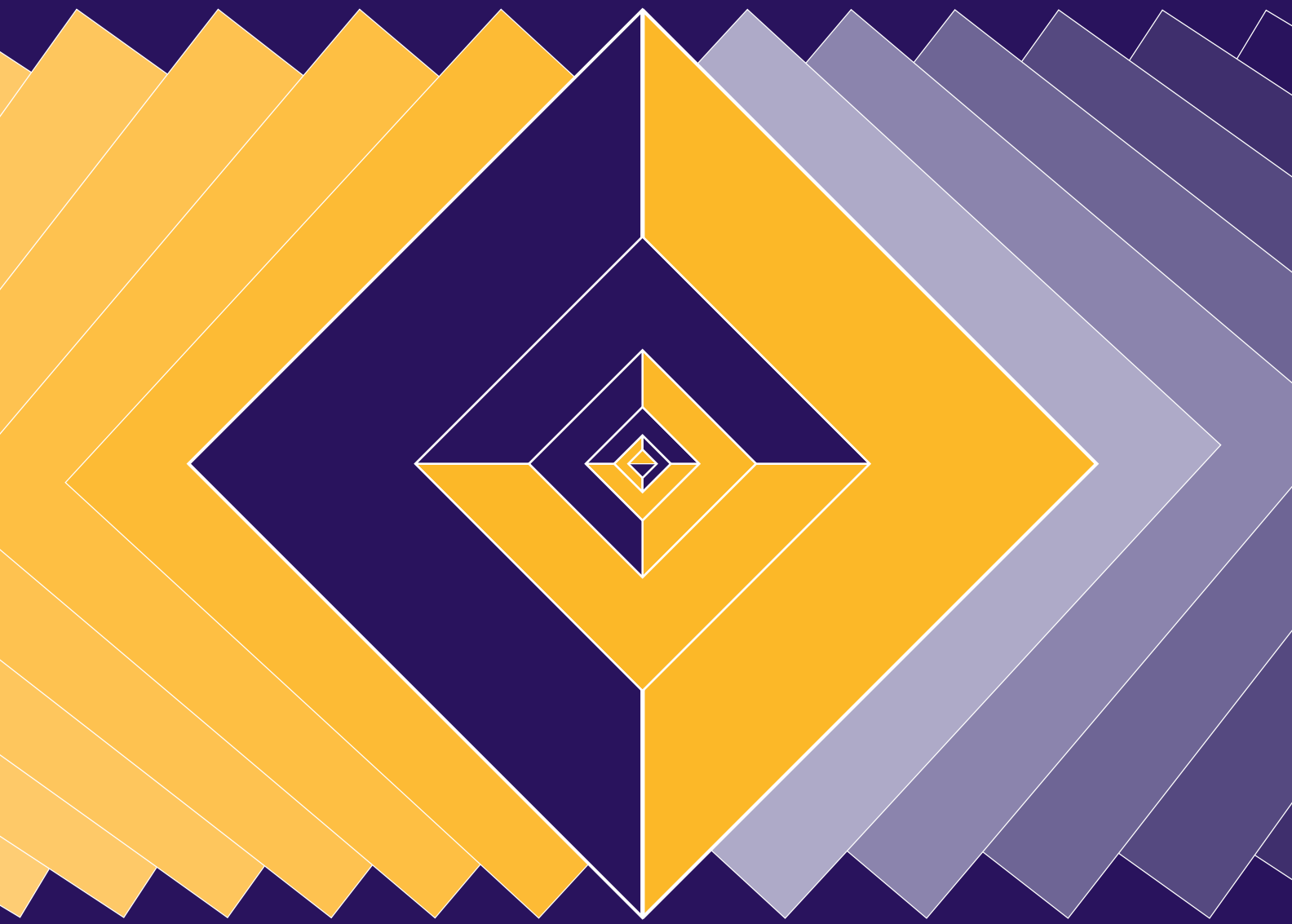
SPEC

Kit 292

Institutional Repositories

July 2006



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Institutional Repositories

July 2006

University of Houston Libraries

Institutional Repository Task Force

Charles W. Bailey, Jr., Chair

Association of Research Libraries

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SURVEY RESULTS

EXECUTIVE SUMMARY

Introduction

Since 2002, when DSpace and other institutional repository (IR) software began to be available, an increasing number of research libraries and their parent institutions have established institutional repositories to collect and provide access to diverse, locally produced digital materials. This emerging technology holds great promise to transform scholarly communication, but it is still in its infancy.

For the purposes of this survey, an IR was simply defined as a permanent, institution-wide repository of diverse, locally produced digital works (e.g., article preprints and postprints, data sets, electronic theses and dissertations, learning objects, and technical reports) that is available for public use and supports metadata harvesting. If an institution shares an IR with other institutions, it was within the scope of this survey. Not included in this definition were scholars' personal Web sites; academic department, school, or other unit digital archives that are primarily intended to store digital materials created by members of that unit; or disciplinary archives that include digital materials about one or multiple subjects that have been created by authors from many different institutions (e.g., arXiv.org).

In this analysis, the authors have chosen to report the data as percentages based on the relevant number of responses (which can vary by question and within question) unless number totals are clearer. Percent figures have been rounded according to standard rules and they may total to slightly over or under 100%. For questions where respondents supplied textual answers, the authors have only used unambiguous replies in their analysis and calculated percentages accordingly. Respondents who indicated that their institutions currently have IRs are referred to as "implementers." Respondents who indicated they have plans to develop an IR are referred to as "planners."

Background

The survey was distributed to the 123 ARL member libraries in January 2006. Eighty-seven libraries (71%) responded to the survey. Of those, 37 (43%) have an operational IR, 31 (35%) are planning for one by 2007 at the latest, and 19 (22%) have no immediate plans to develop an IR.

One respondent had an operational IR as early as 1999 and a few more came online in 2002 and 2003. Implementation surged in 2004 as 12 repositories became publicly accessible; 14 followed in 2005. Two more were operational in early 2006 and an additional 11 are planned for later this year. Seven others expect their IRs to become accessible in 2007. (One planner indicated that planning and implementation has been ongoing since 2004.)

This data indicate that 30% of all ARL institutions had an operational IR at the beginning of 2006; by the end of 2007 the total may reach at least 55%. While the growth rate appears to be leveling off at this point, IRs will continue to be developed and implemented in the near future.

Implementers and planners are in general agreement about their motivations for starting an IR. The

top three reasons are to increase global visibility of, preserve, and provide free access to the institution's scholarship. These goals are followed closely by a desire to collect and organize the institution's scholarship in a single system (implementers, 89%; planners, 83%). Thirty-eight percent of implementers and 47% of planners were responding to requests for an IR from faculty, staff, and students. Among the other motivating factors was a desire to "Change scholarly communication by demonstrating alternative mechanisms," "Provide a solution to researcher's data management and data publication needs," and "Position the university as a leader in managing digital assets."

All respondents, implementers and planners alike, indicated that the library has been a driving force in the creation of or planning for an IR. Information technology and academic departments advocated for an IR about equally but trailed the library significantly. The administration was an advocate at only about a quarter of the responding institutions.

A wide range of academic units were specifically identified as advocating IRs, such as Aerospace Engineering, Anthropology, Art, Biology, Computer Science, Environmental Studies, Geography, Journalism and Mass Communication, Law, Mathematics, Medicine, Political Science, and Romance Languages. It should be noted that several respondents indicated Graduate Studies or Graduate School Services, with the latter unit explicitly mentioning an interest in electronic theses and dissertations (ETDs).

A variety of other areas on campus were also identified as advocates, such as the Center for Teaching & Learning Excellence, Honors Program, Institute for Policy Studies, Knowledge Media Design Institute, Senate Library Committee, University Archives, and University Press.

Planning, Implementation, and Assessment

Thirty percent of the implementers engaged in planning for six months to a year. Twenty-four percent took from one to six months and an equal number took more than a year to complete the planning stage. The planning process is ongoing for 19%. Only one implementer spent less than a month on the planning stage. More than half of the planners report that this stage is ongoing. For most of the others planning started within the last year.

Roughly a third of the implementers needed less than six months for the implementation phase. Another third took six months to one year to complete the process. Only two needed more than a year. For most of the remaining implementers, that task is ongoing. While almost half of the planners report that they have not reached the implementation phase, the others have either recently entered it or are simultaneously planning and implementing their IRs.

While more than a third of the implementers have not reached the initial assessment phase, yet, for many (43%) assessment is ongoing. A small number (8 or 23%) have completed some assessment. The majority of planners are not ready to assess their IR, but a few report some assessment activity.

Most institutions have conducted or will conduct a pilot project before making their IR public (implementers, 73%; planners, 86%). The pilot project serves multiple purposes. The top two are to determine potential difficulties or problems and plan contingencies and to test processes or procedures. Slightly less important are determining staffing needs (59% and 80%), evaluating and testing IR system options (41% and 80%), estimating costs (41% and 72%), and determining needed material resources (37% and 76%). Other purposes include testing campus interest, building support, and seeding the repository.

Staffing

The overwhelming majority of respondents have appointed or will appoint a project group for planning and implementation (implementers, 92%; planners, 93%). Planning groups range from 2 to

26 members but most are fairly large. The mean number of group members for the implementers is 7.8 and the median is 6; for the planners the mean is 9.1 and the median is 7. Both implementers and planners reported a few groups larger than 15 members.

How library staff are selected to work on an IR implementation varied across the respondents. The top criteria for group members is their functional expertise (94% and 92%), particularly with technology, software, systems, and metadata. Managerial/supervisory expertise is the second criteria for implementers (62%) but only the fifth for planners (35%). Planners report that representation of a particular constituency, such as archives, IT, or faculty, is more important (81%). Being a liaison to a particular stakeholding group, especially faculty, and prior successful project experience are important criteria for a majority of respondents. The least important criteria is workload (15% and 31%), but among the other criteria reported was a willingness to take on additional work.

Survey respondents identified up to four units that were major players in the institution's ongoing IR operations. They indicated the unit name, its responsibilities, the title of the unit manager, the title of the person that the unit reported to, the number of individuals in each staff category (i.e., librarian, other professional, support staff, student assistant, and other), and total FTE in each category.

The data reveal that libraries and their staff are leading the campus IR effort and providing the majority of staffing support for it. There are no campus IT reporting lines for the first units, though there is one joint library-IT reporting line. A small number are found in the second to fourth units and they are often performing server support and similar functions. Out of 58 identified first units, there is only one non-library unit—a graduate studies office.

By far, the most frequent types of units reported for the first unit were digital library/initiatives or systems units within libraries. Also in the list were administrative units, archives, and research or technical services.

It is clear that IRs are a library-wide effort involving many different departments. Aside from technical support units, the lists of second to fourth units includes archives, cataloging, branch libraries, collection development, instruction, metadata, preservation, reference, and special collections. Most of these units report to upper levels of management, such as a library dean or associate/assistant director.

If the mean FTE values for each of the four units are added together, the average number of staff working on an implementers' IR is 28.1. The breakdown by staff category is 7.4 librarians, 7.3 other professional staff, 9.5 support staff, and 3.9 students. The average number of staff working on a planners' IR is 61.2. The breakdown by staff category is 8.8 librarians, 20.8 other professional, 22.2 support staff, and 9.4 students.

Budget

Only 44% of implementers report having a dedicated budget for start-up costs; 48% have a dedicated budget for ongoing operations. Half of the planners anticipate having a dedicated budget for start-up costs and 40% expect to have a dedicated budget for ongoing operations. Many of the respondents who do not have a dedicated budget explained that costs for staff, equipment, etc. were either supported by general library operations already represented within the library's budget, or that existing budget lines were reallocated, or that a consortium or other third party absorbed the costs.

Implementers report a range of start-up costs from $8,000 to $1,800,000, with a mean of $182,550 and a median of $45,000. Planners report a range of $12,000 to $160,000, with a mean of $81,667 and a median of $75,000. The range for ongoing operations budgets for implementers is $8,600 to $500,000, with a mean of $113,543 and median of $41,750. Only two planners knew their budgets for ongoing operations—$100,000 and $133,000, with a mean and median of $116,500.

The distribution of both start-up and ongoing budgets shows concentrations of responses at the

lower and upper ranges, with few in the middle ranges. For start-up, 67% of budgets fall below $75,000, 14% are $75,000 to $125,000, and 19% are $150,000 or greater. The maximum start-up budget ($1,800,000) is far greater than the next highest ($400,000) and is from an institution that included extensive software development and testing costs in its start-up budget.

For ongoing budgets, there is a similar concentration at the ends of the ranges: 50% are below $50,000 and 50% are $100,000 or greater. The maximum ongoing budget ($500,000) is also much greater than the next highest ($300,000) and is reported by an institution that has a major role in a state-wide IR initiative.

The primary method of funding both start-up and ongoing costs is reallocation from existing budgets, but respondents also reported a significant use of new funds. New funds for start-up costs most often came from grants (implementers, 83%; planners, 22%), the parent institution (50% and 33%), one-time supplemental funds (33% and 33%), and other sources (50% and 33%) such as provosts. In almost all cases, reallocated funds are or will be provided by the library (91% and 80%). A few respondents got reallocations from one-time supplemental funds, the information technology department or parent institution, and other sources such as student fees.

New funds for ongoing operations most often are or will be provided by the parent institution, grants, or the library. Reallocating funds is almost always the responsibility of the library (78% and 67%). As with start-up funds, a few respondents got reallocations from one-time supplemental funds, the information technology department or parent institution, and student fees.

Not surprisingly, for the majority of implementers, salaries and benefits account for the largest component of the budget—63% of start-up budgets and 68% of ongoing budgets, on average. This is exceeded only by vendor fees for the small number of institutions whose IR is hosted by an external vendor—70% to 74%, on average. Hardware and software acquisition each account for about a quarter of the start-up budgets and hardware and software maintenance account for under 10%, on average. The allocation for acquisition decreases slightly for ongoing operations and the maintenance allocations increase correspondingly.

Planners allocate the largest percentage of their start-up budgets for hardware acquisition (about 58%, on average) and software acquisition (38%) and a small amount for hardware maintenance (10%). Only one respondent reported a figure for staffing and benefits (57%). For the few planners who have an ongoing operations budget about three-fourths of the budget is allocated for salary and benefits. Much of the rest goes to hardware maintenance.

Hardware and Software

Fifty-three respondents identified the software that is being use to support their IRs. By far, the open source DSpace software is the most common choice of both implementers and planners. Twenty-three of the 33 responding implementers and 14 of the 20 planners (70% each) use DSpace; 20 implementers and 11 planners use it exclusively. Two of the implementers use it in conjunction with CONTENTdm (commercial software); one of these also uses the vendor-hosted DigitalCommons system. One implementer uses DSpace in conjunction with ETD-db and Open Conference Systems (both open source software). Two planners have chosen it in conjunction with open source Fedora software; another with commercial software Digitool.

Of the respondents that don't use DSpace, one implementer uses open source Archimède software and two use commercial CONTENTdm software. Two planners will use open source Fedora software and one will use open source Greenstone software. CONTENTdm, Digitool, and Documentum are the intended commercial systems for one planner each. The ProQuest DigitalCommons system (or the software from the Berkeley Electronic Press

it is based on) is used on all the vendor-hosted platforms.

There is a greater variety of hardware in use. Implementers are about evenly divided between Intel-based servers (Dell models in particular) with either Linux or Windows operating systems and Sun servers with Solaris. Only one uses an Apple Xserve running OS X. All but two of the planners use Intel-based servers, again primarily Dell models, with Linux or Windows operating systems. One uses an IBM RISC server and the other a Sun system.

Memory on the implementers' Sun systems ranges from 2 GB to 64 GB and disk storage ranges from 10 GB to 6 TB. (One institution reported a 12 TB storage unit, but it was not dedicated to the IR.) The Intel-based servers have memory ranging from 512 MB to 4 GB and disk storage ranging from 28 GB to 3 TB. The Macintosh server has 1 TB of storage space. The planners' Intel-based servers have memory ranging from 512 MB to 12 GB and disk storage ranging from 108 GB to 3 TB. The IBM RISC-based server has 4 GB of memory and 275 GB of storage space.

Roughly a third of respondents have made no modifications to the IR software and another third have made minor modifications. About 20% of both implementers and planners have made major modifications to IR software. Implementers are much more likely than planners to have made frequent changes, 22% vs 6%.

Policies and Procedures

Seventy-five percent of implementers and 71% of planners indicated they have or will have written policies and procedures for their IRs. For both groups, 54% have submitted their policies and procedures to an institutional authority for review, or are planning to do so. Most of those who identified the reviewing authority indicated that their policy documents went to the University Counsel.

Respondents place a wide variety of materials in their repositories. Electronic theses and dissertations are the most common type of deposit (implementers, 67%; planners, 79%). Articles, including preprints and postprints follow closely. The majority of respondents include official published versions of articles, conference presentations, technical reports, and working papers. Only a few include university catalogs, yearbooks, or alumni publications.

Only a handful of respondents are actively negotiating with publishers to secure permanent deposit of e-prints from published serials, but 46% of implementers and 63% of planners are considering doing so in the future.

The widespread inclusion of traditionally unpublished material in IRs may reflect the relative ease of recruiting this type of content as well as the fact that these materials in print format do not have robust publishing avenues. Data sets, learning objects, and multimedia materials are the most prevalent non-traditional materials deposited, with over a third of all respondents indicating they include or will include these materials in the IR. Several respondents mentioned using the IR to house retrospectively digitized images and other archival material.

Seventy-four percent of implementers and 83% of planners indicated that they accept any digital file type into the IR, but relatively few (26% and 39%) are committed to functional preservation of every file type. Eighteen percent of implementers and 17% of planners will only accept and preserve specified file types. A few accept certain file types but do not preserve them. Several respondents mentioned following the support levels outlined in MIT's DSpace guidelines (http://www.dspace.org/implement/policy-issues.html#digformats), which include full support and preservation for common file types such as PDF, XML, AIFF for audio, and GIF, JPEG, and TIFF for images, among others.

Most deposits to the IR are or will be made by authorized depositors (implementers, 89%; planners, 79%). A significant number of IR staff also

deposit documents for authorized users (78% and 63%). Most respondents are using both methods for deposit rather than one or the other, and many respondents indicated that their deposit procedures are still under construction. Almost all respondents indicated that faculty may deposit their materials in the IR and both implementers and planners allow the work of professional staff, students, and support staff to be deposited, as well. Several respondents also mentioned faculty sponsorship as a means of bringing in work for students or outside contributors.

Fifty-nine percent of implementers and 73% of planners have some method for reviewing documents for copyright compliance or other reasons. In most cases, the review is by individuals outside the IR unit. Only nine respondents report that IR staff review and approve documents. These procedures are not always systematic, but vary by collection and type of document. Additionally, all but six respondents require depositors to sign a deposit agreement.

Sixty-nine percent of implementers and 62% of planners accept multiple versions of the same document. In most cases, versioning is achieved by appending additional files to the original item; most institutions do not permit the depositor to overwrite an earlier version of the document. Eighty-two percent of respondents indicate that IR staff or authors may withdraw documents from the IR. Comments suggest that most institutions permit withdrawal only in cases of copyright infringement or other legal issues. Institutions that permit the withdrawal of documents generally leave a "tombstone"—a reference to the withdrawn document—in the system as a record. Many respondents felt that policy in this area would solidify as they learned more about the legal landscape.

