

**Institutional Repositories: Ensuring Continued Access to  
Learning Objects  
Final Report of the MIRACLE Project**

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## **1. Project Overview**

The MIRACLE (Making Institutional Repositories A Collaborative Learning Environment) Project investigates the development of institutional repositories in colleges and universities in order to identify models and best practices in the administration, technical infrastructure, and access to repository collections. The project addresses various issues and problems related to the institutional repository development from multiple perspectives of users (contributors and end-users) and administrative staff of institutional repositories. In order to take accounts for the perspectives of diverse institutional repository stakeholders, the MIRACLE project carried out five research activities over four years (October 2005 to September 2009) that involved surveying institutional repositories in the U.S., conducting follow-up phone interviews with institutional repository staff, surveying current and prospective repository users, conducting cases studies, and studying users' searching behavior of institutional repository resources.

### **1.1. Institutional Repositories**

An Institutional Repository (IR) provides open access to the digital content created by a university community. Institutional repositories (IRs) are often considered in terms of not only technical infrastructure but also a set of services that an educational institution offers the members of its learning community for the management and dissemination of the digital materials created by its members. The organizational commitment to the stewardship of these digital materials usually includes providing long-term preservation, organization, access, and distribution services.

### **1.2. Project Objectives**

Colleges and universities are increasingly creating institutional repositories (IRs) to capture, preserve, and reuse the intellectual output of teaching, research, and service activities. The main objective of the project is to identify specific factors contributing to the success of institutional repositories and effective ways of accessing and using repositories.

### **1.3. Research Questions**

The MIRACLE project addresses the effectiveness of institutional repositories accounting the perspectives of both users and administrative staff. The following six key research questions have guided the project across the five research activities.

1. What are the significant roles of an institutional repository in the learning community?

2. What makes an institutional repository successful, especially in terms of its organizational placement, administration, contributions processing, systems for resource discovery, content, use, and users?
3. How do IR staff members perceive the purposes of institutional repositories and the barriers for sustainable institutional repositories?
4. What do members of the learning community characterize institutional-repository content, systems, and services?
5. In the course of information searching, how do people perceive the information from institutional repositories to be credible, relative to information from other sources?
6. To what extent do people recognize institutional repository sources in the results of aggregated search systems?

#### 1.4. Project Design

Achieving project goals requires the following five activities: (1) survey institutional repositories in the United States to identify the wide range of practices; (2) conduct follow-up phone interviews with the staff members; (3) conduct case studies at five institutional repositories that we select as models; (4) survey current and prospective repository users to learn about their use of, expectations, and needs with respect to institutional repository system functionality and content; and (5) investigate how people search, retrieve, and use institutional-repository resources through an analysis of transaction logs and experimental search test tasks.

Table 1. Five Major Tasks of the MIRACLE Project

<b>Task</b>	<b>Initial Time Period</b>	<b>Actual Time Period</b>
National Census of Institutional Repositories	October 2005–June 2006	October 2005–August 2006
Telephone Interviews with Institutional Repository Staff	June 2006–December 2006	September 2006–October 2007
Survey of Institutional Repository Users	August 2007–April 2008	November 2007–August 2008
Case Studies at Five Model Institutional Repositories	December 2006–July 2007	May 2008 – March 2009
Experimental Study of Searching Institutional Repositories	January 2008–September 2008	April 2009 – September 2009

## 1.5. Project Participants

Table 2. Project Staff

Name	Title	Responsibility
Soo Young Rieh	Associate Professor	Principal Investigator
Karen Markey	Professor	Co-Principal Investigator
Elizabeth Yakel	Associate Professor	Co-Principal Investigator
Beth St. Jean	Doctoral Student	Graduate Student Research Assistant (Task 1, 2, 3, and 4)
Ji-Hyun Kim	Doctoral Student	Graduate Student Research Assistant (Task 1, 2, and 3)
Xingxing Yao	Doctoral Student	Research Assistant (Task 5)
Yong-Mi Kim	Doctoral Student	Graduate Student Research Assistant (Task 1)
Chris Leeder	Doctoral Student	Research Assistant (Task 5)
Raya Samet	Masters Student	Research Assistant (Task 3, 4, and 5)
Dana Bullen	Masters Student	Research Assistant (Task 5)
Anne Thomason	Masters Student	Research Assistant (Task 2)
Jodi Tyron	Masters Student	Research Assistant (Task 2)
Sherrie Brown	Masters Student	Research Assistant (Task 2)

Table 3. Advisory Committee

Name	Title
Joseph Branin	Director of Libraries, Ohio State University
Michael Seadle	Director of Berlin School of Library and Information Science, Humboldt Universität zu Berlin
Helen Tibbo	Professor, University of Carolina at Chapel Hill
Diane Vizine-Goetz	Consulting Research Scientist, OCLC
Marcia Zeng	Professor, Kent State University
Kate Nevins	Director, SOLINET

## 2. Census of Institutional Repositories

### 2.1. Motivation

Originally MIRACLE Project investigators proposed to survey *operational* institutional repositories (IRs) in North America; however, there were already a number of surveys

which focused on specific types of academic institutions such as ARL libraries, Coalition for Networked Information (CNI) members, or Canadian Association of Research Libraries (CARL)-member libraries. Therefore, MIRACLE project investigators decided not to limit their efforts to a particular user group, membership, affiliation, or restrict participation to institutions with an operational IR. Instead, we decided to conduct a *census* of academic institutions in the U.S. about their involvement with IRs. Being more inclusive would not only increase our confidence that we would be able to identify the wide range of practices, policies, and operations in effect at institutions where decision-makers are contemplating, planning, pilot testing, or implementing IRs but also enable us to learn why some institutions have ruled out IRs entirely.

## **2.2. Methods**

The census population we targeted was academic library directors in four-year colleges and universities in the United States. Through the American Library Directory Online and Thompson-Peterson mailing lists we identified 2,147 library directors. Then we conducted the census in two stages.

First, we sent email messages to each institution's academic library director or a senior administrator to tell them about the census and to ask them about the extent of their involvement with IRs. We assessed the latter based this question, "Please tell me how you would characterize the current status of your institutional repository (IR)?," and their selection of one of these listed response categories: (1) no planning to date (NP), (2) only planning to date (OP), (3) both planning and pilot testing one or more IR systems (PPT), and (4) public implementation of an IR system at your institution (IMP).

Based on the person's response, we replied with email message bearing a link to the appropriate web-administered questionnaire (one of the NP, PO, PPT, and IMP questionnaires). In Section 10.1., we presented a sample questionnaire used for IMP respondents. We used SurveyMonkey's List Management Tool to send out initial survey links and to perform two subsequent follow-ups with people who had agreed to participate but who had failed to respond to our inquiries. Respondents were advised that they could complete the questionnaire themselves or could delegate the task to other administrators or staff in their library who were more knowledgeable about their institution's IR plans. Each institution responded to no more than one questionnaire.

The IR census was conducted from April 2006 through June 2006. After closing the census in SurveyMonkey, we cleaned up census data, deleting the responses of people who did not agree to sign the informed consent form as well as those of people who responded *only* to the informed consent form and/or to the one question about the number of IRs at their institution. When data clean-up was done, the census response rate was 20.8%. Of the 2,147 library directors we contacted, 446 responded to our survey.

## **2.3. Major Findings**

### *Who Participated in the MIRACLE Project Census of IRs in the U.S.?*

Characterizing the extent of their involvement with IRs, 236 (NP=52.9%) respondents have done no IR planning (NP) to date, 92 (PO=20.6%) respondents are only planning (PO) for IRs, 70 (PPT=15.7%) respondents are actively planning & pilot testing IRs (PPT), and 48 (IMP=10.8%) respondents have implemented (IMP) an operational IR

### *What Kinds of Educational Institutions Have and Do Not Have IRs?*

MIRACLE Project staff used the Carnegie Classification of Institutions of Higher Education (CCHE) to characterize census respondents. Research universities vastly outnumber other CCHE classes involved with IR implementation (IMP) and planning & pilot testing (PPT). The majority of NP and PO respondents come from master's and baccalaureate institutions.

### *Who Bears the Responsibility for IR planning, pilot testing, and implementation?*

At PPT and IMP institutions, librarians take the lead in IR pilot testing and system implementation, assume most of the responsibility for the IR effort, and are members of various IR committees. Funding almost always comes from the library. A typical approach to funding the IR is absorbing its cost in routine library operating costs.

At NP institutions where no IR effort is underway, the library director takes the lead, consulting with the provost, chief information officer, faculty, and archivist about funding, technical expertise, potential contributors and users, and digital collections. IR committee membership becomes increasingly less inclusive as the IR project progresses from pilot testing to implementation, leaving the library "holding onto the bag."

### *What are Useful Investigative Activities?*

Staff involved with the IR effort have voracious appetites for information about IRs especially information pertaining to best practices and successful implementations at institutions like their own. The needs assessment is not as important as other investigative activities. Pilot-testing one or more IR-system packages is very important. About 16% of MIRACLE census respondents are currently pilot testing one or more IR-system packages, and almost three-quarters of planning-only (PO) census respondents intend to pilot test IR-system software. Pilot-testing benefits are developing the requisite technical expertise for IR implementation, evaluating IR-system software, and estimating implementation costs. For most PO institutions in the MIRACLE Project census, their next step is widening the scope of their investigations, and for most PPT institutions, their next step is implementing IR-system software. Very few (about 10%) PO and PPT institutions are likely to terminate their IR effort.

### *What are Respondents' Experiences with IR-system Software Packages?*



Respondents' preferred IR-system software for both pilot testing and implementation is DSpace. Asked how long their IR has been operational, 52.1% of respondents with operational IRs cite up to 12 months, 27.1% from 13 to 24 months, 4.2% from 25 to 36 months, and 16.6% for more than 36 months. IR-system functionality is satisfactory but the user interface including controlled vocabulary searching and authority control needs serious reworking. Except for PDFs, institutions with operational IRs do not guarantee file formats in perpetuity. Improving preservation functionality in IRs should be a systems-development priority because IMP respondents rate greater preservation capacity as *the* major reason why they will migrate to a new IR. To date, respondents have used IR-system evaluation methods that are limited to simple counts that most IR systems produce automatically in management reports.

#### *What Content is in Pilot-test and Operational IRs?*

Both pilot-test and operational IRs are very small. About 80% of the former and 50% of the latter are limited to less than 1,000 digital documents. Only four (8.3%) pilot-test IRs and 7 (19.4%) operational IRs contain more than 5,000 documents. There is no relationship between IR size and age. Pilot-test and operational IRs contain a wide range of text, numeric, and multimedia files but the traditional text-based document types that are the result of the research enterprise of staff and students at post-secondary institutions are especially characteristic of pilot-test and operational-IR content.

#### *What Progress Have Respondents Made on IR Policies?*

At least 60% of census respondents with operational IRs report implemented policies for (1) acceptable file formats, (2) determining who is authorized to make contributions to the IR, (3) defining collections, (4) restricting access to IR content, (5) identifying metadata formats and authorized metadata creators, and (6) determining what is acceptable content. There are many more policies for which these institutions report *drafted* policies or *no* policies at all. It may be not necessary for all IR policies to be in place at the time of the public launch of an institution's IR. Taking a "wait and see" attitude, evaluating what transpires after a period of time, then firming up existing policies and implementing new ones as needed may be the most expedient thing to do.

#### *Who Contributes to IRs and at What Rate?*

Authorized contributors to IRs are typically members of the institution's learning community – faculty, librarians, graduate students, research scientists, archivists, and undergraduate students. Staff who facilitate the research and teaching missions of the institution are less likely to be authorized, e.g., press, news service, academic support staff, central computer staff. Asked to identify *the* major contributor to their IR, only PPT staff are unified in their response with almost 60% choosing faculty. Percentages

drop to 48.1% for PO and 33.3% for IMP respondents. Most likely the unified response of PPT staff is due to their working one-on-one with faculty who are early adopters during the planning & pilot test phase of the IR effort. In fact, PO, PPT, and IMP respondents choose “IR staff working one-on-one with early adopters” as the most successful method for recruiting IR content. Other successful methods are “word-of-mouth from early adopters to their colleagues,” “personal visits to staff and administrators,” and “presentations about the IR at departmental and faculty meetings.”

Respondents report that recruiting content for the IR is difficult. At institutions with operational IRs, IR staff are willing to entertain institutional mandates that require members of their institution’s learning community to deposit certain document types in the IR. Asked why they think people will contribute to the IR, respondents give high ratings to reasons that enhance scholarly reputations and offload research-dissemination tasks onto others. Lower-ranked reasons pertain to enhancing the institution’s standing.

#### *What are the Benefits of IRs?*

Asked to rate a list of 14 benefits of IRs, census respondents give high ratings to all but two. Instead of having a couple of benefits that stand head and toes above the others, IRs may have many benefits instead, or, it may be premature for one or two benefits to rise above the others because IRs have not yet “come into their own.” Give IRs a half decade or so to become commonplace in all types of educational institutions and then pose this question to the same audience to determine if one or two benefits dominate the others.

NP respondents are especially interested in benefits of IRs so they can incorporate them into arguments to convince their institution’s decision-makers to support IR planning.

#### *What Factors Inhibit the Deployment of a Successful IR?*

Factors depend on the stage of an institution’s IR effort. IMP respondents are concerned about contributors and contributions to the IR. In fact, their concern is pushing them to consider mandating contributions of certain material types. PPT respondents are concerned about contributions but also on their minds are other priorities, projects, and initiatives that are competing with the IR effort for resources. PO respondents are most concerned about sustaining the IR effort in terms of competing for resources and supporting the costs of an operational IR.

#### *How Likely are Institutions Where No IR Planning has been Done to Jump on the IR Bandwagon?*

The largest percentage (52%) of MIRACLE Project census respondents comes from institutions where no IR planning has been done (NPs). Dominating NPs are master’s and baccalaureate institutions. Amongst NP respondents is a sleeping beast of demand

for IRs. They want to know how much IRs cost to plan, implement, and maintain, and what institutions comparable to their own are doing with regard to IRs. None of the top-ranked reasons why NP institutions have not begun IR planning rule out their involvement with IRs at a later date. Right now, NP institutions have other things on their plate, or they have no resources or expertise for IR planning. Very few are totally in the dark in terms of what IRs are and whether IRs have relevance for their institution. Just under 50% of NP respondents may start IR planning within the next 24 months.

