Distribution and Consumption Patterns of Archival Moving Images in Online Environments

Karen F. Gracy

Abstract

This study gathers data on how cultural institutions, specifically archives, libraries, and museums, are making archival moving images available online via various distribution methods. The investigator conducted a short survey of 16 individuals responsible for the development of digital archival moving image collections to determine their institution's digitization and distribution activities for moving images. Data gathered indicate that institutions exhibit strong interest in moving image digitization projects and online distribution, yet significant perceived and tangible barriers to digitization and distribution continue to restrict the development of digital projects and programs for archival moving images. Institutions have not yet invested significant resources into serious study of archival moving image uses and users, which practitioners and researchers should address to determine the best methods to improve access to such materials.

This research aims to document current practices, attitudes, and future plans of moving image curators and managers regarding digitization and online distribution of archival moving images in the wake of increasingly ubiquitous mobile technologies. This study gathers initial data on how cultural institutions, specifically archives, libraries, and museums, are making archival moving images available online via institutional websites, video-sharing services, and other distribution methods.

The following research questions guided this study:

1) To what extent are institutions digitizing archival analog motion picture and video collections?

2) How are those institutions distributing archival digital moving image materials online, including both digitized and born-digital materials, in what formats, and for what purposes?
3) To what extent are archival institutions analyzing online use of digital moving images?

To gather empirical data to answer these questions, I identified a sample pool of archivists, librarians, curators, and others responsible for developing archival digital moving image collections at their institutions or organizations and requested their participation in a short (25 questions) survey aimed at assessing the extent to which their institutions engage in or plan to engage in digitization of analog moving image materials and acquisition of born-digital moving image materials for long-term access and preservation. Questions also explored how digitized/digital moving image materials have been made available to users (i.e., through institutional websites, via online catalogs, on video-sharing sites, or through institutional repositories such as DSpace or Fedora). The survey also asked about the institutions' plans for digitizing audiovisual material and how certain barriers or restrictions may influence future digitization and distribution decisions.

In creating this study, I assumed that the goal of increasing access to moving image materials serves as a primary driver of digitization and digital migration of moving images. While archives quickly assert that they also do digitization work with preservation in mind, few archives currently can afford to digitize moving images to a standard that may be considered preservation quality (i.e., scanning material to an uncompressed format, providing significant metadata for both resource discovery and long-term maintenance of the resulting digital files, and ensuring high levels of quality control). For most institutions, the goal is simpler and often less expensive to accomplish: create an access copy for online distribution that is acceptable for most users. The target formats chosen for digital copies by and large bear evidence to this goal, as the data discussed below reveal.

Most small and medium-sized institutions engaging in digitization work have not yet graduated beyond experimental projects to full-scale, economically sustainable digital programs that give equal weight to the demands of access and preservation. Little is known about their current status as digital moving image content providers, as few data sources document their digitization and distribution activities.

Rick Prelinger, founder of Prelinger Archives and the current board president of the Internet Archive, states in *The Moving Image*,

> So much has been said and written about archival access that another article seems almost superfluous. And yet, as we tiptoe toward opening our collections to a world of ready eyes and eager makers, much remains unsaid and

> even more undone. As a longtime advocate of broadly expanded access to moving image collections, I continue to be struck by the divergence between our theoretical acceptance of access as goal and the poor state of access that actually reigns. While expanding access has become a relatively uncontroversial objective, its implementation is roadblocked by constraint, uncertainty, and ambivalence.[1]

Prelinger details the many reasons that archival institutions employ to defend their lack of momentum on the supposed goal of increasing online access to moving images: lack of fiscal resources, staff, and facilities; copyright restrictions; ethical concerns; and fears of piracy. While most archivists recognize these reasons (or, as Prelinger might say, "excuses"), Prelinger freely admits that he often uses these justifications for polemical effect, as a launching point for discussing how archives might overcome the barriers that restrict them from making audiovisual materials more available.

This study seeks to provide some preliminary, baseline data that test Prelinger's assertions about why many archivists continue to delay access initiatives and why they have not made much progress toward digitization and delivery goals for moving images. With some empirical corroboration of the current state of moving image digitization, distribution, and consumption patterns, it may be easier to set reasonable goals and measurable objectives for future access efforts.

Literature Review

Current Status of Moving Image Collections in Cultural Institutions

In 2007, the *Health Heritage Index* estimated that U.S. cultural institutions held approximately 40.2 million moving image objects.[2] The *Index* also found that

> moving image collections are in 86% of archives, 78% of libraries, 63% of historical societies, 52% of museums, and 30% of archaeological repositories/scientific research collections. Large institutions hold 55% of moving image collections, while 24% reside in mid-sized institutions and 21% are held by small institutions. More than half (57%) are held by institutions under

[1] Rick Prelinger, "Points of Origin: Discovering Ourselves through Access," *The Moving Image* 9 (Fall 2009): 164.

[2] *A Public Trust at Risk: The Health Heritage Index Report on the State of America's Collections* (Washington, D.C.: Heritage Preservation, 2005), 28.

> county/municipal governance and 19% by state, 17% by nonprofit, 7% by federal, and 1% by tribal-governed institutions.[3]

As these data reveal, moving image materials permeate all types of cultural heritage organizations and government agencies. In many archival institutions, moving images are frequently part of larger fonds and collections of textual materials, and may not be separated out, particularly if they are part of unprocessed collections.

The *Index* calculates that 12% of those objects are at significant risk of becoming inaccessible due to deterioration or format obsolescence. This percentage may seem comforting, until one reads that the *Index* also found that for 43% of those same 40.2 million objects, their physical condition is "unknown." Thus, the actual number of objects needing immediate attention is likely to be significantly higher than 12%.[4] These numbers convey the imperative to act quickly, yet many cultural institutions with moving image materials are only on the cusp of realizing the enormity of the problem in their collections.

It is worth noting that the data presented in the *Health Heritage Index* do not distinguish between moving images that are part of circulating collections and those that can be considered archival in nature. This distinction is important, as it often makes a difference in how institutions treat materials and may influence the methods they choose to provide access to moving images in their collections.

The status of archival moving images is often in flux over the lifetime of the materials; moving images that begin life as circulating objects may be redefined as archival once they are more valued for their historical, evidential, cultural, or artifactual qualities than for their informational qualities or commercial value. As Sam Kula notes, while moving images may eventually find residence in an archival institution or be given an archival label, they do not meet the basic definition of archives as the profession has defined it, and their value as evidentiary records often cannot be established.[5]

[3] *A Public Trust at Risk*, 39.

[4] *A Public Trust at Risk*, 38.

[5] The definition of *archives* may be taken from the *Glossary of Archival and Records Terminology*: "Materials created or received by a person, family, or organization, public or private, in the conduct of their affairs and preserved because of the enduring value contained in the information they contain or as evidence of the functions and responsibilities of their creator, especially those materials maintained using the principles of provenance, original order, and collective control; permanent records." See Richard Pearce-Moses, *A Glossary of Archival and Records Terminology*, s.v. "Archives" (Chicago: Society of American Archivists, 2005), http://www2.archivists.org/glossary/terms/a/archives, accessed 14 September 2012. Kula notes that "since moving image records are seldom part of records series, and therefore firmly grounded as to provenance and evidentiary function, they are not readily assessable in the context of the activity that initiated their production." See Sam Kula, *Appraising Moving Images: Assessing the Archival and Monetary Value of Film and Video Records* (Lanham, Md.: Scarecrow Press, 2002), 2.