Metadata

Roughly half of the respondents import metadata into their IRs from outside sources, typically by a process of automated mapping from a variety of schemas into Dublin Core. Many are converting data from local schemas and a surprising number mentioned converting records from the MARC format. Ninety-four percent of implementers and 78% of planners allow depositors to enter simple metadata; many of these same respondents also enter metadata on behalf of depositors (implementers, 60%; planners, 56%) or enhance depositor supplied metadata after the fact depending on the material and source (57% and 72%).

Survey results indicate that many institutions are taking significant steps to ensure that their IRs are interoperable with other systems. Ninety-four percent of implementers and 88% of planners indicate that their IR supports the Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH) and a similarly large percentage (89% and 82%) report using persistent identifiers for materials in the IR. This result is consistent with the widespread use of DSpace and other platforms to which these services are integral. Over half of implementers (54%) have ensured that their systems are OpenURL compliant and 41% of planners anticipate having this functionality. Sixty-three percent of implementers have incorporated their IRs into federated search mechanisms. Since only one planner reports doing so, it may be that institutions still in the planning stages have not yet considered how to incorporate the IR with other services, or these institutions may lack federated search tools altogether.

Although most IR platforms in widespread use are OAI-PMH compliant, only one respondent specifically mentioned being crawled by search engines. The issue of optimizing exposure to search engines may become more significant as IRs become more prevalent and stable.

Content Recruitment

The difficulties faced by institutions when recruiting content for their IRs is clearly borne-out by respondents. Only one implementer found recruitment "very easy" and only seven "somewhat easy." Fourteen (40%) found it "somewhat difficult," and

eight (23%) "very difficult;" five (14%) were neutral. In other words, nearly two-thirds of implementers surveyed were sufficiently challenged by the task of recruitment to label their efforts "difficult."

By contrast, about half of the responding planners were neutral. The remainder were evenly divided between "easy" and "difficult."

This difference in perceptions between implementers and planners may reflect both a simple difference in experience and/or the change in perceptions of implementers after an initial recruitment phase of easily identified departmental content. It may be that it becomes increasingly difficult to recruit content after this initial set of objects is added to the IR.

A variety of recruitment strategies are employed or planned by respondents. The majority have tried subject specialist advocacy, identifying likely depositors, presentations to faculty, and offering to deposit electronic materials for authors. Implementers appear to be more aggressive with additional strategies, such as sending electronic announcements, faculty co-recruiting, offering to digitize and deposit printed material for authors, and holding awareness-raising symposia. This practice may indicate that implementers have reacted to recruitment difficulties by trying more and more recruitment strategies.

One recruitment strategy not mentioned above is institutional pressure on authors to submit content to IRs. Only one implementer requires authors to submit content to the IR. One implementer and one planner are considering such a requirement. Half of the implementers and two-thirds of the planners report there is no pressure on authors to submit content. The rest encourage, but do not require, authors to submit content.

Assessment

A small number of implementers (8 or 22%) have conducted research on why users do or do not contribute to the IR; only five planners (28%) have decided to conduct any research. This seems odd since the success of an IR is highly dependant on users contributing to the IR. One explanation for this might be that about a third of the implementers and 71% of the planners answered that they had not yet reached the assessment phase. Because few institutions have conducted assessment of contributor motivation, there is likely to be limited data regarding what factors influence users who contribute to repositories.

While close to 70% of the implementers who have done some form of assessment of the success of the IR have gathered direct feedback from IR users through interviews, surveys, or focus groups, the majority (23 or 79%) have tracked hits on IR content. This is likely due to the fact that it is fairly simple to collect "hit" data from server log files, while the collection and analysis process for more ethnographic user data is significantly more time consuming.

It is clear from the comments that there are many different viewpoints on what constitutes "success" for a repository. One respondent commented about assessing the usability of the interface, while another responded about counting full-text downloads. Clearly, there are many aspects of an IR which need to be examined to determine success.

Current Status of IR

Because the survey respondents have repositories at various stages of development, the numbers of digital objects in the IRs differ significantly. Implementers report a range of 20 objects to over 19,000. Planners report between 4 and 4,500 objects in their repositories. Interestingly, not all the materials stored in the repositories are available to everyone. Forty-four percent of the implementers (16) have material within their repository that is available to only a specific user group, while 36% of the planners (5) intend to restrict access to parts of their IR to specific groups.

Comments from the respondents indicate that there are different reasons for these restrictions as well as different groups to whom use is being re-

stricted. For example, some repositories contain materials that are limited only to campus users, while others have materials that are limited to a specific department or groups of people (such as a specific group of research faculty). Copyright is only one reason that access to materials is limited. Cultural concerns with primary source materials and pending patents were also cited as reasons for restricting access.

Although some institutions restrict access to materials within their repository, few implementers (3 or 9%) supply IR documents to external users for a fee. Primarily, fees appear to be for re-use of images or electronic thesis and dissertations. This seems somewhat incongruous when one considers that 44% of the implementers limit access to materials within their repository. However, there are several possible explanations for this. First, institutions could be storing institutionally licensed materials, such as images, in their IR. Second, the process of collecting per-use fees is missing from several popular open source software packages for IRs. This makes it difficult for institutions to collect fees on a per-use basis without extending the software.

Benefits

Respondents' comments indicate that the top two benefits of IRs are enhanced visibility and increased dissemination of the institution's scholarship (34 responses or 68%) and free, open, timely access to scholarship (23 or 46%). Preservation and stewardship of digital content and preservation of and long-term access to the institution's scholarship are close seconds (18 responses each or 36%), followed by collecting and organizing assets in a central location (12 or 24%). Four respondents (8%) report that another benefit of an IR is the opportunity to educate faculty about copyright, open access, and scholarly communication.

Challenges

Among the top three challenges that respondents face in implementing, promoting, and running an IR are content recruitment/building a critical mass of content (16 responses or 32%), staffing (15 or 30%), and faculty awareness/buy-in/interest/engagement (14 or 28%). Copyright issues and communicating the benefits of the IR to faculty are close behind. Adequate funding and other resources and integrating the staff and workflow of IRs into existing structures were also recognized as challenges.

Conclusion

Based on the survey, what were the major characteristics of operational ARL institutional repositories at the start of 2006? Most IRs had been established in the last two years (or had just been established). By far, the library was likely to have been the most active institutional advocate of the IR. It was also likely to have been the primary unit leading and supporting the IR effort, sometimes in partnership with the institutional information technology unit. The main reasons for establishing an IR were to increase the global visibility of, preserve, provide free access to, and collect and organize the institution's scholarship. In most cases, a project team had been used to plan and implement the IR and a pilot project had been used to determine IR-related issues. If it was not still ongoing, the IR implementation process had most frequently taken six months to a year, with one to six months being the next most common duration.

By a large majority, the most frequently used local IR software was DSpace, with DigitalCommons (or the bepress software it is based on) being the system of choice for vendor-hosted systems. Local systems usually either ran under variants of Linux or Windows on an Intel-based server or under Solaris on a Sun server. A typical IR held about 3,800 digital objects, with ETDs, article preprints and postprints, conference presentations, technical reports, working papers, conference proceedings, and multimedia materials being the most common types of documents. IRs normally support OAI-PMH and, a little over half the time, OpenURL.

Most IRs had written policies and procedures and the majority of them had been submitted to an

institutional authority for review. Faculty members were almost always authorized to directly deposit digital objects in the IR, and professional staff and students were typically able to do so as well. These depositors almost always signed a deposit agreement. Most institutions also authorized IR staff to deposit objects on behalf of users. A deposit review process was common, with documents most frequently being reviewed by department or other institutional officials. Authorized depositors were almost always allowed to enter metadata; IR staff could typically do so as well, plus enhance existing metadata. Most IRs accepted multiple versions of the same document. Document withdrawal was usually possible, but typically had to be done by IR staff under specific circumstances. The vast majority of institutions intended to preserve IR documents, but most of those doing so limited the types of files that would be preserved. Most institutions found IR content recruitment to be somewhat or very difficult and they usually engaged in a variety of recruitment strategies to increase deposits.

The average IR start-up cost had been around $182,500 and its average ongoing operation budget was about $113,500. Reallocated funds from the library's budget were a key source of IR support, as were new funds from grants and the parent institution. Staff had been the largest single IR budget item during start-up and it remained so in ongoing budgets. Many IRs were funded without dedicated budgets, using existing personnel and technical resources.

The typical IR was supported by about 28 FTE from a variety of units within the library and elsewhere, a digital library/initiatives unit managed it, and that unit reported to a high-level library administrator, such as an assistant or associate dean/director. Most institutions modified their IR software to some degree to enhance its functionality.

As one would expect, the perceptions of institutions still planning IRs did not always match the experience of implementers as outlined above, with differences most often occurring over resource and time requirements as well as levels of difficulty. Since these matters can be difficult to accurately project and little data existed at the time the survey was administered that offered guidance, this is not surprising.

Although institutional repositories are at an early stage of development, ARL libraries have demonstrated a strong preliminary commitment to them: 78% of the 87 survey respondents had either implemented an IR or were planning to do so by the end of 2007. Since IRs represent a significant long-term organizational commitment, this is a major expansion of ARL libraries' service role and, along with digital library functions, aptly illustrates how these libraries are rapidly evolving into global digital information providers.

SURVEY QUESTIONS AND RESPONSES

The SPEC survey on Institutional Repositories was designed by the following University of Houston staff members: Charles W. Bailey, Jr., Assistant Dean for Digital Library Planning and Development; Jill Emery, Director, Electronic Resources Program; Anne Mitchell, Metadata Coordinator; Chris Morris, Web Developer 2; Spencer Simons, Director of the O'Quinn Law Library; and Robert Wright, Coordinator of the Pharmacy Library. These results are based on data submitted by 87 of the 123 ARL member libraries (71%) by the deadline of March 9, 2006. The survey's introductory text and questions are reproduced below, followed by the response data and selected comments from the respondents.

Since 2002, when DSpace and other institutional repository (IR) system software began to be available, an increasing number of research libraries and their parent institutions have established institutional repositories to collect and provide access to diverse locally produced digital materials. This emerging technology holds great promise to transform scholarly communication, but it is still in its infancy.

For the purposes of this survey an IR is simply defined as a permanent, institution-wide repository of diverse locally produced digital works (e.g., article preprints and postprints, data sets, electronic theses and dissertations, learning objects, technical reports, etc.) that is available for public use and supports metadata harvesting. If an institution shares an IR with other institutions, it is within the scope of this survey. Not included in this definition are scholars' personal Web sites; academic department, school, or other unit digital archives that are primarily intended to store digital materials created by members of that unit; or disciplinary archives that include digital materials about one or multiple subjects that have been created by authors from many different institutions (e.g., arXiv.org).

This survey is intended to collect baseline data about ARL member institutions' IR activities. The survey authors recognize that there are many possible service models for supporting an IR, ranging from a single, centralized support service provided by a single entity (such as the library) to a much more diffuse support model involving multiple entities (library, campus information technology unit, etc.) playing different cooperative roles. They also recognize that digital archives and repositories are not neat and tidy entities, and they may defy easy categorization. They understand that some institutions have followed carefully prepared IR project plans, some have taken an experimental approach that results in frequent adaptive changes of strategy, and some have done a bit of both. Survey respondents are asked to use their best judgment and try to adhere to the general definition above when responding to the survey. The authors also acknowledge that, in cases where IR responsibility is diffuse, survey respondents may need to gather information from multiple parties. They and ARL thank you for making this extra effort.

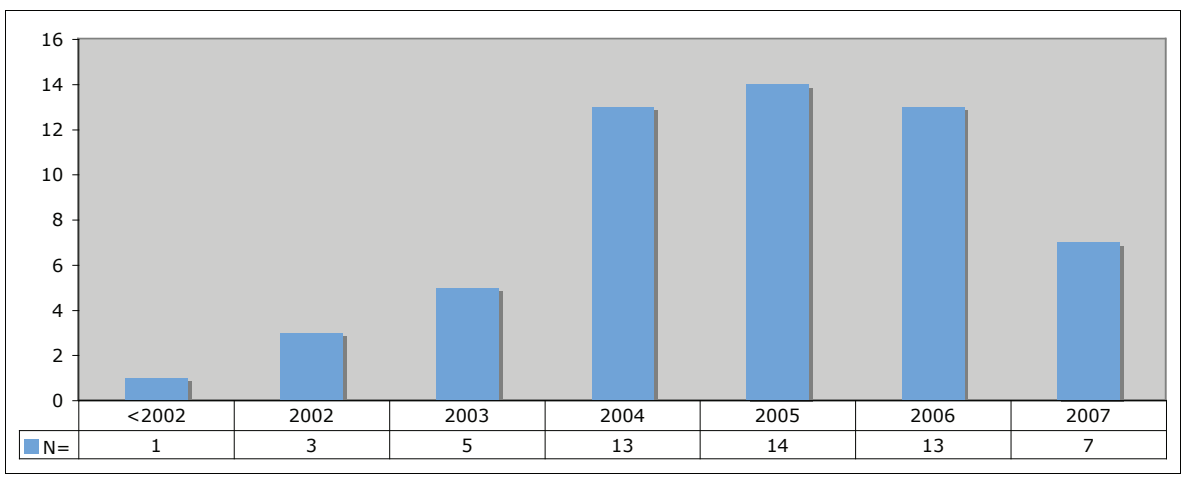
BACKGROUND

1. Does your institution have an operational institutional repository (IR) as defined above? N=87

Yes	37	43%
Yes, but institution-wide system is only for article e-prints	0	0%
No, but an IR is in the planning stages	31	35%
No, and we have no immediate plans to develop one	19	22%

If an IR is in the planning stages, please answer the following questions to the best of your ability based on plans at this time.

2. In which year did/will the IR become publicly accessible? N=56



	N	<2002	2002	2003	2004	2005	2006	2007
Have	37	1	3	5	12	14	2	—
Plan	19	—	—	—	1	—	11	7

3. What motivated your institution to establish an IR? Check all that apply. N=67

A desire to:	Total N=67		Have N=37		Planning N=30	
Preserve institution's scholarship	62	93%	35	95%	27	90%
Increase global visibility of institution's scholarship	62	93%	36	97%	26	87%
Provide free access to institution's scholarship	61	91%	33	89%	28	93%
Collect and organize institution's scholarship in a single system	58	87%	33	89%	25	83%
Respond to requests for an IR from faculty, staff, or students	28	42%	14	38%	14	47%
Other motivating factor	15	22%	8	22%	7	23%

Please specify other motivating factor.

Selected Comments from Respondents

Have an IR

"Change scholarly communication by demonstrating alternative mechanisms."

"To make public, materials of value not typically published."

"Provide a source for teaching resources that can be used and/or repurposed."

"Part of developing a distributed institutional repository systems which includes docs and data."

"[Create] centrally accessible repository for educational media and learning objects."

"Increase global availability of [the university's] scholarship."

Planning an IR

"Provide a solution to researchers' data management and data publication needs."

"Foundation for digital library services & infrastructure."

"Apply libraries' leadership to the important issue of preserving and providing access to scholarly communication for the university."

"Manage digital materials for University Archives."

"Contribute to Open Access movement; fulfill legal records retention mandates; position university as a leader in managing digital assets."

"Aggregate library-created digital content. Infrastructure for faculty digitization initiatives."

4. What institutional units have actively advocated establishing an IR? Check all that apply. N=67

	Total N=67		Have N=37		Planning N=30	
Library	67	100%	37	100%	30	100%
Information technology	26	39%	12	32%	14	47%
Academic department(s)	24	36%	12	32%	12	40%
Administration (e.g., president or provost)	17	25%	8	22%	9	30%
Other unit	14	21%	9	24%	5	17%

Academic departments include:

Aerospace Engineering

Anthropology (2 responses)

Applied Economics

Art; Art History; Fine Arts

Biology (2 responses)

Business

Computer Science (4 responses); Computing and Information Science; College of Computing

Civil Engineering (2 responses)

Economics

Education

Electrical Engineering; Electrical and Computer Engineering

Environmental Studies

Geography

Geology

Graduate school services department for electronic theses

Graduate Studies (3 responses)

Industrial Engineering

Information and Library Science

Journalism and Mass Communication

Law

Math

Mechanical Engineering

Medicine

Political Science

Romance Languages

School of Engineering and Applied Science

Veterinary College

Other units include:

Center for Teaching and Learning Excellence

Center for Teaching, Learning, and Technology

Florida Entomologist journal editor

Former Dean of Faculty

Genetic and Public Policy Center

Graduate Studies Office

Honors Program

Institute for Policy Studies

Knowledge Media Design Institute

Learning Technology Centre

Population Center

Research centers/institutes (2 responses)

Resource Centre for Academic Technology

Senate Library Committee

Teaching and Learning with Technology Roundtable

University Archives

University system Office of the President

University Press

PLANNING, IMPLEMENTATION, AND ASSESSMENT

5. In a project of this size and scope, there are typically planning, implementation (e.g., obtaining the IR system, installing it, and customizing it), and initial assessment phases. Please indicate how long it has taken to complete each of these phases in your IR project. N=67

	Planning N=67		Implementation N=62		Initial Assessment N=56	
	Have N=37	Planning N=30	Have N=36	Planning N=26	Have N=35	Planning N=21
Phase not yet reached	—	1	—	12	12	15
Less than one month	1	—	3	2	—	—
One to six months	9	4	8	2	2	1
Six months to a year	11	6	12	1	6	2
More than one year	9	3	2	2	—	1
Ongoing	7	16	11	7	15	2

6. Was there/will there be a pilot project before the IR became/becomes public? N=66

	Total N=66		Have N=37		Planning N=29	
Yes	52	79%	27	73%	25	86%
No	14	21%	10	27%	4	14%

If yes, what was/will be its purpose? Check all that apply. N=52

	Total N=52		Have N=27		Planning N=25	
To determine difficulties or problems that might occur and plan for contingencies	48	92%	23	85%	25	100%
To test processes or procedures	46	89%	23	85%	23	92%
To determine staffing needs	36	69%	16	59%	20	80%
To evaluate and test different IR system options	31	60%	11	41%	20	80%
To estimate costs	29	56%	11	41%	18	72%
To determine material resources needed	29	56%	10	37%	19	76%
Other purpose	16	31%	10	37%	6	24%

Please describe other purpose.

Selected Comments from Respondents

Have an IR

"To test faculty willingness and staff ability to use IR."

"To determine the scope of interest across the institution."

"To build an early-adopter community."

"To test campus interest."

"[To] seed the repository with content before going public."

"[To] gather data for a business plan."

"To craft a list of desired and required features and functionalities in an optimal IR software."

"To test viability of infrastructure to support descriptive and dissemination needs of diversified collection and asset types."

"To build support."

"To identify issues and to determine the feasibility of providing electronic access to theses."

Planning an IR

"[To] determine community willingness to submit materials and identify technical issues."

"To prototype external workflows."

"To build an initial collection of resources to demonstrate value when the IR goes into production."

"To prepare a list of file types we will support and other policies."

"To demonstrate impact of viable IR solution to secure long-term institutional and budgetary support."

"To increase awareness and generate support."