Asked how the MIRACLE Project could assist them regarding IRs, NP respondents want to learn about: (1) IRs generally, (2) the many details and specifics of IRs, (3) best practices, (4) benefits of IRs, (5) securing funding for IRs, and (6) opportunities for partnerships. NP respondents' interest in IRs is a wake-up call to their colleagues at other-than-research-universities to share their success stories about IRs with an audience that is craving for information. It is also an opportunity for the MIRACLE Project to focus on other-than-research-universities in subsequent project activities because that is where the need is greatest and where the widest gap in our knowledge about IRs exists.

*What Previous Findings about IRs Do MIRACLE Project Census Findings Verify?*

The MIRACLE Project census verifies almost two dozen findings from previous surveys, e.g., research universities lead in the implementation of IRs, libraries play a leading role in the IR effort, and DSpace leads in IR-system pilot-testing and implementation.

*What Findings are Unique to the MIRACLE Project Census?*

Examples are the shrinking-violet role that archivists play in the IR effort, the voracious appetites that census respondents have for information especially about successful IR implementations at institutions like their own, the ability of the IR to forge new relationships for libraries, and the need for improved preservation functionality in IRs.

*What Long-term Issues Will Occupy IR Staff Long After the MIRACLE Project Ends?*

Examples are the benefits of IRs, the effect of IRs on derailing the current publishing model, and requiring learning communities to submit the products and by-products of the research and teaching enterprises to the IR.

### **3. Telephone Interviews with Institutional Repository Staff**

#### **3.1. Motivation**

The results of the *Census of Institutional Repositories in the United States* indicated that institutional repositories (IRs) are increasingly deployed in research universities in order to collect, organize, preserve, and facilitate access to digital content produced by members of their communities. The census revealed that library directors and librarians are largely taking the lead in terms of planning, implementing, and maintaining IRs and

these individuals rate the importance of a wide array of both anticipated and actual benefits of the IR quite highly. In addition, the census addressed a number of significant issues associated with IRs, such as the positions of the people involved, budgeting, technical systems, investigative activities conducted prior to establishing IRs, decisions about what digital document types to include in the IR, contributors, beneficiaries, evaluation methods, and policies that need to be considered or decided upon during the process of planning and implementation.

However, our survey methodology had the inherent problems of not being able to probe deeply into the perceptions and experiences of various IR staff members or to allow respondents to express their thoughts about IRs in their own terms. Thus, we conducted follow-up telephone interviews in order to elicit more in-depth information behind IR planning and implementation from staff members directly involved in IRs.

### **3.2. Methods**

We culled names and e-mail addresses of prospective telephone interview subjects from the Census, asking respondents who volunteered their name and e-mail address if they would be willing to complete a follow-up phone interview. Of the 176 census respondents who volunteered, we created a purposive sample. The factors we took into account were the stage of development of the IR (from no planning or only planning to implementation and planning and pilot testing), the size and Carnegie classifications of parent institutions (from small colleges to research universities), the extent of materials in the IR, and the position of respondents. We contacted 76 potential volunteers by e-mail and received responses from 36 volunteers.

The semi-structured phone interviews were conducted from October to December 2006. Four different sets of interview questions were prepared in order to ask appropriate questions depending on the phase of IR deployment: (1) Implementation (IMP), (2) Planning and Pilot-Testing (PPT), (3) Only Planning (OP), and (4) No Planning (NP). The questions used for interviews are included in Section 10.2. Each interview took approximately sixty minutes. All the interviews were recorded using a digital voice recorder and a telephone adapter.

Audio files of all thirty-six interviews were transcribed for data analysis. We developed a coding scheme through several iterations of revisions. The following categories were eventually identified: general characteristics of interviewee's IR, people involved with institution's IR, perceptions of IRs, content and content recruitment, interviewee's IR system, end-users and uses of IRs, evaluation, financial issues, institutional commitment, intellectual property rights, limitations and weaknesses, marketing, metadata, policies and access, preservation, and services. The interview transcripts were imported to NVivo 7, qualitative data analysis software. The method of content analysis

was then used as a technique to inductively identify and categorize the perceptions and experiences participants mentioned during the interviews.

### **3.3. Major Findings**

*How do IR staff members describe the purposes of institutional repositories?*

The impetus for starting an IR did not vary dramatically across institutions. Interviewees mentioned that they started working on an IR because it could (1) centralize difficult to locate digital documents kept on an individual department's website, individual faculty member's personal homepage, or were not available online at all; (2) create an environment for preservation and permanent availability of content produced by the institution; (3) provide open access to digital content; and (4) advance a new scholarly communication model. In the thirty-six institutions represented by the interviewees, we discovered a variety of names that were used to brand the IR and reflect the unique characteristics and different foci of the repositories. Institution-specific branding of IRs also indicates that IRs have been established with a more goal-driven rather than a function-driven purpose. Under the goals established, strategies aimed toward particular user groups were mentioned across institutions.

*What infrastructure and system features are required to implement institutional repositories?*

Open source software has advantages in institutions that have technical expertise and an infrastructure to implement and maintain these applications. Purchasing a commercial product appealed to smaller institutions because they could use technical support from the company in the absence of having local technical staff to do the job. Purchasing a commercial product appealed to smaller institutions because they could use technical support from the company in the absence of having local technical staff to do the job. Institutions that have developed an in-house system worked closely with their IT divisions. They liked the control especially with respect to implementing their own standards, but they also expressed concerns about "overdependence of internal staff and services [on IT division]." Creating and controlling metadata with ease was considered to be one of the primary features of IR systems. Creating and controlling metadata with ease was considered to be one of the primary features of IR systems. Many interviewees cited the inadequacy of their IR system's search features. User interface issues were discussed frequently as the one area that their IRs could improve the most.

*To what extent do IR staff members perceive the importance of policy development during the process of institutional repository implementation?*

Depending on the IR stage of deployment (from no planning or only planning to implementation and planning and pilot testing), the IR staff we interviewed had different perceptions and experiences about policy development. Those interviewees at

institutions with operating IRs emphasized the importance of establishing policies. Those affiliated with IRs in the planning and pilot testing stages seemed to think that policy development was not a priority. They agreed, however, that policies needed to be lenient and flexible in order to make changes as the IR moved along. Three areas of policies emerged as most prominent: content contribution (who is entitled to submit and what can be accepted), copyright issues (what could be included and who is responsible), and access (who can access the material). Further, policies could deal with questions, such as under what circumstances it would be permissible to withdraw material. Most interviewees were concerned about copyright issues, but they did not have good answers, policies, or plans yet. They also advocated open access as far as “copyright is allowed.” In order to create critical mass early and easily, a majority of the institutions started with electronic theses and dissertations, that is, materials that the library had traditionally collected and which many universities require students to deposit in the library already.

*What are the potential value-added services that institutional repositories can offer to contributors and end-users?*

The interviews revealed that developing a good service model was not a priority for most IR staff. However, there were indeed a range of services from assisting the self-submission process to digitization services offered within IRs. It was noted that IR staff did not characterize these as a comprehensive service model, and accordingly, simply did not recognize the value that they have added to the IR through the services. However, there were indeed a range of services from assisting the self-submission process to digitization services offered within IRs. It was noted that IR staff did not characterize these as a comprehensive service model, and accordingly, simply did not recognize the value that they have added to the IR through the services.

*What are the perceived challenges and barriers for sustainable institutional repositories?*

Overall most interviewees were confident about the sustainability of their IRs. They said they felt that they were on a good path and their administrations on campus were supportive. Confidence levels were higher at institutions that already implemented IRs than at those in which IRs were being planned and pilot-tested. The interviewees at OP and PPT institutions were more circumspect about IR sustainability issues, but they were still positive about their future plans for the IR. Budget and content recruitment issues were discussed as primary factors influencing IR sustainability directly. Again, most respondents were positive that there would be sufficient funds and that content recruitment would not be problematic. We also noted that a number of interviewees responded that they were in the “development stage” or their IR was still a project, rather than a program, so sustainability did not appear to be their major concern. Another challenge our interviewees identified was preservation. Interviewees had very

different levels of expertise concerning preservation issues, ranging from those who equated regular back-ups with preservation to those who were planning to make their IR into a Trusted Digital Repository.

## **4. Survey of Institutional Repository Users**

### **4.1. A Study of Institutional Repository End-Users**

#### **4.1.1. Motivation**

Although some of the earliest institutional repositories have now been in operation for more than seven years, we know very little about who is actually searching and retrieving items from IRs (“IR end-users”) or their motivations for turning to IRs. Much of the IR literature to date has focused on the need for and difficulties with content recruitment, paying little attention to IR end-users. As IRs approach the close of their first decade, there is a need to shift some of the focus from contributors and content toward end-users and use. The chicken-and-egg problem (“Users will not use the archive until there is a [sic] sufficient content but they won’t contribute content until they use it”) can only be solved by learning about and attempting to tailor the IR to the interests and needs of both contributors and end-users.

#### **4.1.2. Methods**

We knew from prior studies that the bulk of IR end-users do not enter through an IR homepage, but through search engines, such as Google. However, we were not able to identify end-users who arrived at the IR through a search engine because, according to the IR managers, there was simply no way we could capture those users. Thus, we employed the following two methods to recruit participants: (1) We asked IR managers to place a link to a recruitment form on the IR homepage and (2) We asked IR managers to identify active IR end-users. We recruited 17 interviewees via the forms placed on IR homepages and three interviewees through an IR manager.

Semi-structured interviews were conducted over the telephone during the first half of 2008. Through the different methods, we recruited 43 potential interviewees and interviewed 20 of them. Twenty-three interviewees were excluded either because we were unable to reach them or because we learned that they were IR contributors and were not using the IR in order to find information. Interviews ranged in duration from 17 to 60 minutes, with the average interview lasting 34 minutes. Interview recordings were transcribed in full, checked and corrected for any omissions or errors, and then imported into qualitative data analysis software, NVivo 7. Coding categories followed both from our original research questions for this study and from our ongoing analysis of the interviewee transcripts.

#### **4.1.3. Major Findings**

*How do end-users characterize the institutional repository?*

The findings suggest that although IR end-users did not spontaneously use the terminology “institutional repository,” they felt that they had a basic understanding of what the IR is. However, those understandings varied quite a bit. Many interviewees clearly recognized the relationship between the IR and its host institution. Interviewees’ descriptions of the IR were often very insightful and creative, employing similes and metaphors that helped to illuminate their unique perceptions of their institution’s IR. In fact, interviewees expressed a diverse set of notions as to what it is that makes an IR an IR, ranging from the simple provision of storage space to housing content “for everything in the university.” It was apparent that many of them were uncertain about what exactly constitutes an IR.

*What approaches do end-users take to accessing and using institutional repositories?*

Overall, interviewees described an array of different ways in which they learned of the IR and many different strategies for reaching and interacting with the IR. In general, interviewees reported searching or navigating directly to an item when they knew that it existed and browsing when they did not have a particular item they were trying to locate. Some examples of the types of known items that interviewees reported using the IR to access include reports that they contributed themselves and papers written by friends and/or acquaintances. Interviewees reported having some difficulties with finding what they sought in the IR, primarily due to problems related to lack of visibility of the IR, lack of content in the IR, and issues associated with the IR layout and interface.

*For what purposes do end-users use IRs?*

Interviewees described a wide range of motivations for using the IR, ranging from scholarly research to needs for everyday-type information to simply a desire to have fun exploring its contents. They identified specific purposes for which IRs are uniquely well-suited, such as locating content outside of the traditional scholarly publishing process, looking at models of materials (such as theses and dissertations) previously accepted by their university, and identifying potential collaborators. Similarly, users described several ways in which they have used IR materials, such as for brainstorming and sharing with students.

*To what extent do end-users perceive the information from IRs to be credible, relative to information from other sources?*

Overall, interviewees’ trustworthiness judgments in relation to the IR were positive. Their judgments in this regard were influenced by a wide array of factors, such as their perceptions about the extent and status (i.e., peer-reviewed or not) of content in the IR, their ability to discern and their perceptions about the creator of the content, their past



experience with a particular information resource, and their ability to verify information they have found in the IR using other sources.

*To what extent are end-users willing to return to the IR and/or to recommend the IR to their peers?*

Very few interviewees knew of other people using the IR. The people who did often mentioned contributors rather than end-users. When asked if they knew of any reasons that people would not be using the IR, nearly two-thirds of our interviewees suggested that this may be due to a lack of visibility or awareness of the IR. A handful of interviewees thought that people might not be using the IR due to dissatisfaction with the look or functionality of the IR. The majority of our interviewees indicated that they are likely to use the IR again. Nearly all interviewees indicated that they would recommend the IR to their peers. Interviewees suggested that people may not be using the IR due to a lack of visibility and transparency of the IR and a lack of content in the IR. Overall, interviewees expressed a high degree of willingness to return to the IR and to recommend it to their peers, highlighting several specific advantages of using the IR, such as the ability to locate content that cannot be obtained from any other source, to search more efficiently, and to find reputable information.

*How do IRs fit into end-users' information seeking behavior landscapes?*

When asked whether the IR enables them to access more information and/or better information, interviewees identified a wide range of benefits associated with using the IR. These benefits can be roughly classified into the following categories: (1) Increased availability/accessibility/convenience; (2) Access to content more quickly after it is produced and access to content that is not usually available through the traditional publishing channels; (3) Ability to visit just one place to look at all the work produced by an author or university; and (4) Ability to identify potential networking opportunities, especially in order to engage in some form of collaboration, whether intra-departmental, inter-departmental, cross-disciplinary, and/or cross-institutional.

## **4.2. A Study on Faculty Self-Archiving Behavior**

### **4.2.1. Motivation**

Self-archiving – the placement of research material on publicly accessible web sites – is an emerging practice used to disseminate scholarly content in a cost-effective and timely manner. This practice is supported by university libraries and public funding agencies through the support or provision of Open Access repository services.

Nevertheless, many repositories suffer from low rates of participation. Institutional Repositories (IRs), in particular, have difficulty recruiting content from faculty members whose conduct research and generate a wide variety of research materials. To address this problem, Jihyun Kim's dissertation (advisor: Elizabeth Yakel) has investigated the

motivational factors affecting faculty to participation in various forms of self-archiving practices. Self-archiving behavior represents a new way of disseminating scholarly content, and understanding this behavior will help extrapolate the transformation of scholarly communication mediated by electronic media and the Internet. Therefore, this study has implications for those who are involved in research and practices regarding digital scholarship, digital preservation, and knowledge sharing and reuse in academic settings.

