The Media Preservation Initiative at Indiana University Bloomington

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**Abstract**

In 2009, Indiana University Bloomington published a report documenting the findings of a campus-wide census of audio, video, and film holdings which identified more than 560,000 media objects, most of them on degrading, obsolete analogue carriers. In 2010, Indiana University began a preservation planning process for time-based media holdings, engaging key campus stakeholders. The results of the first year of this planning project were published in 2011 in a document entitled *Meeting the Challenge of Media Preservation: Strategies and Solutions*. This paper explores the central components of these publications including key recommendations of the Indiana University Media Preservation Initiative to create a centralized digitization facility and a campus-wide media preservation plan. To our knowledge, no other university in the US has produced a comprehensive, in-depth plan to preserve media holdings distributed across a campus. This may provide a model or stimulate the thinking of others with similar problems and needs.

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“…in the mid- to long-term there is a major risk that carrier degradation combined with playback obsolescence will defeat the efforts of archivists to ensure the survival of the content in their care.”

---*International Association of Sound and Audiovisual Archives*¹

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1. Introduction

Fifteen years is a short period of time in the preservation world where work proceeds for generations and time horizons are very long. Yet, many media preservation practitioners believe that there is only a 15-year window of opportunity to digitally preserve audio and video recordings due to active degradation and rapidly expanding obsolescence. After that, many think that preservation transfer will be impossible, achievable only with diminished fidelity, or prohibitively expensive, particularly for large collections.

With this in mind, the Indiana University (IU) Archives of Traditional Music (located in Bloomington, Indiana in the U.S.) ran a few numbers several years ago to answer a critical question: how long would it take its one grant-funded audio engineer, transferring one recording at a time, to complete preservation of the Archives’ holdings? The answer: 58 years. About the same time, the Indiana University Cook Music Library performed this same exercise and calculated an answer of 120 years for their holdings.

We quickly recognized that we had a serious problem on our campus that demanded a larger solution implemented at a higher level. From this realization the IU Bloomington Media Preservation Initiative (MPI) was born. From the beginning, MPI drew upon existing campus experience and past projects concerned with media preservation issues. For example, the NEH-funded Sound Directions project, a collaboration between Indiana University and Harvard University that resulted in an internationally-used best practices publication for audio preservation as well as software tools including the Field Audio Collection Evaluation Tool (FACET) and the Audio Technical Metadata Collector (ATMC). (see http://www.dlib.indiana.edu/projects/sounddirections/) Another example is the EVIA (Ethnographic Video for Instruction and Analysis) Digital Archive Project (http://www.eviada.org/) that developed software and systems for the annotation, discovery, peer review, and scholarly publication of video as well as created a digital archive of ethnographic field video for use by scholars and instructors. These and other projects provided a baseline of experience from which to begin work.

2. Media Preservation Census

The first task for the MPI was to define problems and challenges. We began with a preservation census of campus holdings, the results of which were published in 2009. This document, titled Media Preservation Survey: A Report, is available from http://www.indiana.edu/~medpres/index.shtml In addition to presenting data on holdings, the report explores degradation and obsolescence issues found in campus collections as well as media recordings in general. The report also includes chapters on the research value of holdings, physical storage conditions, reformatting efforts, discovery and use, and existing campus resources.

The broad outlines of what we learned about our holdings can be summarized as follows:

- There are more than 560,000 audio, video, and film objects on the Bloomington campus
- 64% are audio, 22% video, 14% film
- Located in more than 80 campus units
- Held on over 50 formats
- Estimated 44% are unique or rare
- Dating from 1893-present
- Large numbers have national or international value
Essentially, we learned that our problem was not only serious but both larger and wider in scope than anticipated. The Bloomington campus of Indiana University holds very large numbers of media objects that are actively degrading, carried on formats that are obsolete, considered highly valuable for research and instruction, for which we have a relatively short time window to take preservation action. Accordingly, we needed strategies and solutions that could be employed both rapidly and on a massive scale, yet engaged preservation standards and best practices. We strongly suspect that other archives and holders of media recordings are faced with a similar problem and have the same needs.