Digitization and Online Distribution Programs

The degree to which cultural institutions are digitizing audiovisual materials is difficult to ascertain, given the limited data being collected. In a 2009 report for the Association of Research Libraries (ARL) on preservation measures in ARL libraries, Lars Meyer comments that statistics collected by the association often do not include sufficient information on materials digitized as part of cooperative arrangements or outsourced to vendors.[6] In 2010, the ARL discontinued collecting preservation statistics in their current form and plans to debut new metrics in the near future that will reflect current realities about how preservation (including reformatting) occurs in member institutions, including new statistics on creation of digital surrogates for all analog formats; management of born-digital files, where preservation work occurs within and outside of the institution; digital collaborative efforts; and quality measures.[7]

Unfortunately, no comprehensive measures for tracking digitization activities exist in archives and special collections programs, other than those whose parent institutions belong to ARL and have in the past reported statistics for the now-defunct *ARL Preservation Statistics*. While the European Commission attempted to measure progress on digitization by commissioning a study on the subject (published in 2009), U.S. cultural institutions do not appear to have gathered any equivalent report in recent years.[8] I also found no data sources specifically addressing audiovisual digitization activities; while individual institutions may be keeping those measurements, such statistics have not been compiled as a single data source to track activity on a national level.

Changing Professional Attitudes toward Digitization on Demand

In the special collections environment, archivists, librarians, and curators are increasingly eager to expedite the process of getting materials into the hands of users in digital formats, which they prefer increasingly over other types of copies, such as microfilm or photocopies. In two recent OCLC Research reports, Jennifer Schaffner et al. and Ricky Erway describe ways of increasing

[6] Lars Meyers, *Safeguarding Collections at the Dawn of the 21st Century: Describing Roles and Measuring Contemporary Preservation Activities in ARL Libraries* (Washington, D.C.: Association of Research Libraries, 2009), 35.

[7] Rebecca Miller, "ALA Midwinter 2011: ARL Forum Ponders How to Count Preservation Efforts in Digital Age," *Library Journal* (20 January 2011), Library Journal Archive, http://www.libraryjournal.com/lj/newslettersnewsletterbucketacademicnewswire/888912-440/ala_midwinter_2011_arl_forum.html.csp, accessed 24 October 2011.

[8] *NUMERIC: Developing a Statistical Framework for Measuring the Progress Made in the Digitisation of Cultural Materials and Content* (Croyden, U.K.: European Commission, 2009), http://cordis.europa.eu/fp7/ict/telearn-digicult/numeric-study_en.pdf, accessed 24 October 2011.

speed of response to user digitization requests and of streamlining workflows to digitize and distribute materials.[9] Both reports emphasize manuscript, photographic, and bound volume materials and barely refer to moving images (although Erway mentions how to set up systems for parallel transfer of audio material). The complexities of moving image digitization make implementation of such digitizing-on-demand programs less likely, particularly when outside vendors have traditionally been used and copyright restricts materials to on-site use. Some of the largest institutions with on-site transfer facilities and laboratories, such as the Library of Congress National Audiovisual Conservation Center, may be interested in offering rapid transfer of moving images on demand for certain materials; however, there is no evidence of those plans at this writing.

Study of Users and Uses of Archives

As archival access imperatives result in more and more archival materials becoming available online, the profession has grown increasingly interested in gathering information on how users discover and interact with digital archives. The archival literature contains numerous studies of archival users in on-site and online environments, which can be categorized as follows: 1) user behavior and uses of collections, 2) usability of descriptive tools such as finding aids, and 3) user interpretation and acceptance of digitized collections (which may be characterized as judgments of the authenticity of the objects being accessed).

Although this study focuses on institutional activities to increase access to archival digital moving images, I acknowledge the importance of user studies and the impact they have on institutional goals and priorities in the area of access.

In 2002, Troll Covey provided an overview of the methods traditionally employed to study users in libraries; these methods may be considered, by extension, applicable to other cultural institutions such as archives and museums. Data collection techniques include surveys, focus groups, user protocols, and transaction log analysis.[10]

In the archival community, studies of users and access began to appear in the literature in the 1980s. Paul Conway's 1986 *American Archivist* article "Facts

[9] Jennifer Schaffner, Francine Snyder, and Shannon Supple, *Scan and Deliver: Managing User-Initiated Digitization in Special Collections and Archives* (Dublin, Ohio: OCLC Research, 2011); Ricky Erway, *Rapid Capture: Faster Throughput in Digitization of Special Collections* (Dublin, Ohio: OCLC Research, 2011).

[10] For those unfamiliar with the user protocol, Troll Covey defines it as "a structured, exploratory observation of clearly defined aspects of the behavior of an individual performing one or more designated tasks." Denise Troll Covey, *Usage and Usability Assessment: Library Practices and Concerns* (Washington, D.C.: Digital Library Federation and Council on Library and Information Resources, 2002), 23.

and Frameworks: An Approach to Studying the Users of Archives" describes itself as the "first attempt to structure a comprehensive profession-wide program of user studies."[11] In subsequent years, researchers focused on topics such as the information-seeking behavior of historians and genealogists, and the skill set that expert users bring to archival search.[12]

In the years since the Troll Covey report was published, another method of analyzing uses and usability of online tools has become available: the application of Web analytics techniques to gauge types of use and extent of use of websites (and by extension, particular content found on repository websites). Christopher Prom recently explored how Web analytics services such as Google Analytics can be used to gather information for the improvement of access to materials and to foster increased use.[13] Irene Herold also describes the use of Web analytics to study characteristics of users of digitized images from the Orang Asli Archive at Keene State College in New Hampshire.[14] While neither study focused specifically on usability issues, it was interesting to determine whether or not institutions actually employ such usage analysis tools.

The only well-known example of using Web-gathered data for tracking usage of moving images can be found on the Internet Archive site, which uses a measure called a "batting average" to determine the percentage of people who download an item after visiting its details page (statistically corrected to account for small sample sizes).[15]

Users and Their Interactions with Archival Objects

The user study, a frequent topic in the archival literature, came to have a greater scope in the last decade as archives established an online presence. Whereas early studies often focused on user interaction with descriptive tools such as finding aids, later studies actually contemplate how the user interacts

[11] Paul Conway, "Facts and Frameworks: An Approach to Studying the Users of Archives," *The American Archivist* 49, no. 4 (1986): 394.

[12] Wendy M. Duff and Catherine M. Johnson, "Where Is the List with All the Names? Information-Seeking Behavior of Genealogists," *The American Archivist* 66, no. 1 (2003): 79–95; Helen Tibbo, "Primarily History in America: How U.S. Historians Search for Primary Materials," *The American Archivist* 66, no. 1 (2003): 9–50; Elaine G. Toms and Wendy Duff, "'I Spent 1½ Hours Sifting through One Large Box . . .': Diaries as Information Behavior of the Archives User: Lessons Learned," *Journal of the American Society for Information Science and Technology* 53, no. 14 (2002): 1232–38; Elizabeth Yakel and Deborah Torres, "AI: Archival Intelligence and User Expertise," *The American Archivist* 66, no. 1 (2003): 51–78.

[13] Christopher J. Prom, "Using Web Analytics to Improve Online Access to Archival Resources," *The American Archivist* 74 (Spring/Summer 2011): 158–84.

[14] Irene M. H. Herold, "Digital Archival Image Collections: Who Are the Users?," *Behavioral and Social Sciences Librarian* 29, no. 4 (2010): 267–82.