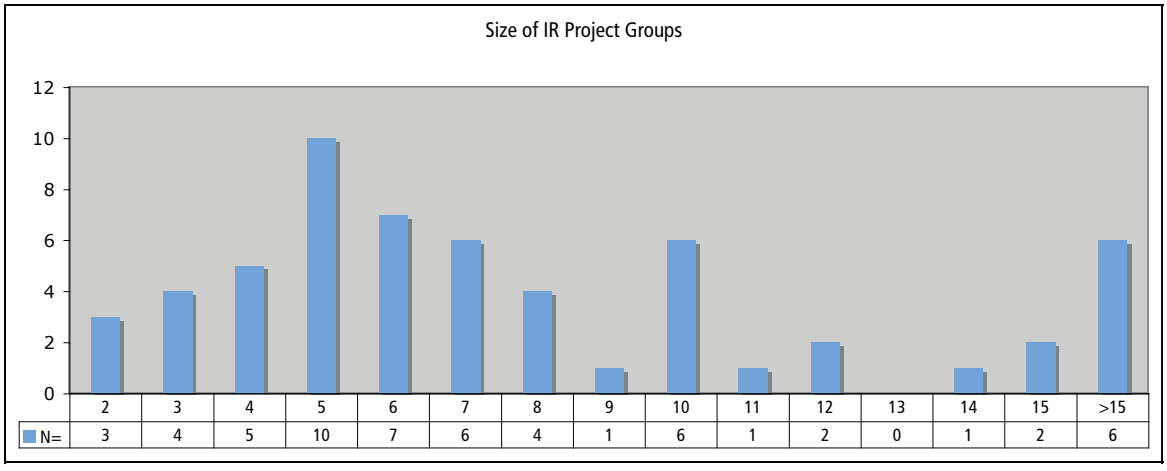
STAFFING

7. Projects of this scale typically require a group (team, committee, task force, etc.) for the initial planning and implementation stages. Did/will your institution appoint a project group to plan and/or implement the IR? N=66

	Total N=66		Have N=37		Planning N=29	
Yes	61	92%	34	92%	27	93%
No	5	8%	3	8%	2	7%

Number of Group Members N=58

	N	Minimum	Maximum	Mean	Median	Std Dev
Total	58	2	26	8.3	6.5	5.6
Have	34	2	26	7.8	6.0	5.7
Planning	24	5	26	9.1	7.0	5.6



	N	2	3	4	5	6	7	8	9	10	11	12	13	14	15	>15
H	34	3	4	5	3	4	2	2	1	3	1	1	—	1	1	3
P	24	—	—	—	7	3	4	2	—	3	—	1	—	—	1	3

If yes, what criteria were/will be used to select members? Check all that apply. N=60

	Total N=59		Have N=34		Planning N=26	
Functional expertise	56	93%	32	94%	24	92%
Representative of a particular constituency	40	67%	19	56%	21	81%
Liaison to particular stakeholder groups	36	60%	18	53%	18	69%
Prior successful project experience	31	52%	17	50%	14	54%
Managerial/supervisory expertise	30	50%	21	62%	9	35%
Workload considerations	13	22%	5	15%	8	31%
Other criteria	7	12%	4	12%	3	12%

Please describe the criteria.

Functional expertise

- Technical expertise (14 responses)
- Programming/software development (10)
- Systems development and administration (8)
- Metadata (6)
- Preservation (4)
- Collection development (4)
- Web technology (3)
- Database knowledge (2)
- IR software experience (2)
- Academic liaison
- Archives
- Cataloging
- Completed initial training with vendor
- Copyright
- Digital libraries and digital asset management
- Digitization
- Electronic acquisitions contract experience
- e-Publishing software experience
- Library technical services experience
- Theses submission guideline knowledge

Representative of a particular constituency

- Archives (8)
- Information technology (8)
- Faculty (5)
- Library (4)
- Collection Development/Subject Specialist (3)
- Liaison to faculty/academic departments (2)
- Digital projects/library (2)

Administration

Government documents

Graduate Studies Office

Learning technologist

Managers of non-OAI publication database

Senior management

Liaison to particular stakeholder group

Faculty/academic departments (10)

Academic computing

Corporate communications

Dean of Faculty

Graduate students

Library collections

Staff lawyers

Subject specialists

Prior successful project experience

Demonstrated success with other projects, particularly with digital collections, digital library, major computer applications, Web-based information systems, archives

Managerial/supervisory expertise

Able to manage vendor, internal tech staff, and faculty testers

Administrative liaisons in library and central IT

Line and/or task supervision

Management of research

Public services management

Understanding of constituent needs, effective project planning, established/proven record of cross-unit collaboration, communication skills, familiarity with infrastructure, digitization and metadata standards, ability to manage multiple projects/personnel simultaneously

Workload considerations

Hired a full-time programmer/systems administrator

One library assistant is available for IR project

Overlap in membership with related initiatives such as e-research review

Percentage of FTE available for time on task

Pilot project assigned to one of the library's interns

Other criteria

Demonstrated interest in the IR project (4)

Demonstrated interest in scholarly communication issue

Unicode knowledge

Willingness to take on additional work

If no, please explain below how responsibility was/will be delegated for planning and implementing the IR. N=5

Selected Comments from Respondents

Have an IR

"Note, since we adopted the bepress commercial platform (after testing ePrints), most of our work was analysis, spec, testing, rather than architecting and coding. The critical task was managing co-development with vendor based on information gleaned from faculty and CDL testers."

"Core project team; decentralized teams to analyze function issues and to set standards and policies."

Planning an IR

"[Our consortium has] provided, with some participation from their members, a DSpace platform titled 'Research Commons.' So, the platform exists, is public, and is currently providing access. Different schools are in different stages of planning and implementation. We have mounted some important collections without an overall plan, and we now are in critical tipping point to establish credible and useful IR policies."

"Once we agreed on platform, a full time librarian project leader was assigned to fully develop the IR plan and to implement. A technical staff member was also assigned for approximately 30% of her time to assist project leader."

"IR is being deployed by and at our consortium, OhioLINK. Staffing, hardware, and funding are centralized. Steering Committee is state wide. Working committees will be state wide."

8. Please describe the various units (up to four) in your institution that have/will have responsibility for the ongoing operation of the IR. These units may be within the library, the institution's IT unit, or some other unit. It is understood that many units in the library (or elsewhere) will play a part in overall IR support; however, the intent of this question is to identify the major players. Indicate name of the unit, the unit's IR responsibilities, the title of the unit manager, the title of the person to whom the unit reports, the number of individuals in each staff category, and total FTE in each staff category. Please provide any comments that help explain the responsibilities for the ongoing management of the IR. N=58

Unit 1

Have an IR N=34

Name of unit	IR responsibility	Manager's title	Unit reports to
Bibliographic Services	Planning and implementation	Head Bibliographic Services	
Digital Acquisitions Management and Licensing	Digital acquisitions management and licensing	Head	Associate University Librarian for Collection Management and Scholarly Communication
Digital Collections Center—Library Unit	Project management, outreach, repository administrative support	Head, Digital Collections Center	Assistant Director for Technology for General Library System
Digital Development Unit	IR software development and updates	Chief, Research and Digital Development Section	Director, Support and Development Services
Digital Initiatives	Primary IR builder	DI Department Head	Associate Director for Technical Services
Digital Initiatives	Local digital content development (including digitization/imaging)	Coordinator of Digital Content Development	Assistant Dean of Libraries for Scholarly Communication
Digital Initiatives	Marketing, input, education	Head, Digital Initiatives	Dean, University Libraries
Digital Initiatives Group	Special Collections (ContentDM)	Head, Archives & Special Collections	Dean of Libraries
Digital Initiatives Unit	Programming; user needs analysis	Director, Digital Library Initiatives	Three assistant deans
Digital Library and Information Systems Team	Digital libraries, systems, workstations, servers	Team Leader	Dean of the Libraries
Digital Library and Information Technology	Library systems group	Director of Library Systems	AUL for Digital Library and Information Technology
Digital Library Initiative	Maintain, add functionality, work with constituents in using it	Executive Director, Digital Library Initiative	Vice Provost/University Librarian

Digital Library Production	Administer the content component of the project	Head of Digital Library Production	Associate Director for Digital Initiatives
Digital Library Services	Overall planning, management, maintenance,	Head, Digital Initiatives	Associate Dean for Collection and Technology Services
Educational Technology Center	Project coordination; collection management; application administration; archival protocol; metadata and digitization coordination and support	Director	Associate Vice President for University Libraries (chief administrative officer for the University Libraries)
Graduate Studies Office	Establish e-thesis submission regulations, check submitted theses	Director of Graduate Studies Academic Services	Dean of Graduate Studies
Information Technology Services (aka Systems)	Overall co-ordination and implementation; providing technical infrastructure; incubating new approaches	T-Space Service Coordinator	Director, Information Technology Services
IR Working Group	Strategic management and oversight	Project Leader, ScholarlyCommons	Administrative Council (Library's most senior management body)
Libraries Electronic Technologies & Services	Planning, implementation, technology development & support	Manager Digital Library Planning & Development	Associate Director Information Services & Systems
Library	Maintain and enhance DSpace software, identify and add content, publicize	Assistant Head, Digital Library Initiatives	Provost
Library	Everything except backup	Associate Dean for Digital Initiatives	Dean
Library Administration (within)	Management and promotion	Assistant to the Director of Libraries	Director of Libraries
Library Computing and Media Services	Managing all computing for the libraries	Director	Associate Dean
Library Computing Systems	Maintenance and support of Institutional Repository software and hardware	Assistant Director for Library Computing Systems	Assistant Director for Library Computing Systems
Library Information Systems	Management of the software	Assistant to the University Librarian for Information Technology	University Librarian

Library Information Technology	Library information technology	Coordinator, Deep Blue pilot project	Associate University Librarian
Library Systems	Coordination and management of IR	AUL, Library Systems	AUL, Library Systems
Library, Information Technology Services	Support, customization, metadata standards	Associate Chief Librarian, Information Technology	Chief Information Officer
Metadata and Digital Library Services	Running software, updating supporting documentation, meeting with faculty	Head, Metadata and Digital Library Services	AUL for Collections and Access
Scholarly Communication	Management	Coordinator	Dean
Systems Department	Technical support; monitor system trends in ePublishing	eScholarship Program Manager	Head of Systems
Technical Services	Soliciting content, determining viability, creating and reviewing metadata	Assistant University Librarian	University Librarian
University Library Administration	Leadership, direction, strategic planning, promotion	Program Manager	University Library Director

Planning an IR N=24

Name of unit	IR responsibility	Manager's title	Unit reports to
Academic Programs Division	Leadership, planning	Two managers: University Archivist & Forestry Librarian	Associate University Librarian for Academic Programs
Digital Access and Information Architecture Department	Library Web site, OAI, metadata harvesting, etc.	Head, DAIAD	AD for Information Systems and Digital Access
Digital Library Center	Technical, software, some scanning, software specification assistance	Director, Digital Library Center	Associate Director for Technology Services
Digital Library Initiatives	Managing content & especially content intake	Head of Digital Library Initiatives	Deputy Director
Digital Library	Acquire and describe resources; marketing and communication; project management; digital conversion	Director, Digital Library	University Librarian

Digital Library Planning and Development	Project management and technical support		
Digital Library Program	System admin; software development; metadata; infrastructure	Director, Digital Library Program	Jointly, Dean of Libraries and Chief Information Officer
Information Technology	Information technology development and support	Associate University Librarian, Information Technology	University Librarian
Information Technology Services	Installation, configuration, maintenance of D-Space	Interim Manager of Information Technology Resources and Services	Director of Library Services and Information Resources
Libraries/Digital Initiatives	Planning, coordination, and implementation	Digital Initiative Librarian	Associate Dean for Collections
Library		Director Library Technologies & Digital Initiatives	
Library	Plan, implement & support the IR	e-Scholarship Librarian	Head, Digitization Projects with a dotted line to the Director of Libraries
Library Information Technology	Information technology systems development, integration and long term maintenance	Associate University Librarian for IT	University Librarian
Library Information Technology Planning and Policy	Core responsibility for IR	Associate University Librarian for Information Technology Planning and Policy	University Librarian
Library Systems	Working with university IT department to assess technology needs	Associate Dean	Library Dean
Library Systems	Hardware, software, some training.	Head of Systems	AD for Systems and Planning
Library Technology	Technology development and project management	Head, Library Information Systems & Technology	Associate Dean, University Libraries
Library Technology Services	Technical infrastructure		
e-Library	Management and coordination		Acting Director, Information Access & Delivery

Research Services	Liaison with researchers, recruitment of content, articulate services desired by constituency	Head, Research Services	Associate Director for Library Services and Collections
Resources & Services (i.e., the library)	Planning, develop requirements, development, deployment		Senior Associate Dean and Executive Director
Western Archives	Overall coordination	University Archivist	University Librarian

Unit 1

Librarian N=41

# of Staff	N	Minimum	Maximum	Mean	Median	Std Dev
Total	41	1.0	14.0	2.6	2.0	2.5
Have	26	1.0	7.0	2.6	2.0	1.8
Planning	15	1.0	14.0	2.5	1.0	3.4

Total FTE	N	Minimum	Maximum	Mean	Median	Std Dev
Total	39	.10	13.5	2.0	1.0	2.4
Have	24	.10	7.0	1.9	1.8	1.7
Planning	15	.10	13.5	2.1	1.0	3.3

Other Professional N=29

# of Staff	N	Minimum	Maximum	Mean	Median	Std Dev
Total	29	1.0	17.0	2.9	2.0	3.7
Have	19	1.0	17.0	3.1	2.0	4.1
Planning	10	1.0	10.0	2.6	1.5	2.9

Total FTE	N	Minimum	Maximum	Mean	Median	Std Dev
Total	29	.05	17.0	2.2	1.00	3.9
Have	19	.05	17.0	2.4	1.00	4.3
Planning	10	.10	9.5	2.0	.75	3.0

Support Staff N=24

# of Staff	N	Minimum	Maximum	Mean	Median	Std Dev
Total	24	1.0	22.0	3.3	1.5	4.6
Have	15	1.0	22.0	3.7	1.0	5.7
Planning	9	1.0	5.0	2.4	2.0	1.7

Total FTE	N	Minimum	Maximum	Mean	Median	Std Dev
Total	24	.10	19.0	2.7	1.0	4.3
Have	15	.10	19.0	3.0	1.0	5.2
Planning	9	.15	5.0	2.3	2.0	1.9

Student Assistant N=16

# of Staff	N	Minimum	Maximum	Mean	Median	Std Dev
Total	16	1.0	50.0	7.3	5.0	12.3
Have	10	1.0	12.0	3.9	3.0	3.4
Planning	6	1.0	50.0	12.3	5.0	18.7

Total FTE	N	Minimum	Maximum	Mean	Median	Std Dev
Total	16	.05	25.0	3.2	1.1	6.0
Have	10	.05	4.0	1.2	.9	1.3
Planning	6	1.00	25.0	6.5	3.1	9.2

Other Staff Category N=6

Have an IR

Graduate Research Assistant (.5 FTE)

1 part-time librarian

Programmer/analyst, UNIX system administrator

Software developer

Volunteers (.5 FTE)

Planning an IR

1 Web site manager, 1 programmer/system administrator

Selected Comments from Respondents

Have an IR

"Assistant Director for Library Computing Systems was co-project director for the Institutional Repository and participated in faculty contact and promotion. Systems staff supported hardware and software installation and maintenance."

"Digital initiatives staff work closely with subject specialists (bibliographers) in promoting the IR to departments, centers, etc."

"The eScholarship Program Manager has dual reporting: reports to Head of Systems and Head of Reference & Instructional Services."

"Head, Digital Initiatives spends about .25 on IR; Application Systems Analyst is being trained to take on some IR duties; student spends approximately 2 hours a week on the IR."

"One programmer working almost 50% of time to develop and support IR and one manager working 10% of time in planning the IR."

"Plan to involve all Cataloging staff by individual subject expertise as the content grows."

"Project management and support for the IR constitutes one aspect of staff effort, however, support for individual collections within the IR fluctuates and involve both principal IR support staff and a variable number of student assistants depending on need. The numbers provided above are an average of ongoing administrative IR effort and project level effort."

"Support staff in the Graduate Studies Office are increasingly devoting time to checking electronically submitted theses rather than print."

"The Digital Projects Librarian has technical responsibility for the project."

"Working Group staff are drawn from public services, collection development, special collections, technical services, IT systems, and administration. Three temporary librarians (Other Professional) provide ancillary project support."

Planning an IR

"One librarian is project leader full time. One librarian in library systems office is backup support to the programmer supporting the project leader. One programmer manages the Digitool software from ExLibris."

"The Library IT unit is the current center of emerging technology integration. We are the main liaison with our consortium, and therefore have the job of integrating the technologies and services made available by them (and others) into first the library, and then hopefully the rest of campus. LIT also is the main contact point for emerging technology that originates from campus IT operations, and we attempt to integrate the library into wider campus IT initiatives."

"There are two full time staff (one library faculty member and one research programmer) dedicated to the library IR. In addition there is one library faculty member (subject specialist) who has 25% of her time designated as a faculty liaison for the IR."

"These numbers are for the whole dept. Only one fulltime support staff and one librarian are working on the IR project."

"This is a new position which is in the process of being hired. The person will be supervised by the Associate Dean for Collections and work closely with Special Collections and University Archives."

"This represents the [main library] staff only. Liaisons from other university libraries will also perform these functions for their constituencies."