3. Planning Process and Report

The survey report led to a year-long preservation and access planning project guided by a task force appointed by the IU Bloomington provost. This project was funded by key campus administrative units: the Office of the Provost, Office of the Vice Provost for Research, IU Libraries, University Information Technology Services, and The College of Arts and Sciences. We established the following structure to undertake this project:

- Working Group consisting of six members charged with day-to-day and week-to-week research for the project. This group met once a week.
- Task Force consisting of 10 members (including the members of the Working Group) charged as the official body to make recommendations. This group met every six weeks or so.
- IU Bloomington Advisory Board consisting of key campus stakeholders charged with advising the Task Force. This group was convened twice during the project period.
- External Advisory Board consisting of international media preservation experts convened once during the 2010 IASA/AMIA conference.
- Consultant, AudioVisual Preservation Solutions, to assist with all parts of the project including data projections, building plans, etc.

Completed in 2011, this planning process resulted in a publication titled *Meeting the Challenge of Media Preservation: Strategies and Solutions* that is available from [http://www.indiana.edu/~medpres/index.shtml](http://www.indiana.edu/~medpres/index.shtml)

4. Indiana Media Preservation and Access Center

*Meeting the Challenge* charts solutions and lays the groundwork for unlocking campus media assets and transforming them into usable resources. Perhaps the cornerstone recommendation is to build the Indiana Media Preservation and Access Center (IMPAC), a service unit that will provide audio and video preservation transfer as well as digitization of film for campus holdings. This recommendation is built upon an analysis of the advantages and disadvantages of undertaking the digitization stage in-house versus outsourcing. This analysis examined variables such as scale and uniformity of holdings, quality control, desired future location of expertise, potential for supporting the academic mission of the University by providing educational services, national leadership opportunities, and cost. It also relied upon the realization that digitization is but one of many steps in the preservation process. IU Bloomington must develop preservation infrastructure if it is to be successful, regardless of where digitization is completed.
The IMPAC will provide the services necessary to attain campus targets, which include the preservation of 284,000 audio recordings and 66,000 video recordings along with access digitization of 58,000 films, all within 15 years. These services will include:

- Preservation transfer (digitization) of analogue audio recordings;
- Preservation transfer of analogue video recordings;
- Preservation transfer of physical digital (CD, MiniDv, DVD, for example) audio and video recordings;
- Digitization of motion picture film;
- Photographs of preserved objects and their containers;
- Digitization work to fulfil orders from researchers for campus media holdings;
- Creation of derivative digital files for researcher access;
- Collection of technical and digital provenance metadata on the preserved object, resulting digital files, and the preservation process;
- Preparation of media holdings for digitization;
- Assistance with prioritization of media holdings for preservation treatment.

*Meeting the Challenge* presents a detailed build plan for the IMPAC, estimating number/type of staff, number/type of media studios, facility square footage, and digital storage over the life of the project. This build plan was developed through a strongly data-driven process. Our recommendations were derived directly from data on campus time-based media collections combined with analysis by MPI with assistance from consultant AVPS. We worked from the inside out, letting the data lead us to conclusions regarding the size and scope that are necessary to reach our preservation targets within the 15-year time frame.

The IMPAC approach to preservation transfer addresses preservation concerns while utilizing higher throughput workflows, placing a strong emphasis on maintaining preservation principles within a high efficiency approach. Choosing transfer workflows and approaches forced us to define where the intersection of preservation principles and efficiency lies for our institution. While parallel transfer workflows (simultaneous digitization of multiple recordings) may result in larger numbers of items digitized per unit of time, they also carry a higher risk that the products of digitization are not optimal. Our plan is to use a mix of smaller scale parallel transfer workflows (expected to be 4:1 and 2:1) along with custom 1:1 work when necessary. The parallel transfer workflows, for which we will employ risk mitigation procedures to address preservation issues, will greatly increase the output of products. Some use of parallel transfer workflows is necessary given the large numbers of recordings that must be preserved within a short time frame.