[15] See Internet Archive, http://www.archive.org/post/71879/no-faq-on-batting-average, accessed 24 October 2011.

with the archival object itself. The transition to digital archives brought fresh attention to issues of authenticity, as archivists considered whether users would find digital surrogates or migrated versions of born-digital objects acceptable and under what circumstances. In one instance, Margaret Hedstrom and colleagues consider whether or not different migrated versions of certain digital objects are adequate substitutes for the object when compared with versions viewed in the original environment (usually as an emulated object).[16] In another instance, Conway describes the attitudes of users of photographic collections, finding that consumers of visual images bring a combination of visual perspective (which he calls "field of view") and emotional engagement to the process of assessing images.[17]

In the archival and library literature, researchers rarely examine how users seek and interact with audiovisual material (note that this category excludes still images), in either quantitative or qualitative ways. Geraint Evans and Jane Del-Pizzo surveyed academic users of audiovisual collections at various Welsh institutions in 1999, finding that they desired better descriptive metadata and increased access delivery methods; since this study was completed, the increased capabilities of online delivery for audiovisual materials outdates many of its findings.[18]

While enthusiasts for increasing access extoll the benefits of open audiovisual repositories such as YouTube and the Internet Archive—particularly as they empower users to access, consume, appropriate, and apply their own descriptive and analytic frameworks—few empirical studies have emerged in the wake of the video-sharing revolution. In the moving image archiving community, which includes a significant number of individuals with backgrounds in the humanities and history rather than the social sciences, empirical studies are rare.

Instead, interpretive critiques from the disciplines of cinema and media studies, visual arts, and computer science are more likely to provide perspective on how users engage with digital moving images. For example, Lev Manovich stresses the phenomenological relationship between the user and digital moving images, which is a function of the following factors: visual perspective, embeddedness of the moving image object in a larger system of visual representation (e.g., the computer screen or a 3-D environment), and the

[16] Margaret Hedstrom et al., "'The Old Version Flickers More': Digital Preservation from the User's Perspective," *The American Archivist* 69 (Spring/Summer 2006): 159–87.

[17] Paul Conway, "Modes of Seeing: Digitized Photographic Archives and the Experienced User," *The American Archivist* 73 (Fall/Winter 2010): 425–62.

[18] Geraint Evans and Jane Del-Pizzo, "'Look, Hear, upon This Picture': A Survey of Academic Users of the Sound and Moving Image Collection of the National Library of Wales," *Journal of Librarianship and Information Science* 31, no. 3 (1999): 152–67.

spatio-temporal relationship between the user and the moving image object, as it plays in real time.[19]

Rodowick, in his book *The Virtual Life of Film*, attempts to explain the difference between the user's experience of analog material and of digital moving images thus:

> [. . .] It is important to understand that digital information expresses another will to power in relation to the world. This will is neither better nor inferior, but it is different both in its values and in its modalities of expression. No doubt, it attenuates or even blocks an earlier photographic relation to past worlds, for the digital will wants to change the world, to make it yield to other forms, or to create different worlds. Before the digital screen, we do not feel a powerlessness, but rather express a will to control information and to shape ourselves and the world through the medium of information. This is also a will to measure the world and communication, or to take measure of it, and so to manage it according to mathematical means.[20]

The idea that interaction with digital moving images invests users with the desire and power to control and manipulate them is a powerful trope that has played out to a large extent in the video-sharing movement and also presents a potential threat to the curatorial power of the archives to control access and the types of consumption in which users can engage. As Prelinger notes, moving image seekers who are presented with archival control measures often find ways around the perceived "roadblocks" that archives put up in the name of preservation, security, and risk management.[21] While it is beyond the scope of this study to explore the nature of user interaction with archival moving images, it is clear that the field needs a more sophisticated understanding of the myriad ways in which users search for, navigate, engage with, and utilize moving images as archival documents as institutions contemplate further digitization activities.

Methodology

Instrument

The survey instrument used in this study (see Appendix A) consisted of 25 questions about current digitization and digital distribution practices, as well as approaches applied to studying users of moving images. I arranged the questions in the survey according to the following categories:

[19] Lev Manovich, *The Language of New Media* (Cambridge, Mass.: MIT Press, 2001), 94–99.

[20] D. N. Rodowick, *The Virtual Life of Film* (Cambridge, Mass.: Harvard University Press, 2007), 174.

[21] Prelinger, "Points of Origin," 166–67.

- Profile of Institution and Moving Image Collections (questions 1–2)
- Characteristics of Motion Picture and Video Collections, including Extent of Digitization Activities (questions 3–12)
- Methods Used to Digitize Motion Pictures and Analog Video (questions 13–14)
- Methods Used to Distribute Digital Moving Images (questions 15–19)
- Perceived Barriers to and Future Plans for Digitization and Online Distribution of Moving Images (questions 20–22)
- Studies of Users and Uses of Moving Images (questions 23–25)

I primarily used nominal variables as measurement scales for gathering data. Most questions required respondents to choose from a predefined set of responses, except for question 19, an open-ended question that asked participants to provide a brief explanation for why their institutions chose particular formats for distributing moving images online. Questions 13, 14, 15, 18, 20, 21, 22, and 24 also gave respondents the opportunity to select "Other" and supply an answer in a text box. While the instrument was not pretested, it was reviewed by colleagues with expertise in design of surveys to assure its methodological soundness.

Data Collection

To identify individuals and institutions for the survey, I consulted the following data sources:

- The list of moving image archives maintained by the Library of Congress on its website.[22] I visited the websites of North American archival institutions to determine, where feasible, who is responsible for digitization programs at each institution.
- Conference programs for 2005 to 2010 annual meetings of the Society of American Archivists (SAA) and the Association of Moving Image Archivists (AMIA).[23] I identified panels and sessions in the programs where progress reports about completed and ongoing moving image digitization projects were scheduled and added the names of speakers to the potential pool of survey recipients.

The study specifically excluded consultants and vendors from the potential pool, as it focused on collections and digitization programs in archival

[22] Library of Congress, National Film Preservation Board, "Public Moving Image Archives and Research Centers," http://www.loc.gov/film/arch.html, accessed 22 October 2011.

[23] Programs for these years can be found at Society of American Archivists, "SAA Annual Meeting," http://www2.archivists.org/conference, and AMIA 2012, http://www.amiaconference.com, both accessed 22 October 2011.

institutions rather than on those services provided by individuals and businesses outside of an organization.

I sent invitations to participate in the study to 93 individuals who currently work at library, museum, and archival institutions in North America that have moving image holdings considered to be archival.

Before proceeding with the bulk of the questionnaire, I asked participants to affirm that the collections with which they work are archival in nature. For the purposes of this study, I defined archival moving images thus:

> Archival moving images, whether they originated as analog motion picture film or video or were born as digital objects, are distinguishable from other types of moving image collections by their perceived long-term value; they are materials "intended to be kept so that they may be available for future generations, regardless of their age at the time of acquisition."[24]

This definition includes moving images found in both commercial and noncommercial archival collections.

The initial target return rate was 30%, an ambitious goal considering the fairly low response rates for invitations to participate in Web surveys sent via electronic mail, which typically range from 20% to 30%.[25] I attempted to maximize the return rate by sending private invitations to select individuals who I confidently believed were actively engaged in moving image digitization and digital moving image collection building.

After the survey went out using the Qualtrics Web surveying service, 5 people contacted me and indicated that they are not currently working on moving image digitization projects.[26] As they did not fit the criteria for the study, I removed these individuals from the pool. The revised pool for the survey thus consisted of 87 potential participants. Based on the survey recipients' job titles and employers, I preliminarily summarized their institutional affiliations as follows: academic libraries, 41 (47%); university archives, 6 (7%); museums or historical societies, 13 (15%); other nonprofit organizations, 22 (25%); and for-profit organizations, 5 (6%). These groupings may not be entirely accurate or reflect how the respondents would categorize themselves; for example, some special collections units may categorize themselves as units of academic libraries or as university archives. It gives a general idea, however, of the makeup of this population.