Unit 2

Have an IR N=28

Name of unit	IR responsibility	Manager's title	Unit reports to
Applications Group	System administration	Director of Applications Group	Associate Dean for Information Management Services
Archives	Gather and load archival content, esp. campus e-publications	Department Head	Associate Director for Technical Services
Campus IT	Backup	Operations Manager	Head, Campus IT
Central Technical Services	Metadata development	Assistant Director of University Libraries for Technical Services	Associate Vice President for University Libraries (chief administrative officer for the University Libraries)
Collections and Scholarly Communications	Manage print and e-resources	Director	Associate Dean
Collections Management	Planning, implementation, ETD information web pages, liaison with FGS, contact with students, general contact with faculty	Coordinator, Collections Management	Associate Director Collections
Computing Operations & Research Services	Technical advice	Director	Dean
Digital Library Program	Running digital library projects	Head	Associate University Librarian for the Electronic Library
Digital Outreach	Communication with contributors	Digital Outreach Librarian	General Reference

Electronic Publishing Center	Assist with submission of ETDs; large scale scanning for IR; independent digitization projects	Electronic Publishing Librarian	Dean of Libraries
Engineering Library	Library support for the School of Engineering and Applied Science	Head, Engineering Library	AUL for Public Services
Enterprise Academic Systems	Support the Dspace software environment and customize that environment to meet the needs of the scholarly community. We also provide budgetary and administrative support for the ongoing operation of both software and hardware.	Director of Enterprise Academic Systems	Association Vice-Provost for Information Technology
Information Systems and Technology	Maintain server, contribute technical expertise, teach course on electronic submission	Faculty Consulting and Liaison, Client Services	Associate Provost, Information Systems and Technology
Information Technology Services	Provide/maintain server/ storage platform, modify and maintain software	Associate Dean of Libraries	Associate Dean of Libraries
Library	Community coordinator: outreach to faculty at the campus; assistance w/ procedures, mounting content and negotiating copyright clearances	Liaison Librarian	Chief Librarian
Library Computing	Technical support and implementation	Manager, Application and Bibliographic Systems	Director, Library Computing Services
Library Information Technology Support	Technology support	Director of the Digital Library	University Librarian
Library Instruction Research Applications Group—Central IT Unit	Development work, server maintenance, back-up, technical consulting	Head, Library Instruction Research Applications Group	Director of Information Technology
Library Public Services	Faculty contact, public services, policies, promotion, scanning	Assistant Director for Library Public Services	Director of Libraries

Metadata Unit	Metadata support	Head, Metadata Unit	Head, Cataloging and Metadata Services
Reference & Instructional Services	Subject librarians are liaisons with faculty	eScholarship Program Manager	Head of Reference & Instructional Services
Research	Data repository (DSpace etc.)	Associate Dean for Research	Dean of Libraries
Scholarly Resources Integration Department (SRI)	Metadata issues & training	Head, SRI Department	Assistant Director for Technical Services & Information Technology
Server Administration	Computer and administrative support	Chief, Computer and Administrative Support	Director, Support and Development Services
System Integration	Manage the systems component of the application	Chief System Engineer	Associate Director for Digital Initiatives
Systems Office	Systems maintenance	Director of Systems Office	Director of Libraries
Systems, Architecture, and Infrastructure	Keep hardware and operating system running	Director	Vice Provost for Information Technology
University Archives		University Archivist	VP Academic

Planning an IR N=17

Name of unit	IR responsibility	Manager's title	Unit reports to
Collections Access and Management	Electronic theses and dissertations	Director	Associate Dean for Operations and Director of the Library
Collections and Technical Services.	Scholarly communication education	Scholarly Communication Librarian	AD for Collections and Technical Services
Digital Library Center	Data deposit in IR system		
Information Development & Management (IDM)	Planning, develop requirements, development, deployment		Associate Executive Director
Information Technology Division	Platform, implementation	Director of Digital Library Development Laboratory	Associate University Librarian for Information Technology
Library Collection Development	Project leader; policies; content recruitment	Director of Collection Development and Digital Scholarship	Executive Associate Dean, Libraries

Library Digital Programs	Software decisions, ingestion of data, development of technical services	Associate Director for the Libraries Digital Programs	Associate Director for the Libraries Digital Programs
Library Digital Services/Web Administration	Design and organization of IR site; training of IR site users.	n/a	Library Associate Dean
Library ITS	Technical support	Director, Library Information Technology Services	Association University Librarian (Information Services)
Library Special Collections	University archives and library special collections	Head of Special Collections	Associate University Librarian for Collections
Library Systems Department	Support online catalog and other systems	Head, LSD	AD for ISDA
Library Technology Team	Management of technology infrastructure	Chief Technology Officer	Deputy Director
Metadata	IR metadata	Metadata coordinator	
Network Computing Centre	Manage server, handle backups, etc.		Deputy Provost, Chief Information Officer
Services	IR promotion, education, faculty liaison	Associate University Librarian, Services	University Librarian
Systems	Software specification assistance, support Greenstone software	Interim Chair, Systems Department	Interim Assistant Director for Support Services
Systems	Systems	AUL for Systems	University Librarian

Unit 2

Librarian N=30

# of Staff	N	Minimum	Maximum	Mean	Median	Std Dev
Total	30	1.0	16.0	2.9	1.0	4.1
Have	18	1.0	15.0	3.1	1.0	4.1
Planning	12	1.0	16.0	2.7	1.5	4.2

Total FTE	N	Minimum	Maximum	Mean	Median	Std Dev
Total	26	.02	16.0	1.9	1.0	3.8
Have	15	.02	13.0	1.4	.5	3.3
Planning	11	.10	16.0	2.5	1.0	4.5

Other Professional N=22

# of Staff	N	Minimum	Maximum	Mean	Median	Std Dev
Total	22	1.0	12.0	3.0	1.5	2.9
Have	13	1.0	5.0	2.1	1.0	1.6
Planning	9	1.0	12.0	4.3	3.0	3.9

Total FTE	N	Minimum	Maximum	Mean	Median	Std Dev
Total	20	.05	12.0	2.3	1.0	3.3
Have	12	.05	4.5	.8	.3	1.2
Planning	8	.20	12.0	4.5	4.0	4.2

Support Staff N=16

# of Staff	N	Minimum	Maximum	Mean	Median	Std Dev
Total	16	1.0	47.0	4.9	1.0	11.4
Have	8	1.0	3.0	1.4	1.0	.8
Planning	8	1.0	47.0	8.5	3.0	15.7

Total FTE	N	Minimum	Maximum	Mean	Median	Std Dev
Total	14	.05	47.0	5.0	1.0	12.3
Have	6	.08	3.0	.9	.5	1.1
Planning	8	.10	47.0	8.1	2.0	16.0

Student Assistant N=13

# of Staff	N	Minimum	Maximum	Mean	Median	Std Dev
Total	13	1.0	4.0	2.1	1.0	1.0
Have	7	1.0	4.0	2.0	1.0	1.3
Planning	6	1.0	4.0	2.2	2.0	1.3

Total FTE	N	Minimum	Maximum	Mean	Median	Std Dev
Total	11	.02	2.0	.7	.50	.6
Have	5	.02	.8	.4	.25	.3
Planning	6	.25	2.0	.9	.75	.7

Other Staff Category N=1

Have an IR

Advisory .01 FTE

Selected Comments from Respondents

Have an IR

"Assistant Director for Library Public Services was co-project director and participated in faculty contact and promotion and developed policies and procedures. One reference librarian reporting to the Head of the Reference Department became DSpace Coordinator, learned how to use the software for input, and worked one-on-one with faculty and department staff. Reference librarians who were subject liaisons to the departments involved also met with interested faculty at the initial meeting, and assisted with metadata. The Head of Digital User Services Department, reporting to the Assistant Director for Library Public Services, and her staff managed staff/students and students scanning reports for departments and research centers. Scanning by the library for the IR later became a part of the project, separately funded by the university."

"Cares for the servers on which the software is loaded."

"Charged to investigate a distributed institutional repository which included both document and data repositories."

"Librarians from both central and special library technical units contribute to the metadata development. The degree of participation varies depending on the number of collections in development. Three primary contributors are represented in these stats plus the director who manages the workflow and has ultimate purview over the metadata construction. An additional cohort of technical services staff serve in an advisory capacity as the Metadata Team. Members of the advisory are called upon to work on projects as needed/ appropriate."

"Librarians in other subject areas are beginning to work on the project as the service community expands beyond Engineering. We plan a distributed model for growing the repository. Subject librarians are responsible for identifying 'ripe' opportunities for new IR content, advocating the IR to campus constituencies, and developing linkages between the IR and content holders."

"Only two people are involved in the IR, one librarian and one support staff each working 10% of their time. The librarian involved is also the Coordinator of Collections Management. The support staff member does most of the ongoing work with students and Web pages."

"The computer analyst involvement in this project is the security and maintenance of the server."

"This includes the various library liaisons to faculty department."

"This is system administration and the technical aspects of managing the application itself (installation, upgrades, patches, etc.)"

Planning an IR

"One of the programmer analysts is in library school."

"Special Collections has been a very good leader in the original usage of the IR—they have done the most work to date in the establishment of interim meta-data standards and policies for collection inclusion. The departure of the head of special collections in fall 2005 has stalled our efforts at effective policy creation and implementation. In concert with LIT, Special Collections is critical to the useful integration of any IR activities. However, whether they 'own' the IR is very much up in the air."

"We expect that only the librarians will be active in promoting and teaching the IR."

Unit 3

Have an IR N=15

Name of unit	IR responsibility	Manager's title	Unit reports to
Administration	Environmental scanning; university administration liaison	Associate Dean for Public Services & Collection Development	Dean of Libraries
Archives & Special Collections	Planning	Head, Archives and Special Collections	Director of Libraries
Archives and Special Collections	Input content	University Archivist	
Collection Services	Collection/Subject librarians are liaisons with faculty	Head of Collection Development	Associate University Librarian, Collection Services
Library Technical Services	Provide metadata for selected collections	AUL	Director of Library
Information Technology Department	Document repository (Digital Commons)	Assistant Dean for IT	Dean of Libraries
Library	Coordinate project, maintain upload submission forms, metadata database and public interface	Liaison Librarian	University Librarian
Library Systems	Server administration & support	Supervising Programmer/ Analyst	Associate Vice President for University Libraries (chief administrative officer for the University Libraries)
Office of Information Technology	Server administration, batch data loading, troubleshooting	Senior Systems Manager	Chief Information Officer

Public Services	Outreach and marketing, some user support	Associate Director for Public Services	Director of Library
Research Services	It will be to work with faculty to acquire content	Assistant Head of Research Services	Associate Director for Research Services
Resource Acquisition and Description	Metadata	Head	Associate Dean of Libraries
Systems	Manage library support software and servers	Head of Systems	Associate Director for Technical Services
University IT Services	IT	Director of IT Services	VP Services
University Library	Mounting content and negotiating copyright clearances	Systems Librarian	Chief Librarian

Planning an IR N=10

Name of unit	IR responsibility	Manager's title	Unit reports to
Collection Resources	Providing metadata	Associate University Librarian, Collection Resources	University Librarian
Information Technology Services	Maintaining server space; coordinating with Library Systems		University CIO
Library Administration	Liaison to faculty/university administration	University Librarian	Provost
Library Web Services	IR & Web interface support as needed	Head, Library Web Services	Assistant Dean for Systems
Preservation	Coordinate implementation group, write documentation, establish policies and procedures	Chair, Preservation Department	Associate Director for Technology Services
Public Services.	Content recruitment, training.	Interim AD for Public Services.	Interim AD for Public Services.
Reference Department	User support; training for other library staff	Head, Reference Department	Director of Public Services, Libraries
Scholarly Communication	Copyright, permissions, education and developing new issues related to institutional repositories and scholarly communication	Endowed Chair	Dean

Technical Services	Metadata		
Technical Services	Development & application of metadata	Head, Technical Services	Associate Director for Library Services and Collections

Unit 3

Librarian N=21

# of Staff	N	Minimum	Maximum	Mean	Median	Std Dev
Total	21	1.0	23.0	4.1	1.0	5.6
Have	12	1.0	23.0	4.3	1.5	6.5
Planning	9	1.0	14.0	3.8	1.0	4.5

Total FTE	N	Minimum	Maximum	Mean	Median	Std Dev
Total	19	.03	23.0	3.6	1.0	5.8
Have	11	.01	23.0	3.7	.5	7.2
Planning	8	.50	10.0	3.5	1.0	3.5

Other Professional N=7

# of Staff	N	Minimum	Maximum	Mean	Median	Std Dev
Total	7	1.0	39.0	7.9	2.0	13.9
Have	4	1.0	7.0	3.0	2.0	2.8
Planning	3	2.0	39.0	14.3	2.0	21.4

Total FTE	N	Minimum	Maximum	Mean	Median	Std Dev
Total	7	.1	39.0	7.3	2.0	14.2
Have	4	.1	7.0	2.0	.4	3.4
Planning	3	2.0	39.0	14.3	2.0	21.4

Support Staff N=7

# of Staff	N	Minimum	Maximum	Mean	Median	Std Dev
Total	7	1.0	25.0	7.9	2.0	10.4
Have	5	1.0	25.0	6.2	2.0	10.5
Planning	2	3.0	21.0	12.0	12.0	12.7

Total FTE	N	Minimum	Maximum	Mean	Median	Std Dev
Total	7	.05	24.5	7.4	2.0	10.5
Have	5	.05	24.5	5.6	1.0	10.6
Planning	2	3.0	20.5	11.8	11.8	12.8

Student Assistant N=6

# of Staff	N	Minimum	Maximum	Mean	Median	Std Dev
Total	6	2.0	14.0	6.7	6.5	4.6
Have	4	2.0	9.0	5.3	5.0	3.8
Planning	2	5.0	14.0	9.5	9.5	6.4

Total FTE	N	Minimum	Maximum	Mean	Median	Std Dev
Total	6	.08	4.0	2.2	2.5	1.5
Have	4	.08	4.0	2.3	2.5	1.8
Planning	2	1.00	3.0	2.0	2.0	1.4

Other Staff Category N=0

Selected Comments from Respondents

Have an IR

"Five percent of one librarian is dedicated to the repository."

"Head of Archives involved in IR planning but limited involvement in ETD and LOR pilot projects."

"Large department with many staff. They are providing supervision for the IR's programmer analyst, project staffing for development work, networking, and security and maintains of server, etc."

"Regular environmental scans of IR use and adoption in higher education; promotes use of IR at university administration level."

"The total FTE is not static. During times of software adjustment the percentage of FTE can be much higher. The 5% reflects the amount of time devoted on average in normal times."

"We are in the planning stages of implementing this aspect of the program. The Total FTE figure above is just an estimate at this time."

Planning an IR

"Expect only some staff will be involved in IR."

"We have only one librarian actually working on metadata."

Unit 4

Have an IR N=9

Name of unit	IR responsibility	Manager's title	Unit reports to
Bibliographic Control	Planning, metadata + controlled vocabularies	Head, Bibliographic Control	Associate Director Collections
Cataloging	Metadata creation and editing	Metadata cataloger	Head of Cataloging
Cataloging and Metadata Services	Metadata management	Head of Cataloging and Metadata Services	
Fine Art Library	Mounting content and negotiating copyright clearances	Fine Art Librarian	Department Head, Department of Fine Art, Faculty of Arts and Science
Information Technology Division	DSpace administration, account management, testing, troubleshooting, news releases, providing support for IR communities	Assistant Director for Technical Services & IT	Assistant Director for Technical Services & IT
Archives	Promote use of DSpace for archival collections	Head, Archives	Associate Director for Collections
Reference	Faculty liaison	Head of Reference	Associate Dean for Public Services & Collection Development
Special Collections	Selection of collections for addition to the repository; development of collections (digitization & metadata creation)	Director of Music Library & Special Collections	Associate Vice President for University Libraries (chief administrative officer for the University Libraries)
Technical Services	Metadata; digital collections end-processing	Head of Cataloging; Head of Acquisitions	Associate University Librarian, Collection Services

Planning an IR N=5

Name of unit	IR responsibility	Manager's title	Unit reports to
Cataloging Department	Metadata; mediated submissions; e-dissertations	Head of Cataloging Department	Director, Technical Services, Libraries
Electronic Resources	IR licensing issues and integration into electronic resources program		

Office of Libraries Technology	Hardware, software and system support	Director, Office of Libraries Technology	Dean
Special Collections/Archives	Liaison to institutional depositors		
University Archives	Liaisons with faculty and university	University Archivist	Head, Special Collections and Area Studies Department

Unit 4

Librarian N=14

# of Staff	N	Minimum	Maximum	Mean	Median	Std Dev
Total	14	1.0	5.0	1.6	1.0	1.1
Have	9	1.0	5.0	1.9	2.0	1.3
Planning	5	1.0	2.0	1.2	1.0	.5

Total FTE	N	Minimum	Maximum	Mean	Median	Std Dev
Total	12	.04	2.00	1.1	.25	.67
Have	8	.04	1.25	.4	.25	.42
Planning	4	.05	2.00	.7	.30	.91

Other Professional N=3

# of Staff	N	Minimum	Maximum	Mean	Median	Std Dev
Total	3	1.0	3.0	2.0	2.0	1.0
Have	2	2.0	3.0	2.5	2.5	.7
Planning	1	1.0	—	—	—	—

Total FTE	N	Minimum	Maximum	Mean	Median	Std Dev
Total	3	.5	3.0	1.5	1.1	1.3
Have	2	1.1	3.0	2.1	2.1	1.3
Planning	1	.5				

Support Staff N=1

# of Staff	N	Minimum	Maximum	Mean	Median	Std Dev
Total	1	3	—	—	—	—
Have	1	3	—	—	—	—
Planning	—	—	—	—	—	—

Total FTE	N	Minimum	Maximum	Mean	Median	Std Dev
Total	—	—	—	—	—	—
Have	—	—	—	—	—	—
Planning	—	—	—	—	—	—

Student Assistant N=3

# of Staff	N	Minimum	Maximum	Mean	Median	Std Dev
Total	2	1.0	1.0	1.0	1.0	—
Have	1	1.0	—	—	—	—
Planning	1	1.0	—	—	—	—

Total FTE	N	Minimum	Maximum	Mean	Median	Std Dev
Total	3	.07	6.0	2.1	.25	3.4
Have	2	.07	6.0	3.0	3.00	4.2
Planning	1	.25	—	—	—	—

Other Staff Category N=0

Selected Comments from Respondents

Have an IR

"One librarian spends 1/3 of her time training and content recruitment; four other librarians incorporate IR content recruitment as part of their collection development responsibilities."

"The Electronic Resource Cataloguer is involved in IR planning and metadata standards for 5% of her time."

"We are still in the planning stages with respect to how best to employ staff from this area."

BUDGET

9. Is there/will there be a dedicated budget for start-up costs and/or the ongoing operation of the IR? N=58

Start-up Costs N=56

	Total N=56		Have N=34		Planning N=22	
Yes	26	46%	15	44%	11	50%
No	30	54%	19	56%	11	50%

Ongoing Operation N=48

	Total N=48		Have N=33		Planning N=15	
Yes	22	46%	16	48%	6	40%
No	26	54%	17	52%	9	60%

Start-up Costs N=21

	N	Minimum	Maximum	Mean	Median	Std Dev
Total	21	$8,000	$1,800,000	$153,726	$48,000	387,217
Have	15	$8,000	$1,800,000	$182,550	$45,000	458
Planning	6	$12,000	$160,000	$81,667	$75,000	54,647

	Total	Have	Planning
<$25,000	5	4	1
$25,000–49,999	6	5	1
$50,000–74,999	3	2	1
$75,000–99,999	1	1	—
$100,000–124,999	2	—	2
$125,000–149,999	—	—	—
≥$150,000	4	3	1

Ongoing Operation N=16

	N	Minimum	Maximum	Mean	Median	Std Dev
Total	16	$8,600	$500,000	$113,913	$71,750	133,494
Have	14	$8,600	$500,000	$113,543	$41,750	143
Planning	2	$100,000	$133,000	$116,500	$116,500	23,335

	Total	Have	Planning
<$25,000	4	4	—
$25,000–49,999	4	4	—
$50,000–74,999	—	—	—
$75,000–99,999	—	—	—
$100,000–124,999	3	2	1
$125,000–149,999	2	1	1
≥$150,000	3	3	—

Selected Comments from Respondents

Have an IR

"During the ETD pilot project, a programmer was needed full time and the Faculty of Graduate Studies and the libraries split the start-up costs for the programmer salary. The IR is still under development and the programmer is currently spending almost 50% of his time on IR development and support."

"The amount indicated for start-up cost is for hardware; we do not have a figure for salary cost during that period. The amount indicated for ongoing operation is for salaries only."

"Costs are estimates (some ongoing costs not known at this initial point of startup.)"

"Does not include existing staff costs for IR coordination, marketing & liaison with faculty, training. These activities will be absorbed into existing library responsibilities."

"Ongoing operation will, for now, be integrated in the regular operation budget of the library."

"Operations to be streamlined into normal workflow procedures."

"Funds for a server, one year of entry level librarian's salary (reference librarian DSpace Coordinator) student wages, and publicity for a total start-up cost of $150,000."

"Includes 24/7 technical support, site set up for faculty units, training of unit administrators, report generation, etc."

