

Digital Preservation Strategic Vision, 2016-2018

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Elise Calvi, Michelle Dalmau, Heidi Dowding, Lori Duggan, Randall Floyd, Richard Higgins, & Misti Walter

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Mission

The goal of the [Digital Preservation Policy Framework Task Force](#) is to develop the institutional infrastructure in order to better support IUBL's focus on preservation of its digital content.

Introduction

This document delineates an overall strategic vision for digital preservation at Indiana University Bloomington. Building on a survey completed in May 2016, which gathered IUB Libraries (IUL) staff feedback on institutional challenges and strategies, this strategic vision provides measurable goals at an institutional level so that IUL can continue its progress towards long-term sustainability of digital content. This vision is informed by the Libraries' earlier accomplishments, current capacities and challenges, and the views of staff involved in digital preservation activities throughout the Libraries.

Digital preservation has been an ongoing activity in the Libraries for over twenty years (see [History of Digital Preservation at Indiana University](#) for more detail). Although digital preservation efforts were largely project-based in early phases of the Digital Library Program, the Libraries moved to a more service-based development model around 2005 in order to manage its repository infrastructure more strategically. The reasons for this were twofold: first, a cohesive repository infrastructure centralized management and allowed digital curation actions to be carried out across the board; second, developments within the broader communities supporting the technologies utilized at the IU Libraries have been working on shared solutions, so utilizing a centralized infrastructure allows for easier local adoption. While repository services have been unified, priorities for digital preservation have not been defined at the institutional level and the responsibility falls primarily on individual collection owners. Additionally, new challenges such as born digital content and new file formats necessitate a higher degree of flexibility within the IUL repository infrastructure.

Indiana University's audiovisual preservation activities, and specifically the recent University-level support for mass-scale digitization of A/V content, known as the Media Digitization and Preservation Initiative (MDPI), has been a major driver of growth and development of the IUL digital preservation infrastructure. MDPI led directly to the creation of new staff positions and the development and optimization of repository solutions like HydraDAM2 and Avalon. The creation of 6.5PB of data over only a few years, however, has revealed some of the gaps in the Libraries' digital preservation infrastructure. For example, while the back-end storage for IUL content is robust and mirrored in two cities in Indiana, IUL content should also be backed up in a storage location outside of IU systems as a security measure. In the past twenty years, IUL has engaged in groundbreaking digital initiatives, had the advantage of a robust university-level information technology infrastructure, and competed successfully for external funding. Two recent actions taken by the Libraries - the hiring of a Digital Preservation Librarian and the formation of the Digital Preservation Policy Framework Task Force - signal the Libraries' readiness for the additional development needed to achieve its goals, including sustainable funding and dedicated staff for digital preservation.

Four strategic priorities for sustainable digital preservation at Indiana University Libraries are outlined in the following pages. These provide a framework with which IUL can continue to grow its digital collections and support work being done by researchers and local affiliates. Along with the strategic priorities, a list of strategic goals has been defined in order to provide achievable metrics to ensure success (see Strategic Goals section for more information). These have specific measures for 2016 and 2017, which include:

- Working towards certification as a trustworthy digital repository (TDR)
- Developing centralized digital stewardship workflows to better support implementation within different units
- Providing training for non-preservation staff to foster better understanding of preservation needs, and providing a foundation for working collaboratively across the institution
- Establishing centralized support for digital stewardship activities
- Developing staff whose work directly supports digital preservation priorities
- Establishing connections across the IU Bloomington campus and among the various Indiana University campuses

Strategic Priorities for Digital Preservation

In developing this strategic vision, the DPPTF sought input from Libraries' staff in order to build a list of priorities from the ground up. The Digital Collections and Preservation Survey was disseminated to all IUB Libraries staff in May 2016 (see Appendix I for more details on the results as they relate to this document).

The following priorities emerged from the survey responses as the most critical to ensure the deliberate establishment of digital stewardship practices for the long-term management and preservation of content at Indiana University. Taking these steps will prepare the Libraries to achieve its mission of preservation and stewardship of the historic and scholarly record into the distant future.

The survey was organized into three sections:

- Section 1 asked the respondent's opinion of the current state of digital preservation infrastructure at IUL
- Section 2 asked about perceived needs in digital preservation efforts, and
- Section 3 was completed only by those managing digital content, and addressed the specific preservation needs of the respondent's collection/s.

Many of the questions in section 2 were open-ended to allow staff to provide as full and unique answers as possible. The four strategic priorities outlined below came directly from the DPPFTF's review of staff responses.

