EAD Twenty Years Later: A Retrospective of Adoption in the Early Twenty-first Century and the Future of EAD

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ABSTRACT

Encoded Archival Description (EAD) was adopted as the first standard for encoding finding aids using archival description in 1998. Since then, rapid changes in technology and archival standards have influenced access, use, and adoption of EAD across a variety of institutions. This article was inspired by an initial survey conducted by one of the authors. The results led to a broader survey and a twenty-year literature review surrounding EAD and online finding aids. The authors developed a twenty-five-question survey to reach a broader audience and delve deeper into the initial questions. The purpose was to answer the following questions: Is there a specific year or time period when a mass adoption of the standard can be identified? What factors influenced whether or not an institution adopted the standard? To what extent has technology influenced the usage of EAD? By surveying archivists across the United States, we gathered their input as to why they did or did not use EAD and how changes in technology and tools influenced their adoption and usage of EAD over the past twenty years. This article explores past trends and predictions, as well as current thoughts by archivists about the past, present, and future of this standard.

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KEY WORDS

Encoded Archival Description (EAD), College and university archives, Academic libraries, Description, Metadata, Access and use, Archival history, Online collections, Processing, Surveys

In 1997, American Archivist published two special issues focusing on Encoded Archival Description (EAD) in anticipation of releasing the standard the following year. With the launch of version 1.0 in 1998, EAD became the first standard for encoding finding aids with the goal of improving access to archival holdings by using the World Wide Web. Over the last twenty years, archivists have consistently adopted the standard, created increasingly powerful tools for dissemination, developed a set of descriptive standards, and worked tirelessly to push massive amounts of descriptive data to archival users via the Internet. This article focuses on documenting the last twenty years by investigating past trends and predictions, as well as current opinions from archivists about the past, present, and future of this standard.

To frame our work, we set out to answer the following questions: Is there a specific year or time period when a mass adoption of the standard can be identified? What factors influenced whether or not an institution adopted the standard? To what extent has technology influenced the usage of EAD? Our assumption prior to this survey was that a majority of institutions adopted EAD in the mid-2000s, rather than immediately upon release of version 1. We assumed this because some institutions often wait several years until a new standard has been tested and more broadly accepted before adopting it for themselves due to the complexity of implementing new procedures and the variable of new tools and technology. By surveying archivists across the United States, we gathered input as to why they use EAD, how archivists are using EAD, and how changes in technology and tools have influenced their adoption and usage of EAD, as well as their thoughts on the future of EAD. Over the course of three weeks, our survey collected responses from a variety of institutions ranging from colleges and universities to small nonprofits, government institutions, religious organizations, and independent archives.

Literature Review

Early literature in the mid-1990s focused on the benefits of EAD and how to implement it, and raised concerns about sustainability and accessibility for smaller institutions with fewer resources to adopt it. The flurry of literature around the new standard both celebrated and questioned its impact on the profession. After several years, fewer articles focused on the questions of adoption, impact, and practicality and shifted more toward the tools being created to facilitate the implementation of EAD, migration of existing content into these systems, and use of additional standards that would enhance searchability and the end user's experience.

The first articles (1996–1999) focused largely on the benefits of EAD and the resources required to implement it. Most of the authors were part of

the original cohort who developed and adopted EAD at their home institutions. To put this literature in context, we should recognize that adoption of the Internet was not yet widespread. However, it was quickly becoming an important platform for disseminating information rapidly to a wider audience. Seeing this latest advancement in technology, a group of archivists began working to develop standards using new tools to disseminate information about archival collections to new audiences that may never have known how to access archival materials at all, making archival description accessible to a wider audience.