"Costs are for the license for system plus high level of staff currently managing the system. Staff costs could be less. Some academic departments use students to help faculty deposit materials."

"Start-up IR costs have been absorbed within existing University Libraries budgets. Ongoing supports are budgeted for application licenses. Personnel and costs for the expansion of the server array are under

discussion."

"This project was done without a dedicated budget."

"The IR, which consists of both DSpace and CONTENTdm, does not have a separate budget, but is included within the digital library and IT budgets."

"Budget concerns are assumed under overall library budget by the director."

"IR is part of library's repository development program and was not separately budgeted."

"Funded via library's operational budget."

"No dedicated budget at this point. We typically don't do programmatic budgeting for operations. We fund server/storage hardware out of ITS ops budget, so any incremental increases to server/storage needed to support IR are handled that way."

"One limited term appointment to provide leadership and coordinate projects which create digital collections through digitization of electronic publishing."

"The School of Engineering and Applied Science funded the pilot, the library provided staff. Cost of the service has since been assumed by the library to keep budget from inhibiting adoption by other schools and centers. We expect academic units to contribute a larger portion of the staffing need as the IR grows."

Planning an IR

"Too early to indicate the costs."

"Since IR metadata and digital object content will (probably) reside within Greenstone, many funds dedicated towards creation of local digital library are also in support of IR. While the costs in terms of programming and development staff have been significant, to pull out $ for IR alone would be difficult and time consuming."

"As the IR we currently have available is hosted and managed by the consortium, the original start-up costs were absorbed by the yearly regular membership fees of the consortium members. Ongoing operation has not yet been effectively budgeted, but as we move more and more into predicted heavy usage, a cost model needs to be established."

"The ongoing operation budget is approximate only. This is a six-year project funded through the Office of the Provost, the University Library, and the Academic Computing department. Part of the project is to determine the true costs of operating an institutional repository for the university."

"The decision about the exact amount that will be allotted for start-up costs and ongoing operation has not been determined by the Library Dean and the University CIO."

"Out of pocket expense has been limited to desktop development tools and server/storage/tech support costs."

"A Provost Opportunity Fund grant was awarded for start-up costs. Ongoing operations are a part of the library's budget."

"Budget is centralized at our consortium."

"Amount for new server, SAN storage array purchase."

"Work will be incorporated into existing responsibilities; some evaluation work funded with grants; one new staff person."

"We don't have the business model worked out at this stage. We do have some money ($100,000) recurring dedicated through an odd channel that is paying for some technology and liaison staff. Our initial hardware is being paid for through $50,000 of equally opportunistic oddball funding."

"Start up costs have not yet been determined; a dedicated budget would be considered only after the pilot project is completed and cost estimates are available."

"We will be looking for grant funding."

If yes, what is the source of the funds for the budget? Check all that apply. N=33

Start-up Costs N=29	New Funds N=15			Reallocation N=21		
	Total N=15	Have N=6	Planning N=9	Total N=21	Have N=11	Planning N=10
Parent institution	6	3	3	2	—	2
Library	2	1	1	18	10	8
Information Technology	2	1	1	2	—	2
One-time supplemental funds	5	2	3	3	1	2
Grant	7	5	2	—	—	—
Other source	6	3	3	4	2	2

Ongoing Operation N=28	New Funds N=15			Reallocation N=24		
	Total N=15	Have N=9	Planning N=6	Total N=24	Have N=18	Planning N=6
Parent institution	7	5	2	4	2	2
Library	6	3	3	18	14	4
Information Technology	2	1	1	3	2	1
One-time supplemental funds	2	—	2	1	—	1
Grant	4	4	—	—	—	—
Other source	2	2	—	3	3	—

Please describe other source.

Start-up Costs, New Funds

Atlantic Foundation

Faculty of Graduate Studies

Personal gift from provost to the library

State IT grant to consortium

IT Grant purchased software

University Provost

Start-up Costs, Reallocation

Student fees

ETC, Library Systems, and CTS budgets

ILS hardware reimbursement

Library operational budget

Ongoing Operation, New Funds

"eScholarship Repository is funded directly from the UCOP."

University Office of the CIO

Ongoing Operation, Reallocation

Student fees

ETC, Library Systems, and CTS budgets

Please estimate the percentage of the budget allocated to each of the following categories. N=26

Start-up Costs

Total N=21	N	Minimum	Maximum	Mean	Median	Std Dev
Staffing and benefits	13	.25	100	62.8	65.0	33.6
Hardware acquisition	14	.75	100	37.3	27.5	34.6
Software acquisition	6	5.00	90	30.7	17.0	33.5
Hardware maintenance	6	1.00	20	9.6	10.0	7.2
Software maintenance	3	2.00	10	5.3	4.0	4.2
Vendor fees (if IR is hosted by an external vendor)	5	2.00	100	70.2	99.0	43.8
Other category	3	1.00	29	—	—	—

Have an IR N=16	N	Minimum	Maximum	Mean	Median	Std Dev
Staffing and benefits	12	.25	100	63.3	67.5	35.2
Hardware acquisition	9	.75	100	25.6	17.0	31.6
Software acquisition	3	5.00	50	23.0	14.0	23.8
Hardware maintenance	3	2.50	15	9.2	10.0	6.3
Software maintenance	2	2.00	10	6.0	6.0	5.7
Vendor fees (if IR is hosted by an external vendor)	5	2.00	100	70.2	99.0	43.8
Other category	2	1.00	29	—	—	—

Planning an IR N=5	N	Minimum	Maximum	Mean	Median	Std Dev
Staffing and benefits	1	57	—	—	—	—
Hardware acquisition	5	10	85	58.4	75.0	31.9
Software acquisition	3	5	90	38.3	20.0	45.4
Hardware maintenance	3	1	20	10.3	10.0	9.5
Software maintenance	1	4	—	—	—	—
Vendor fees (if IR is hosted by an external vendor)	—	—	—	—	—	—
Other category	1	1	—	—	—	—

Please describe other category.

Marketing (1%)

Travel (1%)

Expertise System Development (29%)

Ongoing Operations

Total N=20	N	Minimum	Maximum	Mean	Median	Std Dev
Staffing and benefits	18	10	100	69.2	79.5	29.1
Hardware acquisition	3	15	35	23.3	20.0	10.4
Software acquisition	2	10	19	14.5	14.5	6.4
Hardware maintenance	8	2	25	11.3	11.5	7.4
Software maintenance	3	3	20	12.7	15.0	8.7
Vendor fees (if IR is hosted by an external vendor)	5	34	100	73.8	80.0	27.2
Other category	5	4	55	—	—	—

Have an IR N=18	N	Minimum	Maximum	Mean	Median	Std Dev
Staffing and benefits	16	10	100	68.3	80.5	30.8
Hardware acquisition	3	15	35	23.3	20.0	10.4
Software acquisition	2	10	19	14.5	14.5	6.4
Hardware maintenance	6	2	25	10.3	7.5	8.5
Software maintenance	2	3	20	11.5	11.5	12.0
Vendor fees (if IR is hosted by an external vendor)	5	34	100	73.8	80.0	27.2
Other category	4	5	55	—	—	—

Planning an IR N=2	N	Minimum	Maximum	Mean	Median	Std Dev
Staffing and benefits	2	70	83	76.5	76.5	9.2
Hardware acquisition	—	—	—	—	—	—
Software acquisition	—	—	—	—	—	—
Hardware maintenance	2	13	15	14.0	14.0	1.4
Software maintenance	1	15	—	—	—	—
Vendor fees (if IR is hosted by an external vendor)	—	—	—	—	—	—
Other category	1	4	—	—	—	—

Please describe other category.

Travel (4%)

Production services (15%)

Refresh/preservation (20%)

Server farm charges, storage farm charges, network charges (55%)

If there is not a dedicated budget for the operation of the IR, please describe how operational costs are covered. N=33

Selected Comments from Respondents

Have an IR

"Operating costs are covered by redirecting staff efforts and by allocating a part of our budget to cover operating expenses."

"Hardware and technical support costs are part of existing technology budget that covers development, acquisition, maintenance and support."

"We are using open source technology which is hosted on existing servers. The maintenance is done by our regular staff."

"Portions of various staff members time reallocated to the IR project. Full time programmer salary and benefits came from not filling an empty position within public services."

"Costs for staff and vendor are reallocated from other uses in the libraries."

"Personnel, hardware, and software costs are currently represented within library unit budgets."

"Operational costs are covered by absorbing the work into existing units and activities."

"Annual licensing of system funded by Information Technology Services (ITS); reallocation of library resources for all other IR operational costs."

"IR is operated out of system-wide office, not our institution."

"IR is a department within the library funded in the same way as other departments."

"We use free, open-source software; all other costs (server, staff time) are part of our standard, over-all budget."

"Technical development and support are done by existing staff charged with repository and digital services development and support (librarians and programmers). Collection selection and digitization are done by existing staff (librarians) charged with developing the library's digital collections. Similarly, metadata services are provided by existing cataloging staff."

"Because of the intermingling of software and hardware acquisition and maintenance for other projects, it is hard to identify IR costs. However, staffing is by far the largest cost."

"Absorbed by operations budgets of the three campus departments participating (Graduate Studies, Information, Systems, & Technology, and the library)."

"Software licensing fee is paid from library technology fee; EPC is partially self-supporting through grants and contract work; staff responsibilities in DLS have been shifted to allow librarians in that department to take on this new work."

Planning an IR

"At this time, we are still in the planning stages. We have committed staff time to the Greenstone programming and to the planning group. Dedicated funds were used to purchase hardware for the DL (Digital Library) which will include the IR. There are no hard IR funding figures yet."

"As mentioned above, the current consortium membership fees cover the IR operations. But this is not a long-term model."

"Reallocation of existing librarian position; commitment of systems and reference librarians/staff to the project."

"Operational costs of the pilot project will be covered by existing area budgets."

"At this time expenses for the IR are woven into the operations of the involved units. Three servers are

involved, a portion of one is dedicated for library use, another is part of a federal grant project, and a third is part of a state grant project."

If you offer fee-based IR services (e.g., digitization or metadata enhancement) that provide IR income, please identify them. N=1

"We do offer digitization services (fee-based) to departments. At this time we are not using these funds for the IR."

HARDWARE AND SOFTWARE

10. Please indicate whether your IR system is located at your institution or consortium (e.g., DSpace) or at an IR vendor's site (e.g., DigitalCommons). If it is locally hosted, briefly describe the IR's central site hardware and software configuration, identify the IR software used, the computer model, computer memory, disk storage, and operating system. If it is vendor hosted, please identify the vendor. N=59

	Total N=59		Have N=36		Planning N=23	
Locally hosted by parent institution	49	83%	28	78%	21	91%
Locally hosted by consortium	3	5%	1	3%	2	9%
Hosted by vendor	7	12%	7	19%	—	—

Locally Hosted IR N=48

Have an IR N=28

Freeware	Commercial Software	Computer Model	Memory	Storage	Operating System
Archimède		Compaq Proliant ML 370 Dual P3 750Mhz	1 GB	356 GB	Windows 2000
DSpace (6)					
DSpace				.5 TB	
DSpace				500 GB	Linux
DSpace		Apple XServe		1 TB	OS X
DSpace		Dell PowerEdge 1650	1 GB	36 GB	SUSE Linux 9

DSpace		Dell PowerEdge 2550		36 GB	Red Hat Linux
DSpace		IBM X306	512 MB	2 x 40 GB	Unix
DSpace		ProLiant DL360 G3	2 GB	10 TB	Linux
DSpace		SunFire 280R	4 GB	72 GB	Solaris
DSpace		SunFire 480	4 GB	300 GB	Solaris
DSpace		Sun 240	2 GB	4 x 146 GB	Unix
DSpace		Sun 880 X 2	64 GB	10 GB	Solaris 10
DSpace		Sun 440's	16 GB	6 TB	Solaris
DSpace		Sun 440	16 GB	12 TB	Solaris
DSpace		SunFire 280R	4 GB	~500 GB	Solaris 8
DSpace, ETD-db, Open Conference Systems		Sun 480		438 GB	Solaris
DSpace	CONTENTdm	Compaq DL380	2.5 GB	280 GB	SUSE Linux Enterprise 9
DSpace	CONTENTdm and DigitalCommons (vender-hosted)	Dell PowerEdge 2850	4 GB	3 TB	Red Hat Linux 3
	CONTENTdm	Dell PowerEdge 2600	2 GB	360 GB	Windows 2000 Server
	CONTENTdm	Dell PowerEdge 2650	2 GB	2 TB	Windows 2000 Server
		Intel, Sun			Windows, Sun
		SAN	4 GB	600 GB	Red Hat Linux

Planning an IR N=20

Freeware	Commercial Software	Computer Model	Memory	Storage	Operating System
DSpace (4)					
DSpace					Linux
DSpace					Solaris
DSpace		Dell PowerEdge 2650	512 MB	108 GB	SUSE Linux
DSpace		Dell PowerEdge 6650	8 GB	932 GB	Linux

DSpace		HP Proliant DL385	12 GB	3 TB	Red Hat Linux Enterprise AS3
DSpace		IBM RS/6000	4 GB	275 GB	IBM AIX 5L
DSpace		Sun (three machines)			
DSpace	Digitool				
DSpace, Fedora					Linux
DSpace, Fedora	Aware image processing software	Dell 2850's	4 GB	3 TB	Windows 2003 server/ clustering server
Fedora					
Fedora					Red Hat Linux
Greenstone		Dell	4 GB	500 GB	Linux
	CONTENTdm	Dell PowerEdge 350, Dell AX-100, Gateway 9415		2.8 TB	Linux, Windows
	Digitool	IBM/Linux/Intel		TB	Linux
	Documentum				

Vendor-hosted IR N=7

ProQuest Digital Commons	6
Bepress tools	1

11. Has the IR software been modified to enhance its functionality (not just to "brand" the interface)? N=52

	Total N=52		Have N=36		Planning N=16	
A few minor changes have been made	17	33%	12	33%	5	31%
No changes have been made	16	31%	10	28%	6	38%
We have made major modifications to the software	10	19%	6	17%	4	25%
We have made frequent changes on an ongoing basis	9	17%	8	22%	1	6%

Selected Comments from Respondents

Minor Changes

"We created a quick submit button to allow submitters to enter a limited amount of metadata."

"Modifications have been made to allow for LDAP authentication of users."

"Metadata changes and search capabilities."

"Works with campus authentication system"

"Bitstream modifications. Local authentication and authorization."

"RSS feeds"

"A few minor changes have been made (the University of Alberta has adapted the University of Manitoba code to generate Library and Archive Canada's ETD metadata)."

"'Researcher Pages' added to current release. Work on authentication to local system."

"Plan to perform greater customization using the Manakin XML UI for DSpace."

Major Modifications

"CDL's version of the bepress software is highly modified from the original EdiKit, though it is not very different from that available through Digital Commons, i.e., most of the co-developed changes have been carried into DC."

"Our IR consists of multiple systems running a variety of IR software. These expose their metadata to a metadata repository that provides a harvester and user interface for searching and linking to them, and we built these pieces ourselves. To access grid resources (e.g., research datasets) that we represent in our IR, we developed an OAI-PMH-to-SRB translator called OAISRB. User interfaces have been customized to represent a consistent look-and-feel with other library systems."

"Changed the complete interface system."

"Out of the box, Greenstone 'holds' the metadata and the digital resources/objects, allows them to be searched, and creates results lists. The default Greenstone presentation layer (display on the Web) is not very customizable so MUCH work has been done in house to create a new/different/custom presentation layer."

"We have been heavily customizing the workflow of DSpace and have made other customizations. We are also actively contributing to the DSpace development community."

Frequent Changes

"Metadata—ETD-ms, Scorm Crosswalk to MARC. Multiple submission types created. Help Screens modified and created. Interface modified."

"Minor layout adjustments, some operational modifications."

POLICIES AND PROCEDURES

12. Does the IR have written policies and procedures? N=57

	Total N=57		Have N=36		Planning N=21	
Yes	42	74%	27	75%	15	71%
No	15	26%	9	25%	6	29%

If yes, have IR policies and procedures been reviewed by institutional officials, such as university counsel? N=41

	Total N=41		Have N=28		Planning N=13	
Yes	22	54%	15	54%	7	54%
No	19	46%	13	46%	6	46%

If yes, please identify the title of the reviewer(s). N=14

University Counsel (10)

Vice-Provost (2)

Dean of Libraries (2)

Attorney General

Faculty Senate

Computer Science faculty

University Provost

University Task Force on Digitization Initiatives (Chaired by Director of Libraries)

Graduate Dean

Graduate and Research Council

Advisory Committee

13. What types of materials are included in your IR? Check all that apply. N=56

	Total N=59		Have N=36		Planning N=19	
Electronic theses and dissertations	39	70%	24	67%	15	79%
Articles, preprints	35	63%	22	61%	13	68%
Articles, postprints (author modifies preprint to match published work	34	61%	22	61%	12	63%
Conference presentations	32	57%	18	50%	14	74%
Technical reports	31	55%	18	50%	13	68%
Working papers	31	55%	19	53%	12	63%
Articles, official published version	29	52%	16	44%	13	68%
Conference proceedings	26	46%	15	42%	11	58%
Multimedia materials (locally created for scholarly purposes)	25	45%	15	42%	10	53%
Electronic journals (locally published)	24	43%	15	42%	9	47%
Student-produced documents	23	41%	14	39%	9	47%
Datasets	20	36%	10	28%	10	53%
Learning objects	19	34%	10	28%	9	47%
Books, official published version	15	27%	10	28%	5	26%
Books, author draft or author modified draft to match published work	12	21%	6	17%	6	32%
Institutional or unit annual reports	12	21%	4	11%	8	42%
Institutional magazines or newspapers	11	20%	5	14%	6	32%
Working documents of administrative/support units	9	16%	4	11%	5	26%
University catalogs	5	9%	1	3%	4	21%
Overlay journals	4	7%	—	—	4	21%
Alumni association publications	4	7%	—	—	4	21%
Yearbooks	3	5%	—	—	3	16%
Other type of material	25	45%	14	39%	11	58%

Please specify other type of material.

Have an IR

Newsletters (2)

Edited volumes; monographic series

Videotaped conferences & presentations

Color digital images of human tissue arrays, histology images, historic maps

Practica

Book chapters

Electronic monographs and reference works (no print editions)

Texts of lecture series

Data sets

Musical scores; historical photographs

Digital images; audio/video files (e.g. oral history); archival manuscripts

Digital photographs

Research project(s) from academic units

Planning an IR

Agricultural training document (EDIS)

Landmark documents in university history

Locally published lecture and monograph series

Digitized special collections; image database

Archival research resources

"The pilot project will collect electronic theses; other materials will be considered for addition at a later date."

"All formats are under consideration. Special collections in digital format will be emphasized."

14. What types of digital files (e.g., Acrobat, ASCII, HTML, PostScript, PowerPoint, TIFF, Word, and XML) are acceptable for the IR? (NB: Preservation implies that data will not only continue to be maintained, but also continue to be made accessible, using data migration to new digital formats or other techniques to ensure access in a changing technological environment.) N=52

	Total N=52		Have N=34		Planning N=18	
Any digital file type is accepted, but only some types are preserved	24	46%	16	47%	8	44%
Any digital file type is accepted and preserved	16	31%	9	26%	7	39%
Only specified digital file types are accepted and preserved	9	17%	6	18%	3	17%
Only specified digital file types are accepted (there is no preservation)	3	6%	3	9%	—	—

Please specify file type.