I. Establish a Libraries-wide Digital Preservation Policy

The creation of a digital preservation policy for the Indiana University Libraries emerged as a top priority for archivists, librarians, curators, and technologists who responded to the Digital Collections and Preservation Survey. Policies, staff, and procedures, as governed by this digital preservation strategy, go hand-in-hand. The digital preservation policy identifies the content to be preserved, the main actors involved in digital preservation activities, and provides a procedural framework; the strategy, in turn, provides guidance on how to implement the policy.

A digital preservation policy should be accessible and highly visible, and as such, serves as the initial point of reference for library staff and partners as they begin to understand the various and complex layers involved with digital preservation. By establishing a clear policy, IUL would not only be communicating its stance on digital preservation, but also creating a cohesive approach to digital preservation. Beyond local needs, the policy should address related digital preservation systems and their role in the IUL infrastructure: from shared repositories and community-driven repositories like HathiTrust and the Digital Public Library of America to publisher-driven repositories like Portico and LOCKSS. Systems in place for dark archiving like APTrust and DPN also need to be considered. New content such as web and social media archives also require a codified approach.

Identifying the need for a digital preservation policy is only the first step. The policy to be developed will need to carve boundaries while also maintaining permeable areas and approaches to digital preservation in line with the Libraries' mission "to support and strengthen teaching, learning, and research by providing the collections, services, and environments that lead to intellectual discovery" (libraries.indiana.edu/about-iu-libraries). There are many outstanding issues to resolve especially around prioritization of content for digital preservation, which should be mediated by this strategy document. Should this policy cover content not owned by the IU Libraries but hosted in IU Libraries repository services? What about content not in IUL or Enterprise Scholarly Systems (ESS) digital object repositories? How do existing collection development policies aid in the identification and prioritization of content? Do new collection development policies need to be established? While there are many more questions to work through, IUL is now well situated to answer these questions and establish a Libraries-wide policy that complements and reinforces the strategies for digital preservation described herein.

II. Consolidate Roles and Resources

In addition to the need for guiding policies, the 2016 survey showed that more collaboration among Libraries' personnel and unification of resources are also top priorities. Because preservation has become an essential concern across different units that manage digital materials, survey respondents' long-form answers stressed the need for collaborative planning, compatible workflows, and coordinated training led by a centralized unit. In short, the Libraries should strive to overcome "silos and workflows," as one respondent stated. Examples of potential areas for consolidation are similar preservation workflows occurring in different special collections; digitization workflows in the Preservation Department, Technical Services, and Library Technologies; and the management of specialized hardware in different special collections.

Although some degree of siloization may be inevitable in large institutions, steps can be taken to lessen the impact of crossover. For example, single workflows could be developed for working with specific types of materials at a high level and then tailored to individual collections by departmental staff. Continuing to create and support working groups that bridge departmental boundaries also helps to share knowledge across the institution. The survey responses make plain that the development of an articulated preservation policy for the Libraries should include a collaborative implementation plan that brings together all those involved in digital collections and scholarship to achieve a common goal.

Just as in the establishment of an institution-wide digital preservation policy, this strategic priority is complex in the types of issues that it brings up. Providing a clearer definition of ownership of digital preservation tasks and tools at a high level would allow staff to better understand their role. The challenge of creating the most strategic and effective work groups to foster relationships outside of departments is also something that will need to be addressed in order to achieve this strategic priority, as various special collections and other content owners need avenues for developing relationships but are also faced with limited time and staff. If the consolidation of roles and responsibilities is undertaken mindfully, however, it will free up both resources and staff time. The first step in undertaking this strategic priority should be a review of all of the roles and responsibilities of key staff related to digital preservation. These staff should engage in a group interview process to allow them to explain how their jobs would benefit from more collaboration or consolidation of resources. In addition, stock should be taken of specialized hardware devoted to digital preservation and tracked on the IUL wiki for staff to check prior to new purchases. The creation of cross-pollinator roles would also aid in consolidation by building bridges between departments.

III. Strategic Staffing

In addition to the need for consolidation of roles and resources, dedicated staffing within the Libraries was also identified by survey respondents as an area of importance in developing a strategy for digital preservation. The current practice of assigning this type of work to student positions or interns was viewed as a barrier to the development of a consistent and stable operation, and this deficit of dedicated staff possessing the requisite knowledge and technical expertise was cited as a distinct challenge within the Libraries' current digital preservation infrastructure. Specifically, expertise in the areas of e-records management, web archiving, digital content management and metadata were identified as crucial to the development of a robust and cohesive digital preservation operation, and necessary to ensure workflows can be implemented across campus.