#### **4.2.2. Methods**

The present study employed two methods: a large scale survey and selected interviews. The former method allowed for generalization, the second for more in-depth explanation of phenomena identified in the survey. The population of participants includes assistant, associate, and full professors of eighteen universities in the U.S. classified as Carnegie Doctorate-granting Universities. Those universities currently have live DSpace IR websites. Out of the population, two samples are made. One group includes professors whose materials are deposited in their university's IR. Since an IR is a relatively new forum, faculty members are less likely to be aware of IRs and to use them for self-archiving. In this respect, it is interesting to identify early adopters of IRs, and examine their perceptions of and behavior relating to self-archiving. The other sample was drawn from the population excluding the IR contributors, based on three prototypical disciplines in each of four areas: science, engineering, social science, and humanities.

A survey instrument for the study was developed, and it included questions regarding the practices that professors use to distribute their research/teaching materials on the Internet, as well as factors affecting self-archiving behavior. An interview protocol was developed after the main survey, and validated by interviewing pre-test survey respondents, who agree with being interviewed. The interviews took around 20 minutes by telephone. Semi-structured interviews were performed to complement survey data. The data analyzed include survey responses from 684 professors and 41 phone interviews.

#### **4.2.3. Findings**

*What are existing ways that faculty members make research materials publicly accessible on the Internet?*

IRs can include many types of research other than peer-reviewed articles. Therefore, IRs have more difficulties in ensuring the quality of their content than disciplinary repositories. Approximately 15% of self-archivers have contributed research papers or books to institutional repositories (IRs). Among the various self-archiving venues, IRs were marginally used by faculty self-archivers, although their universities provided IR services. While pre-refereed drafts are slightly more often self-archived than other types

of research content, the frequency of IR contribution is low in general compared to other venues such as contributing to personal web pages or research group web sites.

*Why do they use certain forums for self-archiving?*

The survey results indicated that IRs were the least favorite venue for current and future self-archiving. The logistic regression analysis identified significant factors that influenced faculty contribution to IRs. It implied that IRs need to develop best practices for ensuring long-term accessibility of IR content, as well as for addressing copyright issues in respect to self-archiving. Two factors concerning long-term accessibility that were found to be significantly related to IR contribution: (1) accessibility of self-archived content and (2) trust in users, as well as institutions responsible for maintaining open access content. IR contributors believed much more strongly than non-contributors, that self-archived content would be easily accessible so that it increased the chance to communicate research findings to peers. Faculty IR contributors also consider university libraries as making a commitment to manage copyright for IR content.

*What motivates faculty members' self-archiving behavior?*

Interview data suggest that faculty members were more encouraged by generalized reciprocity in self-archiving than by true altruism. This “generalized reciprocity” occurs when knowledge is considered as a public good in online communities. It was found that faculty self-archivers accept the idea of sharing their research as a public good and this perception leads them to develop altruistic intentions to disseminate research publicly on the Internet. Survey respondents who perceive self-archiving as having a less harmful impact on tenure and promotion, tend to self-archive more research work. All the interviewees who mentioned the tenure and promotion process remarked that there was either a positive or neutral relationship between self-archiving and academic reward. The three individual traits - age, rank, and technical skills – were found to be significantly related to the percentage of self-archived research work. While age was negatively associated, rank and technical skills were positively related to the intent to self-archive.

*What makes them reluctant to self-archive their research materials?*

Uncertainty about copyright and the responsibility of authors was commonly mentioned by self-archivers. Faculty members tried to respect copyright and believed that their decisions concerning whether to self-archive or not was made within a legal boundary. However, non-self-archivers were more concerned about copyright restrictions than self-archivers, who understand that a certain level of flexibility exists in managing copyright for self-archiving. The issue of time and effort is not only important for non-self-archivers, but for most faculty members. Professors who have

not self-archived do not see the advantages of self-archiving and believe that the advantages outweigh their time and effort. The level of technical skills that they possess is also related to the effort to learn the logistics of self-archiving.

## 5. Case Studies

### 5.1. Motivation

While researchers identify different success factors as key for institutional repositories (IRs), there is no agreement concerning whether any are fundamental for all IRs or if success is entirely a local phenomena. Researchers primarily cite content recruitment and services as key factors; however, there has been some discussion of measuring success against the goals of the library, how well the chosen technology fulfills the purpose of the IR, and success as a process that changes as the IR matures. The case studies also examine the topic of IRs and success. Our case studies build on these existing frameworks and we demonstrate that success should be more broadly defined and measured in terms of the library’s and university’s larger goals. By looking externally, we point to some areas where the impact of IRs may be seen.

### 5.2. Methods

We employed a comparative case study method, visiting five different IRs from June 2008 to October 2008. The characteristics of five IRs are as follows.

Table 4. Profiles of Participating Institutional Repositories

IR	Region	Implementation	IR System
A	East North Central	2006	DSpace
B	West North Central	2007	DSpace
C	East North Central	2007	DSpace
D	East North Central	2005	DSpace
E	New England	2007	bepress Digital Commons

In preparation for each visit, we received policies, planning documentation, and other materials concerning the IR. The actual visits lasted approximately 3 days each. During that time, the 1 or 2 site visitors interviewed pre-selected individuals involved with the IR on campus. Typical interviewees included: director of the IR, University Librarian, Associate University Librarians, IT staff involved with the IR, directors of other IRs or major content management systems on campus, university archivist, metadata librarian, preservation officer, and content contributors. All of the interviews that were audio-

recorded were transcribed. The interview transcripts and the written materials about each IR were content analyzed.

### **5.3. Major Findings**

*What factors do institutional repository staff, administrators, and users consider to be most important for developing and maintaining institutional repositories?*

Findings from the case studies indicate that internal input and performance as well as larger external impact measures are signifiers of success. Internal indicators such as content recruitment and IR services are seen as key, yet the real payoff for the university libraries in the case studies is impact through some new type of interaction with scholarly life on campus.

Content recruitment is key because it literally is the core of the IR. A critical mass of material is necessary to generate both additional content recruitment and end-user activity. Successful strategies to accomplish this include the development of faculty homepages which are quite popular, negotiating with publishers to include faculty content, and convincing key faculty to contribute as a means of bringing along others.

Value-added services in the IR are seen as an important part of success. These include everything from full-text retrieval to preservation. A story about one professor's articles whose Google page rank indicators increased after placement in the IR. It was noted that the addition of an e-journal critical in a discipline was an early win. Use also has network effects, "The more we can do and the more success stories we can offer, the bigger this becomes, the more data then gets populated into Google Scholar and OAISTER, and the more it gets used, and ultimately it returns good things... back to the people who wrote them. That to me is very important." Content and use are also viewed as important "because it's getting to the point that the more successful our institutional repositories become – success defined as both breadth, more people, and more content – the more it becomes impossible ... to not maintain it."

In terms of external impact indicators of success, the case studies revealed two major themes. First, IR staff look for a change in the perception of the library and its role in scholarly communication on campus and second, they wanted to insert themselves into the scholarly workflow. Participants in three of the five case studies cited the IR's impact on raising the profile of the library on campus. Representatives noted that the IR has changed the role of the library and how it is perceived on campus. Still this was seen as an evolutionary process: "I don't think we've hit the right note on campus...We are further along, though, than we were 5 to 6 years ago."

*How does the institutional repository relate to the traditional scholarly paradigms of publishing and preservation?*

Inserting the library into the scholarly workflow has taken on several different forms, ranging from becoming a network hub to challenging the traditional scholarly publishing paradigm. Regarding the latter, one staff member described the strongest impact measure for her IR as “changing the way that people think about publication and changing the way they think about how they can present their work”. The role of the library is evolving, “I see it as a work in progress. In those terms, it has been successful – it’s developing. Time will tell whether the model ultimately will prove to be the answer to the problems that have been besetting the scholarly communication system.”

In terms of these case studies, functional attributes of the IR such as a critical mass of materials, value-added features in those materials, and preservation-worthiness, are necessary but not sufficient for success. In one way or another, all of the libraries in our study aspire to having a greater impact in their communities through their IRs as publisher, scholarly workflow facilitator, and/or networking hub.

## **6. Experimental Study of Searching Institutional Repositories**

### **6.1. Motivation**

Institutional repositories have provided great opportunities to expose research produced in the institution to a broader audience. IRs can also increase the visibility and enhance the reputations of both individuals and institutions as more people can easily access their research and teaching content. Even though numerous studies have been conducted about IRs in recent years, very little research exists on online searching activities conducted in IRs. Several questions arise about people’s searching behavior: (1) How do people access the IR – through Google or the IR homepage -?; (2) Why do they select /follow links to materials in IRs?; (3) Once in an IR, why do they decide to stay?; (4) How do people assess the credibility of documents from IRs?; and (5) How do these compare with other sources?

### **6.2. Methods**

The data were collected in March and April of 2009 in a laboratory setting with 60 University of Michigan undergraduate students. We used a co-discovery experimental method in which people were recruited as pairs and instructed to talk aloud naturally to each other as they complete assigned tasks. The paired subjects were to help each other in the same manner as if they were working together to accomplish a common goal. They were encouraged to explain what they were doing and why while they were working on the tasks. Compared to the think-aloud protocol, this technique makes it more natural for study subjects to verbalize their thoughts during the experiment. In our experiment, a subject was instructed to bring a friend so that the pair could talk with each other naturally and comfortably during the experiments.

The procedures of the experimental study were as follows. Once a pair of subjects had arrived, each person was asked to fill out the consent form. They then were given two searching tasks that had been randomly selected out of six different tasks. Only one person used the mouse and the keyboard on each task, and this person was asked to explain to the other person what he/she was doing and why. The subject was asked to start on Google to look for the information requested in the task for 10 minutes. This searching activity was recorded using Camtasia software. Once he/she completed the session on Google, a few questions about his/her reasons for selecting particular links on the search results page were asked. Then one IR which contained information pertinent to the search task was introduced. The subject was asked to search for information for that same task using this particular IR for another 10 minutes. After that, the subject was asked to draw how he/she thought the IR was built and then explain his/her drawing to the other subject. The other subject then had a chance to make some changes based on his/her own observations. The procedures of Google searching – IR searching – IR drawing – making changes to the drawing were then repeated for the second searching task, with the other subject now taking the lead role.

At the end of each session of the experiment, an exit interview was conducted in order to investigate the subjects' satisfaction with IRs, their expectation of materials to be retrieved in IRs, their evaluation of information from Google vs. their IR, and their perceptions about the trustworthiness of IR content and about the relation between Google and IR, etc. We also collected the subjects' background information through a demographic questionnaire.

The data came from three different sources: demographic questionnaires, interviews, and search logs. The data from search logs were manually coded with respect to the stages of search and actions taken on the Web browser. The interviews were fully transcribed and content analyzed. The questionnaire was also analyzed.

### **6.3. Major Findings**

*To what extent do people recognize institutional repository sources in the results of aggregated search systems?*

Out of 60 search sessions conducted for the experimental study, most subjects (75%) recognized the results retrieved from an IR in the Google search results pages. On average, it took 1.53 minutes for the searchers to recognize the results from the IR. However, once they reached the IR, 38% of the subjects decided to leave the IR because they judged that IR collection was not a good fit for their search task. In the cases that they stayed in the IR, they tended to browse the collection by subjects or by collections. The searchers entered a very short queries (2.3 words per query) when searching by keywords in the IR, and the length was even shorter than their average query length (4.6 words per query) in Google searches.

*How do people assess the credibility of documents from institutional repositories?*

Source credibility was the major factor that affected subjects' assessments of IRs' credibility. As for the institutional credibility, eighteen subjects mentioned the corresponding University's names and eleven subjects mentioned university libraries. Two other subjects mentioned the name of the research institute affiliated with universities. Sixteen subjects referred to surface credibility/design related features when explaining their assessing criteria, which included layout, color, flash, pop-ups, banner, icon, and logo. Four subjects specifically mentioned the logos of the corresponding universities. Five subjects considered IRs as databases and one subject explicitly said that "this seems like their, kind of, database of theses, and other things, too. The fact that it's a database... it looks like a good source to find information. There is no ad or pop-ups. From my past experience, databases are good." Besides, one subject stated that "there are have to be like experts, [who] put this information together. People like, with degrees."

*What kinds of mental models of institutional repositories, if any, can people develop as a result of searching?*

Subjects used various metaphors to explain their mental models of institutional repositories. Seven subjects mentioned "search engine," and six subjects mentioned "database" to describe how the IR works. Three subjects referred the IR to "website" or "homepage," other subjects mentioned "archive," "library," or "digital space" to describe their understanding of the IR. To about one third of subjects, the scope of IRs was a major concern. They were aware that the IR contains digital content generated within the university. They were also aware various functions of the IR in terms of searching and browsing the collections. It was noted that subjects' perception of IR collection was directly related to their searching experience that they just had during the experimental search sessions.

## **7. Conclusion**

When IRs were first implemented and discussed widely, one of the core notions was that IRs could change the current scholarly publishing paradigm. Our findings from the MIRACLE project suggest that both IR managers and IR users are skeptical about this vision. Rather than trying to replace the current scholarly publication process, most IR managers and staff view IRs as complementing the present channels of scholarly communication. As one study participant described, IRs mark "one node in the scholarly communication network or model."

The earliest IRs, such as the University of California's eScholarship and MIT's DSpace, have been in operation for over seven years. However, most IR services practiced are still ad-hoc or auxiliary. For instance, IR staff members help faculty and researchers



deposit digital content or offer consultations regarding author rightmanagement and other copyright issues. At the same time, only a few established IRs have gradually evolved from a repository-centric to a service-centric model. Those IRs now approach IRs not as an information system but as a set of services targeted toward long-term accessibility to scholarly materials.

Reaching a critical mass of IR content is a key factor for the success of IRs. Each IR has developed a variety of locally appropriate strategies for content recruitment. Some successful strategies include: development of personal researcher pages, emphasis on collecting dissertations and theses, and digitizing back issues of a locally-produced journals. In addition, IRs that proactively reach out to faculty through various venues, such as faculty senate or departmental faculty meetings, are more successful in collecting content than those universities which work solely with subject selector librarians or expect faculty members and researchers in the learning community to contribute content voluntarily. Both repository staff and end users noted that convincing faculty of the value of open access was often not a successful strategy, although there is some indication that preservation is an important selling point.

The MIRACE Project found that IRs have enhanced the role of the academic library in higher education institutions, and IRs are increasingly considered as one of the core services of the library in research universities. Along with this, librarians' newly developed expertise in areas such as copyright and promoting authors' right, are recognized and valued.