Any type accepted, some preserved

XML, ASCII, PDF (migration to PDF/A when available), TIFF, JPEG2000

PDF, AIFF, AIF, AIFC, GIF, HTML, HTM, JPEG, JPG, MARC, PNG, PS, ES, AI, RTF, TXT, TIFF, TIF, XML

PDF, JPEG, PNG, GIF, TIFF, AIFF, MPEG, XML

ASCII, XML, Acrobat

XML, TIFF, TXT, RFT, PS, EPS, AI, PNG, MARC, JPG, HTM, GIF, AIFF, PDF

PDF, Word, many others

ASCII

PDF, HTML, TIFF, XML, JPEG

AIFF, AVE, JFIF, JP2, JPX, PDF, TIFF, WAVE, XML

"We follow the DSpace preservation categories."

"Same as DSpace."

"Standards-based formats such as TIFF, PDF/A."

"Those not proprietary."

Specified types accepted and preserved

Word processing files, RTF, PDF (all files converted to PDF)

PDF, TIFF

PDF

MARC, Adobe PDF and Postscript, TIPP, GIF, PNG, HTML, TXT, DAT, ASCII, RTF XML, AIFF, AIF, AIFC

PDF, HTML, ASCII, XML, SGML, JPG, PNG, TIFF, GIF, CGM, PPD, EPS, MPEG-2, MP-3, XCL, DXF, GIS

TIFF, PDF, HTML, WAV/AIF

Specified types accepted, none preserved

PDF

PDF (micro-filmed for preservation), TIFF, GIF, JPEG, AMOV, WMV, AVI, RM, MPEG, AIF, MIDI, SND, WAV, SWF

"PDF for main work—any digital file type for associated work."

15. What is the document deposit procedure for the IR? Check all that apply. N=55

	Total N=55		Have N=36		Planning N=19	
Authorized depositors deposit documents directly	47	94%	32	89%	15	79%
IR staff deposit documents for authorized users	40	73%	28	78%	12	63%
Other procedure	11	20%	5	14%	6	32%

Please describe other procedure.

"Academic units assign administrative staff to upload objects."

"Administrative staff submit documents for authorized users."

"For now, IR staff only; in future, IR staff AND authorized depositors can both submit."

"In pilot, IR Staff will deposit docs."

"Input workflows are under construction; manual deposit will be secondary."

"Libraries staff deposit theses and scanned back-files."

"Library staff (not connected to the IR) deposit documents."

"Procedure to be finalized."

"Proxy depositing by the administrative staff of departments."

"Unique, non-standard documents require special consultations with consortium."

"We have a few who deposit directly, but it's not the norm."

16. Whose materials may be deposited in the IR? Check all that apply. N=55

	Total N=55		Have N=36		Planning N=19	
Faculty	52	95%	34	94%	18	95%
Non-faculty professional staff	40	73%	26	72%	14	74%
Students	40	73%	25	69%	15	79%
Support staff	23	42%	13	36%	10	53%
Other category	19	35%	12	33%	7	37%

Please specify other depositor category.

"Affiliated hospital consortium"

"Affiliated staff (State Surveys located on campus)"

"All contributors must be approved by IR team"

"Any faculty-sponsored materials"

"Any materials must have approval of the department chair or research center director."

"Any UC author of published material can deposit a postprint."

"Anything that is faculty sponsored, so it could include student papers."

"Document produced by organizations, such as Chemistry Department newsletter and financial reports of university administration"

"Faculty or departments may sponsor student work for deposit."

"Librarians"

"Library archival collections"

"Masters/doctoral theses will be accepted during the pilot; range of materials will increase over time."

"University press books"

"Outside faculty and contributors"

"Product from digitization initiatives"

"Research partners external to the university"

"Special collections in digital format"

"Too early to tell whose materials will be deposited."

17. Are documents that are submitted by authorized users reviewed and approved for deposit to ensure copyright compliance or for other reasons? N=49

	Total N=49		Have N=34		Planning N=15	
Documents are not reviewed (authors are solely responsible for their documents)	18	37%	14	41%	4	27%
Designated departmental or unit officials review and approve documents	16	33%	12	35%	4	27%
IR staff review and approve documents	9	18%	7	21%	2	13%
Other reviewer	6	12%	1	3%	5	33%

Please describe other reviewer.

Selected Comments from Respondents

"Some items are reviewed by departmental or unit officials, others are not reviewed at all."

"For materials deposited by library staff, library staff review for copyright compliance."

"Each collection has a different policy for whether submissions are reviewed, by whom, and for what purpose. It's delegated at the point when a new community is established."

"Policy is under revision. There is a review process but currently not well followed."

18. Do authorized depositors sign a deposit agreement (including click-though Web form agreements)? N=50

	Total N=50		Have N=35		Planning N=15	
Yes	44	88%	31	89%	13	87%
No	6	12%	4	11%	2	13%

19. Does your library negotiate with publishers to allow for the permanent deposit of e-prints from their serials in the IR? N=51

	Total N=51		Have N=35		Planning N=16	
No, but such negotiations are being considered	26	51%	16	46%	10	63%
No, and there are no plans to do so	19	37%	14	40%	5	31%
Yes	6	12%	5	14%	1	6%

20. Are multiple versions of the same document permitted? N=48

	Total N=48		Have N=35		Planning N=13	
Yes	32	67%	24	69%	8	62%
No	16	33%	11	31%	5	38%

If yes, please describe techniques to control versioning.

Selected Comments from Respondents

"Superceding works are deposited and linked to original record; a link to the previous version is presented on the metadata page."

"Multiple versions are held within the system, but only one version is viewable at a time."

"DSpace permits versioning."

"Author's control."

"We add the revised document to the original digital object, with a date and additional metadata describing the revision."

"It is allowed; we have accepted multiple versions and have noted this in the subsequent records. We are looking at modifying the software code to do this better."

"Submitter can: note version in document title; include information in relation element of metadata record; use date of issue to indicate version."

"Communities within the IR have control over what they allow for versioning. They are encouraged, though, to submit last version only."

"In some series, older versions are archived."

"No specific versioning provisions beyond submit date."

"We have this capability but haven't used it as yet."

"Software and metadata support version control."

"At present, there is no special control."

"Multiple versions are one item in DSpace with multiple files."

"Included within the same deposit, but the file names indicate the different versions. One version does NOT replace another."

"Pre-prints may be withdrawn and replaced with post prints. For other materials, multiple versions, showing progression are preferred."

"Versioning is done merely by adding dates of creation to the metadata."

"CVS style versioning native to the repository software."

"Author's discretion."

"Qualified DC allows for version info."

"Potentially a pre- and a post-print might be included in the repository. We will use date published and inclusion of citation information to indicate versions."

"Currently in pilot planning phase; techniques for versioning control unknown at this time."

"Will have to be encoded in work practices (given the current functionality of the DSpace software)."

21. Can documents be withdrawn from the IR? N=45

	Total N=45		Have N=34		Planning N=11	
Documents can be withdrawn	37	82%	28	82%	9	82%
Documents cannot be withdrawn	8	18%	6	18%	2	18%

If documents can be withdrawn, who has authority to do so? Check all that apply. N=39

	Total N=39		Have N=29		Planning N=10	
IR staff can withdraw documents only under specific circumstances	26	72%	20	69%	6	60%
Authors can withdraw documents only under specific circumstances	9	25%	7	24%	2	20%
IR staff can withdraw documents at will	8	22%	5	17%	3	30%
Authors can withdraw documents at will	6	15%	4	14%	2	20%
Other authority	4	11%	1	3%	3	30%

Selected Comments from Respondents

IR staff, specific circumstances

"Only if there are copyright problems."

"A 'tombstone' will remain in system with a message about withdrawal."

"Copyright infringement, fraud etc."

"Copyright violation, content not within policy guidelines."

"Only non-peer reviewed works may be withdrawn (they are actually hidden; the metadata is not, so no dead links). Peer-reviewed works, like books and articles may not be withdrawn."

"At the author's request."

"Issues of copyright, plagiarism, falsified data."

"In the case of fraud, serious factual errors, or as a legal requirement."

"At request of author; at the direction of the Provost; by legal order."

"If requested by authorized departmental depositor."

"Infringement of copyright (this hasn't happened yet)."

"Author request."

"Unintended duplication, copyright violation, remain flexible for ad hoc circumstances."

"In consultation with appropriate parties."

"Licensing, rights issues."

"If document was mistakenly entered or there is an issue with copyright or appropriateness."

"Legal issue or to protect intellectual property."

"In cases of legal necessity; metadata for withdrawn items are retained."

"As copyright becomes more of an issue, we require withdrawal flexibility at local university level."

"Upon request of author."

"By author request or for legal reasons."

"Needs to be encoded in a policy; one example would be research misconduct."

Author, specific circumstances

"Only if there are copyright problems."

"Their rational may not be based on a change of heart about the content; only under legal threat from outside or plagiarism, will we remove items."

"A 'tombstone' will remain in system with a message about withdrawal."

"Preprints can be replaced with postprints."

"Tombstone or reference of removed documents remains."

"Authors can request withdrawal, and reasons/terms for this are negotiated on a case-by-case basis."

"Guidelines are determined by each community."

Other authority

"Advisory committee retains the right to withdraw materials in numerous situations."

"All withdrawn materials will be traced in the form of a note field in the Dublin Core record. We will supply a tombstone when the withdrawn item is requested. Tombstone will include original metadata and withdrawal note."

"Again, as with multiple versioning, this option is still in discussion."

METADATA

22. Does the IR import metadata from external systems? N=51

	Total N=51		Have N=36		Planning N=15	
No	26	51%	19	53%	7	46%
Yes, external metadata are mapped to IR metadata format(s) by system programs	19	37%	13	36%	6	40%
Yes, external metadata are mapped to IR metadata format(s) by hand	5	10%	4	11%	1	7%
Yes, the external metadata are in the same format(s) as internal IR metadata	1	2%	—	—	1	7%

List format(s) of external/internal metadata.

EAD/EAD2002; OAI/DC; XML-MARC; FGDC; RSS

Briefly describe the types of metadata and mapping by hand.

"Dublin Core"

"For e-theses cataloging staff add LCSH headings."

"Locally created metadata schemes are mapped to DSpace qualified Dublin Core."

Briefly describe the types of metadata and mapping by system programs.

"Web of Science citations -> eScholarship Repository postprint MD schema"

"XML metadata maps to DC and MARC"

"Initially items are mapped by hand, then process is automated and mapped by programs."

"A crosswalk from MARC to Modified Dublin Core"

"Excel tables (CVS mapping)"

"ETD-db tables for electronic theses and dissertations; custom Oracle database for faculty publications and bibliographic data"

"DC, MARC, FGDC/DIF, custom"

"Batch import scripts from Excel spreadsheets into DSpace"

"MARC metadata is transformed into Dublin Core"

"Metadata scraped from Web sites listing publications; bibliographic data is also imported into and from bib

databases."

"PubMed"

"MARC to DC"

"For titles cataloged in our OPAC (the ExLibris product, Aleph), we have a map from MARC 21 to our internal METS schema, which we call UFDC Mets. For author self submittals, we currently plan to use a Web form, which will use basic pieces from the UFDC mets, with a touch of human intervention."

"Dublin Core"

"Local formats in department or library databases; initial mapping is done by hand but will be automated once the initial mapping is done."

"Under development along with anticipated implementation of CONTENTdm."

"MARC to Dublin Core"

23. Who enters metadata for deposited documents? Check all that apply. N=53

	Total N=53		Have N=35		Planning N=18	
Authorized depositors enter simple metadata (e.g., Dublin core)	47	89%	33	94%	14	78%
IR staff enhance depositor-supplied metadata	33	62%	20	57%	13	72%
IR staff enter simple metadata for authorized users	31	59%	21	60%	10	56%
IR staff catalog material completely based on local standards	14	26%	11	31%	3	17%
Other procedure	11	21%	5	14%	6	33%

Please describe other procedure.

Selected Comments from Respondents

"A program in the system creates and enters the metadata automatically."

"Cataloging staff provide metadata for local material; also some is handled in batches from other databases and library catalog where applicable."

"Currently in pilot planning phase; to be decided."

"If material is in local catalog (ExLibris OPAC), metadata can be imported in via Excel batch loader."

"IR staff will apply national standards as available."

"Metadata entered through independent interface by depositors."

"Mixed—IR staff & depositors."

"Postprints MD ingested from harvested citations (after being mailed to faculty)."

"We are investigating including user (i.e., searchers/browsers of the IR) supplied metadata but are not doing that yet."

24. What efforts have been made to ensure or enhance IR interoperability with external systems? Check all that apply. N=52

	Total N=52		Have N=35		Planning N=17	
The IR supports OAI-PMH	48	92%	33	94%	15	88%
Persistent identifiers are used for IR materials	45	87%	31	89%	14	82%
The IR is OpenURL compliant	26	50%	19	54%	7	41%
IR content is included in federated searching systems	23	44%	22	63%	1	6%
Other effort	7	14%	3	9%	4	24%

Please describe other effort.

Selected Comments from Respondents

"Crawled by Google and Google Scholar."

"Currently in pilot planning phase; other efforts to be decided."

"Interoperability evaluation & analysis through grant funding."

"The eScholarship Repository is an XML Gateway."

"Theses Canada Portal and NDLTD union catalogue harvest metadata."

"University System developed shared metadata guidelines."

CONTENT RECRUITMENT

25. What strategies have been used to recruit content? Check all that apply. N=57

	Total N=57		Have N=36		Planning N=21	
IR staff have actively identified likely depositors (e.g., users who have already done self-archiving, authors who publish in open access journals, or authors who publish in journals with policies that support self-archiving) and encouraged them to submit materials	43	75%	28	78%	15	71%
IR staff have made presentations to faculty and others	42	74%	30	83%	12	57%

Subject specialists in the library have acted as advocates with their faculty	40	70%	28	78%	12	57%
IR staff have offered to deposit electronic materials for authors	34	60%	23	64%	11	52%
IR staff have offered to digitize printed materials and deposit them for authors	27	47%	18	50%	9	43%
Faculty and/or administrators have encouraged deposit by others	25	44%	21	58%	4	19%
Electronic announcements via e-mail, the Web, or other means	25	44%	19	53%	6	29%
Symposiums and conferences have been held to raise awareness of related scholarly communication issues	20	35%	14	39%	6	29%
Other strategy	19	33%	13	36%	6	29%

Please describe other strategy.

Selected Comments from Respondents

"Brochure Web sites; flyers; PPT available on Web site."

"No promoting."

"We've contracted with the campus student newspaper to get their stories."

"Upcoming visit to campus by Cliff Lynch."

"Getting contributors to advocate with spouses and friends."

"Setting up publication alerts on relevant databases, then asking faculty for that content in a timely manner."

"We have begun with electronic theses and dissertations. We are currently developing an approach to content recruitment."

"Brochures, article in newsletter."

"IR staff have made presentations to graduate students to publicize and explain the electronic thesis submission option."

"Library staff have begun harvesting materials from Web sites in particular colleges."

"Collaboration with active sponsored research projects."

"IR staff examine Web sites on campus and gather materials for inclusion."

"Incorporated existing digital collections, such as ETDs and accreditation documents database."

"Contacts with Library Digital Program and Center for Educational Resources staff."

26. Is there any pressure on authors to submit content to the IR? N=52

	Total N=52		Have N=36		Planning N=16	
No pressure on authors to submit content	28	54%	18	50%	10	63%
They are encouraged to do so	21	40%	16	44%	5	31%
They are not required to do so, but this is being actively considered	2	4%	1	3%	1	6%
They are required to do so	1	2%	1	3%	—	—

If required, please explain.

"Students must submit theses or dissertations."

27. On a scale of 1 to 5—where 1 is very easy and 5 is very difficult—please indicate how much effort has been required to obtain materials to deposit in the IR. N=48

	N	Very easy	Somewhat easy	Neutral	Somewhat difficult	Very difficult
Total	48	4	7	12	15	10
Have	35	1	7	5	14	8
Planning	13	3	—	7	1	2

Please explain.

Selected Comments from Respondents

Very easy

"They have come to us."

"As word has spread about our collaborations with research investigators, others come forward seeking similar solutions to data management/cyberinfrastructure issues."

"At this time, there are many, many digital publications available on the Web site that are possible IR content. In an early phase, these materials will be harvested by IR staff. Over time, wider sets of intellectual content will be recruited from faculty, graduate students, etc."

"It has been very easy to identify content for the pilot. We anticipate high interest in specific arenas when we move to production mode."

Somewhat easy

"It has been easier than we expected to get the first 10,000 papers deposited by faculty departments into the repository, but what it will take to attract a significant percentage of the 28,000 UC authored articles

is unknown, but likely to be nothing short of a mandate. At this time, the system-wide academic council is considering a proposal that UC faculty routinely grant to UC a non-exclusive license to manage their content in the institutional repository."

"We work with the Graduate College to get a copy of the electronic theses or dissertation and the distribution rights from students. Students are required to submit the ETD to the Graduate College but could deny distribution rights."

"Faculty have been very receptive to offering materials for inclusion."

"We have identified candidate collections from on-campus sources (library and academic) that would most likely collaborate in the IR development and whose content would be of greatest benefit to our community. We work continuously to build collaborations among these units and to resource collection development toward shared goals."

"The percentage of theses submitted electronically has been increasing every year since it became an option in 1999."

Neutral

"Still in pilot state of the IR. Need easier to use interfaces before an aggressive campaign is launched to recruit contributions."

"We have not put any effort into this."

"We're really just starting to figure this out. Some have been really easy, others more difficult."

"Currently, it's again a question of policy—the academic affairs side of the university has a very diverse body of departments and schools and every single one is ripe for inclusion in the IR. But the framework for effective IR policy at the local university level is not yet created. Spring 2006 much work is planned to bolster the IR operations, both via the consortium model as well as from central university information technology services."

"We have not yet expended much effort to recruit content as we are still in the implementation phase. We have identified a set of early adopters but have not moved beyond this group."

"University administrators and faculty, as a whole, are interested and enthusiastic. Individual units sometimes express reluctance due to perceived loss of control."

Somewhat difficult

"Faculty operate very independently and think they can do this on their own."

"We have one collection where there seems to be a high motivation to do submissions, but it is too early to say if that will pan out. Apart from that, our repository has very few items in it to date. Having said that, it is largely due to the fact that we have not systematically promoted it."

"Working with the Faculty of Graduate Studies and Learning Technology Centre has been easy because they could see we were solving a problem for them. Approaching other faculties has been more difficult because the reason for the IR is not perceived as clearly."

"With more than 50 communities in Dspace there is no single answer to this. Some departments have been

supporters from the beginning; others have been very reluctant to participate. Within departments some faculty are very active depositors, others deposit nothing. Recruitment of some 'types' of content is simple, other types more difficult (especially published articles)."

"Our IR is still young. We haven't reached a momentum yet that would allow us to recruit content more easily."

"Not a priority for most faculty."

"There is a reluctance on the part of faculty and research community to participate."

"Initially, it was very difficult. Now that we have acquired a critical mass, more departments and individual authors are approaching us. It is getting easier to acquire new content every day."

"Recruiting and managing copyrighted material—a core collecting goal—has been difficult and time-consuming."