While the need for strategic staffing is clear, there are obvious barriers to the development of targeted positions that would support digital preservation activities within IUL. Establishing a clear need for new positions and defining their location within the organization is the first barrier. This is especially key to ensure that staff flourish within the larger IUL organization. There is also a relative lack of training in the area of digital curation in terms of library science graduate programs, though more and more opportunities are arising, especially in archival programs. Hiring staff with long-term expertise in digital preservation is problematic because of the nascent state of education, so IUL must be strategic in locating, hiring, and cultivating staff for long-term success.

IV. Develop a Cohesive Approach Across the Institution

The final strategic priority identified by the task force was the need to develop a cohesive approach to digital preservation across the entire institution. In order to better foster knowledge and resource sharing, there is a great need to centralize the approach to digital preservation at Indiana University, both across IU Bloomington as well as all of IU. While this is an undertaking that extends well beyond the abilities of the Libraries, Strategic Priority IV aims to establish the need to codify how the Libraries will better create and contribute to partnerships in order to foster a cohesive approach. The need for this strategic priority stemmed from several key responses to the 2016 survey, including statements such as a need for "coordination structure across campuses and with UITS" and "a dedicated system-wide entity to address digital preservation issues", something that has not been addressed at the institutional level beyond the Committee of Data Stewards, which oversees institutional data policies and related issues.

Much of this underscores the fact that many of the units and departments outside of the Libraries are unclear about digital preservation and the resources available to them. Respondents were also unclear about the role that UITS plays in digital preservation, so establishing a clearer partnership with university IT would help to build out the Libraries' ability to partner and collaborate across the institution.

The first step in undertaking this strategic priority should be an institution-wide digital collections survey and needs assessment, a task which will involve several key Libraries staff and will likely take a significant amount of time to uncover all of the systems, practices, and resources utilized and needed across all of IU. And while this is an area where the Libraries can take the lead, this strategic priority needs to largely be addressed at the IU administrative level in order to ensure knowledge and resource sharing are taking place at all levels. The onus here should not be on individual staff, but should rather be an institutional imperative aimed at building strategic connections with other units and campuses.

The Enterprise Scholarly Systems (ESS) work that began in 2016 is a good basis for developing these relationships, as the project aims to bring together the tools and resources across IU campuses; however, more is needed in order to ensure digital preservation readiness across the institution.

Roles and Responsibilities

Current Roles

The two highest-level component organizations of the Indiana University Bloomington digital preservation infrastructure are the IUB Libraries and UITS. Within the IUB Libraries, current roles are dispersed across the institution.

High-level staff directly related to digital preservation include Jon Dunn, Assistant Dean for Library Technologies, and Robert McDonald, Associate Dean for Research and Technology Strategies. Within Jon Dunn's group, Heidi Kelly (Digital Preservation Librarian), Julie Hardesty (Metadata Analyst), and Brian Wheeler (Systems Administrator), are directly responsible for a variety of decisions that impact the institution's capacity for digital preservation. The Libraries' team of developers are also responsible for ensuring that the digital infrastructure is suited for long-term storage and management of digital content. Digital Collections Services staff also regularly contribute to digital preservation, specifically Michelle Dalmou (Head of Digital Collections Services) and Nick Homenda (Digital Initiatives Librarian). Within Robert McDonald's group, Jamie Wittenberg (Head of Scholarly Communication) and Richard Higgins (Open Access Publishing Manager) currently contribute to digital preservation initiatives. Within Collection Development & Archival Collections, under Marion Frank-Wilson, Collection Development (Misti Walter) is responsible for all web archiving activities. Within Technical Services, under Mechael Charbonneau, Lori Duggan is responsible for handling licensed electronic content. Various special collections units that are part of the IU Libraries, such as the University Archives and Lilly Library, are responsible for undertaking specific digital preservation actions on their local content and making management decisions. Their role is invaluable to current digital preservation activities at IU.

Within UITS, the Research Technologies division is largely responsible for digital preservation activities. The Research Storage unit oversees the SDA, which is the storage architecture utilized by the Libraries for maintaining digital content over the long-term. The MDPI project (Mike Casey) is also housed within UITS and aims to build out the institution's capacity for audiovisual digital preservation. A lot of their work involves staff from the Libraries as well as campus-wide collection managers who own the content being digitized through the initiative. The final two areas of UITS that handle some level of digital preservation are largely nascent and their roles will be clearer as they develop; these are the Enterprise Library Systems team (and its role in ESS) and the Research Data Services team. Because of the diversity of staff involved in digital preservation around Indiana University, ad hoc solutions for convening the appropriate staff have been put into place. Many working groups exist to support large-scale knowledge sharing and cross-institutional collaboration. Still, compartmentalization and a lack of knowledge and resource sharing are challenging in the current dispersed model.

