
Publicity/ Communication		To be determined

While the Library and ITS are funding the infrastructure costs for the project from existing funds, it is anticipated that an ongoing, full-scale repository will require supplementary capital and operational funding.

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IR Promotion	

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http://www.cdlib.org/inside/projects/escholarship/liaisons/

Projects, Programs & Services > eScholarship

eScholarship Liaison's Library

Included here are materials intended for use by the **eScholarship liaisons**. Some are created by eScholarship, and others have been written by liaisons or other campus library or administrative staff members.

If you have anything that would be useful to add to this collection, please make sure you get the permission of the creator and then email the document to **escholarship@ucop.edu**. You can assume that anything included here is fair game for your use and customization.

We'll continue to add to this collection, so please check back for new materials.

Presentations

- $\bullet \ \ \ Introduction to eScholarship \ PowerPoint \ [\textbf{PPT}]$
- The Relationship Between OAI and the Repository [PDF]
- UC Press eScholarship Editions presentation [PDF]

Promotional Materials

- eScholarship Repository Journals and Peer-Reviewed Series Overview. [PDF]
- eScholarship Repository Journals and Peer-Reviewed Series FAQ. [PDF]

Sample Letters & Announcements

- Sample Repository Dean Letter
- Sample Repository MRU Outreach E-mail
- Repository Selling Points Document From UCSD
- Announcement re: eScholarship Repository from UCSD newsletter (in MS Word format)
- UC Press eScholarship Editions press release January 2003

Administrative Documents

• Liaisons "Boot Camp" attendees, 12/02 (in MS Word)

Document owner: **Catherine Candee** Last reviewed: September 7, 2005

URL: http://www.cdlib.org/inside/projects/escholarship/liaisons/index.html

Questions? Comments?

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http://www.ku.edu/~scholar/

KU ScholarWorks http://kuscholarworks.ku.edu is a digital repository for scholarly work created by faculty and staff at the University of Kansas. KU ScholarWorks makes important research available to a wider audience and helps assure its long-term preservation by offering a central location for depositing research and other scholarly work (including datasets, working papers, prepublication scholarship, and published papers).

7 reasons to use KU ScholarWorks

VISIBILITY

When you deposit your work in KU ScholarWorks, it will immediately become available to search engines as part of a worldwide network of research collections. Your peers worldwide will be able to find it quickly via popular and scholarly search engines and other tools. Articles that are freely available on the Web are cited more frequently than articles that are not.

KU ScholarWorks can provide a central place to collect and preserve the output of academic units and research centers, helping to enhance their institutional identity and make their work more visible.

STABILITY

Each item deposited in KU ScholarWorks gets a permanent, citable, linkable URL that will not change or break over time.

LONGEVITY

KU ScholarWorks provides long-term storage for your materials by managing backups, and ensuring that your work remains accessible at a stable location on the web and available to search engines. In addition, KU ScholarWorks will help keep works in common file formats up to date, ensuring that as technology and formats evolve, your work will remain accessible and usable.

FLEXIBILITY

KU ScholarWorks supports a variety of content types and digital file formats. In addition to your finished work, you may include related materials (such as data sets, images, audio and video files). Examples include:

- published articles
- preprints, working papers, and technical reports
- conference papers
- books
- data sets
- computer programs
- · multimedia publications
- images
- audio and video files
- web pages

CONVENIENCE

Setting up or joining a KU ScholarWorks community is easy, and so is depositing your material. Once your material is submitted, you need not worry about maintaining software, transferring files when switching PC's, or any other back-end maintenance. KU ScholarWorks will professionally manage your material with its long-term accessibility and preservation in mind.

UNIVERSITY OF KANSAS

http://www.ku.edu/~scholar/

COMPLIANCE

KU ScholarWorks helps meet dissemination guidelines specified by many federal grants.

COST-EFFECTIVENESS

KU Information Services provides this service at no charge to the KU community. The centralized storage relieves your department or research center of responsibility for system maintenance.

Please browse through the links on this site for more detailed information about KU ScholarWorks and how to join, and feel free to contact us directly at kuscholarworks@ku.edu for more information.

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