"A marketing team is working on motivation and incentive programming; currently there is a focus on working with faculty data sets."

"Faculty need regular encouragement and reminders."

"Difficult concept to explain. Faculty often prefer their own sites or want to retain the ability to remove materials at will. Not as compelling a task as research and teaching. Copyright difficult. Overall too hard to give up control and add to workload."

Very difficult

"The problem is more related to a lack of marketing of the IR."

"Faculty are reluctant to deposit for a variety of reasons—too hard, forgetfulness, don't see the need, etc."

"Authors don't see any advantage yet to do so. We are planning to input, soon, a critical mass of content with the ETD and to implement a version 2 of Archimede in order to augment the visibility of our IR."

"Faculty are very support and even enthusiastic about the IR when it is presented to them but few actually deposit or if they do, few persist in depositing."

"Faculty who are approached are supportive of the idea, but usually too busy to submit content. Copyright is often a concern as well."

"IF we do the work, most will give us documents, but authors are generally unwilling to go through the multi-step process themselves."

"We are only at beginning stages and have not yet embarked on campus-wide content recruitment phase."

"From reading anecdotal experiences of others and investigating existing IRs, it is clear that populating IRs is a significant challenge."

ASSESSMENT

28. Has your institution done research on why users contribute or do not contribute documents to the IR? N=54

	Total N=54		Have N=36		Planning N=18	
Yes	13	24%	8	22%	5	28%
No	41	76%	28	78%	13	72%

If yes, please describe the research.

Selected Comments from Respondents

"We are launching a survey next week on faculty attitudes toward their IP/rights management and alternative publishing mechanisms like the eScholarship Repository. Stay tuned."

"Conducted faculty focus groups."

"There was a nine-month project to investigate recruitment strategies using three sample departments and looking at factors such as copyright clearance for older material, support for scanning and metadata entry, and various marketing strategies."

"Literature search; networking with similar institutions; discussions with others at conferences, etc."

"No research on [local] contributions, but have carefully followed other published research accounts of IR adoption."

"Series of recurrent interviews with early adopters. Interviews with key respondents from within the library. Survey of users and reference librarians."

"We conducted an internal survey to find out why librarians won't submit to the IR. Reasons were: no time and not sure their materials are worth preserving."

"Readings in professional literature."

"Read articles. Attended many conference sessions."

"Research to date has consisted of reviewing literature. A formalized investigation will be conducted at a later stage in our pilot phase."

"Interviews of potential users. (IR is not implemented)."

29. What techniques have been used to evaluate the success of the IR? Check all that apply. N=35

	Total N=35		Have N=29		Planning N=6	
Tracking hits on IR content	24	69%	23	79%	1	17%
Interview external users (e.g., researchers, faculty, students) of the IR	11	31%	9	31%	2	33%
Interview internal users (e.g., library staff) of the IR	8	23%	7	24%	1	17%
Citation analysis on IR content	5	14%	4	14%	1	17%
Conduct user surveys	4	11%	3	10%	1	17%
Conduct focus groups	3	9%	1	3%	2	33%
Other technique	10	29%	7	24%	3	50%

Please specify other technique.

Selected Comments from Respondents

"Currently designing a usability study; informal collaborator/user surveys."

"Currently in pilot planning phase; evaluation methods to be decided at later date."

"Level of participation/contribution."

"Not evaluated yet. Waiting for version 2 + critical mass of content."

"Track collection growth to identify key adopters, and monitor conditions of the vendor contract."

"We are in the process of developing evaluation techniques."

"We count actual full-text downloads rather than hits, and the statistics are distributed monthly to authors. They in turn provide a lot of feedback about the increased visibility and use that their work receives in the eScholarship Repository."

CURRENT STATUS OF IR

30. How many digital objects (e.g., digital audio files, images, videos, technical reports, e-prints, theses, dissertations, etc.) are currently deposited in the IR? N=39

	N	Minimum	Maximum	Mean	Median	Std Dev
Total	39	4	19,170	3,479.5	1,996.0	4,390.4
Have	34	20	19,170	3,844.5	2,211.5	4,545.1
Planning	5	4	4,500	997.0	106.0	1,963.1

	Total	Have	Planning
<100	7	5	2
100–999	10	8	2
1,000–9,999	17	16	1
>10,000	5	5	—

31. How much disk storage is required to house existing materials? N=28

	Total	Have	Planning
<1 GB	5	5	—
1–9 GB	9	7	2
10–99 GB	7	6	1
100–999 GB	4	3	1
≥1 TB	3	3	—

32. What is the typical number of end-users at peak times? N=38

Most respondents were unable to answer this question. Of those who track usage, responses for number of end-users ranged from 1 to 1100 at peak times to 500 per day to 55,000 per week. Those who track the number of downloads reported from 60 to 300 per day.

33. Are parts of your IR restricted to specific user groups (e.g., documents produced by a department are only deposited and accessed by department members)? N=50

	Total N=50		Have N=36		Planning N=14	
Yes	21	42%	16	44%	5	36%
No	29	58%	20	56%	9	64%

If yes, please describe the restrictions.

Selected Comments from Respondents

"Dissertations are currently available only through dissertation distributor's subscription."

"We have a closed collection for theses and dissertations to protect students with pending patents or copyright issues."

"Retrospective dissertations are for campus use only. Also a few miscellaneous items have been handled this way due to potential legal constraints."

"Not currently, but we will eventually have collections that will be restricted to an individual college on campus."

"For ETDs—Restricted collection available to students requesting this option."

"Collections can be limited to the MIT community at the discretion of the owner."

"Some department materials are restricted to faculty in that department. E-dissertations are available but not free to non-university users."

"Access to dissertation restricted to university affiliates."

"IP, user account"

"Certain faculty collections have requested restricted access due to copyright issues with images; cultural concerns with primary source materials from tribal communities."

"Some have campus only restrictions."

"Images derived from copyrighted materials (i.e., copystand photography) are restricted to IP_authenticated university users and affiliates."

"Some material is limited to campus users only. Some is limited to the members of the depositing department or to a list of authorized users. Authentication is currently being done with default DSpace user management, but will be set to use campus authentication system (EIDs)."

"Authors are free to restrict access to institutional IPs (all, not specific departments.) We instituted this policy, reluctantly, after user feedback. To date, no one has used it."

"One community has images which are currently available only to those who are members of an international research consortium."

"The research project material from one academic unit is restricted to project members."

"Subject to copyright and individual author/departmental policy."

"We have not yet implemented restrictions but will allow access restrictions on a limited basis to either a group of identified users or to only the campus."

"Pilot will help us determine levels of security required."

"Currently in pilot planning phase; plan to allow for some access controls, as needed, in pilot project."

34. Are any IR documents supplied to external users for commercial purposes with associated use fees going to the institution? N=49

	Total N=49		Have N=35		Planning N=14	
Yes	4	8%	3	9%	1	7%
No	45	92%	32	91%	13	93%

If yes, please describe the commercial use.

Selected Comments from Respondents

"ETDs— ProQuest"

"Image re-use is granted per request; fees are negotiated by the collection owner."

"Institutional images."

"When the photographic collections of historic images become accessible via Content DM, commercial users such as publishers and broadcast media will continue to pay fees for high resolution or darkroom images plus fees for publication and other use."

BENEFITS AND CHALLENGES

35. What are the top three benefits you feel your IR provides? N=50

Enhance visibility and increase dissemination of institution's scholarship	34	68%
Free, open, timely access to scholarship	23	46%
Preservation of and long-term access to institution's scholarship	18	36%
Preservation and stewardship of digital content	18	36%
Collecting, organizing assets in a central location	12	24%
Educate faculty about copyright, open access, scholarly communication	4	8%

36. What are the top three challenges that your institution has faced in implementing, promoting, and running the IR? N=50

Content recruitment, building a critical mass of content	16	32%
Staffing issues	15	30%
Faculty awareness/buy-in/interest/engagement	14	28%
Copyright issues	11	22%
Communicating with faculty, articulating the benefits of the IR	10	20%
Adequate funding and other resources	7	14%
Integrating a new unit/workflow into existing structures	6	12%

ADDITIONAL COMMENTS

37. Please submit any additional information regarding the institutional repository at your institution that may assist us in accurately analyzing the results of this survey. N=26

Selected Comments from Respondents

"Additional challenges include getting other Internet sites to link, search, and recognize content; getting scholars and administrators to accept e-publication as a viable credential."

"Although we have used DSpace for about two years, I would not say that we have an active IR. In fact we have little more than a pilot project at this point. Our locally published scholarly journals are found in CONTENTdm, as well as our ETD collection."

"Another challenge: providing ongoing staff support, ensuring sustainability."

"Dspace@MIT is somewhat unusual among production IRs because of its age (>3 years in production) and having been developed in-house with HP Labs."

"[Our] use of the consortium IR is a small movement in the establishment of an overall university-wide approach to digital asset management. Due to the culture of distributed computing, it has been extremely difficult to both advocate for a good strategy for an IR as well as articulate to the campus stakeholders why an IR is of use. Thanks to the advances of the consortium implementation, the university has at least an opportunity to understand how IR's can be used on campus.

In Dec 2005, I made a detailed presentation on digital libraries and their future to a campus wide Research and Information Technology Committee. The consortium IR was featured at the end as a significant opportunity for the university to embrace new ways to deal with campus-generated content. In Summer 2005, I was honored to be an Educause Frye Institute participant and part of my acceptance into the institute was based on my proposed project towards creating a true institutional repository. Situations on campus have begun to

shift and the opportunities to bring disparate groups together to benefit from *enterprise* wide planning, implementation, and long-term maintenance finally seem to be appearing. I can honestly say there is a wealth of opportunity at the campus level—but it is only going to be effective if the library can 'sell' the idea at the top levels of university administration."

"I have described the content of one 'flavor' of a digital repository at our institution. Other content, for example, digital dissertations, are contained within a separate infrastructure. The amalgam of several structures under one IR umbrella is currently being discussed and will more fully comprise a holistic IR for our campus."

"We currently have 8200+ ETDs in our IR. We will be attempting to capture all Honors College Senior theses for those graduating in Spring 2006."

"Our next effort at populating the IR will be to work our 71 Regents Professors to showcase their scholarly work in conjunction with a photo gallery display of Regents Profs in the Library."

"IR development is in a preliminary stage so many questions have been left blank. A pilot project to seek submissions of electronic theses and dissertations is currently underway."

"The IR is not yet in production. A task force of librarians and central IT staff has been formed. To date, the task force has done some preliminary investigation and hosted a visit by Cliff Lynch with attendees from each of the colleges. The task force is currently examining and documenting the University's entire information landscape in order to determine next steps."

"IR is centrally run for the benefit of 10 campuses."

"Helping to lead planning process for a University System-wide repository including metasearching of contents and IR hosting services."

"The committee charged with developing a pilot IR formed in September 2005. It is anticipated that the pilot project will go online in early to mid-2007; a full IR roll-out is anticipated for 2008/09."

"The resource is in development with proposed rollout Jan 2007. We do not use the expression 'institutional repository' as this expression does not convey significant meaning; indeed, it does not convey a message of success."

"The system we are building is distributed institutional repository, which focuses currently on investigating and resolving issues related to data sets (collecting, describing, curating, archiving, etc.). Documentation is being drafted, is under review, and not available at the time of this survey."

"There are no immediate plans to develop an IR, but this will be re-assessed in six months."

"This is still a work in progress. We are planning the launch of version 2 in March 2006. It will be a major upgrade, able to accommodate a large number of DTD and schemas and we hope that this version will stimulate more interest."

"We are really struggling to get the IR off the ground and the lack of human resources dedicated to the initiative has been the major barrier."

"We found this survey to be very helpful in terms of giving us ideas on how to move forward (for example, what specific kinds of information could be available on a public Web site; types of content to suggest to potential submitters for the IR system.)"

RESPONDING INSTITUTIONS

University of Alabama
University at Albany, SUNY
University of Alberta
University of Arizona
Arizona State University
Auburn University
Boston College
Brigham Young University
University of British Columbia
University at Buffalo, SUNY
University of California, California Digital Library
University of California, Davis
University of California, Irvine
University of California, Los Angeles
University of California, San Diego
University of California, Santa Barbara
Canada Institute for Scientific and Technical Information
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Rice University
University of Rochester
University of Southern California
Southern Illinois University Carbondale
University of Tennessee
University of Texas at Austin
Texas A&M University
University of Toronto
University of Utah
Vanderbilt University
University of Virginia
University of Washington
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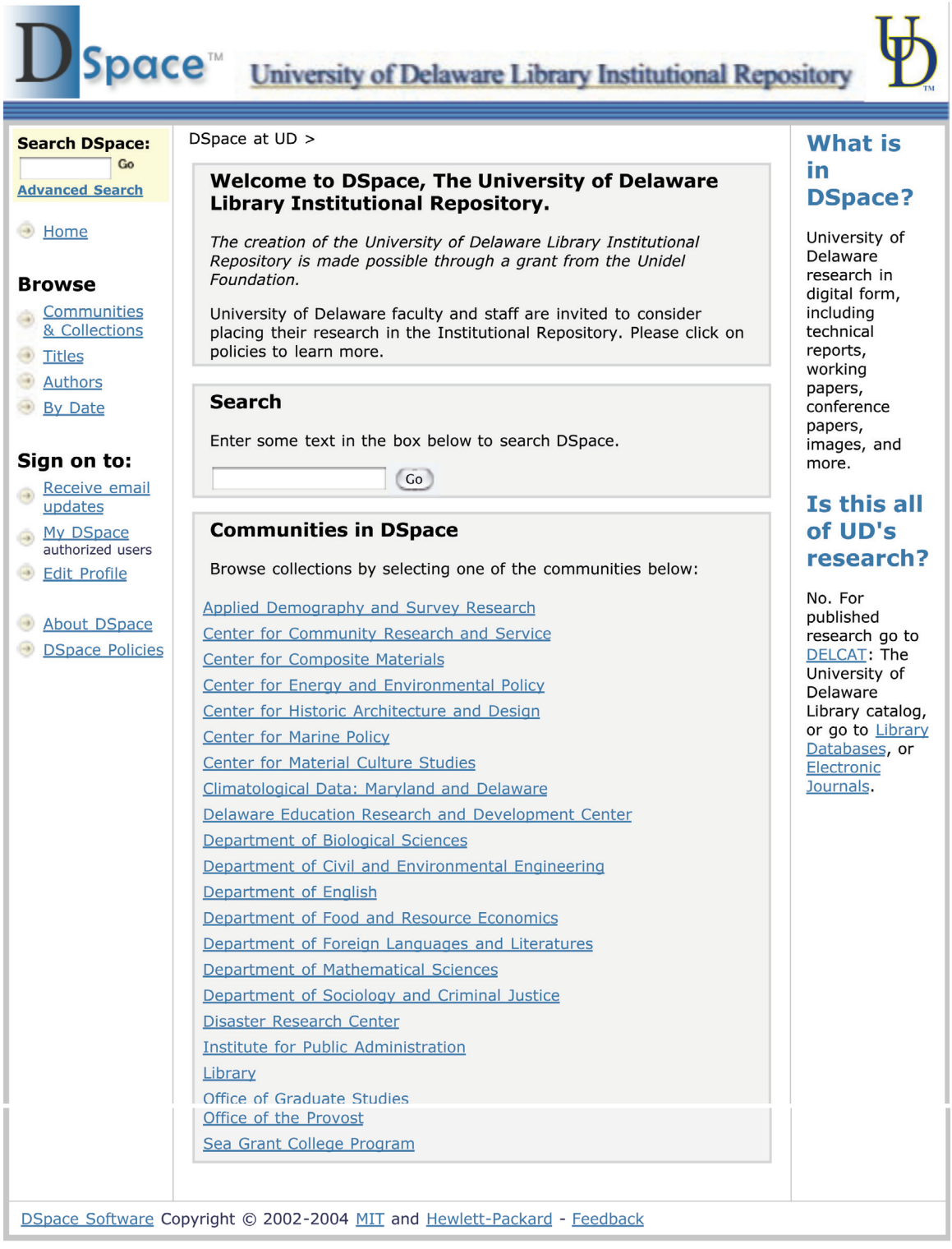
by Alicia Marie Celotto
ETD Collection for University of Connecticut

789 full-text downloads of repository content in the last week.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General Overview

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Bitstream Views	234,913
Item Views	367,930
Collection Views	105,121
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User Logins	2,195
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Art & Art History Department
Brain & Cognitive Sciences
Computer Science Department
ESM - Sibley Music Library
Economics Department
English Department
History Department
Information Technology Services
Institute of Optics
Journal of Undergraduate Research: jur
Linguistics Department
Physics & Astronomy Department
Production Automation Project
Religion and Classics Department
River Campus Libraries
Rochester Center for Biomedical Ultrasound
Rochester Chapter, IEEE Signal Processing Society
Simon Graduate School of Business Administration
URMC Community & Preventive Medicine
URMC Dentistry
URMC Department of Obstetrics and Gynecology
URMC Edward G. Miner Library
URMC Patents
URMC Protocols and Methods
URMC Theses
VCS-IVC: Invisible Culture - An Electronic Journal...
Visual and Cultural Studies
W. Allen Wallis Institute of Political Economy
Warner School

Statistics

Total Number of Downloads from Repository: 337265
Downloads from Repository this Month: 21547

IR Deposit Policies

eScholarship

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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.

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.

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 royster@unl.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.

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 the paper.

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

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

IR Deposit Agreements

BYU Library DSpace Statistics

Click the following URL to view statistical information about DSpace at BYU including the number of hits for each item in the repository.

https://dspace.byu.edu/statistics

BYU Library DSpace Policies and Guidelines

Revision: January 14, 2005
The Lee Library has created the following procedural documents and policy statements pertaining to various aspects of managing DSpace at BYU.

- Content Guidelines
- Community & Collection Policies
- Community Startup Procedures
- Deposit License
- Format Support

For more information on creating a DSpace community or collection, please email the DSpace library project at dspace@lib.byu.edu

Deposit License

By submitting your article, you [the author(s) or copyright owner] grant permission to Brigham Young University (BYU) the non-exclusive right to post your article(s) into the University's institutional repository and allow BYU the right to copy, store, perform, display, reproduce, or distribute the submission worldwide in any format or medium. You represent that the submission is original and that you have the right to grant the rights contained within this license.

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.**

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.

WAYNE STATE UNIVERSITY

http://www.lib.wayne.edu/resources/digital_library/digitalcommons/license.html

License Agreement

<<Back

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You agree that WSU may, without changing the content, translate the submission to any medium or format for the purpose of preservation.

You also agree that WSU may keep more than one copy of this submission for purposes of security, back-up and preservation.

You represent that the submission is your original work, and/or that you have the right to grant the rights contained in this license. You also represent that your submission does not, to the best of your knowledge, infringe upon anyone's copyright.

If the submission contains material for which you do not hold copyright, you represent that you have obtained the unrestricted permission of the copyright owner to grant WSU the rights required by this license, and that such third-party owned material is clearly identified and acknowledged within the text or content of the submission.

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

WSU 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.