While the MIRACLE project is completed, IRs will continue to evolve and grow. The two key research questions that need to be addressed in the future work are: how can IRs evolve as a sustainable model of open access and how IRs will evolve and change as successful digital (perhaps even trusted digital) repositories. The landscape surrounding open access is changing quickly and IRs are in this mix. Whether they have fulfilled their role as a mechanism in the forefront of scholarly publishing and communication is unanswered. But, the key factor for success is related to how well IRs will be integrated and embedded along with other information technology infrastructures on campus. Although there is still a large amount of uncertainty about the eventual value of IRs for universities, our study found that more and more academic institutions have reached a consensus that IRs provide a useful instrument for making a variety of digital content more widely accessible and preserving content produced by the institution more effectively. Therefore, many academic institutions view IRs as promising and reasonable infrastructure investment to make and as a step in the evolution of the academic libraries.

## 8. MIRACLE Project Publications and Presentations

### Publications

- Rieh, S. Y., Markey, K., Yakel, E., St. Jean, B., & Kim, J. (2007). Perceived values and benefits of institutional repositories: A perspective of digital curation. *An International Symposium on Digital Curation (DigCCurr 2007)*, Chapel Hill, NC, April 18-20, 2007. [http://www.ils.unc.edu/digccurr2007/papers/rieh\\_paper\\_6-2.pdf](http://www.ils.unc.edu/digccurr2007/papers/rieh_paper_6-2.pdf)
- Markey, K., St. Jean, B., Rieh, S. Y., Yakel, E., Kim, J., & Kim, Y. M. (2007). Nationwide census of institutional repositories: Preliminary findings. *Journal of Digital Information*, 8(2). <http://journals.tdl.org/jodi/article/view/194/170>
- Markey, K., Rieh, S. Y., St. Jean, B., Kim, J. & Yakel, E. (2007, February). *Census of institutional repositories in the United States: MIRACLE Project research findings*. Washington, D.C.: Council on Library and Information Resources. CLIR Publication No.140, 167 p. <http://www.clir.org/pubs/reports/pub140/contents.html>
- Rieh, S. Y., Markey, K., St. Jean, B., Yakel, E., & Kim, J. (2007). Census of institutional repositories in the U.S.: A comparison across institutions at different stages of IR development. *D-Lib Magazine*, 13(11/12), November/December 2007. <http://www.dlib.org/dlib/november07/rieh/11rieh.html>
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- Yakel, E., Rieh, S. Y., St. Jean, B., Markey, K., & Kim, J. (2008). Institutional repositories and the institutional repository: College and university archives and special collections in an era of change. *The American Archivist*, 71(2), 323-349.
- Rieh, S. Y., St. Jean, B., Yakel, E., Markey, K., & Kim, J. (2008). Perceptions and experiences of staff in the planning and implementation of institutional repositories. *Library Trends*, 57(2) ("Institutional Repositories: Current State and Future," edited by S. L. Shreeves & M. H. Cragin), 168-190.
- Kim, J. (2008). *Faculty Self-archiving Behavior: Methods and Factors Affecting the Decision to Self-archive*. Unpublished doctoral dissertation. University of Michigan.
- St. Jean, Rieh, S. Y., Yakel, E., Markey, K. (under review). Unheard voices: Institutional repository end-users. *College and Research Libraries* (submitted on August 17, 2009; revised and resubmitted on December 19, 2009).
- Markey, K., Leeder, C., Rieh, S. Y., and Yakel, E. (in preparation). An experimental study of end-user searching of institutional repositories. To be submitted to *Journal of the American Society for Information Science and Technology*.

- Rieh, S. Y., Markey, K., Yakel, E. (in preparation). Users' mental model of institutional repositories: An experimental study. To be submitted to *Information Processing and Management*.
- Yakel, E., Rieh, S. Y., St. Jean, B., Markey, K. (in preparation). Institutional repositories: A comparative case study. To be submitted to *Library Quarterly*.

## Presentations

- Rieh, S. Y. (2006). Institutional Repositories and Academic Libraries. Invited talk presented at the Southeastern Michigan League of Libraries (SEMLOL) Spring Membership Meeting. Ann Arbor, MI, April 28, 2006.
- Markey, K., Rieh, S. Y., Yakel, E. (2006). National Census of Institutional Repositories. Paper presented at the JCDL workshop of Digital Curation and Institutional Repositories: Seeking Success. Chapel Hill, NC., June 15, 2006.
- Rieh, S. Y. (2006). National Census of Institutional Repositories. Invited Talk at the Korean Education and Research Information Service (KERIS). Seoul, Korea, August 16, 2006.
- St. Jean, B. (2007). An archival voice in the institutional repository choir: How does it sound now and what would we like to hear? Panel discussion presented at *ARCHIVES/CHICAGO 2007: Society of American Archivists 71st Annual Meeting*, Chicago, IL, August 28 – September 1, 2007.
- Rieh, S. Y., Markey, K., Yakel, E., St. Jean, B., Yao, X., Kim, J. (2008). Toward successful institutional repositories: Listening to IR staff's experiences. Poster presented at the Annual Meeting of the American Society for Information and Technology. Columbus, OH, October 24-29, 2008.
- Yakel, E., Rieh, S. Y., Markey, K., St. Jean, B., & Yao, X. (2009). Secrets of success: Identifying success factors in institutional repositories. Paper presented at *OR 2009: The Fourth International Conference on Open Access Repositories*, Atlanta, GA, May 18-21, 2009.
- Rieh, S. Y. (2009). On the road to success of institutional repository: Case studies. Paper presented at the Annual Meeting of the American Society for Information and Technology, Vancouver, BC, Canada, November 6-11, 2009.
- St. Jean, B., Rieh, S. Y., Yakel, E., Markey, K., & Samet, R. (2009). Institutional repositories: What's the use? Poster presented at the Annual Meeting of the American Society for Information and Technology, Vancouver, BC, Canada, November 6-11, 2009.

## 9. Advisory Committee Meetings

### 2006 Meeting

October 29 – October 30, 2006, Ann Arbor, Michigan

Attendees: Soo Young Rieh, Karen Markey, Elizabeth Yakel, Beth St. Jean, Jihyun Kim, Joseph Branin , Diane Vizine-Goetz , Marcia Zeng. Helen Tibbo joined by phone.

#### Meeting Agenda

- Discussion on the findings of national census of institutional repositories in the U.S.
- Discussion on phone interview with IR staff
- Discussion on future plans – case studies, end-user study, and experimental study
- Discussion on related institutional repository issues
- Discussion about publication and presentation plans

### 2008 Meeting

September 30 – October 1, 2008, Ann Arbor, Michigan

Attendees: Soo Young Rieh, Karen Markey, Elizabeth Yakel, Beth St. Jean, Xingxing Yao, Joseph Branin , Diane Vizine-Goetz , Helen Tibbo. Marcia Zeng and Michael Seadle joined by phone.

#### Meeting Agenda

- What are the big ideas emerged from case studies?
- Presentation and discussion about the study on perceptions and experiences of IR staff
- Discussions on the methods of experimental study of searching institutional repositories
- Next Steps: How to create a final document, how to reach practitioners with our report, publishing and presentation venues? What are the critical issues that have not been studied?

## 10. Data Collection Instruments

### 10.1. National Census Questionnaire (For Implementation Respondents)

#### A. Number of IRs

1. How many institutional repositories (IRs)—general IRs, special-purpose IRs, and IRs in the pilot-testing phase—are available or will be available to members of your institution’s learning community in the near future?

1
2
3
4
5 or more

#### B. Specific IR implementation

Please answer the remaining 41 questions with the one IR in mind that offers the widest array of services to the most people and greatest number of constituencies (e.g., faculty members, students, staff, administrators, guests) in your institution’s learning community. Please feel free to message Soo Young Rieh (rieh@umich.edu) with your questions or concerns.

#### C. Timelines and Funding

2. How long has your institution been involved with IRs (everything from planning, pilot testing IR systems, to system implementation)? Please enter the number of months.
3. How long has your IR been operational, that is, available to authorized users for submission and searching of digital content? Please enter the number of months.

#### D. Needs Assessment

4. Did your institution conduct a needs assessment prior to implementing an IR?

Yes
No
Don’t know

- 5a. How important were the results of the needs assessment for:

	VI*	SI	SU	VU	NO	DK	NA
Identifying first adopters of an IR							
Identifying especially active contributors to the IR							
Formulating IR policies							
Making the decision to implement an IR							
Increasing faculty awareness of the IR							
Recruiting digital content for the IR							
Streamlining IR planning and implementation							
Choosing an IR software package							

Scheduling the rollout of various IR services							
Identifying new services to build onto the IR							
Identifying preservation techniques							
Other (Please specify in question 5b below)							

\* Key to abbreviations: VI=Very important, SI=Somewhat important, SU=Somewhat unimportant, VU=Very unimportant, NO=No opinion, DK=Don't know, NA=Not applicable

5b. If you rated "Other" for the question above, please specify in the box below.

**E. Influences on IR Implementation Decision**

6a. How important were the results of the following investigative activities in terms of influencing your institution's decision about implementing an IR?

	VI*	SI	SU	VU	NO	DK	NA
Results of your institution's needs assessment							
Learning about successful implementations at comparable institutions							
Learning about successful implementations at a wide range of academic institutions							
Learning about available expertise and assistance from a library consortium, network, group of libraries, etc.							
An analysis of a thorough literature review of IRs							
Learning from reports of other institutions' IR planning, pilot testing IR software, and implementation activities to date							
Using other institutions' operational IRs							
Demonstrating operational IRs to my institution's decision-makers							
Demonstrating IR metadata harvesters such as OAIster and Google Scholar to my institution's decision-makers							
Waiting for a critical mass of IR implementation at comparable institutions to happen							
Waiting for a critical mass of IR implementation generally to happen							
Identifying better digital preservation techniques							
Other (Please specify in question 6b below)							

\* Key to abbreviations: VI=Very important, SI=Somewhat important, SU=Somewhat unimportant, VU=Very unimportant, NO=No opinion, DK=Don't know, NA=Not applicable

6b. If you rated "Other" for the question above, please specify in the box below.

**F. Benefits of IRs**

7a. At the beginning of IR planning at your institution, how important did you think these

anticipated benefits of IRs would be to your institution?

	VI*	SI	SU	VU	NO	DK	NA
A boost to your institution's prestige							
Better service to contributors							
Better services to your institution's learning community							
New services to learning communities beyond your institution							
Maintaining control over your institution's intellectual property							
Capturing the intellectual capital of your institution							
Contributing to the reform of the entire enterprise of scholarly communication and publishing							
A reduction in the amount of time between discovery and dissemination of research findings to scholarly communities							
An increase in citation counts to your institution's intellectual output							
Exposing your institution's intellectual output to researchers in North America and around the world who would not otherwise have access to it through traditional channels							
An increase in the accessibility to knowledge assets such as numeric, video, audio, and multimedia datasets							
Providing maximal access to the results of publicly funded research							
A solution to the problem of preserving your institution's intellectual output							
An increase in your library's role as a viable partner in the research enterprise							
Reducing user dependence on your library's print collection							
Longtime preservation of your institution's digital output							
Other (Please specify in question 7b below)							

\* Key to abbreviations: VI=Very important, SI=Somewhat important, SU=Somewhat unimportant, VU=Very unimportant, NO=No opinion, DK=Don't know, NA=Not applicable

7b. If you rated "Other" for the question above, please specify in the box below.

8a. Now that you are implementing or have implemented an IR, reassess these same anticipated benefits of IRs and tell whether you think they are less important or more important than you originally thought.

	VMMI	SMI	SU	NC	SLI	VMLI	NO	DK	NA

	*								
A boost to your institution's prestige									
Better service to contributors									
Better services to your institution's learning community									
New services to learning communities beyond your institution									
Maintaining control over your institution's intellectual property									
Capturing the intellectual capital of your institution									
Contributing to the reform of the entire enterprise of scholarly communication and publishing									
A reduction in the amount of time between discovery and dissemination of research findings to scholarly communities									
An increase in citation counts to your institution's intellectual output									
Exposing your institution's intellectual output to researchers in North America and around the world who would not otherwise have access to it through traditional channels									
An increase in the accessibility to knowledge assets such as numeric, video, audio, and multimedia datasets									
Providing maximal access to the results of publicly funded research									
A solution to the problem of preserving your institution's intellectual output									
An increase in your library's									



role as a viable partner in the research enterprise									
Reducing user dependence on your library's print collection									
Longtime preservation of your institution's digital output									
Other (Please specify in question 8b below)									

\* Key to abbreviations: VMMI=Very much more important, SMI=Somewhat more important, NC=No change in importance; SLI=Somewhat less important, VMLI=Very much less important, NO=No opinion, DK=Don't know, NA=Not applicable

8b. If you rated "Other" for the question above, please specify in the box below.

**G. People involved in the IR effort**

9a. How active were people in the following positions in terms of leading the charge to get involved with IRs at your institution?

	VA*	SA	SI	VI	NO	DK	NA
Staff at a library network, consortium, or other affiliated group							
Your institution's president or chancellor							
Your institution's vice president or provost							
Faculty governance, e. g., faculty senate, faculty senate assembly, etc.							
Your institution's chief information officer							
Your institution's archivist							
Faculty members generally							
A faculty member in particular							
Library director							
Assistant library director(s)							
Library staff member(s)							
Graduate student (s)							
Undergraduate student(s)							
Other (Please specify in question 9b below)							

\* Key to abbreviations: VA=Very active, SA=Somewhat active, SI=Somewhat inactive, VI=Very inactive, NO=No opinion, DK=Don't know, NA=Not applicable

9b. If you rated "Other" for the question above, please specify in the box below.

10. Who is the individual leading IR implementation at your institution? (Choose one only.)

A faculty member in a particular college, department, or school
Your institution's chief information officer

Your institution's archivist
Library director
Assistant library director
A library staff member
No committee or committee chair has been appointed
Other (please specify)

11. If a committee is involved with IR implementation, identify the positions of the other people on this committee. (Please check all that apply.)

Staff from the office of the president or chancellor
Staff from the office of the vice-president or provost
Staff from the office of the chief information officer
Staff from your institution's legal office
Your institution's chief information officer
Your institution's archivist
Library director
Assistant library director
Library staff member(s)
Archives staff
A faculty member in particular
Graduate student(s)
Undergraduate student(s)
Committee members have not yet been appointed
Other (please specify)

12. How many people are involved in your institution's IR implementation?

**H. IR Responsibility**

13a. What percentage of the responsibility for an operational IR has been given to various campus units? (Percentages must add up to 100%.)