[24] Association of Moving Image Archivists definition, as cited in UNESCO Instrument for the Safeguarding and Preservation of the Audiovisual Heritage: CCAAA [Co-ordinating Council of Audiovisual Archives Association] Issues Paper, version 1.0 (April 1, 2005), http://www.ccaaa.org/docs/ccaaa_heritage.doc, accessed August 28, 2012.

[25] Michael D. Kaplowitz, Timothy D. Hadlock, and Ralph Levine, "A Comparison of Web and Mail Survey Response Rates," *Public Opinion Quarterly* 68, no. 1 (2004): 94–101.

[26] The Qualtrics Web surveying service may be found at http://www.qualtrics.com/, accessed 26 October 2011.

Sixteen of the 87 invited participants completed the survey, resulting in a return rate of 18.4%. While this response is somewhat disappointing, it is not surprising given the difficulties involved in getting individuals—particularly working professionals who may have little time during their workday—to respond to surveys. Junk mail filters may have prevented the email notification sent by the Qualtrics server from reaching all the potential respondents. The response rate also indicates the small pool of individuals who engage in moving image digitization, particularly when compared to the amount of digitization activity occurring in other genres of materials (such as images, documents, and books). Last, individuals once involved in digitization may no longer be actively engaged in this type of work, and so they ignored the request to participate in the survey as they did not feel it was appropriate to respond.

Given the lower than anticipated response rate, and the small pool of individuals who formed the sample, I proceeded very cautiously in interpreting the results as generalizable to the broader population of cultural institutions and other organizations engaged in digitization work. As will be seen in the discussion of results, key limitations include a small number of responses overall and particularly for institutions with larger collections, and a lack of diversity in types of institutions represented in the data. Despite these weaknesses, the results do provide an initial window into the current state of moving image distribution and consumption, and may represent the current state of activity in certain segments of the larger population.

Data Analysis

The Qualtrics system provided me with descriptive statistics summarizing responses to each question, which could be downloaded in the form of a spreadsheet in .csv format. I was primarily interested in simple counts and percentages of responses to each question (which I calculated from the counts in the initial tabulation provided by Qualtrics). The data could not be correlated according to type or size of institution; because of the small number of respondents, any attempt at correlation may have compromised the anonymity of the respondents. I tabulated the data and ranked it in one of two ways: 1) from highest number of responses to lowest number of responses; or 2) for questions dealing with estimates of size or percentage of collections digitized, in range order (e.g., None, 0%–5%, 5%–10%, 10%–25%, etc.). In all tabular displays of data, I use shading to highlight significant findings.

Results

As noted, 16 people returned the survey within the time frame given for completion, which was 2 weeks. Thirteen people completed all questions for the survey, while 3 people partially completed it. All tabular data and discussion of results indicate the number of respondents for each question.

Composition of Survey Respondents

Survey participants indicated affiliation with one of the following categories: museums, academic libraries, university archives, nonprofit organizations, or distributors. No institutional type predominated, but university archives, museums, and academic libraries were more widely represented than other types (81.25% of all respondents). One might argue that academic libraries and nonprofit organizations are underrepresented in this sample based on initial categorization of invited participants as summarized above. Data reveal no representation of public libraries, government archives, local television stations, television networks, motion picture studios, or stock footage companies.

Table 1. Breakdown by Type of Institution (*n* = 16)

Type of Institution	Number of Respondents (% of Sample)
University archives	6 (37%)
Museum or historical society	4 (28%)
Academic library	3 (19%)
Nonprofit organization (other than museum, archive, or library)	2 (13%)
For-profit organization	1 (6%)

The two nonprofit organizations identified themselves as film archives and video art distributor, while the for-profit organization identified itself as a film distributor (in all cases, the "other" category was checked and the response was provided in the text box).

The respondent group also did not include representatives of a segment of the population that some archivists may argue should have been included: community-based media organizations that may actively engage in preservation and access activities, such as digitization of members' moving images, but do not necessarily self-identify as archival organizations. While I did not deliberately exclude this category, and in fact included a number of individuals in the pool who worked for such organizations, no respondents indicated this affiliation.

The second question of the survey gave recipients a definition of archival audiovisual collections (as noted above) and asked them to choose one of three statements to describe their collections. Responses are listed in parentheses after each statement ($N = 16$):

- Yes, my entire collection may be considered archival (10, or 62%).
- Yes, some of my collections may be considered archival (6, or 38%).

No one responded in the negative ("No, none of my collections may be considered archival"), although this option was provided so that individuals could opt out of completing the rest of the survey if they did not feel that their institutions fit the definition as provided.

Size of Archival Moving Image Holdings

In all categories where I asked respondents to estimate collection size of different types of moving images, they chose from a list of quantities expressed as a range, such as 0–1,000 items, rather than being requested to provide more specific figures. Given the size of the survey pool, it was imperative to collect data in a way that would preserve the anonymity of the respondents, particularly larger institutions. If an institution indicated in its response that it held hundreds of thousands of film elements, it could betray the identity of that respondent, particularly given the small number of institutions in the population with significant holdings beyond 10,000 items. The small pool of respondents also hindered me from presenting cross-tabulations of data. The following two sections report the size of motion picture and video collections separately.

Motion Pictures (Material on Analog Motion Picture Film)

I asked participants to indicate the estimated size of their archival motion picture holdings. They selected from the following categories ($N = 16$, results in parentheses):

- 0–1,000 reels or rolls (7, or 44%)
- 1,001–5,000 reels or rolls (1, or 6%)
- 5,001–10,000 reels or rolls (3, or 19%)
- More than 10,000 reels or rolls (5, or 31%)

The data here show that almost half of those responding to the survey have a limited amount of material in their collections; audiovisual materials for these

institutions may form a small part of primarily paper-based archival collections, where a variety of other formats, such photographs, visual materials, and audiovisual materials, add to the mix.[27] On the other hand, half of the institutions have more than 5,000 reels or rolls of film, indicating that their motion picture holdings are of significant size and may constitute a larger portion of overall collection size of the institution. In retrospect, an additional question asking respondents what percentage of their overall collections could be classified as moving images might have been helpful in eliciting more information about extent.

I also asked respondents to indicate whether or not their motion picture collections contain any preproduction materials (negatives, work prints, interpositives, etc.). Of 16 respondents, 14 (87%) indicated that they do have preproduction elements. As preproduction elements generally require additional time to process, preserve, and prepare for digitization, this finding signifies a potential barrier to digitization work.[28]

Videotape

Similarly, the survey also asked participants to provide estimates of their archival videotape holdings. Fewer people responded to this question (and other questions about archival videotape), as not all respondents have videotape holdings (N= 12, results in parentheses):

- 0–1,000 reels or cassettes (5, or 42%)
- 1,001–5,000 reels or cassettes (2, or 17%)
- 5,001–10,000 reels or cassettes (4, or 33%)
- More than 10,000 reels or cassettes (1, or 8%)

This question revealed more institutions with modestly sized videotape collection, although approximately 40% of the respondents still have significant quantities of videotape (more than 5,000 items).

As with motion pictures, I asked respondents to indicate whether or not their video collections contain any preproduction materials (in this case,

[27] As a point of comparison, Mohan reports in her study of U.S. moving image collections that just under 25% of the institutions surveyed have 1,000 or fewer moving image items, while approximately 56% have between 1,000 and 10,000 items. Mohan's study does not distinguish between general and archival collections, however. Jennifer Mohan, *Environmental Scan of Moving Image Collections in the United States* (n.p.: Digital Library Federation, 2008), 4.