Daniel Pitti, Kris Kiesling, and Michael Fox emerged as the leading voices advocating for the adoption of EAD by the archival community. All three taught workshops to archivists across the United States from the late 1990s through the mid-2000s, and their names became synonymous with EAD. Daniel Pitti published his first article in one of the 1997 special issues of *American Archivist*, followed by a second article in 1999. Both articles focus primarily on the need for standardization to keep up with the rapid pace of changing technologies. According to Pitti's second article, "If archivists do not take this requirement into consideration then they will find—indeed, may have already found—that information created yesterday is no longer usable today." Michael Fox, on the other hand, focuses largely on implementation, discussing a variety of considerations that an institution must examine before adopting EAD. Fox states that for an institution to be successful, EAD must fit within the institution's budget, priorities, and strategic vision, its benefits carefully weighed against costs.²

Several subsequent articles focus on the barriers of implementation and whether finding aids are the best way to provide information about collections. Jill Tatem addressed these issues first, describing the barriers of implementation from an institutional point of view as well as the barriers to access and use by the end user. At this early stage, Tatem notes the lack of an "adequate distribution channel for EAD documents, i.e., no free client software is available for all platforms similar to Web browsers or Acrobat Reader." She was also critical of EAD itself, calling it "just the latest trend" and stating, "It isn't worth the effort to learn and implement." In retrospect, we can see that EAD was not a mere trend like many other new technologies and initiatives at that time.

Authors Elizabeth Yakel, Jihyun Kim, and Jennifer Marshall focused more closely on the barriers to implementation faced by archival repositories in the early 2000s. Yakel and Kim note, "Overall adoption was slow" with only 42 percent of the respondents to their study using EAD in their descriptive programs. 5 Marshall was prompted by her concern that "repositories implement EAD primarily because of its current popularity in the archival community and

with granting agencies." Marshall's article also provides a glimpse into early adopters of the standard. She cited that 13 percent of respondents' staffed EAD implementation entirely by hiring temporary grant-funded personnel but that the majority already recognized the need to train existing staff or hire new permanent personnel. Those early adopters recognized the need to fully commit resources to this new standard, and nearly half of them stated that cost was not a consideration when evaluating whether or not the institution would adopt the standard. Yakel and Kim countered this evidence by stating that Marshall's sampling methodology favored larger institutions that were more likely to adopt EAD. Both articles note the majority of respondents were from colleges and universities.

Other articles published between 2000 and 2004 focus largely on end users and whether the creators and adopters of EAD invested enough time and effort into examining their needs. We identified seven articles on this topic during this period that indicate that although the profession was widely enthusiastic, a wide range of skepticism also existed. James M. Roth identifies a persistent issue that plagued early adopters: the lack of adequate tools for deployment and delivery of EAD finding aids. He also addresses archivists' failure to evaluate the effectiveness of electronic finding aids. These two major topics pervade the bulk of the literature for this period. In his article, Roth cites one of his survey participants as saying, "there is still a fairly steep learning curve. The lack of good tools for creation, use, and delivery of EAD leave much of its potential unrealized." Roth only analyzed data on the evaluation of finding aids in the early years, but he did note that the little information available at the time seemed to indicate that most end users cared more about the content of finding aids than their structure or presentation.

Kathleen Feeney found that online archival descriptions were not accessible through common search engines and that archivists still had to facilitate access even though their finding aids were online. At the time of her article, conventional search engines only evaluated the content and neglected the quality of web resources, making it easy for webmasters to gain high rankings for their sites by inserting some irrelevant but popular words into metadata. This practice is called search engine persuasion (SEP) or web spamming. Much of this was eliminated when Google moved to mining the linkage structure of the Web and incorporated the PageRank algorithm. Although the findings do not directly apply to today's searchability, they may have caused some institutions to hold off on adoption.

A few articles explore the need to revisit the purpose of finding aids and whether the audience should be the archivist or the user. Clay Redding states, "The technical issues surrounding the implementation of the Encoded Archival Description (EAD) seem to overshadow the importance of archival descriptive

standards in developing access tools for our historical collections."¹³ Redding, along with Matthew Eidson, Elizabeth Yakel, and Lisa Coats, explores the challenges faced by end users who no longer have an archivist to serve as an intermediary to assist them in interpreting finding aids. According to Elizabeth Yakel, "Findings indicate that subjects had trouble understanding archival terminology and how best to search for information in finding aids. Furthermore, they were not familiar with the structure or contents of finding aids."¹⁴ Lisa Coats further laments archivists not understanding their users and how best to satisfy their needs.