Strategic Roles

In order to better support the strategic priorities outlined above, we recommend centralization of staff and resources where possible. The current structure puts much of the responsibility at the collection level, which has led to siloization in some cases. Providing more opportunities for collaboration and crossover will minimize duplication of effort and further the goal of this strategic vision, which is to better support digital preservation activities across the institution. A suggested first step to counteract the decentralization of both physical and digital preservation efforts across the IU Libraries is the creation of a Preservation Working Group, charged with sharing best practices across physical and digital preservation as well as content types and collections; creating better opportunities for outreach through a speaker series; and providing knowledge and resources to departments outside of the Libraries where necessary/possible.

Strategic Goals

| Goal | 2016 Metric | 2017 Metric | Aligning Priority |
|--|---|--|-------------------|
| Establish policies necessary for Trustworthy Digital Repository (TDR) status | <input checked="" type="checkbox"/> Library-wide policy fully in place by the end of the year | <input type="checkbox"/> Initial documentation in place for TDR status | I |
| Develop centralized digital stewardship workflows (digital forensics, migration, normalization, emulation) | <input checked="" type="checkbox"/> Test at least three strategies based on the content needs assessment and build sample workflows | <input type="checkbox"/> Establish more solid workflows; Build pathways for migration from various formats and systems | II |
| Provide training for non-preservation staff | <input checked="" type="checkbox"/> At least one training per year | <input type="checkbox"/> At least two trainings per year | II |
| Establish centralized support for digital stewardship activities | <input type="checkbox"/> Delineate roles, establish clear public documentation on the wiki where tools and resources can be shared | <input type="checkbox"/> Clarify locations and relationships of all related staff organizationally | II |

| | | | |
|--|--|---|-----|
| Strategically build staffing to support digital preservation | <input checked="" type="checkbox"/> Hire staff knowledgeable about digital curation for key roles, e.g. Research Data Management Librarian and Records Manager | <input type="checkbox"/> Refine needed skills for regular positions (e.g., include digital skills in archivist and subject librarian positions) | III |
| Establish connections across IU Bloomington campus | <input type="checkbox"/> Undertake institution-wide survey of digital assets and needs | <input type="checkbox"/> Provide digital preservation outreach and consultation for non-library content holders, identify content that should be managed by the IUBL's digital repository; Establish a workflow to move items from DAMS like Widen into Libraries' repositories | IV |
| Establish connections across IU campuses | <input checked="" type="checkbox"/> Ensure ESS work includes long-term preservation in assessments of content needs | <input type="checkbox"/> Develop collaborations across various campuses at the administrative level; Establish a solid understanding of where resources and staff reside within the greater institution and make this publicly available | IV |

Resources

The cost of digital preservation at Indiana University is spread across the digital curation lifecycle and the institution. The Assistant Dean for Library Technologies is responsible for the recommending spending priorities for Digital Preservation, Digital Collections Services, IT and hardware, and the Libraries' developers. However, much of the initial cost of digital preservation is carried by individual special collections, especially in terms of staffing. Larger partner projects, such as MDPI, have been funded at the institutional level. This project has involved the development of technical resources, a partnership with an outside vendor, and ongoing project management by staff within the Libraries and UITS. Other digital preservation efforts are not as well-resourced, so effective resource management and strategic prioritization of projects will be key in ensuring effective digital preservation at Indiana University without placing undue burden on staff or budgets.

Risks

| Risk | Impact | Probability | Mitigating Action |
|--|--------|---------------|---|
| Current staff may not have the skills needed to fill digital preservation needs | High | Low to Medium | Undertake assessment of existing staff and skills |
| Recruiting new staff may take a long time or may not obtain applicants with the necessary skills | High | High | Develop stronger staff retention measures across the Libraries and ensure a high quality of work life; Establish new means for recruiting top candidates, such as recruiting from abroad from more skilled pools, targeting iSchools with established digital curation programs, or establishing student positions that explicitly lead to full-time employment; Establish postdoc position |
| Existing staff will not have time to obtain new skills or focus on new projects | High | High | Provide strong administrative oversight in terms of digital preservation to target the most important projects; Establish expectations for staff to allow for focus on new projects and skills |
| Collaboration between units and outside of the Libraries may be difficult to establish | Medium | High | Ensure continued administrative buy-in at both Libraries and institutional level; Clarify roles and responsibilities of individual staff and across newly-developed collaborations |
| Funding for new staff or initiatives may be difficult to obtain or maintain | High | High | Ensure the prioritization of digital preservation at the institutional level; Establish the most strategic staff and resource needs first and work to fill gaps where possible |

Appendix I

See [PDF document](#) and [2016 Digital Collections and Preservation Survey Results](#).