[28] For more background on the complexities of appraising, processing, describing, and preserving archival moving images, three reference resources to consult are *The Film Preservation Guide: The Basics for Archives, Libraries, and Museums* (San Francisco: National Film Preservation Foundation, 2004); Steven Davidson and Gregory Lukow, eds., *The Administration of Television Newsfilm and Videotape Collections: A Curatorial Manual* (Los Angeles: American Film Institute, 1997); and *AMIA Compendium of Moving Image Cataloging Practice* (Los Angeles: Association of Moving Image Archivists and Society of American Archivists, 2001).

unedited recordings, production elements, or master materials). Of 12 respondents, 9 (75%) indicated that they do have preproduction elements.

Digitization of Audiovisual Archives

Survey participants responded to a series of questions that elicited information about the extent of their digitization activities. I treated motion picture and videotape holdings separately, as the processes for digitization are different enough (and variable enough in cost) to affect institutions' abilities to transfer materials to digital form.

Motion Pictures

The process by which motion pictures are digitized is complex and costly enough to make transfer difficult for most archival institutions. Few institutions, aside from the largest archives, possess motion picture scanners, and the costs of sending material to digitization facilities discourage many institutions. Thus, it is not surprising that institutions surveyed have digitized a very small percentage of their motion picture holdings (see Table 2).

Table 2. Estimate of Percentage of Motion Picture Holdings Digitized (*n* = 12)

Percentage of Motion Pictures Digitized	Number of Institutions (% of Sample)
None	1 (8.33%)
0% –5%	8 (66.67%)
5% –10%	1 (8.33%)
10% –25%	1 (8.33%)
25% –50%	0 (0%)
50% –75%	1 (8.33%)
75% –100%	0 (0%)

Of the respondents, 75% (9) have digitized less than 5% of all their motion picture holdings.[29]

When surveyed about methods used to digitize archival motion pictures, the institutions reported several methods, as detailed in Table 3.

[29] Mohan found similar results in progress toward moving image digitization in 2008. See Mohan, *Environmental Scan of Moving Image Collections in the United States*, 16.

Table 3. Methods of Digitizing Archival Motion Picture Films (*n* = 12)

Answer	Number of Responses	%
My institution digitized the materials using equipment (either telecine or film scanner) owned by the institution (or parent institution).	5	41.67%
My institution sent materials to a motion picture laboratory or post-production facility, which transferred the film to analog videotape using a telecine machine, and then digitized the resulting video to create a digital access copy.	4	33.33%
My institution sent materials to a motion picture laboratory or post-production facility, which scanned the film using a high-resolution motion picture scanner to create a digital intermediate, from which an access copy could be made.	1	8.33%
My institution created a digital copy by projecting motion picture material onto a screen, videotaping the projected images, and creating a digital access copy from the resulting video.	1	8.33%
The institution used another method to create a digital copy: • "We have no film, only video."	1	8.33%

Of the techniques indicated, using a telecine machine first to convert film to video and then digitizing the resulting video using a video digitization workstation, appears to be the most common method.[30] Five of the institutions outsource their digitization work, while another 5 indicated that work is accomplished in-house using equipment purchased by the institution. One institution revealed that it resorts to making a "dirty dupe"—a digital copy achieved by videotaping a projected image, rather than by using a scanner or telecine machine. This latter method has the advantage of being the least expensive, most expedient approach; however, the resulting image quality is inevitably quite poor.

An institution's storage requirements for digitized materials can be used as another metric to assess the degree of its involvement in moving image digitization activities. Table 4 contains data on storage requirements of survey respondents.

Table 4. Estimate of Storage Requirements for Digitized Motion Pictures, in Terabytes (*n* = 11)

Estimate of Size of Digitized Motion Picture Holdings (TB)	Number of Institutions (% of Sample)
0–1	3 (27.27%)
1–10	6 (54.55%)
10–25	2 (18.18%)
25–50	0 (0%)
50–100	0 (0%)
More than 100	0 (0%)

[30] Archives with access to a telecine machine that scans directly to a digital file format will not need to digitize the resulting video signal.

Given the limited extent to which most respondents reported digitizing their collections, it is not surprising that storage requirements are fairly modest at this time. No institution reported having more than 25 terabytes of digitized motion picture storage, although these totals are likely to rise exponentially in the future as institutions digitize more of their collections. The storage requirements of digital video are a key barrier for many institutions and may contribute to their overall reluctance to launch digitization and digital preservation programs for digital moving images.[31]

Videotape

When considering the digitization of videotape holdings in surveyed institutions, similar patterns emerge as were identified for motion picture collections (see Table 5).

Table 5. Estimate of Percentage of Videotape Holdings Digitized (*n* = 12)

Percentage of Videotapes Digitized	Number of Institutions (% of Sample)
None	1 (8.33%)
0% –5%	7 (58.33%)
5% –10%	1 (8.33%)
10% –25%	2 (16.67%)
25% –50%	0 (0%)
50% –75%	1 (8.33%)
75% –100%	0 (0%)

In the case of video, 8 of 12 institutions report having digitized less than 5% of their collections. Only one institution indicated that it has made significant strides in digitizing its analog video materials.

Regarding methods of digitizing, 75% (9) of the respondents digitized in-house, while 25% (3) sent materials to vendors for transfer (see Table 6).

[31] Jerome McDonough and Mona Jimenez, "Video Preservation and Digital Reformatting: Pain and Possibility," *Journal of Archival Organization* 4, no. 1 (2006): 187.

Table 6. Methods of Digitizing Archival Videotapes (*n* = 12)

Answer	Number of Responses (% of Sample)
Staff members at my institution digitized the materials on site, using legacy players and digitization equipment (such as a computer equipped with a video capture card) purchased for the purpose of digitization or repurposed from a production facility in the institution.	9 (75%)
My institution sent materials to a motion picture laboratory, post-production facility, or other audiovisual laboratory facility, which transferred the video to a digital format, and then created a digital access copy.	3 (25%)
The institution used another method to create a digital copy.	0 (0%)

As the cost and expertise barriers for building and operating a digital video workstation become surmountable, it is not surprising that more institutions are choosing to perform digitization work in-house.

Storage requirements for digitized video are somewhat higher than for digitized motion picture film. This data could indicate slightly higher levels of activity for video digitization work than for motion picture digitization (see Table 7).

Table 7. Estimate of Storage Requirements for Digitized Videotape, in Terabytes (*n* = 11)

Estimate of Size of Digitized Videotape Holdings (TB)	Number of Institutions (% of Sample)
0–1	2 (18.18%)
1–10	6 (54.55%)
10–25	1 (9.09%)
25–50	2 (18.18%)
50–100	0 (0%)
More than 100	0 (0%)

No institution reported having more than 50 terabytes of storage requirements at this time, however.

This survey also measured the storage requirements for born-digital video, as many institutions have now begun to acquire these materials (see Table 8).

Table 8. Estimate of Storage Requirements for Born-Digital Video, in Terabytes (*n* = 10)

Estimate of Size of Born-Digital Video Holdings (TB)	Number of Institutions (% of Sample)
0–1	6 (60%)
1–10	4 (40%)
10–25	0 (0%)
25–50	0 (0%)
50–100	0 (0%)
More than 100	0 (0%)

Ten institutions reported that they are maintaining born-digital archival video, yet no institution had more than 10 terabytes of born-digital materials at the time of the survey.

Methods and Venues for Distributing Digitized and Born-Digital Archival Moving Images

In this question, respondents could choose among 10 different distribution venues for digital moving images, with the possibility of indicating more than one distribution method.

