

Indiana University

Media Digitization and Preservation Initiative

IU Media Digitization Studios Summary

Overview

The digitization plan for the MDPI project utilized a private vendor—Sony Memnon—to complete most of the digitization using parallel transfer workflows, which is their specialty. This type of workflow employs one operator to digitize more than one recording at the same time. Parallel transfer workflows are not appropriate for some formats and/or recordings. For example, brown wax cylinders and lacquer discs represent two formats that are particularly fragile and require one-on-one attention for safe and accurate digitization. In addition, any recording in any format that has preservation problems or deviates from the format's standard technical configuration may be more appropriately and safely handled by a 1:1 workflow.

For MDPI, the fragile formats and recordings with problems were digitized by an internal IU operation named IU Media Digitization Studios (IUMDS). IU concluded that it had the experience, expertise, and motivation to shepherd recordings with complex and difficult problems and needs through the steps needed for accurate digitization. At IUMDS, one audio or video engineer typically digitized one recording at a time. One exception was the audiocassette studio that was installed partway through the project. It often made use of a 2:1 parallel transfer workflow for cassettes that were mechanically stable. The other exception was the video studio, where a 2:1 workflow was employed for videotapes that were also considered to have been stabilized. Note that some video formats, such as ½" EIAJ, were only transferred 1:1.

In operation from June 2015 to June 2021 (with reduced staff at both ends of this range), IUMDS staff digitized more than 7,000 cylinders, 7,200 lacquer and aluminum discs, 2,700 open reel tapes, 1,700 audiocassettes, 2,300 VHS videotapes, 1,000 eight mm videotapes, 500 ½" open reel videotapes, and others. Staff have also completed human-intensive quality control checks on the digital files and metadata created from the digitization of more than 30,000 recordings.

Staff

MDPI Director of Technical Operations Mike Casey managed IUMDS.

At the end of the project, IUMDS staff consisted of the following persons:

David Adamson—Audio Preservation Engineer and QC Specialist

Ilze Akerbergs—Audio Preservation Engineer

Patrick Feaster—Media Preservation Specialist
Dan Figurelli—Senior Audio Preservation Engineer
Adam Nickel—Processing and QC Specialist
Rob Mobley—Video Preservation Engineer
Jonathan Richardson—AV Specialist
Matt Champagne, Hourly Audio Preservation Engineer

At other times during the project, the following were part of IUMDS' full-time staff:

Melissa Widzinski—Audio Preservation Engineer
Glenn Hicks—Quality Control Specialist
Susan Hooyenga—Project Specialist

Hourly workers at various times during the project:

Duane Busick
Shannon Devlin
David Adamson
Ilze Akerbergs
Jessica Fodor
Grant Mitchell
Bhavik Thakkar
Lydia Curliss
Chris Burruss
Ian Sundstrom

The following completed internships at IUMDS:

David Adamson
Jessica Fodor
Will Madison
David Gustaven
Casey Burgess

Facility

The IUMDS studios at the Innovation Center included two audio preservation and one video preservation studio, all developed as critical monitoring rooms. The audio rooms were designed by studio designer Jeff Hedback as critical listening rooms. The purpose of the design was to enable audio engineers to hear accurately the sound coming from an often-deteriorating recording on a legacy playback machine. This enabled engineers to make accurate decisions when, for example, choosing a shape/size stylus or EQ curve during a disc transfer. The video studio was designed for critical viewing, with neutral grey walls and flexible lighting. All three of the rooms described above were fully equipped with professional quality legacy playback

machines, many of which had been refurbished and/or repaired, as well as other audio and video equipment necessary for preservation-level digitization work.

The IUMDS facility also included a processing/preparation room and a cleaning room. The processing room was staffed by the Processing and QC Specialist, Media Preservation Specialist, SMARTeam, and the AV Specialist, who used this space to prepare disc and tape recordings for 1:1 digitization including such tasks as microscope evaluation, tape repairs, tape baking and gathering technical metadata. The AV Specialist used the cleaning room to clean disc recordings.

Budget

Overall funding for MDPI consisted of \$15m for the Memnon contract, \$2m for IU storage costs, and \$4.5m for the IU operation.

The IU operation's part of the budget supported IUMDS and the SMART team that was based at IU Libraries. The IUMDS budget included personnel, equipment, supplies, and travel. Funding from outside of the MDPI budget covered renovation of the Innovation Center for the IUMDS operation. Although it was somewhat difficult to completely separate out IU from Memnon renovation costs, the IUMDS renovation was approximately \$284,000. Funding from outside of the MDPI budget also covered initial purchases to equip the facility and to install the equipment. This totaled approximately \$228,000.

QC Program

IUMDS was also responsible for performing quality control tasks on the output of both the Memnon and IUMDS digitization operations. The MDPI post processing system developed by Brian Wheeler at IU Libraries provided automated, machine-based checks on all files created from digitization. IUMDS then conducted human-intensive qc on a percentage of this output, using the human senses of hearing and sight, as well as our ability to recognize patterns and to be surprised, to examine the products of digitization for adherence to IU's specification. In general, IUMDS was able to check 10% of digitization output when it was fully staffed. QC resources were maximized and used strategically in a number of ways, as described in this IASA Journal article titled 'Quality Control for Media Preservation Projects' <http://journal.iasa-web.org/pubs/article/view/92>

Management

IUMDS adopted and adapted scrum principles and procedures to help manage its operation. In this case, scrum is a framework for tackling complex projects that was originally created for software development, particularly what is known as Agile development. IUMDS was looking for ways not only to track recordings to be digitized but to support choice, foster investment and engagement, encourage productivity, keep morale high, and nurture a culture of continual

improvement and flexibility. Further information on our use of Scrum procedures may be found in two posts on the MDPI blog:

On Rugby, Software Development, and Managing Media Digitization Workflows (Pt. 1)
<https://blogs.iu.edu/mdpi/2017/06/18/on-rugby-software-development-and-managing-media-digitization-workflows-pt-1/>

On Rugby, Software Development, and Managing Media Digitization Workflows (Pt. 2)
<https://blogs.iu.edu/mdpi/2017/06/17/on-rugby-software-development-and-managing-media-digitization-workflows-pt-2/>

One Scrum technique that we found particularly helpful was the daily standup meeting. This meeting lasts from five to fifteen minutes and includes all staff, not just those engaged in digitization. The daily standups provide built-in frequent feedback loops for both technical staff and administration and serve as a touchstone for ongoing work. For the first three or so years of the project, these standups took place daily at 9:15 AM. As the operation matured, the meetings moved to three days per week.

Relationship with Memnon

MDPI Director of Technical Operations Mike Casey served as the primary technical interface with the vendor—Sony Memnon—for audio and video digitization. A weekly operations meeting provided the scheduled, formal setting in which the two entities worked on issues and problems. However, because the two operations were co-located in the same building (the IU Innovation Center), there were frequent opportunities for communication outside of the weekly meeting. In fact, both Memnon and IUMDS found that co-location offered many advantages over a more typical client-vendor relationship. For example, when IUMDS QC uncovered issues with files, staff were often able to engage their counterparts at Memnon the same day. Sometimes issues were diagnosed and resolved right away in either a Memnon or an IUMDS studio. In a more usual client-vendor setting, this might take days or weeks and involve multiple emails and/or phone calls. In addition, the two operations often loaned equipment to each other and pooled expertise for especially tricky issues.