After a number of articles published in 2004 addressed the various aspects of EAD, interest in EAD finding aids gave way to other developments in the profession such as digitization, new descriptive standards, and the increasing urgency to prevent a "digital dark age" in archival repositories. Between 2005 and 2018, we identified only seven¹⁵ articles published on the topic of EAD, most continuing to focus on end users and implementation with two discussing the future of EAD.

The main subject of the articles regarding implementation is increasing adoption of EAD and the factors affecting adoption rates. In 2008, Sonia Yaco wrote about the barriers to EAD implementation such as a lack of staff and skills, and gaps in technology needed to publish EAD.¹⁶ She describes the lack of expertise in server technology necessary to publish EAD and the archivists' lack of desire to rewrite legacy finding aids before encoding them.¹⁷ In 2009, Elizabeth Dow suggested that EAD was a "halfway" technology. In her words, "With the advent of the Web, archivists looked for a way to publish their finding aids online, and EAD provided the most adaptable method for doing that. Halfway technologies fill in until a genuine high technology appears." Dow posed this question at a time when Web 2.0 emerged and new systems such as CONTENTdm, Fedora, and DSpace were providing new ways to access both digital archival materials and descriptive information.

In 2008, Tom Frusciano wrote a brief introductory article in the *Journal of Archival Organization* entitled, "'Ten Years After': The Next Wave of EAD Implementation," which provides a ten-year retrospective look at EAD. Frusciano examines the difficulties early adopters faced and the technological challenges of implementation. His article predicted a new wave of EAD adoption among the next generation of archivists. Some progress has been made to address those challenges with the introduction of open-source tools, such as Archivists' Toolkit and Archon, to facilitate both implementation and use by the larger archival community.

In 2010, Joyce Celeste Chapman devised a study looking at the questions of usability that Clay Redding, Elizabeth Yakel, and Lisa Coats explored nearly ten years prior. According to her study, internet proficiency proved to be more

important than archival expertise when navigating online finding aids. She also observed that users were able to attain a considerable understanding of finding aids without the help of archivists and that archival terminology only presented a barrier when it appeared without context.¹⁹

More recently, two articles flirted with the question of "what comes next?" Do archivists continue using and improving EAD or is there something else on the horizon? So far, the profession has not widely experimented with any alternatives to EAD as an encoding standard. With the advent of additional descriptive standards released in the last decade, Karen Gracy and Frank Lambert assert that perhaps there is something after EAD and that the rapid developments in description including the addition of Describing Archives: A Content Standard (DACS), Encoded Archival Context for Corporate Bodies, Persons, and Families (EAC-CPF), Functional Requirements for Bibliographic Records (FRBR), and Resource Description and Access (RDA) are having a significant impact on access to archival collections. Only 52% of respondents reported that their institutions used EAD compared to 75.9% using DACS.²⁰ Overall, Gracy and Lambert's study revealed that archivists still express a great deal of uncertainty in their current skills and knowledge using open-source software to implement any new or revised descriptive standards beyond DACS, which most respondents feel confident in using and implementing. It seems that the greatest challenge going forward, based on Gracy and Lambert's study, is providing learning opportunities to build confidence in using new descriptive tools.21

Although the literature over the last twenty years provides a variety of perspectives often focusing on particular aspects of EAD, few articles explore why repositories are choosing to adopt or not, challenges faced by repositories in adopting EAD, and the technological advances affecting the use and adoption of EAD. This article aims to address some of these gaps in the literature by investigating and comparing the results to some of the data gathered by other authors since 1998.