Table 9. Distribution Methods for Digitized and Born-Digital Archiving Moving Images (n = 12)[1]

Answer	Responses	% of Total Responses
As DVDs (to be purchased or rented)	11	91.67
Theater and/or festival exhibition (digital projection)	9	75
As part of museum exhibits	8	66.67
On site at our institution's viewing facilities	8	66.67
Through our institution's website	6	50
Via a videosharing service (such as YouTube or Vimeo)	5	41.67
Through a web-hosted database	3	25
Through our institution's Facebook page	3	25
Via an institutional repository (such as DSpace or Fedora)	2	16.67
Other: • "Footage licensing" • "Short clips on website"	2	16.67
We do not distribute archival digital moving images at this time.	0	0

[1] Participants could choose more than one answer.

From the data provided by participants, it is clear that most of them distribute moving images using multiple methods, with DVD distribution, digital projection at theaters or festivals, museum exhibits, on-site viewing, and viewing on the institution's website being the most popular (chosen by at least 50% of respondents). Fewer institutions distribute via institutional repositories (IRs), social media sites, or video-sharing sites than through DVD distribution, public exhibition, Web delivery, or on-site viewing. Two institutions cited "other" methods, the first of which could actually be categorized part of the "Through our institution's website" category ("short clips are available on our website, soon select full length pieces will be available"). The other institution reports that it licenses footage ("we license footage for f/v [film/video] projects"), presumably using its website for previews of available material.

In regard to the digital formats used to distribute moving images online, participants indicated the popularity of low- and medium-resolution formats such as MPEG4 (QuickTime) and Flash Video over higher-quality formats such as MPEG1 and MPEG2.

Table 10. Digital Formats Used for Online Distribution of Archival Moving Images (n = 9)[1]

Answer	Responses	% of Total Responses
MPEG4 (QuickTime)	5	55.56
Flash Video	4	44.44
MPEG1	2	22.22
MPEG2 (DVD quality)	2	22.22
Windows Media Video (WMV)	2	22.22
RealMedia	1	11.11
AVI	1	11.11
Ogg Theora	0	0
Motion JPEG 2000	0	0
Other formats (please specify): [None]	0	0

[1] Participants could choose more than one answer.

Given the interest in reducing download times for moving images and the restrictions imposed by external video-sharing services (which often limit formats to Flash Video or QuickTime), these results are not surprising. Institutions involved in digital video distribution continue to favor lower-quality formats that are viewable, but not useful to individuals who wish to incorporate higher-quality video materials into new works. This finding corroborates the Prelinger's critique.

I also asked participants briefly to explain why their institutions chose particular formats for distribution. Their responses to this open question are listed below:

- "Easiest to work with"
- "It was what worked with our website design."
- "Our digitization equipment is mac based, so we prefer working with quicktime, and mpeg4 is a good, open-source codec that met our needs."
- "We have just started working with a third party vendor to put our materials on-line and these are the formats that worked into the present system."
- "Industry standards"
- "Seems to work best for the video sharing service we use"
- "Ubiquity"

- "Depending on the project we've used different delivery formats, mainly because of grant funded projects. We use Flash most often. We are looking at HTML5 video for future online delivery."
- "Standard-like format that appears to be widely accessible across a variety of platforms, for now"

In these responses, institutions reveal familiarity with the most accessible standards and the needs of their users, while understanding that the preferred format for distribution may change quickly and that they must be willing to deliver their materials in new formats as they emerge and are adopted by the industry and users.

Perceived Barriers and Future Plans for Digitization of Archival Moving Images

Another category of questions in this survey revolved around the reasons institutions have not engaged to date in digitization and online distribution activities to the extent that they may wish ("perceived barriers"), as well as goals that those same institutions have for increasing access, despite those barriers. These responses are summarized in Tables 11, 12, and 13.

In the first question in this section, I provided participants with a list of possible barriers and asked them to choose one or more explanations for their reticence in moving forward with more ambitious moving image digitization projects and programs (see Table 11).

Table 11. Perceived Barriers to Digitization of Archival Moving Images (n = 10)[1]

Answer	Responses	% of Total Responses
Lack of fiscal resources to pay for costs of transfer by a laboratory	7	70
Lack of staff trained to do or supervise this type of work	6	60
Lack of appropriate equipment to perform transfer in-house	4	40
Concern over the lack of standards and best practices for moving image digitization	4	40
Copyright restrictions	4	40
Concern that material may be used inappropriately by users	2	20
Other: • "Lack of time"	1	10
Not an institutional priority at this time	0	0
Lack of demand from users for this material	0	0

[1] Participants could choose more than one answer.

No institution identified moving image digitization work as "not an institutional priority at this time" or indicated such projects as low priority due

to lack of demand from potential users. Lack of fiscal resources for transfer and lack of staff trained to do the digitization work were the most-selected responses. Only 4 out of 10 respondents cited copyright restrictions, which is surprising given the general wisdom that intellectual property concerns are often identified as the single most critical reason for not moving forward with digitization. Institutions may be taking advantage of certain protections provided by current U.S. copyright law for copying done specifically for preservation purposes.[32] There is still some concern over lack of standards and best practices, although this perceived barrier (chosen by 4 respondents) seems to indicate that fewer institutions are using this reasoning to delay digitization work. The one "other" response was "lack of time," which certainly could have been included as a choice as well.

The next question, similar in wording to the previous question, addresses attitudes toward online distribution of moving images (see Table 12).

Table 12. Perceived Barriers to Online Distribution of Moving Images (n = 13)[1]

Answer	Responses	% of Total Responses
Lack of fiscal resources to create/maintain digital repository structure	11	84.62
Lack of computing resources to create/maintain digital repository structure	9	69.23
Copyright restrictions	8	61.54
Lack of technological expertise to create/maintain digital repository structure	6	46.15
Concern over the lack of standards and best practices for online distribution	6	46.15
Concern that material may be used inappropriately by users	6	46.15
Not an institutional priority at this time	1	7.69
Other: • "Lack of time"	1	7.69
Lack of demand from users for this material	0	0

[1] Participants could choose more than one answer.

The results also share similarities with those of the previous question. Lack of fiscal and computing resources to build technical infrastructure are the top 2 reasons cited as barriers, with copyright being listed as the third most common barrier. In addition to intellectual property concerns, 6 respondents fear misuse of materials, corroborating Prelinger's assertion that archival practice still militates against open access for audiovisual materials. This question did not specifically mention fears of piracy, which would be of most concern to commercial organizations and might have been selected by some respondents

[32] Copyright Act of 1976, 17 U.S.C. § 108 (1976) ("Limitations on exclusive rights: Reproduction by libraries and archives").

if it was provided as a separate choice. While the open access movement may be gaining ground in the cultural heritage community, these respondents still display conservative attitudes when it comes to digital distribution of moving images.

In the final question of this section, respondents were asked to indicate their future plans for distribution of archival moving images in online environments.

Table 13. Future Plans for Distribution of Archival Moving Images (*n* = 13)[1]

Answer	Responses	% of Total Responses
Through our institution's website (such as a stock footage search service or a union catalog for moving images)	10	76.92
Onsite at our institution's viewing facilities	9	69.23
Via a videosharing service (such as YouTube or Vimeo)	8	61.54
As DVDs (to be purchased or rented)	8	61.54
As part of onsite or virtual museum exhibits	8	61.54
Theater and/or festival exhibition (digital projection)	6	46.15
Through a web-hosted database	5	38.46
Through our institution's Facebook page	5	38.46
Via an institutional repository (such as DSpace or Fedora)	3	23.08
Other: • "Internet Archive"	1	7.69
We do not have any immediate plans for distribution of archival moving images online or digital exhibition in other venues.	1	7.69

[1] Participants could choose more than one answer.