	% Your institution's central administration
	% Your institution's library
	% Your institution's central computing unit
	% The office of the chief information officer
	% Your institution's archives
	% Various academic colleges, departments, and schools
	% Other (Please specify in question 13b below)

13b. If you provided a percentage for "Other" for the question above, please specify in the box below.

**I. Contributions to the IR**

14. Who are authorized contributors to your institution's IR? (Choose as many as apply.)

Faculty members
Graduate students
Undergraduate students
Research scientists
Librarians
Archivists
Your institution's administrators
Your institution's press
Your institution's news service
Your institution's central computer services staff
Academic support staff
External contributors
Other (please specify)

15. Who is the major contributor to your institution's IR? (Choose one only.)

Faculty
Graduate students
Undergraduate students
Research scientists
Librarians
Archivists
University and college administrators
Computer services staff
Academic support staff
Other (please specify)

16a. When planning for an IR, what did you think would be the most important reasons why members of your institution's learning community would contribute to the IR?

	VI*	SI	SU	VU	NO	DK	NA
To boost the particular scholar's prestige							
To boost your institution's prestige							
To contribute to the reform of the entire enterprise of scholarly communication and publishing							
To reduce the amount of time between discovery and dissemination of research findings to scholarly communities							
To increase citation counts to the particular scholar's oeuvre							

To increase citation counts to your institution's intellectual output							
To encourage other scholars to provide open access to their intellectual output							
To expose the particular scholar's intellectual output to researchers in North America and around the world who would not otherwise have access to it through traditional channels							
To expose your institution's intellectual output to researchers in North America and around the world who would not otherwise have access to it through traditional channels							
To place the burden of preservation on the IR instead of on individual faculty members							
To increase the accessibility to knowledge assets such as numeric, video, audio, and multimedia datasets							
To provide maximal access to the results of publicly funded research							
To solve the problem of preserving your institution's intellectual output							
To increase the library's role as a viable partner in the research enterprise							
To reduce user dependence on your library's print collection							
Other (Please specify in question 16b below)							

\* Key to abbreviations: VI=Very important, SI=Somewhat important, SU=Somewhat unimportant, VU=Very unimportant, NO=No opinion, DK=Don't know, NA=Not applicable

16b. If you rated "Other" for the question above, please specify in the box below.

17a. How would you assess your methods for recruiting digital content for the IR?

	VS*	SS	SU	VU	NO	DK	NA
Volunteer contributions							
Publicity about the IR in campus newspapers							
Presentations by staff responsible for the IR at departmental and faculty meetings							
Personal visits by staff responsible for the IR to faculty and administrators							
Staff responsible for the IR working one-on-one with early adopters							
Word-of-mouth from early adopters to their colleagues in the faculty and staff ranks							
Publicizing the IR during reference interactions in libraries							

and archives							
Systematic review of faculty, staff, center, and departmental web sites for potential contributors by staff responsible for the IR							
Institution-wide mandates regarding mandatory contribution of certain material types, e.g., doctoral dissertations, master's theses, faculty preprints, etc.							
Other (Please specify in question 17b below)							

\* Key to abbreviations: VS=Very successful, SS=Somewhat successful, SU=Somewhat unsuccessful, VU=Very unsuccessful, NO=No opinion, DK=Don't know, NA=Not applicable

17b. If you rated "Other" for the question above, please specify in the box below.

### J. IR Implementation

18a. What IR software package have you implemented? (Choose one only.)

	Pilot Tested	Implemented
ARNO		
bePress		
CDSWare		
ContentDM		
DigiTool (Ex Libris)		
DiVA		
Documentum		
Dpubs		
DSpace		
Fedora		
GNU Eprints		
Greenstone		
HarvestRoad Hive		
Innovative Interfaces		
i-TOR		
Luna		
myCORE		
OPUS		
Sunsite		
Virginia Tech ETD software		
None		
Other (Please specify in question 18b below)		

18b. If you checked "Other" for the question above, please specify in the box below.

19. How would you characterize your IR's host? (Choose one only.)

A regional or state-based consortium
A partnership that joins your institution with one or more comparable institutions
Your institution only
A for-profit vendor
A not-for-profit vendor
Other (please specify)

20. What interoperability standards does your IR support? (Choose all that apply.)

IR supports OAI-MPH
IR is OpenURL compliant
IR materials use persistent identifiers
Our institution's federated searching includes the IR
Other (please specify)

21a. Based on your experience with IR implementation, how would you rate your chosen system with regard to these capabilities?

	VA*	SA	SI	VI	NO	DK	NA
Technical support							
Technical documentation							
Adherence to open access standards							
Scalability = System growth and enhancement							
Customization							
Extensibility = Access to other campus systems and data							
Supported file formats							
User authentication							
Formulating metadata for digital documents							
Browsing, searching, and retrieving digital content							
End-user interface generally							
Controlled vocabulary searching							
Authority control							
Digital preservation							
Other (Please specify in question 21b below)							

\* Key to abbreviations: VA=Very adequate, SA=Somewhat adequate, SI=Somewhat inadequate, VI=Very inadequate, NO=No opinion, DK=Don't know, NA=Not applicable

21b. If you rated "Other" for the question above, please specify in the box below.

22a. If your efforts to implement an IR involved pilot testing IR software packages, what were the most important benefits of the pilot testing?

	VI*	SI	SU	VU	NO	DK	NA
Giving demonstrations to people involved in the IR implementation decision							
Giving demonstrations to an institution (s) interested in partnering with us to encourage them in IR implementation							
Gauging the interest of potential contributors to the IR							
Gauging the interest of potential IR-system users							
Identifying the strengths and shortcomings of available IR software							
Estimating costs for the technical implementation of an operational IR							
Developing the requisite technical expertise for IR implementation							
Identifying first adopters of an IR at your institution							
Control over your institution's intellectual output							
Preservation of your institution's intellectual output							
Other (Please specify in question 22b below)							

\* Key to abbreviations: VI=Very important, SI=Somewhat important, SU=Somewhat unimportant, VU=Very unimportant, NO=No opinion, DK=Don't know, NA=Not applicable

22b. If you rated "Other" for the question above, please specify in the box below.

23. If your efforts to implement an IR involved early adopters of IR technology, from what academic colleges, departments, schools, and service units have they come? (Choose all that apply.)

Your institution's library
Your institution's central computing unit
Your institution's archives
A particular academic college, department, or school
A particular service unit
Don't know
Not applicable
Other (please specify)

#### K. IR Content

24. Estimate the total number of digital documents that are published or in process in your IR.

25a. Estimate the number of digital documents that make up your IR's collections. (Write in the amount or write in DK for Don't Know or NA for Not Applicable.)

Preprints
Working papers

Books
Journals
Journal articles
Maps
Interview transcripts
Sound recordings of interview transcripts
Software
Software documentation
Video recordings of performances
Blogs
Interim and final reports to funding agencies
Raw data files that result from faculty research projects
Raw data files that result from doctoral dissertation research
Raw data files that result from master's thesis research
Raw data files that result from senior thesis research
Written papers or transcripts of conference presentations
Conference presentations (e.g., summaries, abstracts, notes, outlines, remarks, etc.)
Committee meeting agenda and minutes
Committee meeting documents, e.g., budgets, reports, memoranda
Your institution's course catalogs
Your institution's newspapers
Your institution's alumni publications
Faculty senate agendas and minutes
College, departmental, and school alumni publications
Regent, trustee, board meeting agendas and minutes
Course syllabi, class notes, handouts, outlines, assignments prepared by faculty, lecturers, teaching assistants, and other professional teaching personnel
Other learning objects such as simulations, models, software demonstration files, images, video prepared by faculty, lecturers, teaching assistants, and other professional teaching personnel
Doctoral dissertations
Master's theses
Senior theses
Graduate student eportfolios
Undergraduate student eportfolios
Class notes, outlines, assignments, papers, and projects prepared by graduate students
Class notes, outlines, assignments, papers, and projects prepared by undergraduate students
Other (Please specify type of digital document in question 25b below)

25b. If you entered an estimate for “Other” in the previous question, please specify in the box



below.

26a. What file formats have you guaranteed contributors that you will preserve in perpetuity?

	Guaranteed	DK*	NO	NA
Plain Text UTF-8 (Unicode)				
Plain Text ANSI X3.4/ECMA-6/US-ASCII (7-bit)				
Plain Text ISO 8859-x (8-bit)				
Plain Text (all other encodings, including, but not limited to ISO 646 national variants)				
Rich text				
XML				
TeX				
LaTeX				
Postscript				
PDF				
PDF/A				
Microsoft Word				
Microsoft Excel				
Microsoft PowerPoint				
TIFF				
GIF				
JPEG				
PNG				
BMP				
Photo CD				
Photoshop				
AIFF				
Audio/Basic				
MPEG audio				
AAC_M4A				
Real Audio				
Windows Media Audio				
Wave				
AVI				
MPEG-1				
MPEG-2				
MPEG-4				

Windows Media Video				
Quicktime				
Other (Please specify file format in question 26b below)				

\* Key to abbreviations: NO=No opinion, DK=Don't know, NA=Not applicable

26b. If you selected "Other" in the previous question, please specify in the box below.

**L. IR Policies**

27. Who is responsible for managing the IR's intellectual property rights? (Choose all that apply.)

Contributors' academic or service units
One chosen academic unit
One chosen service unit
IR staff
Library staff
Archives staff
Staff from the office of the chief information officer
A company to which our IR is outsourcing
Other (please specify)

28a. What is the status of these IR policies?

	NP*	D	I	DK	NA
Determining what is acceptable content					
Defining collections					
Determining who is authorized to make contributions to the IR					
Restricting access to IR content					
Acceptable file formats					
Identifying metadata formats and authorized metadata creators					
Charging for IR services					
Formulating a privacy policy for registered IR system users					
Licensing IR content					
Updating IR content					
Withdrawing IR content					
Providing access management services					
Preserving IR content					
Revising IR policies in the future					
Authorizing external contributors					
Intellectual property					
Other (Please specify in question 28b below)					

\* Key to abbreviations: NP=No policy; D=Drafted; I=Implemented; DK=Don't know, NA=Not applicable

28b. If you rated "Other" for the question above, please specify in the box below.

**M. IR Deployment**

29a. To what extent do you think the following are likely to inhibit your ability to deploy a successful IR?

	VL*	SL	SU	VU	NO	DK	NA
Making members of your institution's learning community aware of the IR							
Contributors' lack of knowledge about how they can benefit from IRs							
Encouraging faculty to submit digital content to the IR							
Convincing faculty that the IR will not adversely affect the current publishing model							
Absence of campus-wide mandates regarding mandatory contribution of certain material types, e.g., doctoral dissertations, master's theses, faculty preprints, etc.							
Contributors' concerns about the difficulty using the IR system to contribute digital content to the IR							
Inability of contributors to formulate quality metadata							
Contributors' concerns about intellectual property rights for digital materials							
Inadequacy of the IR system's digital preservation capabilities							
Difficulties in long-term preservation of digital files							
Lack of on-campus technical expertise in IR systems							
Supporting all ongoing costs of an operational IR							
Competing for resources with other priorities, projects, and initiatives							
Other (Please specify in question 29b below)							

\* Key to abbreviations: VL=Very likely, SL=Somewhat likely, SU=Somewhat unlikely, VU=Very unlikely, NO=No opinion, DK=Don't know, NA=Not applicable

29b. If you rated "Other" for the question above, please specify in the box below.

**N. Relationships**

30. To what extent will an IR affect your institution's ability to build relationships between the IR and other on-campus repositories (e.g., archives, student services, library systems, digital asset management systems, electronic course management systems, digital libraries)?

A big positive effect

A moderate positive effect
No effect
A moderate negative effect
A big negative effect
A combination of positive and negative effects
Don't know
No opinion
Not applicable
Other (please specify)

**O. Funding**

31a. How likely is it that funding for your institution's implementation of an IR will come from these sources?

	VL*	SL	SU	VU	NO	DK	NA
Special initiative supported by your institution's central administration							
Special initiative supported by your institution's library							
Special initiative supported by your institution's central computer services							
Special initiative supported by your institution's archives							
Special initiative supported by academic colleges, departments, and schools							
Regular budget line item for your institution's central administration							
Regular budget line item for your institution's library							
Regular budget line item for your institution's central computer services							
Regular budget line item for your institution's archives							
Regular budget line item for academic colleges, departments, and schools							
Costs absorbed in routine operating costs of your institution's central administration							
Costs absorbed in routine operating costs of your institution's library							
Costs absorbed in routine operating costs of your institution's central computer services							
Costs absorbed in routine operating costs of your institution's archives							
Costs absorbed in routine operating costs of your institution's academic colleges, departments, and schools							

Grant awarded by an external source							
Grant awarded by an internal source							
Other (Please specify in question 31b below)							

\* Key to abbreviations: VL=Very likely, SL=Somewhat likely, SU=Somewhat unlikely, VU=Very unlikely, NO=No opinion, DK=Don't know, NA=Not applicable

31b. If you rated "Other" for the question above, please specify in the box below.

32a. What percentage of your IR's annual budget is allocated to these categories? (Percentages must add up to 100%.)

	% Staff (including benefits)
	% Hardware acquisition
	% Hardware maintenance
	% Software acquisition
	% Software maintenance and updates
	% System backup
	% Vendor fees (for IRs hosted by an external vendor)
	% Other (Please specify in question 32b below)

32b. If you provided a percentage for "Other" for the question above, please specify in the box below.

**P. Future Migration**

33. How long do you think your institution will stick to this IR system before migrating to a new system? (Please enter number of years.)

34. How likely are you to modify your IR's software?

Very likely
Somewhat likely
Somewhat unlikely
Very unlikely
Don't know
No opinion
Not applicable

35a. What do you think will be the most important reasons for migrating to a new IR system?

	VI*	SI	SU	VU	NO	DK	NA
Greater capacity for handling preservation							
Friendlier user interface							
Advanced searching features							
Friendlier digital content submissions procedure							
Better tools for assisting contributors with metadata							

creation							
Around-the-clock technical support							
Greater versatility with the wide range of digital formats							
Greater opportunities for customization							
Greater versatility for linking to other campus systems and data							
Other (Please specify in question 35b below)							

\* Key to abbreviations: VI=Very important, SI=Somewhat important, SU=Somewhat unimportant, VU=Very unimportant, NO=No opinion, DK=Don't know, NA=Not applicable

35b. If you rated "Other" for the question above, please specify in the box below.