Methodology

The basis of our research comes from a survey conducted via email and phone of 16 college and university archivists by one of the authors, Christina (Hostetter) J. Zamon, and reported in her article "Online Finding Aids: Are They Practical?" Using some of the original questions posed, the authors created a more in-depth survey to reach a broader audience and delve deeper into some of those original questions. Of the 16 participants in the survey administered by Christina (Hostetter) Zamon, only 5 participated in the 2018 survey. Our intention for the survey was to identify a variety of trends across the profession regarding adoption of the EAD standard, and we designed it to

help us to gather information that was not ascertainable from the available literature.

The survey consisted of 25 questions that considered a range of topics including who has adopted EAD and their decision process; when did they adopt; whether the institution moved away from EAD and why; technologies that may have led to adoption or moving away from EAD; resources dedicated to EAD; access and usage of collections using EAD; and predictions as to whether or not EAD will likely remain a widely adopted method of standardized archival description. An academic Institutional Review Board approved the study, and participants were provided with a statement of informed consent and confidentiality before starting the online survey. The raw survey data remain accessible only to the authors. Selected quotations used in this article do not identify persons or institutions. A complete list of survey questions is available in Appendix A.

DATA COLLECTION

We administered the survey in two parts, first sending the survey to several professional listservs that would target a wide array of archival professionals who could directly answer the survey questions based on their experience at their institutions. The survey was voluntary, so we sent it to lists where we could reach archivists who would be willing and able to participate without incentives. The listservs included those of the Society of American Archivists (all), of regional associations (New England Archivists, Rhode Island Special Collections Librarians, Mid-Atlantic Regional Archives Conference, Midwest Archives Conference, and Society of Georgia Archivists), of the Regional Archival Associations Consortium, and of the Library of Congress EAD. We attempted to reach other regional archival organizations' listservs (Society of California Archivists, Northwest Archivists, Association of Hawaii Archivists, Conference of Inter-Mountain Archivists, Society of Southwest Archivists, Society of South Carolina Archivists, Louisiana Archives and Manuscripts Association, Society of Mississippi Archivists, Society of North Carolina Archivists, Society of Tennessee Archivists, and Society of Florida Archivists) by contacting members on those lists, but it is unclear if our message with the survey link was ever widely distributed as neither of us are members of those listserys. We also sent a reminder email to all of the above listserys one week before the survey closed.

The second phase was to send direct emails to specific institutions identified as not participating in phase one, but were identified as institutions that participated in the earlier survey conducted in 2001 by Christina (Hostetter) Zamon. While the results do not provide a comprehensive summary of the

profession's adoption of the EAD standard in its entirety, they do report the practices of 334 institutions within the United States. All survey responses were collected through Qualtrics over the course of three weeks in March 2018. At the conclusion of the survey, we generated a number of reports and deduplicated responses whenever possible to get the most accurate results.

DATA ANALYSIS

To get the broadest possible participation in the survey, we distributed it to as many relevant listservs as we could. Given the number of listservs, it is possible that more than one person within the same institution may have submitted responses to the survey, as less than half of respondents indicated their institutional affiliation. We made efforts to reconcile those data and consolidate responses where appropriate. This involved reviewing all of the data in an attempt to identify multiple answers from a single institution or to identify contradictory answers that might indicate that the respondent did not understand the question. We both reviewed all responses for clarity, erroneous data, and to identify duplicate responses. We removed some data in cases where we could identify duplicate irreconcilable differences or information among multiple responses from one institution. In addition, not everyone answered every question due to the skip logic built into the survey.

Findings

We focused primarily on the three questions asked in the introduction: Was there a specific year or time period when a mass adoption of the standard could be identified? What factors influenced whether or not an institution adopted the standard? To what extent has technology influenced the usage of EAD? An archives could have many reasons to represent its finding aids online or not. This survey attempted to gather information about all types of archives, large and small. Our findings provide insight about how resources and technology influence an institution's decision and ability to put its finding aids online, as well as its potential adoption and use of EAD, over the past twenty years. Survey questions queried respondents about financial budgets and staff positions, methods and programs used to put finding aids online, and the future of EAD. We focused on the usability and relevance of EAD as well as what participants predict for the *next* twenty years.