Only one person chose the option of "we do not have any immediate plans for distribution." Preferred modes of distribution were either "through our institution's website" (10 responses) or "onsite at our institution's viewing facilities" (9 responses). DVD distribution was chosen by 8 of 13 respondents, possibly because it presents a potential revenue stream for the institution. Eight respondents showed significant interest in making materials available via videosharing services such as YouTube and the Internet Archive. The ease of accessibility to YouTube, which has become a de facto universal resource for digital video, must certainly influence the desire to share materials using this service. Eight respondents also hope to incorporate moving images into museum exhibits (either on site or virtually), and 6 respondents indicated that digital moving images will be distributed via theater or festival exhibitions. It is interesting to note the variety of distribution methods, but it is also significant that many of these methods ensure continued control over moving images rather than placing them directly in the hands of users for direct incorporation into new works. The user-centered, appropriation-friendly revolution for which

Prelinger continues to advocate has made limited progress when it comes to digital moving images.

Institutional Study of Online Users of Archival Moving Images

This last part of the study brought the most disappointing results, in that very few institutions appear to be engaged in studying their users on any formal basis. Of the 12 participants who responded to the question, "Have you conducted any studies to track on-line usage of digitized or born-digital audiovisual materials from your collections?," only a single person answered in the affirmative. When that respondent was asked what methods the institution uses to study users, he or she indicated that it uses statistics provided by the Internet Archive (not surveys or focus groups, nor the Google Analytics tool). This result indicates little self-study of the practices of users of archival moving image materials at this time. As user studies can provide essential feedback for the improvement of services, descriptive tools, and systems; it is unfortunate that most institutions participating in this research did not employ any such methods at the time of the survey. In the conclusion, I will further discuss how institutions might incorporate user studies into their activities.

Major Findings

The data presented above, although limited, hint at several current patterns in archival moving image digitization, distribution, and consumption that may bear further examination.

First, the data indicate strong interest in moving image digitization projects and online distribution. Many of the institutions and organizations surveyed are moving forward with digitization projects involving archival moving images or plan to do so in the immediate future. The amount of digitized materials is limited thus far, but the increasing affordability of reformatting equipment and growing user interest in accessing audiovisual resources online may encourage institutions to launch additional projects, particularly those that can create in-house transfer facilities to respond more quickly to user requests for reformatted material. The scarcity of functioning playback equipment for some video formats and lack of expertise in many institutions may temper this trend toward in-house transfer for older materials, however.

Second, significant barriers to digitization and distribution still exist, particularly in the areas of resources, technological expertise, and copyright. Distribution of archival moving images, where allowable by copyright law, continues to be primarily accomplished using lower-quality formats designed for Web-friendly distribution and consumption. Many of the current projects

appear to be exploratory or lower risk. Archives are more likely to make short clips available, rather than full works. Data show that most archives still digitize primarily for access purposes, creating derivatives that are ideal for casual consumption but not of high enough quality to be repurposed in new works. According to these results, the perceived barriers cited by Prelinger as roadblocks to archival access—copyright restrictions, concerns with loss of control over materials, and lack of resources—remain in place.

Last, institutions have not invested resources into serious study of user needs. The almost total lack of response to survey questions about study of users indicates that few organizations are analyzing usage in any systematic way. This finding is not surprising, given the nascent state of digitization programs in most respondents' institutions. The archival community must address the need for further study of user behavior and interaction with archival moving images in the online environment, so that the profession may use that information to refine existing delivery methods and create new ones that more appropriately address user need.

Plans and Suggestions for Further Research

As this survey suggests, the archives field needs access to more data to understand fully patterns in digitization and accessibility of archival digitized and born-digital moving images. While this research provides an initial snapshot of such work by a small subset of institutions, clearly the cultural heritage community needs a regular, comprehensive data source to truly assess progress in making moving image materials available online. I suggest that SAA, AMIA, ARL, and other interested bodies explore the possibility of establishing a regular, nationwide service to report statistics on this work. The ARL's new metrics on reformatting activities, when made available, will be an excellent starting point for establishing nationwide quantitative data on moving image digitization work; however, information provided by the many institutions doing archival moving image digitization that are not members of ARL will need to supplement this data.

This research also displays the limits of the explanatory power of quantitative data. It is the nature of survey research to provide indications of potential patterns in phenomena but not necessarily to provide explanations for those patterns. Thus, I plan to continue to study this topic using additional qualitative techniques. In the second part of the study, I will interview key informants with experience managing moving image digitization projects, asking them to provide information about digitization and distribution projects and programs at their institutions. They will also be asked to share their opinions and aspirations regarding the future of digital archival moving image collections, particularly in the wake of new distribution channels such as mobile devices.

Appendix A: Survey Instrument[1]

Title: Distribution and Consumption Patterns of Archival Moving Images in Online Environments

The following survey asks you to provide information about the degree to which your institution engages in online distribution of archival moving image material from archival collections. Before taking part in this study, please read the consent form below and click on the "I Agree" button at the bottom of the page if you understand the statements and freely consent to participate in the study.

Consent Form

This study includes a web-based survey aimed at gathering data about your institution's archival moving image collections and current digitization practices for such material. The study is being conducted by Dr. Karen Gracy, and it has been approved by the Kent State University Institutional Review Board. No deception is involved, and the study involves no more than minimal risk to participants (i.e., the level of risk encountered in daily life).

Participation in the study typically takes twenty (20) minutes and is strictly anonymous. Participants will answer a series of questions about the nature of their institution's archival audiovisual collections, the extent to which the institution currently engages in digitization of moving images, and the types of access that the institution provides to such material.

All responses are treated as confidential, and in no case will responses from individual participants be identified. Rather, all data will be pooled and presented or published in aggregate form only. The Qualtrics online survey service employed by this study is hosted on a secure server, further guaranteeing the confidentiality of data gathered for the purposes of this survey.

Your participation in this study will result in no immediate benefits, however, the information and opinions that you provide will help the investigator understand the current state of digitization practices for archival moving image material in cultural institutions and other organizations responsible for the care of such material.

Participation is entirely voluntary. Refusal to take part in the study involves no penalty or loss of benefits to which participants are otherwise entitled, and participants may withdraw from the study at any time without penalty or loss of benefits to which they are otherwise entitled.

[1] Survey instrument reformatted for publication.

If participants have further questions about this study or their rights, or if they wish to lodge a complaint or concern, they may contact the principal investigator, Dr. Karen Gracy, at (330) 672-0049; or the Kent State IRB, at (330) 672-2704.

If you are 18 years of age or older, understand the statements above, and freely consent to participate in the study, click on the "I Agree" button to begin the survey. If you do not wish to participate, please close your browser now to exit the survey.

_____ I Agree

Survey Questions

1. Please select the description below that best describes your employer?
   - _____ Museum or historical society
   - _____ Academic library
   - _____ University archives
   - _____ Public library
   - _____ Non-profit organization (other than museum, archive, or library), *please specify type of organization*:

     _____
   - _____ Government archive (at the federal, state, or local levels)
   - _____ Local television station
   - _____ Broadcast or cable television network
   - _____ Motion picture studio or production company
   - _____ Stock footage company
   - _____ Other for-profit organization (*please specify type of organization*):

     _____
2. Does your institution or organization manage audiovisual collections that may be considered archival?

   Definition: For the purposes of this study, archival audiovisual collections are defined as motion picture film or video recordings (either born-analog or born-digital) that are intended to be kept so that they may be available for future generations or for future uses (either commercial or noncommercial), regardless of their age at the time of acquisition. Archival collections are usually non-circulating and ideally have been protected from damage and deterioration through careful handling and storage in controlled environments. Circulating collections or collections considered to

have a limited lifespan are not considered archival for the purposes of this study.

_____ Yes, my entire collection may be considered archival (as defined above).

_____ Yes, some of my collections may be considered archival (as defined above).

_____ No, none of my collections may be considered archival. [if this option was chosen, survey was concluded].

3. Please estimate the size of your archival motion picture holdings (exclude those materials which are not considered to be archival).