36. What approaches have you used to date to assess your IR's success? (Choose all that apply.)

Tracking number of contributions
Tracking number of unique contributors
Tracking number of searches
Tracking number of users
Tracking number of unique users
Tracking number of queries
Conducting interviews with IR contributors
Conducting interviews with IR users
Surveying IR contributors
Surveying IR users
Other (please specify)

**Q. Institutional Information**

37. Please identify your position at your institution. (Choose one only.)

President or chancellor
Staff in the office of the president or chancellor
Vice president or provost
Staff in the office of the vice president or provost
Chief information officer
Staff in the office of the chief information officer
Archivist
Archives staff
Library director
Assistant director of library public services
Assistant director of library technical services
Assistant director of library information technology

Library staff
Other (please specify)

- 38. What is your connection to your institution's IR?
  - 39. Please identify your institution.
  - 40. If your institution's IR is available to the general public, please give its web address(es):
- R. Follow-up information**
- 41. How can the MIRACLE Project assist you regarding IRs?
  - 42. If you would be willing to volunteer for follow-up questions via phone or email, please add your name and email address and we will contact you in the near future:

Name
Email

Thank you! If you have questions, please message Soo Young Rieh (rieh@umich.edu) at the MIRACLE project. Thank you for your responses.

## 10.2. Questions for Telephone Interviews with Institutional Repository Staff

### Implementation

#### [Introduction]

- Hi, this is [name] from the School of Information at the University of Michigan. Thank you very much for agreeing to be interviewed for our study of institutional repositories. This interview will take about 1 hour and 15 minutes. If you're not comfortable answering any of the questions, please just let me know. Do you have any questions before we start?

#### [Respondent]

- What is your role vis-à-vis the IR?

#### [Getting started]

- What is unique about your IR? (for example, something about collections, contributors, policies, ...)
- What was the impetus for your institution's IR?
- What are the objectives of your institution's IR?

#### [People involved in IR]

- Can you tell me who is involved in your IR? (Both core staff members and committees) Who is the person leading this effort?

#### [IR Implementation Experience]

- What IR system(s) are you currently using?
- How did you select your IR system?
- What kinds of IR systems did you pilot test or considered before you made a decision? What did you learn during the pilot test?
- What system features are especially satisfactory? Tell me about them. Are there other system features that are especially inadequate? Tell me about them. What improvements are necessary?
- Tell me about metadata assignment in your IR. Who assigns the metadata? Are metadata reviewed and corrected by professional staff? Why or why not? What metadata are controlled, quasi-controlled, and uncontrolled? What kinds of vocabulary aids could contributors use to streamline metadata assignment? What aids could professional staff use?
- Census results revealed that authority control and controlled vocabulary searching in IRs are both inadequate. Is this true in your system? Why or why not?

#### [Consortium and Collaboration]



- According to our survey results, a number of institutions were interested in consortium ideas. If you considered this option, tell us why you have or have not joined a consortium.
- What do you think needs to be done in order to facilitate more collaboration among IRs?
- Do you think that consortium ideas or other kinds of collaboration should start in early phases or can such discussions take place after each institution implements their own IR?

#### **[Content Recruitment and Contributors]**

- Consider the current collection in your IR. What proportion of the content is research materials? Teaching resources? Service-related materials? Publicity-related materials? University electronic records? Are you satisfied with these relative proportions? If not, why not?
- What kinds of strategies or mechanisms do you use for collection development in the IR?
  - Probe: How have these evolved?
  - Probe: Is this working?
  - Probe: Which strategy has worked best?
  - Probe: Which strategy did not work well?
- Some IRs seem to have difficulty in recruiting the content. Is it the case for you? Why do you think that there isn't much contribution from faculty?

#### **[Preservation]**

- Do you plan to increase the types of file formats your IR will preserve in perpetuity?
  - Probe: How are decisions about preserving specific file formats made?
- Describe your preservation regime.
  - How is your preservation regime managed?
- Do you think that the IR can be a good venue for intellectual preservation in your institution?
- Where do you stand vis-à-vis trusted digital repositories
- Would your library ever go through the certification process to become a trusted digital repository?

#### **[Policy]**

- *Have you been involved at all with policy development for your IR?*
- One census respondent wrote us saying "our policy is to have no policy." To what extent do you agree with this statement? Why? Have you adopted a "wait-and-see" attitude with regard to some policies? Which ones and why?
- To what extent have your IR policies changed? Cite specific examples of policy changes. How are policy changes introduced, how are changes made, and who is involved?

**[Service]**

- What kinds of services (e.g., proxy submission, user supporting, etc.) are you offering?
- So far, what service(s) seem to be most valuable to the members of your institution? How do you know?
- Who are the intended users for your IR?

**[Values and Benefits of IR]**

- What is the most important benefit that the IR has brought to the institution?
- What opportunities/promise can you offer to potential contributors and end-users?

**[IR Intellectual Property Rights]**

- How do you handle intellectual property rights?
- Is the management of intellectual property rights the responsibility of individual contributors or of IR's management personnel?

**[Evaluation/Success]**

- *Have you or your institution begun to devise ways to measure the success of your IR?*
- What types of evaluation programs do you have or will you have?
- What are the metrics that are being used or that could be used to evaluate the success of IRs?
- What lessons have you learned that would help others implement IRs more smoothly?
- Do you consider your IR to be successful? If so, why? If not, why not?

**[Needs for Improvement]**

- *Have you or your institution noticed any areas in which your IR needs improvement?*
  - Probe: What do you see as the main limitations or weaknesses of your IR?

**[Relationships with other people and systems]**

- Tell us about the new relationships that your IR has fostered:
  - With other people (e.g. staff and/or students in various academic departments or academic units, such as your institution's archives, research centers, and institutes)?
  - With other systems (e.g., your institution's library catalog, digital asset management systems, etc.)?

**[Budget]**

- *Can we talk about your budget planning and situation a little bit?*
- What are the major expenses for your IR?
- Do you anticipate that any new costs and/or needs for additional resources are likely to come up?
- Please tell us the costs of your IR's budget line items such as staff, vendor fees, software and hardware acquisition and maintenance? What costs have we missed?

- Has any unexpected event, occurrence, situation, etc., occurred that negatively or positively impacted your budget? If so, please tell me what happened.

**[Future of IR]**

- What risks/challenges do you see in setting up and maintaining an IR?
- How confident are you about the sustainability of your institution's IR?
- Tell me what lies ahead for institutional repositories in general.
- Do you believe that more institutions should set up IRs? If yes, do you have any ideas about how this could be encouraged? If no, why not?
- To what extent do you think that IRs will reform the enterprise of scholarly communication and the traditional publishing model?

**[Last Questions]**

- Did we miss anything? Is there anything that you would like to add?
- Is there anyone else that you would suggest I talk with? Tell me what you think I should ask them.
- Do you have any questions? (about our research, this interview, ...)

## **Planning and Pilot-Testing (P+P)**

### **[Introduction]**

- Hi, this is [name] from the School of Information at the University of Michigan. Thank you very much for agreeing to be interviewed for our study of institutional repositories. This interview will take about 1 hour and 15 minutes. If you're not comfortable answering any of the questions, please just let me know. Do you have any questions before we start?

### **[Respondent]**

- What is your role vis-à-vis the IR?

### **[Getting started]**

- What is unique about your IR? (for example, something about collections, contributors, policies, ...)
- What was the impetus for your institution's IR?
- What are the objectives of your institution's IR?

### **[People involved in IR]**

- Can you tell me who is involved in your IR? (Both core staff members and committees) Who is the person leading this effort?

### **[IR Planning and Pilot Testing Experience]**

- What IR system(s) are you currently using?
- How did you select your IR system?
- What kinds of IR systems are you currently pilot-testing?
- What system features are especially satisfactory? Tell me about them. Are there other system features that are especially inadequate? Tell me about them. What improvements are necessary?
- Tell me about metadata assignment in your IR. Who assigns the metadata? Are metadata reviewed and corrected by professional staff? Why or why not? What metadata are controlled, quasi-controlled, and uncontrolled? What kinds of vocabulary aids could contributors use to streamline metadata assignment? What aids could professional staff use?
- Census results revealed that authority control and controlled vocabulary searching in IRs are both inadequate. Is this true in your system? Why or why not?

### **[Consortium and Collaboration]**

- According to our survey results, a number of institutions were interested in consortium ideas. If you considered this option, tell us why you have or have not joined a consortium.
- What do you think needs to be done in order to facilitate more collaboration among IRs?

- Do you think that consortium ideas or other kinds of collaboration should start in early phases or can such discussions take place after each institution implements their own IR?

### **[Content Recruitment and Contributors]**

- What kinds of strategies or mechanisms do you use (or plan to use) for collection development in the IR?
  - Probe: How have these evolved?
  - Probe: Is this working?
  - Probe: Which strategy has worked best?
- Consider the current collection in your IR. What proportion of the content is research materials? Teaching resources? Service-related materials? Publicity-related materials? University electronic records? Are you satisfied with these relative proportions? If not, why not?

### **[Preservation]**

- Do you plan to increase the types of file formats your IR will preserve in perpetuity?
  - Probe: How are decisions about preserving specific file formats made?
- Describe your preservation regime.
  - How is your preservation regime managed?
- Do you think that the IR can be a good venue for intellectual preservation in your institution?
- Where do you stand vis-à-vis trusted digital repositories
- Would your library ever go through the certification process to become a trusted digital repository?

### **[Policy]**

- *Have you been involved at all with policy development for your IR?*
- One census respondent wrote us saying “our policy is to have no policy.” To what extent do you agree with this statement? Why? Have you adopted a “wait-and-see” attitude with regard to some policies? Which ones and why?
- To what extent have your IR policies changed? Cite specific examples of policy changes. How are policy changes introduced, how are changes made, and who is involved?

### **[Service]**

- What kinds of services (e.g., proxy submission, user supporting, etc.) are you offering?
- So far, what service(s) seem to be most valuable to the members of your institution? How do you know?
- Who are the intended users for your IR?

### **[Values and Benefits of IR]**

- What is the most important benefit that the IR has brought to the institution?
- What opportunities/promise can you offer to potential contributors and end-users?

### **[IR Intellectual Property Rights]**

- How do you handle intellectual property rights?
- Is the management of intellectual property rights the responsibility of individual contributors or of IR's management personnel?

### **[Evaluation/Success]**

- *Have you or your institution begun to devise ways to measure the success of your IR?*
- What types of evaluation programs do you have or will you have?
- What are the metrics that are being used or that could be used to evaluate the success of IRs?
- What lessons have you learned that would help others implement IRs more smoothly?
- Do you consider your IR to be successful? If so, why? If not, why not?

### **[Needs for Improvement]**

- *Have you or your institution noticed any areas in which your IR needs improvement?*
  - Probe: What do you see as the main limitations or weaknesses of your IR?

### **[Relationships with other people and systems]**

- Tell us about the new relationships that your IR has fostered:
  - With other people (e.g. staff and/or students in various academic departments or academic units, such as your institution's archives, research centers, and institutes)?
  - With other systems (e.g., your institution's library catalog, digital asset management systems, etc.)?

### **[Budget]**

- *Can we talk about your budget planning and situation a little bit?*
- What are the major expenses for your IR?
- Do you anticipate that any new costs and/or needs for additional resources are likely to come up?
- Please tell us the costs of your IR's budget line items such as staff, vendor fees, software and hardware acquisition and maintenance? What costs have we missed?
- Has any unexpected event, occurrence, situation, etc., occurred that negatively or positively impacted your budget? If so, please tell me what happened.

### **[Future of IR]**

- What risks/challenges do you see in setting up and maintaining an IR?
- How confident are you about the sustainability of your institution's IR?

- Tell me what lies ahead for institutional repositories in general.
- Do you believe that more institutions should set up IRs? If yes, do you have any ideas about how this could be encouraged? If no, why not?
- To what extent do you think that IRs will reform the enterprise of scholarly communication and the traditional publishing model?

**[Last Questions]**

- Did we miss anything? Is there anything that you would like to add?
- Is there anyone else that you would suggest I talk with? Tell me what you think I should ask them.
- Do you have any questions? (about our research, this interview, ...)

## **Only Planning (OP)**

### **[Introduction]**

- Hi, this is [name] from the School of Information at the University of Michigan. Thank you very much for agreeing to be interviewed for our study of institutional repositories. This interview will take about 45 minutes. If you're not comfortable answering any of the questions, please just let me know. Do you have any questions before we start?

### **[Respondent]**

- What is your role vis-à-vis the IR?

### **[Getting started]**

- What is unique about your IR? (for example, something about collections, contributors, policies, ...)
- What was the impetus for your institution's IR?
- What are the objectives of your institution's IR?

### **[People involved in IR]**

- Can you tell me who is involved in your IR? (Both core staff members and committees) Who is the person leading this effort?

### **[IR Planning Issues]**

- What are the important aspects of an IR system will you consider?
- What are your thoughts about adding metadata?

### **[Consortium and Collaboration]**

- According to our survey results, a number of institutions were interested in consortium ideas. If you considered this option, tell us why you have or have not joined a consortium.
- What do you think needs to be done in order to facilitate more collaboration among IRs?
- Do you think that consortium ideas or other kinds of collaboration should start in early phases or can such discussions take place after each institution implements their own IR?

### **[Content Recruitment and Contributors]**

- What kinds of strategies or mechanisms do you use for collection development in the IR?
- Do you agree that increased visibility of IRs would bring them more attention from contributors? From searchers? How could your institution promote events and activities in order to raise "visibility"?

### **[Preservation]**

- How will you decide which types of file formats your IR will preserve in perpetuity?
- Probe: How are these decisions made?



- Do you think that the IR can be a good venue for intellectual preservation in your institution?
- Have you heard of trusted digital repositories? If so, what are your thoughts about this?
- Would your library ever go through the certification process to become a trusted digital repository?

#### **[Policy]**

- One census respondent wrote us saying “our policy is to have no policy.” To what extent do you agree with this statement? Why?

#### **[Values and Benefits of IR]**

- What is the most important benefit that the IR has brought to the institution?
- What opportunities/promise can you offer to potential contributors and end-users?

#### **[User Studies]**

- What types of user studies have you done?
  - Probe: Planning stage
  - Users (contributors or searchers) of the system

#### **[Evaluation]**

- *Have you or your institution begun to devise ways to measure the success of your IR?*
- What types of evaluation programs do you have or will you have?
- What are the metrics that are being used or that could be used to evaluate the success of IRs?

#### **[Relationships with other people and systems]**

- Tell us about your relationships:
  - With other people (e.g. staff and/or students in various academic departments or academic units, such as your institution’s archives, research centers, and institutes)?
  - With other systems (e.g., your institution’s library catalog, digital asset management systems, etc.)?