5. Prioritization

The report also recommends a prioritization process for campus holdings that utilizes both software applications and curatorial expertise. It is clear that not every recording can or will be preserved in time due to degradation and obsolescence issues as well as the large numbers of items held in Bloomington. It is also true that there are no guarantees—for example, economic slowdowns and recessions cannot be predicted and can result in loss of resources. Plus, not every recording or collection is considered of equal
value. We feel that it is a wise strategy to determine which of our holdings represent our institution’s highest priorities and to get these preserved as soon as possible.

The prioritization process relies upon a combination of software tools and curatorial expertise to assess preservation condition/risk and research/instructional value. The tools assist with structuring the analysis and provide a measure of objectivity as well as transparency to what is unavoidably, in part, subjective work. However, we do not believe that prioritization decisions can be left to software applications alone. Many parts of this process are guided by the expertise and experience of unit curators and collection managers as well as media technical and format experts. MPI staff provide technical expertise for analysing risk, preservation condition, and obsolescence while unit staff provide content expertise for analysing research and instructional value. Here is an overview of the process:

5.1 Meeting with MPI team and unit staff

One purpose of this meeting is to select collections or other groupings of media recordings to evaluate during this stage of prioritization. Since our immediate goal is a five-year plan, this is just the first of several rounds of prioritization, and we will not be able to evaluate all holdings. We will rely upon unit staff to identify high-value collections. We will also assist in determining which collections are most at risk or in the poorest condition.

5.2 Analysis of risk, preservation condition, and obsolescence

The MPI team will use a software application to score collections for risk, condition, and obsolescence. This will involve gathering and analysing data from a visual inspection of the collections under consideration.

5.3 Analysis of research and instructional value

The MPI team will assist curators and collection managers in using a software application to score collections for research and instructional value. The MPI team will also help units research their collections, gathering data as needed to feed into this process. This step will be driven by unit curators based on their judgment of the value of their holdings.

5.4 Curatorial review

In this step, curators and/or collection managers will examine the rankings of their collections and make adjustments as necessary. They may also take into account other considerations that impact value including such things as timeliness (upcoming events or anniversaries), publicity opportunities, and others.

5.5 Validity

The final rankings for any given unit will be valid within the context of that unit only. It is difficult to rank collections with consistency and integrity across units, not to mention reaching agreement across campus on the relative value of the various and diverse media collections. For these reasons, we will try to achieve consistent rankings within each unit only. MPI will then highlight each unit’s top priorities as campus preservation priorities. This enables unit curatorial staff to maintain significant control over the prioritization process for their content.
The Indiana Media Preservation and Access Center, when built, will have the capacity and operating efficiency to guarantee that top priorities will be preserved within the defined 15-year preservation period.

To support this process, MPI has developed a software tool to assist the assessment of research and instructional value of media collections. We have also developed another selection for preservation tool to evaluate preservation condition, risk, and obsolescence of audio, video, and film collections. This tool leverages previous software development work at several other academic institutions. Both of these applications will be made freely available in 2013.

6. Preservation Principles

The foundation for all of the recommendations discussed in Meeting the Challenge is a set of preservation principles articulated in the report. These principles guide the development and implementation of preservation strategies so that efficient, accurate, sustainable, and enduring work is supported as well as cooperation between stakeholders, all while maintaining a consistent focus on the primary goal of long-term preservation. The principles are presented in full form in the report but may be summarized in encapsulated form as follows:

- A long time horizon must frame all decisions
- Timely decisions must be made to combat obsolescence and degradation
- Digitize once -- it will not be feasible a second time
- Preservation digital files must reflect the concepts of faithful reproduction, accuracy, and integrity
- Ongoing preservation is required, not just one-time digitization
- Use international standards and best practices where they exist
- Preservation and access must not compromise each other
- Leverage existing IU resources
- Build strong partnerships
- Long-term preservation, access, and management decisions reside with curatorial and unit staff
- Transparency to stakeholders
- Prioritization before preservation
- High-efficiency workflows are needed to meet targets