In the following analysis, we will discuss results from the survey. The free-text responses revealed information about a wide variety of archival practices for putting finding aids online or not. Once we read through the comments for a particular question, it became clear that many fell into several

Yes	88.82%	278
No	7.67%	24
We plan to put our first one online soon	3.51%	11
		212

Table 1. Whether or Not Respondents Post Finding Aids Online

Table 2. Approximate Percentage of Finding Aids Online

All or Almost All	46.27%	118
More than 50%	22.35%	57
Less than 50%	8.24%	21
Less than 25%	17.65%	45
None	5.49%	14
		255

discernable categories. Some questions yielded a high volume of comments, which we will attempt to summarize. For example, one question yielded 78 comments, which we were able to categorize into 8 topics. In addition, many of the comments expanded on answers to the related multiple-choice questions. The categories and lengths of the comments varied according to the question.

From the 313 survey responses to question 1, we learned that almost 90% of archives post finding aids online, while about 10% do not (see Table 1). Of the 255 archival institutions responding to question 10 that *have* chosen to publish or otherwise present finding aids for their collections online, 46% post all or almost all of their finding aids online (see Table 2). Depending on when an institution began posting finding aids online, the higher percentage could be attributed to early adoption by archives, perhaps as early as the late 1990s. The lower percentages could be archives who started putting finding aids online later, between 2013 and 2018.

One of the original questions that inspired this survey was *when* institutions started using EAD. We saw this as important information that would help identify trends in the adoption of EAD over the last twenty years. Figure 1 shows the survey results. One particular year, 2000, stands out as a turning point with 24 institutions putting their finding aids online. This correlates to Tatem's research that indicates that the wave of grant funding for EAD projects around this time increased the adoption rate, most likely contributing to this spike.²² This finding debunks our assumption that adoption came later, in the mid-2000s with the advent of new tools to make encoding easier.

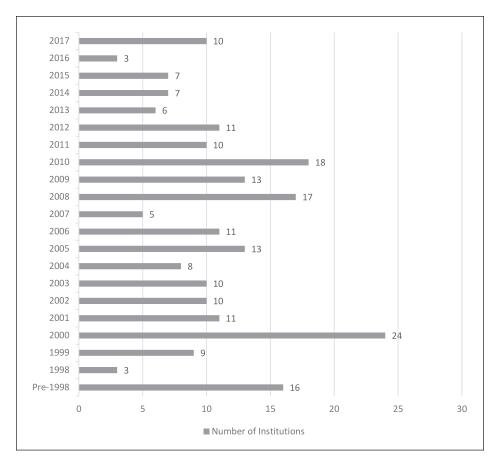


FIGURE 1. Number of archival institutions that put finding aids online each year

Overall, institutions have put finding aids online every year since 1998 with an average of 10 institutions adopting this practice per year. Our data also suggest that Tom Fruciano's prediction in 2008 of a second wave of adoption was accurate. Our data indicate a spike in adoption between 2008 (17) and 2010 (18) before they dropped back to an average of 10 or fewer institutions per year.

Influence of Resources

The resources and expertise available at an institution are important to consider because they could ultimately influence an institution's capacity, financial or otherwise, to adopt something new like EAD. In this survey, 10% of survey respondents indicated they do not have finding aids online or they plan to put finding aids online soon (see Table 1). We followed up this question by asking, "What is your reason for not having your finding aids online?" and

Table 3. Reasons for Not Posting Finding Aids Online

Lack of technology support from institution	25.00%	12
Lack of time/too much effort	27.08%	13
Lack of knowledge/expertise	16.67%	8
Too expensive	2.08%	1
Other	29.17%	14
		48