#### **[Future of IR]**

- What risks/challenges do you see in setting up and maintaining an IR?
- How confident are you about the sustainability of your institution’s IR?
- Tell me what lies ahead for institutional repositories in general
- Do you believe that more institutions should set up IRs? If yes, do you have any ideas about how this could be encouraged? If no, why not?
- To what extent do you think that IRs will reform the enterprise of scholarly communication and the traditional publishing model?

#### **[Last Questions]**

- Did we miss anything? Is there anything that you would like to add?

- Is there anyone else that you would suggest I talk with? Tell me what you think I should ask them.
- Do you have any questions? (about our research, this interview, ...)

## **No Planning (NP)**

### **[Introduction]**

- Hi, this is [name] from the School of Information at the University of Michigan. Thank you very much for agreeing to be interviewed for our study of institutional repositories. This interview will take about 30 minutes. If you're not comfortable answering any of the questions, please just let me know. Do you have any questions before we start?

### **[Respondent]**

- What is your role at your institution?
- What do you think your role would be in relation to the IR?
- If your institution were to begin planning for an IR, who do you think would be involved in this effort? Who do you think would lead this effort?

### **[Interests]**

- Do you envision planning for an IR ever taking place at your institution? Why or why not? If yes, when?
- Would joining a consortium for IR services make sense for your institution? Why or why not?
- Do you know of any peer institutions that are currently involved in IRs?
  - Probe: Has this influenced your decision at all with regard to IRs?
  - Probe: Would you be interested in pursuing a collaboration with them? Why or why not?
- To what extent do you think your institution's faculty would use IR services, for example, contributing to an IR, searching your own IR, searching a federated search service such as OAIster, or volunteering to contribute metadata to IR content in their area of expertise and knowledge?
- To what extent do you think your institution's students would use IR services, for example, contributing to an IR, searching your own IR, searching a federated search service such as OAIster, or volunteering to contribute metadata to IR content in their area of expertise and knowledge?

### **[Getting Started]**

- What expertise would your institution need to start planning for an IR? Is such expertise available in house or would you seek this expertise from external sources?

### **[Barriers]**

- What are the greatest problems in getting planning off the ground?

### **[Relationships with other people and systems]**

- Tell us about your relationships:

- With other people (e.g. staff and/or students in various academic departments or academic units, such as your institution's archives, research centers, and institutes)?
- With other systems (e.g., your institution's library catalog, digital asset management systems, etc.)?

**[Last Questions]**

- Did we miss anything? Is there anything that you would like to add?
- Is there anyone else at your institution that you would suggest I talk with? Tell me what you think I should ask them.

Do you have any questions? (about our research, this interview, ...)

### 10.3. Interview Questions for Institutional Repository User Study

1. How did you happen to come across our link? Could you please tell me what you were looking for at that time? Were you able to find what you were looking for? What did you do with what you found?
2. How did you originally find out about [name of IR]?
3. Could you please describe [name of IR] to me? How would you characterize it? What types of content do you think that [name of IR] contains?
4. Of all the types of contents you just listed, what are the types that you look for most often when you are visiting [name of IR]? [Prompt, if necessary: Articles, images, data sets, ...]
5. Do you know of any other people who use [name of IR]? Can you think of any reasons why people may not use [name of IR]?
6. How do you usually access [name of IR]? [Prompt, if necessary: Via the IR's home page, via Google, ...] How well does this usually work for you?
7. How long have you been using [name of IR]?
8. About how often do you use [name of IR]?
9. Why do you use [name of IR] in particular? For what purposes have you used it? Can you give me any specific examples?
10. In what ways do you tend to search within [name of IR]? [Prompts, only if necessary: Author name, subject area, article title, ...]
11. Do you usually find what you are looking for? If you don't, what do you do next? Do you then turn to other systems? If so, what systems do you turn to and why?
12. Are you likely to use [name of IR] again? Would you recommend it to your peers? Why/Why not?
13. Have you used similar Websites provided by other institutions? If so, which one(s)? How did you find about it/them? Why did you choose to use these particular one(s)? How do these Websites compare with one another? Which of these Websites do you use the most? [If the answer is an IR, but not the respondent's own IR, ask why they don't prefer their own institution's IR]
14. There are so many information systems, such as Google, Google Scholar, library databases, Websites like [name of IR]. How do you decide which one to try first? Do you think that using [name of IR] helps you to find more information and/or better information?

15. Which of the sources just mentioned would you trust the most? Which the least?  
Why?
16. How credible do you think the information from each of the following sources is?  
Why?
- a. Your Institution's Library Website/Catalog
  - b. [Name of IR] (or names of IRs, if interviewee has mentioned more than one)
  - c. General Web Search Engines such as Google
  - d. Google Scholar

## 10.4. Interview Questions for Case Studies

### Library Director

How did the discussion about IRs begin at your university?

When did you get involved in the IR discussion?

What was your initial involvement in the IR process (e.g., first one to promote the idea, was asked to participate in the planning early, etc.)?

What role did you play in the planning process and how has your role evolved as the project has made progress?

Can you describe your current role in the IR?

What can the IR do for the community?

What is the library's stance on Open Access?

To what extent does the larger university advocate for open access?

How does the IR relate to the traditional scholarly paradigm of publishing and preservation?

What message do you tell your staff about copyright and the IR?

As a library director, how does the IR fit into your plans for the library?

How do you present the IR to the rest of the University?

How is the IR perceived in the larger University community?

How would you describe the support you have gotten from university officials?

What about the IR's role in preservation?

Do you see the IR as a resource within the entire University system?

How do you position the IR in terms of the other data repositories on campus?

How does the IR change the role of libraries on your campus?

Do you welcome this change?

What about content recruitment -- have you been pleased or disappointed about the amount of content ingested into the IR?

Are you committed to funding the IR in the long term?

Overall, how do you think that your IR is doing? What's going well? What can be improved?

Where would you like to see the IR be in one year?

Do you think the role of the IR will increase over time? How?

What is the vision for the IR in 5 years?

### Closing:

What things have occurred which surprised you about the IR since its launch?

Would you say your IR is successful? Why?

## **Head(s) of the IR**

How did the discussion about IRs begin at your university?

When did you get involved in the IR discussion?

What was your initial involvement in the IR process (e.g., first one to promote the idea, was asked to participate in the planning early, etc.)?

What role did you play in the planning process and how has your role evolved as the project has made progress?

Can you describe your current role in the IR?

What can the IR do for the community?

What is the library's stance on Open Access?

To what extent does the larger university advocate for open access?

How does the IR relate to the traditional scholarly paradigm of publishing and preservation?

What message do you tell your staff about copyright and the IR?

Can you talk a bit about policy setting? Can you assess your progress?

How do policies help or hinder content recruitment and preservation?

## **Planning Process**

Who were the key people who led the effort in the planning process?

Did you (or your IR) get involved in investigative efforts?

Were you influenced by peer institutions?

Were there elements that you now wish you had investigated?

Would you do anything differently in the next process of this type?

## **Positioning the IR**

What is the significance of the name of your IR?

Do you see the IR as a consortia resource? (if applicable)

How do you view the IR vis-à-vis your other information systems on campus?

Is there collaboration or competition between these systems?

Is the IR different than you envisioned when you began planning for it? How?

What are the major benefits of the IR?

What have been the challenges establishing/maintaining the IR?

## **Authority Structure / Staffing**

How does the authority structure work?

How has this structure changed over time?

Does your advisory board committee function well? advisory board?

Has the function of the advisory board changed over time?



## **Technology**

How did you select your current IR system?

What factors were most important in your decision making?

Were there any close seconds in your technology decision?

What other systems did you consider?

Do you think you made the right choice? Why?

When do you think you will need to change your IR system? / How long do you anticipate using this system?

Do you think your criteria will change when you select your next system?

Does the technology constrain your options in the IR? How? (e.g., types of content recruited, preservation plans, interface, etc.)

Are users a factor in technological decisions? In what way(s)?

## **Financial**

Who pays for the IR?

Is the IR funded directly or are certain things (e.g., salaries) hidden in other parts of the budget?

Do you have a sustainability plan for the IR?

## **User/Service**

Who do you think are your major users?

What has been the reaction to the IR on campus? Did you collect any data on this?

What is it do you think that will enable your IR to attract users?

What could motivate users to use your IR more often?

How important is it for you to see an increase in use?

What kinds of services do you think that your IR is providing to the users that they cannot get anywhere else?

## **Usability**

Were you involved in the usability study (if applicable)? Can you talk a bit about that?

What other types of evaluation have you done for the IR?

## **Copyright**

How do you handle the copyright issues in your IR?

Do you only post items that have no copyright limitations?

Do you do any copyright research yourself?

Have you made any agreements with publishers?

## **Metadata**

Who adds metadata to IR contributions?

If contributors add metadata, then ask this question. If not, skip to question below. How enthusiastic are contributors about creating metadata for their contributions? Do you think metadata creation makes them reluctant to submit contributions to the IR? Why or why not?

Are any controlled vocabularies used during metadata creation? If yes, ask: What fields are controlled? How does such control work (maybe ask for a demonstration)? What controlled vocabularies do you use? If no, ask: Do you think controlled vocabularies should be part of metadata creation? Why or why not?

Do you think IR staff or cataloging staff should periodically review IR contributions and replace user-entered words and phrases with controlled vocabulary terms? Why or why not? Do you think IR contributors would balk or disapprove of staff changing their records? Why or why not?

Instead of IR staff assigning controlled vocabulary, would you entertain the idea of automatic or computer-assisted controlled vocabulary assignment? Why or why not? What data elements do you think would benefit from automatic or computer-assisted controlled vocabulary assignment? Why?

How do you think the absence of controlled vocabularies from IR records affects retrieval for end users? (Here are some probes: How do you think it affects recall, precision, the effort users put into searching, their confidence in the end results, whether they like or dislike the IR, their likelihood to use the IR in the future?)

## **Preservation**

Is preservation important for your IR? Why or why not?

What is the preservation plan for your IR?

How would you characterize your preservation policies?

Have you had any discussions about becoming a trusted digital repository?

Have you begun planning for this?

How important do you think preservation is for end users?

Do you think IRs are making preservation promises they cannot keep?

## **Success**

To you, what is the IR? What can it do for the community?

How does the IR change the role of libraries on your campus? Do you think that this change is in the right direction?

Overall, how do you think that your IR is doing? What's going well? What can be improved?

If you could restart the whole process for the IR, what would you do differently?

**1 year**

Where would you like to see the IR be in one year?

**5 year**

Do you think the role of the IR will increase over time? How?

What is the vision for the IR in 5 years?

**Closing:**

What things have occurred which surprised you about the IR since its launch?

Would you say your IR is successful? Why?

## **Content Recruitment Librarians / Subject Bibliographers**

When did you get involved in the IR discussion?

Describe the roles you have played in IR planning and management.

How do you present the IR to the rest of the University?

How is the IR perceived in the larger University community?

What is your content recruitment process?

Do you have a collection development plan for the IR?

Are the types of materials in the IR those that you expected?

Would you like to shape the collection differently in the future? (new types of materials?)

How do you convince people to contribute (what arguments: preservation, increased citation) to the IR?

Do you discuss preservation? Is this an argument that resonates in the larger university community?

Do you talk about Open Access at all? Is this an argument that resonates in the larger university community?

Is there competition for content?

How amenable have faculty been in providing content?

Did you begin with any pre-existing digital content that you could ingest into the IR?

How do you decide what content goes in the IR and what is placed in other venues?

How do you handle copyright issues in the content recruitment process?

Who actually ingests items into the IR?

How does content recruitment for the IR fit in with other collection development efforts?

Do any of the IR policies hamper recruitment?

What about metadata, does this hinder ingesting more content?

Are you doing content recruitment differently for the IR than you have previously done for print and electronic resources?

Is preservation important to contributors?

Do you think IRs are making preservation promises they cannot keep?

Where would you like to see the IR be in one year? 5 years?

What things have occurred which surprised you about the IR since its launch?

Would you say your IR is successful? Why?

## Metadata Librarian

When did you get involved in the IR discussion?

Describe the roles you have played in IR planning and management?

What does the IR do for the University community?

Who adds metadata to IR contributions?

If contributors add metadata, then ask this question. If not, skip to question below. How enthusiastic are contributors about creating metadata for their contributions? Do you think metadata creation makes them reluctant to submit contributions to the IR? Why or why not?

Are any controlled vocabularies used during metadata creation? If yes, ask: What fields are controlled? How does such control work (maybe ask for a demonstration)? What controlled vocabularies do you use? If no, ask: Do you think controlled vocabularies should be part of metadata creation? Why or why not?

Do you think IR staff or cataloging staff should periodically review IR contributions and replace user-entered words and phrases with controlled vocabulary terms? Why or why not? Do you think IR contributors would balk at or disapprove of staff changing their records? Why or why not?

Instead of IR staff assigning controlled vocabulary, would you entertain the idea of automatic or computer-assisted controlled vocabulary assignment? Why or why not? What data elements do you think would benefit from automatic or computer-assisted controlled vocabulary assignment? Why?

How do you think the absence of controlled vocabularies from IR records affects retrieval for end users? (Here are some probes: How do you think it affects recall, precision, the effort users put into searching, their confidence in the end results, whether they like or dislike the IR, their likelihood to use the IR in the future?)

Have your thoughts about metadata and the IR changed since the beginning of your involvement?

Do you get pushback from contributors regarding metadata?

Where would you like to see the IR be in one year? 5 years?

What things have occurred which surprised you about the IR since its launch?

Would you say your IR is successful? Why?

## Technology staff

When did you get involved in the IR discussion?

Describe the roles you have played in IR planning and management?

How did you select your current IR system?

What factors were most important in your decision making?

Are users a factor in technological decisions? In what way(s)?

Were there any close seconds in your technology decision?

What other systems did you consider?

How well do you think the system accommodates metadata?

Are there policies that cause you problems in running the IR?

How do you feel about the preservation promises being made by the IR?

Describe the degree of difficulty you have working with the system. Was it easy to install? Is it easy to manipulate the interface? Is it easy to adapt to your network environment?

Do you think you made the right choice? Why?

When do you think you will need to change your IR system? / How long do you anticipate using this system?

Do you think your criteria will change when you select your next system?

Does the technology constrain your options in the IR? How? (e.g., types of content recruited, preservation plans, interface, etc.)

What things have occurred which surprised you about the IR since its launch?

Where would you like to see the IR be in one year? 5 years?

What things have occurred which surprised you about the IR since its launch?

Would you say your IR is successful? Why?

## Archivist

When did you get involved in the IR discussion?

