Are we good digital stewards?

A proposal to create and implement digital preservation policies, practices, metrics, and educational outreach for the University of Missouri system

by University of Missouri Digital Library Working Group

Summary

"Digital preservation is the active management of digital content over time to ensure ongoing access."[1]

Providing long-term access to digital materials presents unique challenges requiring active stewardship. The librarians and archivists of the University of Missouri System (UM System) collect, curate, describe, and provide access to digital materials using specialized skills and tools, but in order to properly preserve and provide long-term access to digital content, we need to develop and implement unifying digital preservation policies and practices. Active engagement with digital preservation efforts places librarians and archivists in a leadership role within their scholarly communities, allowing for the creation of new initiatives, grant projects, and faculty research endeavors. To this end, we strongly recommend the creation of a digital preservation program centered in the UM System's libraries and archives to guide digital preservation activities across all UM System campuses.

Goals

1. Develop a roadmap to guide digital preservation practices.
2. Develop and implement a digital preservation policy.
3. Establish librarians and archivists as the digital preservation expert community on each campus.

Outcomes

- Shared understanding of the value of digital preservation
- Network of digital preservation experts on each campus
- Human resources dedicated to digital preservation programs management
- Implementation of digital preservation policies and practices
- Effective stewardship of digital assets across the UM System

Background and Justification

As librarians and archivists in the UM System, we curate materials that reflect the cultural and historical record of our communities; support research in areas that promote our curriculum; represent the scholarly output of our faculty, staff, and students; and/or represent the records of our campus community—all to the benefit of our students, faculty, researchers, and communities. As responsible stewards and custodians of these materials we are tasked with conducting appraisals,

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[1] http://www.digitalpreservation.gov/about/

facilitating accessibility, ensuring long-term availability, maintaining integrity, preserving authenticity, and documenting the chain of custody for all assets we curate and create.

In keeping with our role as curators and stewards of content relevant to our users, each library in the UM System has adopted some statement that speaks to this commitment. For instance, University of Missouri (MU) Libraries' mission statement includes "acquire, preserve, and make accessible scholarly resources" as well as one value dedicated to stewardship that reads: "We maintain our collections and facilities for future generations of scholars. We make the most efficient use of scarce resources. We plan for the challenges which will confront us in the future."[2] At University of Missouri--Kansas City (UMKC), the University Libraries' mission statement includes "preserving intellectual and cultural records" and as such, one of the libraries' values is "the creation and preservation of information."[3]

In the current landscape, we have successfully implemented tools and technologies that support **discovery and access** to our physical and digital collections in the online environment. We continue to acquire born-digital resources from a number of sources—whether purchased, deposited by faculty and students, or donated by researchers and alumni—to support scholarly activities at our respective institutions. Furthermore, we continue to operate and build programs that convert our physical collections to digital form for preservation, increased access, and convenience to our users, often purchasing high-end equipment to support this effort and increasing personnel support to perform digital conversion and describe these assets. Naturally, many of these activities require increasing our capacity for digital storage and backups.

But have the libraries of the UM System adequately transformed their work to incorporate activities related to **digital preservation**? The National Digital Information Infrastructure and Preservation Program which initiated the National Digital Stewardship Alliance defines digital preservation in the following way: "Digital preservation is the active management of digital content over time to ensure ongoing access."[4] The key is **active management**. Digital content requires a software environment and resides on physical storage media requiring hardware that is likely to become obsolete over time in a rapidly changing environment. In order to effectively preserve digital content, one must employ any combination of strategies, e.g., emulation, encapsulation, replication, standards selection, format normalization, etc., to ensure its persistence over time.[5]

Peer institutions in the Association of American Universities (AAU), American Library Association (ALA), and Association of College & Research Libraries (ACRL) have addressed these challenges by building comprehensive digital preservation programs that include digital preservation policies, dedicated resources, practices that more effectively manage digital assets, and the development of training and educational workshops. In some cases, these programs have been in place for over a decade and continue to be developed.[6,7] The UM System has yet to adopt the necessary activities to effectively steward our digital materials thereby leaving these assets vulnerable to the threat of digital obsolescence.

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[2] http://library.missouri.edu/about/mission/
[3] http://library.umkc.edu/sites/default/files/UL-Strategic-Plan-2012-2017--20130108.pdf
[4] http://www.digitalpreservation.gov/about/
[5] http://www.dpworkshop.org/dpm-eng/terminology/strategies.html
[6] https://kuscholarworks.ku.edu/handle/1808/1482
[7] http://library.columbia.edu/services/preservation/dlpolicy.html

Ultimately, the proposed digital preservation program will ensure long-term access to digital assets across the UM System. Librarians and archivists will be at the center of the program, working collaboratively with campus IT to maintain the integrity of digital assets, with faculty and researchers to ensure compliance to sustainability requirements for grants[8], and with UM Records Management to consult on legal compliance for university records. In order to fully embrace our mission and values statements, we must recognize the unique challenges that the digital environment presents; and in doing so, fulfill our responsibility to preserve our digital content for posterity.

Objectives and Strategies

In order to meet the goals and objectives, we recommend hiring a librarian/archivist with digital preservation expertise to lead this initiative.