Table 4. Annual Budget

\$0 - \$10,000	4.90%	7
\$11,000 - \$25,000	3.50%	5
\$26,000 - \$100,000	20.98%	30
\$101,000 - \$500,000	34.97%	50
Greater than \$500,000	35.66%	51
		143

learned that the main reason was lack of technology support from their institution. Participants also indicated that time, effort, knowledge, and expertise were major reasons for not posting finding aids. The comments also provided additional reasons such as sensitive content closed to the public; institution is uncomfortable giving the public access to archives; the archives is new and just getting started; the archival collections are not relevant for public access; it takes too much time to encode, or convert, to EAD; or the institution does not provide necessary resources and support to set up a system to use EAD in the archives. One respondent noted, "I found no support for EAD use in our library administration, and we could not see how to use EAD in what we were working with" (A22423). Another respondent stated, "It always seemed to me that EAD requires too much work for the potential benefit for researchers (especially at small archival repositories). Researchers want content not fancy coding" (A211). In that same vein, another respondent said, "I would be happy if we could post PDFs on the website. Even that is such a challenge. I don't even want to imagine what kind of battle using EAD would be" (A193).

To help us understand the full picture of available financial resources, our survey asked for information about the archival repository's annual budget (see Table 4). Budget can be an indication of an archives' relevance and importance to the parent institution, as noted by several commenters. Of the participants, more than half had a budget greater than \$100,000. The cost for implementing EAD is a logistical factor as pointed out by Daniel Pitti. However, Yakel and

Kim noted that their survey respondents adopted EAD regardless of the cost or budget for it, which correlates to our survey results wherein only one institution indicated that putting finding aids online was too expensive.

One primary factor determining whether finding aids are online is how an archivist, or an archival institution, perceives the value of posting them. If not viewed as a benefit to users, a given archival institution will likely not present its finding aids online. One way to assess this is to look at whether an archives has staff and/or faculty dedicated to processing collections and creating finding aids, and compare that to the institution's annual budget (see Table 5).

The 37 free-text responses to this question show a wide array of practices and essentially demonstrate the archives' need to be creative and flexible to accomplish their work. We learned that processing and finding aid creation are accomplished according to availability of staff and expertise, both being either plentiful or scarce. For example, one archivist wrote, "Two PT archives assistants (but each are .85 FTE) process for at least 50% of their time; two FT archivists supervise processing work of 4 undergrads. No one does it 100%. 1 FT digital archivist assists with EAD" (A117). Another shared, "One student worker and I process collections and create finding aids" (A119). Several of the responses

Table 5. Comparison of Annual Budgets with Responsibilities of Archives Staff to Create Finding Aids

				Annual	Budget		
		\$0 - \$10,000	\$11,000 - \$25,000	\$26,000 - \$100,000	\$101,000 - \$500,000	Greater than \$500,000	Total
Responsi- bilities of archives	At least one full-time employee whose primary responsibility is to process collections and create finding aids	0	0	1	10	29	40
staff.	Finding aid creation is not the full-time employee's primary responsibility	1	0	9	22	9	41
	At least one part-time employee is responsible for processing and creating finding aids	0	0	0	3	0	3
	Sole archivist creates finding aids without additional staff	4	2	10	6	4	26
Archive has student workers/interns do all processing and creating finding aids		0	1	3	4	1	9
	Other	2	2	7	5	8	24
	Total	7	5	30	50	51	143

elaborated on the multiple-choice options as well. For example, one person wrote, "There are four archivists here, all doing finding aids to put online with the help of students and volunteers" (A96) giving more detail about the first multiple-choice answer ("Yes, at least one full-time employee. . . ."). Another person wrote, "A mix of full-time staff who occasionally has time to process, but it's mostly interns and practicum students who do the processing/finding aid creation" (A110). Others stated that these were responsibilities of a full-time employee—but not the primary responsibilities—or that archives staff sometimes create finding aids, but mostly they coordinate others' work and then edit or approve the finished finding aid. The comments regarding this question indicated that archives have many combinations of staff and volunteers who do a variety of archival work that may or may not include processing and finding aid creation as primary responsibilities.

Another way to evaluate the financial resources of an archives, and thus the priority of the archives at a given institution, is to look at the number of full-time employees (FTE) performing archival work. In our survey, most respondents have small staffs (less than 5 FTEs) and need to rely on volunteers, students, and interns. Table 6 compares the number of staff with an institution's available budget.