7. Access Principles

Of course, the holdings of Indiana University are preserved so that they may be accessible and provide for a variety of uses into the foreseeable future. Access, broadly defined, includes the discoverability, the deliverability, and the usability of any given media item. Access to preserved holdings is critical to the success of the IMPAC and to the realization of its value to the campus. Meeting the Challenge presents a set of guiding access principles to serve as the foundation for the development of specific access policies and procedures. These principles are articulated in a number of broad areas including curatorial responsibility, standards and best practices, online accessibility, infrastructure support, description and cataloguing services, metadata, copyright strategies, rights management tools, timeliness of delivery,
derivative quality and management, and others. An access working group is currently developing specific policies and procedures based on these general principles.

8. Campus Engagement

Perhaps none of our recommendations will be adopted if we do not engage Indiana University Bloomington’s research, teaching, and service missions. The report analyses how our strategies build upon existing campus resources and strengths, engage campus strategic plans, contribute to the university’s instructional mission, and provide clear opportunities for national leadership. In other words, we not only have to solve the media preservation and access problem, we must also demonstrate that our efforts will provide solid contributions to our institution. Of course, the products of MPI work -- preserved and accessible media collections -- will transform research and instruction for faculty and students whose work can benefit from media resources. However, we believe that it is also critical to show how this work will contribute to the advancement of Indiana University in as many ways as possible.

In addition, Meeting the Challenge includes chapters exploring strategies for film, technology infrastructure needs, and facility planning including a general build plan. This report and the earlier media preservation survey report, as well as the process we used to gather data and plan, may be useful to other institutions addressing the long-term preservation and access of their media holdings.

9. Ongoing Work

The work of the MPI continued during fiscal year 2011-12 and is continuing during fiscal year 2012-13 as well. One major new objective is to leverage existing campus resources to begin audio and video preservation work plus film conservation before the IMPAC is constructed. We call this the IMPAC startup project. In effect, the work of the IMPAC is starting before the Center is established or has a central physical location. It is slow but steady, limited but effective and includes:

- Audio preservation transfer work for a number of campus units based at the Archives of Traditional Music. This utilizes former Sound Directions staff, workflows, and infrastructure. It also includes contributions from the Music Library and School of Music staff;
- Video preservation pilot projects and transfer work at Radio & Television Services utilizing their engineering staff;
- Work on film collections under the guidance of the IU Libraries film archivist at the Auxiliary Library Facility.

Startup project objectives are to test proposed workflows, demonstrate proof of concept, and gain further experience while creating a small body of high-value preserved/conserved content that we can point to with stakeholders and potential donors. And, of course, we will preserve a few key campus holdings. While we must build the IMPAC to make real progress in preserving campus media holdings in time, the startup project lays the foundation and moves us a step or two forward.

To aid in building and operating the IMPAC as well as increasing available resources, MPI is currently exploring possibilities for partnerships. This may take the form of a public-private partnership with a private media preservation company and/or a public-public partnership with one or more academic...
institutions. Partnerships such as these can bring greater experience and expertise to the project as well as additional resources and content. It is clear to us that successful long-term preservation of very large media holdings such as those found not only at IU but at other institutions will require cooperation, collaboration, and strong partnerships in many ways.

In the past year MPI has also developed a communications strategy, including a blog where campus stakeholders and interested parties from outside institutions can follow our progress. The blog may be accessed at http://mediapreservation.wordpress.com/

While we have made significant progress over the past few years, there is much work ahead of us before we can claim success. Ultimately, our overall goal is to move forward into a new era of preservation and access for media holdings, an era characterized by a wealth of enduringly preserved and easily accessed media content integrated into campus research and instruction.