Goal 1: Develop a roadmap to guide digital preservation practices.
- **Objective:** Determine the scope of digital assets across all campuses.
    - **Strategy:** Conduct a system-wide survey of digital assets.
    - **Strategy:** Identify digital assets for long-term storage and preservation.
    - **Strategy:** Identify orphaned projects and initiatives created but not maintained by faculty.
- **Objective:** Determine digital preservation targets.
    - **Strategy:** Review digital preservation policies and best practices of peer institutions.
    - **Strategy:** Consider the feasibility of becoming a trusted digital repository via the Trusted Repositories & Audit Certification (TRAC) program.[9]
    - **Strategy:** Consult with library leadership to determine digital preservation targets that balance organizational capabilities and sustainability.
- **Objective:** Identify gaps between digital preservation targets and current digital preservation landscape system-wide.
    - **Strategy:** Investigate current methods, tools, and practices for digital preservation by mining MERLIN Digital Projects Committee (MDPC) Trac pages, mining Library Systems Office (LSO) Trac pages, and conducting interviews with LSO and administrative managers of repositories.
- **Objective:** Determine actions and steps to be taken for achieving digital preservation targets.
    - **Strategy:** Using identified gaps, develop recommendations for closing the gap between current digital preservation landscape and targets.
    - **Strategy:** Determine associated costs and investigate funding opportunities.

Goal 2: Develop and implement a digital preservation policy.
- **Objective:** Draft a digital preservation policy.
    - **Strategy:** Review digital preservation policies of peer institutions.
    - **Strategy:** Build narratives that address: (1) storage and backup policies, including physical server space and strategies for managing digital objects across the servers, e.g., copies of digital objects must be organized and identical; (2) digital objects stored

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[8] http://www.clir.org/hiddencollections/applicants/applicantguidelines.html/applicantguidelines.html#tab8
[9] http://www.crl.edu/sites/default/files/d6/attachments/pages/trac_0.pdf

outside of display systems, e.g., dark archives; (3) file integrity/fixity checking; (4) authenticity and trustworthiness, including chain of custody, of digital original/record copy and surrogates; (5) metadata backup strategies; (6) assigns responsibilities to key roles; (7) written procedures and how to track changes.
- **Objective:** Present policy to UM CIO for approval.
- **Objective:** Work with Libraries/Archives and IT to put policy into practice.
  - o **Strategy:** Conduct training seminars with librarians and archivists on each campus to announce policy and explain the theories, language, tools, and activities involved.

Goal 3: Establish librarians and archivists as the digital preservation expert community on each campus.
- **Objective:** Develop a digital preservation knowledge base within the library on each campus.
  - o **Strategy:** Identify and appoint one librarian/archivist on each campus to serve as the campus digital preservation expert and to conduct educational outreach to fellow librarians/archivists, teaching and research faculty, and UM Records Management.
  - o **Strategy:** Appointed librarian/archivist will educate librarian colleagues on the basics of digital preservation, emphasizing its value.
  - o **Strategy:** Appointed librarian/archivist will build a relationship between the institutional repository and institutional research to establish reputation for preservation solutions at the library for publications, data sets, and various projects.
  - o **Strategy:** Appointed librarian/archivist will involve UM Records Management in Library/Archives electronic record life cycles.
  - o **Strategy:** Consider bringing in a Digital Preservation Outreach & Education (DPOE)[10] representative or supporting a librarian to attend a DPOE train-the-trainer workshop or similar educational program.

Related Documentation
The following documentation are related and recommended readings:
- Lavoie, Brian. "Meeting the Challenges of Digital Preservation: The OAIS Reference Model." http://www.oclc.org/research/publications/library/2000/lavoie-oais.html
- Phillips, Megan, et al. "The NDSA Levels of Digital Preservation: An Explanation and Uses." http://www.digitalpreservation.gov/ndsa/working_groups/documents/NDSA_Levels_Archiving_2013.pdf
- Center for Research Libraries. "Trusted Repositories Audit & Certification: Criteria and Checklist." http://www.crl.edu/sites/default/files/d6/attachments/pages/trac_0.pdf
- Schumacher, Jaime, et al. "From Theory to Action: 'Good Enough' Digital Preservation Solutions for Under-Resourced Cultural Heritage Institutions." http://commons.lib.niu.edu/bitstream/handle/10843/13610/FromTheoryToAction_POWRR_WhitePaper.pdf?sequence=1
- Skinner, Katherine and Matt Schultz, eds. "A Guide to Distributed Digital Preservation." http://www.metaarchive.org/sites/metaarchive.org/files/GDDP_Educopia.pdf

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[10] http://www.digitalpreservation.gov/education/

- Perrin, Joy, et al. "Digital Preservation Challenges with an ETD Collection – A Case Study at Texas Tech University*." The Journal of Academic Librarianship.* 41 (2015): 98-104. http://www.sciencedirect.com/science/article/pii/S0099133314001980.
- John, Jeremy Leighton. "Digital Forensics and Preservation." *DPC Technology Watch Report 12-03* (November 2012). Available for pdf download here.
- Digital Preservation Outreach & Education: http://www.digitalpreservation.gov/education/
- Digital Preservation Workshop: http://www.dpworkshop.org/dpm-eng/eng_index.html
- National Digital Stewardship Alliance. "Digital Preservation in a Box": http://dpoutreach.net/
- Columbia University Digital Preservation Project Resources: http://www.columbia.edu/cu/libraries/inside/projects/digital_pres//
- Sample Digital Preservation Policy at the University of Maryland: http://drum.lib.umd.edu/bitstream/1903/14745/4/DigitalPreservationPolicyUMD2014-07Final.pdf
- Council on Library and Information Resources sample grant guidelines' "sustainability" section: http://www.clir.org/hiddencollections/applicants/applicantguidelines.html/applicantguidelines.html#tab8

Document Status

- Initially prepared by Sandy Rodriguez (University of Missouri--Kansas City) and presented to the University of Missouri Digital Library (UMDL) Working Group, May 6, 2015.
- Final version prepared, with revisions by UMDL Working Group and Anselm Huelsbergen, June 16, 2015.
- Presented to MDPC, June 18, 2015.