Comments regarding annual budget indicate that either sometimes the parent institution does not support the archives or the archives was just recently established. This demonstrates another aspect of the budget consideration. These examples seem to indicate a small staff and a small budget would influence an archives' ability to put finding aids online. Later, when asked about the future of EAD, 3 comments indicated that cost is a factor. For example, a participant wrote, "I think EAD is a great idea, but for a small, understaffed institution like ours, it's just not feasible. I'm struggling to get collections processed and a

Table 6. Comparison of Archives' Annual Budget with Number of FTE Staff

		Annual Budget					
		\$0 - \$10,000	\$11,000 - \$25,000	\$26,000 - \$100,000	\$101,000 - \$500,000	Greater than \$500,000	Total
Number of	1 – 5	6	5	29	45	17	102
full-time archivists	6 – 10	0	0	1	3	5	9
	More than 11	0	0	0	1	29	30
	Total	6	5	30	49	51	141

PDF displayed on a website	29.04%	142
Other	12.88%	63
HTML website with hand coded EAD	21.06%	103
Archon	4.50%	22
Archivists' Toolkit	13.29%	65
ArchivesSpace	19.22%	94
		489

Table 7. Methods Used to Disseminate, Create, or Manage Online Finding Aids

finding aid created in pdf. I don't think we will ever use EAD, so I haven't kept up with the developments" (A354). Overall, it seems that most institutions do not find cost a major factor in using EAD because the majority of respondents report budgets and staff sufficient for putting finding aids online and possibly implementing EAD; however, at some institutions, the expense for staff and technology inhibits adoption of EAD.

INFLUENCE OF TECHNOLOGY

Technology is required to post finding aids online and/or to implement EAD. Archivists use several methods depending on available funding and resources. Our survey contained a multiple-choice selection of the most popular methods and programs used by archives to display finding aids online: HTML, PDF, Archivists' Toolkit, Archon, and ArchivesSpace. Participants were also allowed to "Check All That Apply," making it possible for an institution that started putting finding aids online in the 1990s and early 2000s to check more than one option, as their practices and methods could have evolved over time. The majority of respondents indicated they present finding aids online with HTML or as PDFs, while content management systems are also popular (see Table 7).

According to the comments left by participants, archives use a wide array of other systems to put their finding aids online in addition to the multiple-choice options we provided. It is unclear from the 59 comments if some institutions started out using HTML, PDF, or other methods and later switched to using EAD for their finding aids. Most of the comments indicate that HTML was used to put finding aids online, however, EAD tags were not used. This was followed by use of MARC records and/or a library catalog, and customized local programs. Other methods or systems mentioned include PERL, Star Knowledge Center/Lucidea/Cuadra Star, MS Word, Catablog, CONTENTdm, AXAEM, Drupal form, XTF, Gopher, Steady, AUGIAS (German), Eloquent Systems, DLXS, eXist-db (xml), Fedora, Xmetal, PastPerfect, CLB file, Memory, Centrix Pismohrana AMS, tText document on website, and EADitor.

Table 8. Number of Archival Institutions Using EAD to Encode Finding Aids

Yes	60.14%	166
No	39.86%	110
		276

Table 9. How Archives Put Finding Aids Online, Other than Using EAD

HTML website	20.41%	20
PDF on a website	45.92%	45
Other	33.67%	33
	98	

We investigated how many archives have adopted EAD to encode their finding aids online. We learned that the majority of survey participants *do* use EAD. Of the 276 participants responding about whether their archives use EAD or not, 60% answered "Yes" and 40% answered "No" (see Table 8). Those archives that do not use EAD to encode finding aids answered that they primarily use PDFs on a website or HTML on a website (see Table 9). Half of the 30 comments for "Other" indicated their institution uses an EAD-compatible system, either Archon or ArchivesSpace. Additional comments explained they use a combination of HTML and PDF; they use another system that is not EAD compatible such as Drupal, Eloquent Systems, or PastPerfect; or they simply do not have any finding aids online.