What was your initial involvement in the IR process (e.g., first one to promote the idea, was asked to participate in the planning early, etc.)?

What role did you play in the planning process and how has your role evolved as the project has made progress?

Can you describe your current role in the IR?

What can the IR do for the university community?

How are you using the IR? Prompt: Are you using it for the university archives as well as special collections? If not, how are these other materials being handled?

Does the IR compete with or complement the archives?

Do you see the IR as an extension of the archives?

What do you think about how metadata is managed in the IR?

What is the relationship between metadata in the IR and other metadata you generate? (Prompt if not answered re: controlled vocabulary, authority control)

Are there intellectual property issues that make you wary of using the IR to the fullest potential?

Is preservation an important aspect of the IR?

Is the IR living up to this level of preservation?

Do you think IRs are making preservation promises they cannot keep?

Where would you like to see the IR be in one year? 5 years?

What things have occurred which surprised you about the IR since its launch?

Would you say your IR is successful? Why?

## Scholarly Publishing Office

When did you get involved in the IR discussion?

What was your initial involvement in the IR process (e.g., first one to promote the idea, was asked to participate in the planning early, etc.)?

What role did you play in the planning process and how has your role evolved as the project has made progress?

Can you describe your current role in the IR?

What can the IR do for the university community?

What is the Scholarly Publishing Office's stance on Open Access?

To what extent does the larger university advocate for open access?

How does the IR relate to the traditional scholarly paradigm of publishing and preservation?

How is the IR perceived in the larger University community?

Who are the leaders of this movement and how are they linked to your office or the IR?

How does the scholarly publishing office use the IR?

How can you envision this changing in the future?

Is preservation an important aspect of the IR?

Do you think IRs are making preservation promises they cannot keep?

Is the IR living up to this level of preservation?

Where would you like to see the IR be in one year? 5 years?

What things have occurred which surprised you about the IR since its launch?

Would you say your IR is successful? Why?



## **Staff Who is Responsible for Other Repositories on Campus**

When did you get involved in the IR discussions on campus? Were you involved in planning [NAME OF REPOSITORY]?

What was your initial involvement in the [NAME OF REPOSITORY] process (e.g., first one to promote the idea, was asked to participate in the planning early, etc.)?

What role did you play in the planning process and how has your role evolved as the project has made progress?

Can you describe your current role vis-a-vis the repository?

What do you think IRs do for the university community?

To what extent does the larger university advocate for open access?

How does your repository and the library IR relate to the traditional scholarly paradigm of publishing and preservation?

How are IRs perceived in the larger University community?

How can you envision this changing in the future?

How does your repository differ from [NAME OF IR]?

Does your repository compete with or complement [NAME OF IR]?

Can you provide some examples of this?

Is preservation an important aspect of your repository?

How does your repository deal with preservation issues?

Can you compare this with the library's IR?

Do you think IRs are making preservation promises they cannot keep?

How would you like the IRs on campus to look in one year? 5 years?

What has surprised you about the IR movement on campus since their launches?

Would you say the IRs are successful? Yours? Why? The library's? Why?

## Head of User Services

When did you get involved in the IR discussion?

What was your initial involvement in the IR process (first one to promote the idea, was asked to participate in the planning early, etc.)

What role did you play in the planning process and how your role has evolved as the project had made a progress?

Can you describe your current role in the IR?

What can the IR do for the university community?

Describe the IR's user community

Do you think the IR meets their needs?

What are the greatest impediments to use of the IR?

Prompt individually: Are there any interface issues?, Does the limited content to search influence the amount of visitors to the IR? Is the metadata a hindrance to effective search? Retrieval?

Were you involved in the usability study (if applicable)? Can you talk a bit about that?

Do users get confused about the different IRs on campus?

Do users appreciate the open access aspect of the IR?

Do users appreciate the preservation aspect of the IR?

Where would you like to see the IR's user community be in one year? 5 years?

What things have occurred which surprised you about the IR since its launch?

Would you say your IR is successful? Why?

## **University Press Director**

How did the discussion about IRs begin at your university?

What is the IR? What can it do for the community?

How is the IR perceived in the larger University community? How can you envision this changing in the future?

Did you get involved in the IR discussion? If so, at what point?

Can you describe your current role in the IR?

What role did you play (if any) in the planning process and how has your role evolved as the project has made progress?

Who are the leaders of the IR movement and how are they linked to your office?

What is the stance of your press on Open Access?

To what extent does the larger university advocate for Open Access?

How does the IR relate to the traditional scholarly paradigm of publishing and preservation?

How does your press relate to the traditional scholarly paradigm of publishing and preservation?

What is the nature of the relationship between the IR and your press?

Does the IR compete with or complement your press?

What roles/goals do you have in common? What unique roles/goals does each of you have?

What does each of you offer to contributors? To readers? How do these offerings differ?

In what ways do the nature of the content published by your press and that deposited into the IR differ? In what ways are they the same?

Has the establishment of the IR impacted your press in any way? If so, how?

How is the establishment of institutional repositories impacting university presses in general?

Does your press use the IR? If so, for what purposes?

How does the IR fit into your plans for your press? How can you envision this changing in the future?

## **Copyright**

What are the potential copyright issues facing the IR?

How do these compare to the copyright issues facing your press?

What are your policies about allowing authors to contribute copies of their work to institutional repositories?

Are there intellectual property issues that make people wary of using the IR to the fullest potential?

**Success**

Overall, how do you think that the IR is doing? What's going well? What can be improved?

How does the IR change the role of libraries on your campus? Do you think that this change is in the right direction?

What about content recruitment -- have you been pleased or disappointed about the amount of content ingested into the IR?

Where would you like to see the IR be in one year?

Do you think the role of the IR will increase over time? How?

What is the vision for the IR in 5 years?

**Closing:**

What has surprised you about the IR movement on campus since its launch?

Would you say that the IR is successful? Why?

## **IR User/Contributor**

Would you tell me a little bit about yourself?

How did you originally find out about [NAME OF IR]?

Could you please describe [NAME OF IR] to me? How would you characterize it?

How long have you been using [NAME OF IR]?

How often do you use [NAME OF IR]?

Do you contribute to the [NAME OF IR]?

If yes, tell me what motivated you to deposit your work.

Could you please tell me about your last experience posting your work on [NAME OF IR]?

How did you decide what types of research/teaching work you want to post on [NAME OF IR]?

Why do you make certain materials publicly accessible through [NAME OF IR]?

Do you post materials on the Internet through other web sites (e.g., personal webpage, disciplinary repositories, etc)?

When you post them, are you concerned about copyright issues?

Do you feel that it takes time and effort to post your work on [NAME OF IR]?

What do you think are the benefits of posting your work on [NAME OF IR]?

Among access, search, and preservation, which is the most important aspect of the IR?

Would you recommend the IR to your peers? Why/Why not?

Do you know of any other people who use [NAME OF IR]? Can you think of any reasons why people may not use [NAME OF IR]?

Have you used other institutions' institutional repositories? If so, which one(s) have you used? How did you find out about these institutional repositories? Why did you choose to use these particular ones? Which of these institutional repositories do you use the most?

How trustworthy do you think the information from each of the following sources is? Why?

- a. Your Institution's Library Website/Catalog
- b. [NAME OF IR] (or NAMES of IRS, if interviewee has mentioned more than one)
- c. General Web Search Engines such as Google
- d. Google Scholar

## **Success**

Overall, how do you think that the IR is doing? What's going well? What can be improved?

To what extent does the larger university advocate for Open Access?

How visible do you think the IR is on campus? What can be done to improve this?

How is the IR perceived in the larger University community? How can you envision this changing in the future?

How does the IR change the role of libraries on your campus? Do you think that this change is in the right direction?

What about content recruitment -- have you been pleased or disappointed about the amount of content ingested into the IR?

Where would you like to see the IR be in one year?

Do you think the role of the IR will increase over time? How?

What is the vision for the IR in 5 years?

**Closing:**

What has surprised you about the IR movement on campus since its launch?

Would you say that the IR is successful? Why?

## 10.5. Experimental Study Questionnaires and Interview Questions

### Background Questionnaire

- a. Your major: \_\_\_\_\_
- b. Department, school, or college you are enrolled in: \_\_\_\_\_
- c. **Circle** your current educational level:  
Freshman   Sophomore   Junior   Senior   Master's program  
Doctoral program
- d. Your age: \_\_\_\_\_                      e. Your gender: \_\_\_\_\_
- f. Generally, how often do you visit libraries by walking into a library building in person? Please check one that describes you best.
- |  |   |
|--|---|
| <input type="checkbox"/> Several times a day   | <input type="checkbox"/> Once a month         |
| <input type="checkbox"/> Once a day            | <input type="checkbox"/> Several times a year |
| <input type="checkbox"/> Several times a week  | <input type="checkbox"/> Once a year          |
| <input type="checkbox"/> Once a week           | <input type="checkbox"/> Never                |
| <input type="checkbox"/> Several times a month |   |
- g. Generally, how often do you use the U-M library databases other than MIRLYN remotely via a computer? Please check one that describes you best.
- |  |   |
|--|---|
| <input type="checkbox"/> Several times a day   | <input type="checkbox"/> Once a month         |
| <input type="checkbox"/> Once a day            | <input type="checkbox"/> Several times a year |
| <input type="checkbox"/> Several times a week  | <input type="checkbox"/> Once a year          |
| <input type="checkbox"/> Once a week           | <input type="checkbox"/> Never                |
| <input type="checkbox"/> Several times a month |   |
- h. Generally, how often have you searched the U-M online library catalog MIRLYN? Please check one that describes you best.
- |   |   |
|---|---|
| <input type="checkbox"/> Several times a day  | <input type="checkbox"/> Once a month         |
| <input type="checkbox"/> Once a day           | <input type="checkbox"/> Several times a year |
| <input type="checkbox"/> Several times a week | <input type="checkbox"/> Once a year          |
| <input type="checkbox"/> Once a week          | <input type="checkbox"/> Never                |
- i. Overall, how confident are you in your abilities to find information on the Web?
- Very confident
  - Somewhat confident
  - Somewhat unconfident
  - Very unconfident

## Exit Interview Questions

Task 1 name: \_\_\_\_\_ System 1 name: \_\_\_\_\_

Task 2 name: \_\_\_\_\_ System 2 name: \_\_\_\_\_

Considering what you were searching for the first task, do you think that the materials you found in [SYSTEM 1] would be very satisfactory, somewhat satisfactory, somewhat unsatisfactory, or very unsatisfactory for answering the question?

[If the subjects choose one of the two “unsatisfactory” choices, ask]  
Tell me why the retrievals were \_\_\_\_\_.

Had I allowed you to continue searching Google for [TASK 1] task, do you think you would have found more satisfactory materials than within [SYSTEM 1]? Please tell me why or why not?

How about [SYSTEM 2]? Considering what you were searching for the second task, do you think that the materials you found in [SYSTEM 2] would be very satisfactory, somewhat satisfactory, somewhat unsatisfactory, or very unsatisfactory for answering the question?

[If the subjects choose one of the two “unsatisfactory” choices, ask]  
Tell me why the retrievals were \_\_\_\_\_.

Had I allowed you to continue searching Google for [TASK 2] task, do you think you would have found more satisfactory materials than within [SYSTEM 2]? Why?

When you first saw the [TASK 1] task, what kinds of materials did you think you could find to answer it in [SYSTEM 1]? Do you think that what you retrieved was close to what you expected to find?

[If not, ask] why was it not close to what you expected?

How about the second task? When you first saw the [TASK 2] task, what kinds of materials did you think you could find to answer it in [SYSTEM 2]? Do you think that what you retrieved was close to what you expected to find?

[If not, ask] why was it not close to what you expected?

Compared to **other search engines** you have been using, does the [SYSTEM 1] look unique? If the [SYSTEM 1] is different from other search engines you have been using, tell me how it is different.



Compared to **other library search systems** you have been using, does the [SYSTEM 1] look unique? If the [SYSTEM 1] is different from other search engines you have been using, tell me how it is different.

How about [SYSTEM 2]? Compared to **other search engines** you have been using, does the [SYSTEM 2] look unique? If the [SYSTEM 2] is different from other search engines you have been using, tell me how it is different.

Compared to **other library search systems** you have been using, does the [SYSTEM 2] look unique? If the [SYSTEM 2] is different from other search engines you have been using, tell me how it is different.

What do you think are the differences between [SYSTEM 1] and [SYSTEM 2]?  
What do you consider as similarities between [SYSTEM 1] and [SYSTEM 2]?

Would you say that in general you trust materials from [SYSTEM 1]? Tell me why or why not.

How about [SYSTEM 2]? Would you say that in general you trust materials from [SYSTEM 2]? Tell me why or why not.

Would you evaluate materials you found in [SYSTEM 1] differently from those in **Google**? Why or why not?

Would you evaluate materials you found in [SYSTEM 1] differently from materials you found through **library's online catalog**? Why or why not?

How about [SYSTEM 2]? Would you evaluate materials you found in [SYSTEM 2] differently from those in **Google**? Why or why not?

Would you evaluate materials you found in [SYSTEM 2] differently from materials you found through **library's online catalog**? Why or why not?

Do you think that Google and [SYSTEM 1] are related or connected somehow? If so, how are they related or connected?

How about [SYSTEM 2]? Do you think that Google and [SYSTEM 2] are related or connected? If so, how are they related or connected?

Is this your first time using [SYSTEM 1]?

How about [SYSTEM 2]? Have you ever searched [SYSTEM 2] before?

[If the subject used SYSTEM 1 or SYSTEM 2 before] Please tell me what you were looking for and whether you found useful information. Did you search [SYSTEM 1 or SYSTEM 2] directly or did you navigate to it through Google or another search engine?

How likely are you to search [SYSTEM 1] in the future? How about [SYSTEM 2]?

If you would use the two systems again, under what circumstances would you use them?

[If they are going to use SYSTEM 1] How likely are you to recommend [SYSTEM 1] to your friend? Why or why not?

[If they are going to use SYSTEM 2] How likely are you to recommend [SYSTEM 2] to your friend? Why or why not?

What improvements would you like to make to [SYSTEM 1] so that you might be more inclined to search it in the future?

How about [SYSTEM 2]? What improvements would you like to make to [SYSTEM 2] so that you might be more inclined to search it in the future?

How would you rate the difficulty of the searching tasks? Would you say the [TASK 1] task is very difficult, somewhat difficult, somewhat easy, or very easy?

How about the second task? Would you say the [TASK 2] task is very difficult, somewhat difficult, somewhat easy, or very easy?

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