For more information contact Jeff Trzeciak via email at ae5308[at]wayne[dot]edu

IR Metadata Policies

[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:

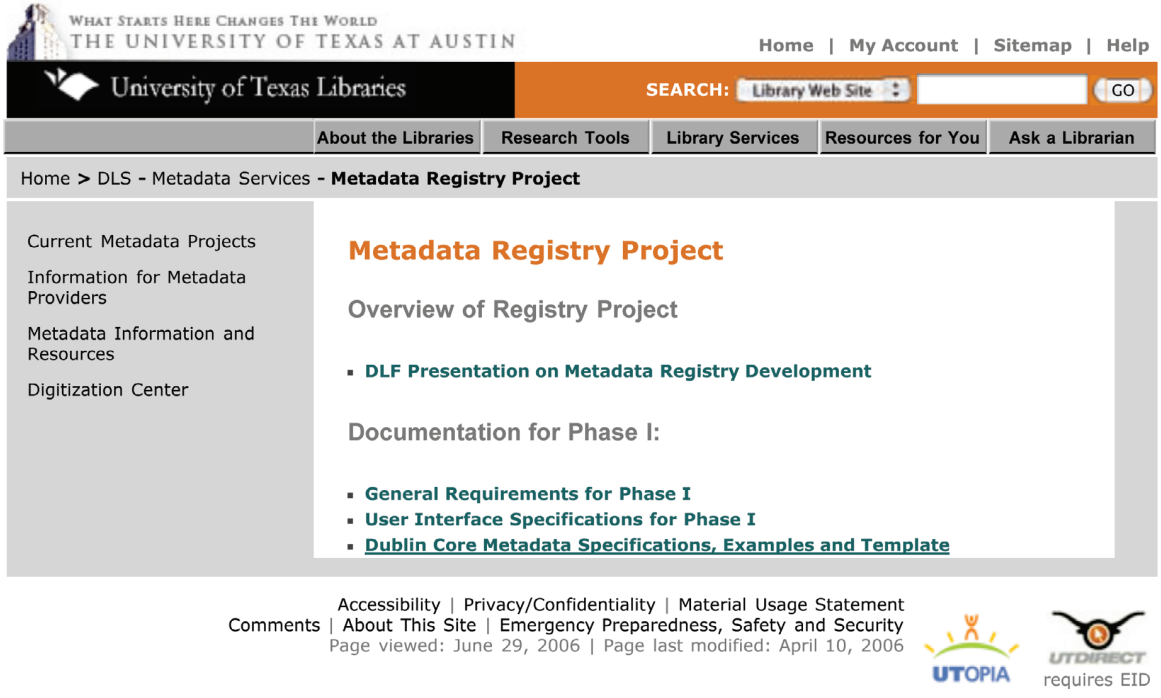
Field Name	Definition/Scope Note
Authors	A person, organization, or service responsible for the content of the resource. Enter the last name followed by the first name for individuals.
Title	Title statement/main title.
Other Titles	Alternative titles, such as an abbreviation or a translation.
Date of 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 *previously published or publicly distributed* 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.
Type	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.

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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Overview of Registry Project
DLF Presentation on Metadata Registry Development
Documentation for Phase I:
General Requirements for Phase I
User Interface Specifications for Phase I
Dublin Core Metadata Specifications, Examples and Template
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Page viewed: June 29, 2006 | Page last modified: April 10, 2006
UTOPIA
UTDIRECT
requires EID

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

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

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IR Digital Preservation Policies

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.

- 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:

- 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

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-l@ucop.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. Previous file versions, if saved at all, are recycled even sooner.	Objects and their versions are never deleted unless explicitly removed by the submitter.
Backups are created by recording updated computer files indiscriminately.	The DPR selectively records coherent, platform-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. Even if you were able to recover a file containing digital content from your backup tapes, you might find it unusable without the supporting files and database records. There are no guarantees that older files available on specific computer platforms can be used today.	File and record dependencies are minimized by packaging related files in one object. Platform dependencies are minimized by requiring that deposited objects conform to the standards-based, non-proprietary specifications. Unlike ordinary computer files, each object is assigned a globally unique persistent identifier.

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.

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

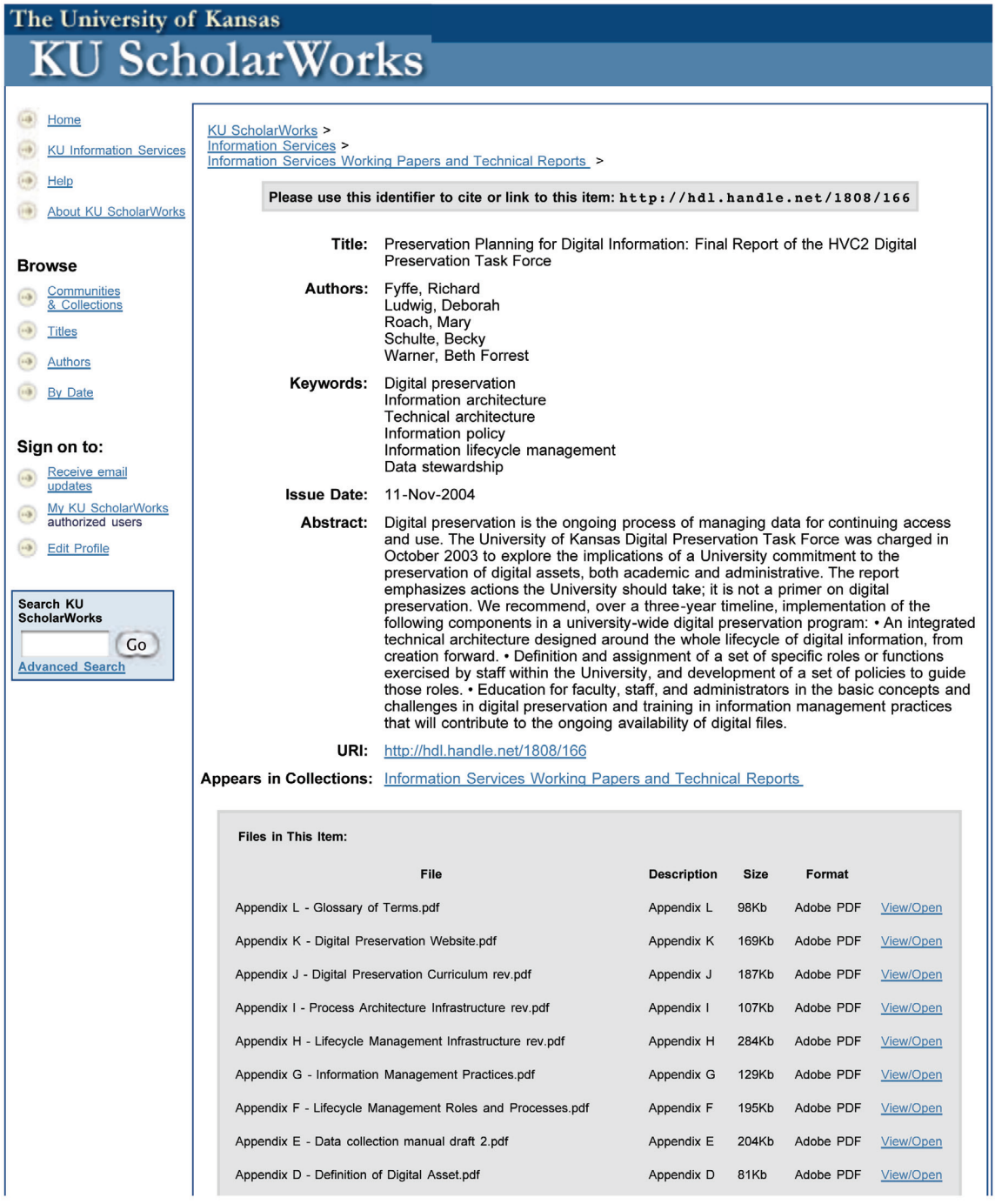
Digital objects in Category 4 receive only the basic preservation support available to all digital objects within IDEALS. Basic preservation means that IDEALS will: strive to ensure that the bitstream (the 1's and 0's that make up the digital file) remains exactly the same over time, assign a persistent, 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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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.

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File	Description	Size	Format	
Appendix L - Glossary of Terms.pdf	Appendix L	98Kb	Adobe PDF	View/Open
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
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Appendix G - Information Management Practices.pdf	Appendix G	129Kb	Adobe PDF	View/Open
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

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

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	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

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

WHAT TO DO IF YOUR FORMAT ISN'T LISTED

Please contact your VU e-Archive Administrator if you have questions about a particular format.

IR Proposals

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

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 value-added 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 program[1] 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:

> *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., Documentum[2]), 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., EPrints[3]) 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

[2] URL: http://www.documentum.com

[3] URL: http://www.eprints.org

(DSpace[4], FEDORA[5], Greenstone[6]) 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.

[4] URL: http://www.dspace.org

[5] 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.[7] 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,[8] 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.

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[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

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 multi-authored 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 peer-reviewed 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:

Barton, Mary R. and Julie Harford Walker. *MIT Libraries' DSpace Business Plan Project: Final Report to the Andrew Mellon Foundation*. (July, 2002) URL: http://libraries.mit.edu/dspace-fed-test/implement/mellon.pdf.

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Smith, Abby. *New Model Scholarship* Council on Library and Information Resources (2002) URL: http://www.clir.org/pubs/abstract/pub114abst.html.

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/.

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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 self-archiving 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

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

QSpace Objective	Project Objective	Goals	Governance/Cooperation	Parameters	Publicity/Communications	Costs

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

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

rev. 6/17/2004

IR Promotion

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

- Introduction to eScholarship PowerPoint — [**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?

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, pre-publication 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.


T-Space
Search
Authors
Titles
Dates
Communities
My-T-Space
Help
.: Search T-Space
Search
Advanced Search
Home
.: Browse
Communities & Collections
Titles
Authors
By Date
.:T-Space Information
About T-Space
Help
Contact
.: Sign on to T-Space
My T-Space
Receive email updates
Edit Profile
T-Space at The University of Toronto Libraries >
Policies > Marketing Materials
Marketing Materials
1. Increase the impact of your research
Faculty intro, PowerPoint presentation
2.University of Rochester's Ready responses to faculty questions and concerns about the IR.
Institutional Repository (IR) Crib Sheet
T-Space Home | Policies
Content Guidelines | Community + Collection Policies | Community Startup Procedures | Privacy Policy | Format Support | Marketing Materials
Contact | Feedback | University of Toronto | Libraries | Archives |
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SPEC KIT TITLE LIST

SP292 Institutional Repositories
SP291 Spatial Data Collections & Services
SP290 Access Services
SP289 Managing Large Projects
SP288 Scanning Services for Library Users
SP287 Instructional Improvement Programs
SP286 Collab for Dist Learn Info Lit Instr
SP285 Lib Svcs in Non-Library Spaces
SP284 Security in Special Collections
SP283 Grant Coordination
SP282 Managing Electronic Resources
SP281 The Information Commons
SP280 Library User Surveys
SP279 Evaluating Library Instruction
SP278 Library Patron Privacy
SP277 Lib Pub Acc Workstation Auth
SP276 Recruitment and Retention
SP275 Laptop Computer Services
SP274 Data Mining & Warehousing
SP273 Chat Reference
SP272 Insuring & Valuing Res Lib Coll
SP271 Lib Systems Office Organization
SP270 Core Competencies
SP269 Integrating Preserv Activities
SP268 Reference Statistics
SP267 User Authentication
SP266 Staffing the Library Website
SP265 Instructional Support Services
SP264 Extended Library Hours
SP263 Numeric Data Services
SP262 Preservation & Digitization
SP261 Post-Tenure Review
SP260 Interview Process
SP259 Fee-based Services
SP258 Corporate Annual Reports
SP257 MLS Hiring Requirement
SP256 Changing Roles of Lib Profs
SP255 Branch Libs/Discrete Collectns
SP254 Managing Printing Services
SP253 Networked Info Services
SP252 Supprt Staff Classifictn Studies
SP251 Electronic Reference Service
SP250 TL10: Educating Faculty
SP249 Catalogng of Resrces Digitized
SP248 Licensing of Electronic Prodcts
SP247 Management of Lib Security
SP246 Web Page Devel & Managmnt
SP245 Electronic Reserves Operations
SP244 TL 9: Renovation & Reconfigur
SP243 TL 8: Users with Disabilities
SP242 Library Storage Facilities
SP241 Gifts and Exchange Function
SP240 Marketing and PR Activities
SP239 Mentoring Programs in ARL
SP238 ARL GIS Literacy Project
SP237 Managing Food and Drink
SP236 TL 7: E-Theses/Dissertations
SP235 Collaborative Coll Management
SP234 TL 6: Distance Learning
SP233 ARL in Extension/Outreach
SP232 Use of Teams in ARL
SP231 Cust Service Programs in ARL
SP230 Affirmative Action in ARL
SP229 Evaluating Acad Libr Dirs
SP228 TL 5: Preserving Digital Info
SP227 Org of Doc Coll & Svcs
SP226 TL 4: After the User Survey
SP225 Partnerships Program
SP224 Staff Training & Development
SP223 TL 3: Electronic Scholarly Pubn
SP222 Electronic Resource Sharing
SP221 Evol & Status of Approval Plans
SP220 Internet Training
SP219 TL 2: Geographic Info Systems
SP218 Info Technology Policies
SP217 TL 1: Electronic Reserves
SP216 Role of Libs in Distance Ed
SP215 Reorg & Restructuring
SP214 Digit Tech for Preservation
SP213 Tech Svcs Workstations
SP212 Non-Librarian Professionals
SP211 Library Systems Office Org
SP210 Strategic Planning
SP209 Library Photocopy Operations
SP208 Effective Library Signage
SP207 Org of Collection Develop
SP206 Faculty Organizations
SP205 User Surveys in ARL Libs
SP204 Uses of Doc Delivery Svcs
SP203 Reference Svc Policies
SP202 E-journals/Issues & Trends
SP201 E-journals/Pol & Proced
SP200 2001: A Space Reality
SP199 Video Collect & Multimedia
SP198 Automating Preserv Mgt
SP197 Benefits/Professional Staff
SP196 Quality Improve Programs
SP195 Co-op Strategies in Foreign Acqs
SP194 Librarian Job Descriptions
SP193 Lib Develop & Fundraising
SP192 Unpub Matls/Libs, Fair Use
SP191 Prov Pub Svcs Remote User
SP190 Chang Role of Book Repair
SP189 Liaison Svcs in ARL Libs
SP188 Intern, Residency & Fellow
SP187 ILL Trends/Staff & Organ
SP186 Virtual Library
SP185 System Migration
SP184 ILL Trends/Access
SP183 Provision of Comp Print Cap
SP182 Academic Status for Libns
SP181 Perf Appr of Collect Dev Libn
SP180 Flexible Work Arrangemts
SP179 Access Services Org & Mgt
SP178 Insuring Lib Colls & Bldgs
SP177 Salary Setting Policies
SP176 Svcs for Persons w/Disabilities
SP175 Scholarly Info Centrs
SP174 Expert Systems
SP173 Staff Recognition Awards
SP172 Information Desks
SP171 Training of Tech Svc Staff
SP170 Organization Charts
SP169 Mgt of CD-ROM
SP168 Student Employment
SP167 Minority Recruitment
SP166 Materials Budgets
SP165 Cultural Diversity
SP164 Remote Storage
SP163 Affirmative Action
SP162 Audiovisual Policies
SP161 Travel Policies
SP160 Preservation Org & Staff
SP159 Admin of Lib Computer Files
SP158 Strategic Plans
SP157 Fee-based Services
SP156 Automating Authority Control
SP155 Visiting Scholars/Access
SP154 Online Biblio Search
SP153 Use of Mgt Statistics
SP152 Brittle Books Program
SP151 Qualitative Collect Analysis
SP150 Bldg Security & Personal Safety
SP149 Electronic Mail
SP148 User Surveys
SP147 Serials Control/Deselection
SP146 Lib Dev Fund Raising Capabilit
SP145 Lib Publications Programs
SP144 Building Use Policies
SP143 Search Proced Sr LibAdmin
SP142 Remote Access Online Cats
SP141 Approval Plans
SP140 Performance Appraisal
SP139 Performance Eval: Ref Svcs
SP138 University Copyright
SP137 Preservation Guidelines
SP136 Managing Copy Cataloging
SP135 Job Analysis
SP134 Planning Mgt Statistics
SP133 Opt Disks: Storage & Access
SP132 Library-Scholar Communication
SP131 Coll Dev Organization
SP130 Retrospective Conversion
SP129 Organization Charts
SP128 Systems File Organization
SP127 Interlibrary Loan
SP126 Automated Lib Systems

SP125 Tech Svcs Cost Studies
SP124 Barcoding of Collections
SP123 Microcomp Software Policies
SP122 End-User Search Svcs
SP121 Bibliographic Instruction
SP120 Exhibits
SP119 Catalog Maintenance Online
SP118 Unionization
SP117 Gifts & Exchange Function
SP116 Organizing for Preservation
SP115 Photocopy Services
SP114 Binding Operations
SP113 Preservation Education
SP112 Reorg of Tech and Pub Svcs
SP111 Cooperative Collection Dev
SP110 Local Cataloging Policies
SP109 Staff Training for Automation
SP108 Strategic Planning
SP107 University Archives
SP106 Electronic Mail
SP105 Nonbibliographic Dbases
SP104 Microcomputers
SP103 Asst/Assoc Dir Position
SP102 Copyright Policies
SP101 User Studies
SP100 Collection Security
SP099 Branch Libraries
SP098 Telecommunications
SP097 Building Renovation
SP096 Online Catalogs
SP095 Lib Materials Cost Studies
SP094 Fund Raising
SP093 User Instructions for Online Cats
SP092 Interlibrary Loan
SP091 Student Assistants
SP090 Integrated Lib Info Systems
SP089 Tech Svcs Cost Studies
SP088 Corporate Use of Research Libs
SP087 Collect Descript/Assessment
SP086 Professional Development
SP085 Personnel Classification Sys
SP084 Public Svcs Goals & Objectvs
SP083 Approval Plans
SP082 Document Delivery Systems
SP081 Services to the Disabled
SP080 Specialty Positions
SP079 Internships/Job Exchanges
SP078 Recruitment-Selection
SP077 Use of Small Computers
SP076 Online Biblio Search Svcs
SP075 Staff Development
SP074 Fees for Services
SP073 External User Services
SP072 Executive Review
SP071 User Surveys: Eval of Lib Svcs
SP070 Preservation Procedures
SP069 Prep Emergencies/Disasters
SP068 AACR2 Implement Studies
SP067 Affirm Action Programs
SP066 Planning Preserv of Lib Mat
SP065 Retrospective Conversion
SP064 Indirect Cost Rates
SP063 Collective Bargaining
SP062 Online Biblio Search Svcs
SP061 Status of Librarians
SP060 Lib Materials Cost Studies
SP059 Microform Collections
SP058 Goals & Objectives
SP057 Special Collections
SP056 External Communication
SP055 Internl Com/Staff & Super Role
SP054 Internal Com/Policies & Proced
SP053 Performance Appraisal
SP052 Cost Studies & Fiscal Plan
SP051 Professional Development
SP050 Fringe Benefits
SP049 Use of Annual Reports
SP048 External Fund Raising
SP047 Automated Cataloging
SP046 Plan Future of Card Catalog
SP045 Changing Role Personnel Officer
SP044 Automated Acquisitions
SP043 Automated Circulation Sys
SP042 Resource Sharing
SP041 Collection Assessment
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