_____ 0–1,000 reels or rolls _____ 5,001–10,000 reels or rolls

_____ 1,001–5,000 reels or rolls _____ More than 10,000 reels or rolls

4. Do your archival motion picture holdings include unedited footage, production elements, or preprint material, which may have been created as part of the production process?

_____ Yes _____ No

5. Does your institution engage in digitization of archival moving images at this time?

_____ Yes _____ No

6. Please estimate the percentage of archival motion picture holdings that your institution has digitized. Do not include video materials in this estimate.

_____ None _____ 25–50%

_____ 0–5% _____ 50–75%

_____ 5–10% _____ 75–100%

_____ 10–25%

7. Please estimate the size (in terabytes) of your archival digitized motion picture holdings, meaning material that you have already converted to digital formats. Please exclude those materials that are not considered to be archival.

_____ 0–1 TB _____ 25–50 TB

_____ 1–10 TB _____ 50–100 TB

_____ 10–25 TB _____ More than 100 TB

8. Please estimate the size of your archival analog videotape holdings (exclude those materials that are not considered to be archival).

_____ 0–1,000 reels or cassettes

_____ 1,001–5,000 reels or cassettes

_____ 5,001–10,000 reels or cassettes

_____ More than 10,000 reels or cassettes

9. Please estimate the percentage of your archival analog videotape holdings that you have digitized. Do not include motion picture materials in this estimate.
   _____ None _____ 25–50%
   _____ 0–5% _____ 50–75%
   _____ 5–10% _____ 75–100%
   _____ 10–25%
10. Do your archival video holdings include unedited recordings, production elements, or master material, which may have been created as part of the production process?
   _____ Yes _____ No
11. Please estimate the size (in terabytes) of your archival digitized video holdings, meaning material that you have already converted to digital formats. Please exclude those materials that are not considered to be archival.
   _____ 0–1 TB _____ 25–50 TB
   _____ 1–10 TB _____ 50–100 TB
   _____ 10–25 TB _____ More than 100 TB
12. Please estimate the size (in terabytes) of your archival born-digital video holdings (excluding those materials that are not considered to be archival).
   _____ 0–1 TB _____ 25–50 TB
   _____ 1–10 TB _____ 50–100 TB
   _____ 10–25 TB _____ More than 100 TB
13. Please choose the sentence or sentences that best describe the digitization process your institution has used to convert analog motion pictures (i.e., moving images on photographic motion picture film) to digital form.
   _____ My institution sent materials to a motion picture laboratory or post-production facility, which transferred the film to analog videotape using a telecine machine, and then digitized the resulting video to create a digital access copy.
   _____ My institution sent materials to a motion picture laboratory or post-production facility, which scanned the film using a high resolution motion picture scanner to create a digital intermediate, from which an access copy could be made.
   _____ My institution created a digital copy by projecting motion picture material onto a screen, videotaping the projected images, and creating a digital access copy from the resulting video.
   _____ My institution digitized the materials using equipment (either telecine or film scanner) owned by the institution (or parent institution).

_____ The institution used another method to create a digital copy *(please specify below)*:

_____
_____
_____
_____
_____

14. Please choose the sentence or sentences that best describes the digitization process your institution has used to convert analog videotape to digital form.
    _____ My institution sent the materials to a motion picture laboratory, post-production facility, or other audiovisual laboratory facility, which transferred the video to a digital format, and then created a digital access copy.
    _____ Staff members at my institution digitized the materials on site, using legacy players and digitization equipment (such as a computer equipped with a video capture card) purchased for the purpose of digitization or repurposed from a production facility in the institution.
    _____ The institution used another method to create a digital copy *(please specify below)*:

    _____
    _____
    _____
    _____

15. Please select the description below that best describes your employer.
    _____ We do not distribute archival digital moving images at this time.
    _____ On site at our institution's viewing facilities
    _____ Through our institution's website
    _____ Through a web-hosted database
    _____ Via an institutional repository (such as DSpace or Fedora)
    _____ Via a videosharing service (such as YouTube or Vimeo)
    _____ Through our institution's Facebook page
    _____ As DVDs (to be purchased or rented)
    _____ As part of museum exhibits
    _____ Theater and/or festival exhibition (digital projection)
    _____ Other *(please specify)*:

    _____

16. Please estimate the percentage of your archival motion picture holdings that you have made available online.
    _____ None
    _____ 0–5%
    _____ 5–10%
    _____ 10–25%
    _____ 25–50%
    _____ 50–75%
    _____ 75–100%
17. Please estimate the percentage of your archival video holdings that you have made available online.
    _____ None
    _____ 0–5%
    _____ 5–10%
    _____ 10–25%
    _____ 25–50%
    _____ 50–75%
    _____ 75–100%
18. Please indicate which digital video formats your institution has used for distribution of moving images online.
    (Check all that apply)
    _____ MPEG1
    _____ MPEG2 (DVD quality)
    _____ MPEG4 (QuickTime)
    _____ Motion JPEG 2000
    _____ Windows Media Video (WMV)
    _____ RealMedia
    _____ AVI
    _____ Ogg Theora
    _____ Flash Video
    _____ Other formats (please specify):
    _____
    _____
19. Please briefly explain why your institution chose the format(s) selected in the previous question for distributing archival moving images online.
    _____
    _____
    _____
20. Please identify perceived barriers to digitization of audiovisual material in your institution's collections.
    (Check all that apply to your institution's situation)
    _____ Lack of fiscal resources to pay for costs of transfer by a laboratory
    _____ Lack of appropriate equipment to perform transfer in-house
    _____ Lack of staff trained to do or supervise this type of work
    _____ Concern over the lack of standards and best practices for moving image digitization

_____ Copyright restrictions
_____ Concern that material may be used inappropriately by users
_____ Not an institutional priority at this time
_____ Lack of demand from users for this material
_____ Other *(please specify)*:

_____

_____

21. Please identify perceived barriers to online distribution of moving images from your institution's collections.
(Check all that apply to your institution's situation)

_____ Lack of fiscal resources to create/maintain digital repository structure
_____ Lack of computing resources to create/maintain digital repository structure
_____ Lack of technological expertise to create/maintain digital repository structure
_____ Concern over the lack of standards and best practices for online distribution
_____ Not an institutional priority at this time
_____ Lack of demand from users for this material
_____ Other *(please specify)*:

_____

_____

22. Please indicate your institution's interest in or plans for future distribution or exhibition of digital moving images:

_____ We do not have any immediate plans for distribution of archival moving images online or digital exhibition in other venues.
_____ On site at our institution's viewing facilities
_____ Through our institution's website (such as a stock footage search service or a union catalog for moving images)
_____ Through a web-hosted database
_____ Via an institutional repository (such as DSpace or Fedora)
_____ Via a videosharing service (such as YouTube or Vimeo)
_____ Through our institution's Facebook page
_____ As DVDs (to be purchased or rented)
_____ As part of onsite or virtual museum exhibits
_____ Theater and/or festival exhibition (digital projection)
_____ Other *(please specify)*:

_____

23. Have you conducted any studies to track online usage of digitized or born-digital audiovisual materials from your collections?
    _____ Yes [if yes, go to Question 24]
    _____ No [if no, survey is complete]
24. Indicate what methods or techniques that you have used to study online use of audiovisual material
    (Check all that apply)
    _____ User surveys
    _____ Focus groups
    _____ Google Analytics or other web analytics service to track usage
    _____ Other :
    _____
25. If you are using web analytics services to study online usage, do you collect information on usage by type of device (i.e., computer vs. mobile usage)?
    _____ Yes _____ No