Technology has had a significant influence on archives. For many decades, finding aids were available to researchers only in analog form, primarily as printed documents. However, over the last twenty years, archivists have embraced technology and made their collections more accessible for scholarly research by putting their finding aids online either with or without EAD.

USABILITY OF EAD

We wanted to find out from archives that have been posting finding aids for more than 5 years whether they never used, now use, or always used EAD, or whether they moved away from EAD to using something else. That 90% of respondents use EAD indicates that EAD maintains a relatively low barrier to implementation, making it a popular choice for descriptive metadata. This led the majority of respondents to indicate that they have not changed the way they put finding aids online (see Table 10).

Looking deeper, we found that institutions did not completely move away from EAD, but they moved away from hand encoding or they used systems such as Archon or ArchivesSpace to disseminate their finding aids,

No change	40.95%	95
Yes, we always used EAD	31.47%	73
Yes, we moved away from using EAD	7.33%	17
Yes, we moved to using EAD	20.26%	47
		222

Table 10. Evolving Use of EAD for Putting Finding Aids Online

and may or may not export data as EAD. Sixty-nine survey participants commented on their reasons for moving to or away from using EAD. Forty percent of these comments indicate that they wanted to incorporate EAD into their archival processes for one or more of the following three reasons: 1) ability to participate in a consortium; 2) better discoverability and easier to search; and 3) standardization of archival description. For instance, one participant wrote, "When a State Consortium Site collecting EAD guides became available, we moved to EAD markup for wider distribution of collection information on this platform" (A166). Regarding the benefit of better discoverability, another archivist wrote, "EAD increases discovery and is searchable, provides institution-wide standards or similar formats. EAD was added to a PDF document. Now the PDF is generated from the latest EAD version" (A163). Another commenter shared that "Standardization of metadata was a big reason. Now we use ArchivesSpace, so finding aids are served up directly from there and we don't code EAD directly because it is integrated into the application" (A177).

Additionally, approximately 30% of the comments on this topic explained the progression of their archival descriptions and their moves to use a system compatible with EAD, such as Archivists' Toolkit, Archon, or ArchivesSpace, which do not require technical skills for hand coding EAD. For example, one participant commented, "When we switched to Archivists' Toolkit, creating finding aids in EAD was finally feasible. Today, we use ArchivesSpace, which also makes using EAD much easier than it was prior to these programs' existence" (A170). Another stated, "We moved from PDFs in CONTENTdm to ArchivesSpace with a PDF export option" (A186). Many respondents spoke of no longer needing to generate EAD because they intend to use the ArchivesSpace public user interface. One participant explained, "We're in the process of moving away from using EAD for putting finding aids online. When we launch the ArchivesSpace Public User Interface EAD will no longer be a significant part of our finding aid delivery pipeline. However, we will still produce EAD and make it publicly available for all of our finding aids so that it can be harvested by aggregators like ArchiveGrid, etc." (A204). Those archives who moved away from EAD strongly indicate that EAD was not feasible to use based on staff preference and expertise available.

Relevance of EAD

Our survey also collected data on the perceived relevance and importance of EAD among archivists, as well as thoughts on the main function of online finding aids. It looked at the function and usefulness of online finding aids (EAD or not). The majority of survey participants answered that providing access to collections, informing researchers about collections, providing archivists with better tools to search across collections, and assisting patrons were all important functions of online finding aids (see Table 11). Only 2 institutions disagreed that these functions were not important and commented that finding aids are useful to archivists rather than to users.

The majority of survey participants also answered that they believed that online finding aids are "extremely important" (71%) or "Very important" (21%) for accessing collections (see Table 12). These responses, as well as those from the previous question about the main function of online finding aids, indicate that the vast majority of archival repositories, 92% according to this question, do continue to value online finding aids. This illustrates the continuing importance of EAD considering that 60% of our survey participants *do* use EAD to put their finding aids online.

Table 11. Perceived Value of Online Finding Aids

Providing access to collections	13.96%	43
Informing researchers about your collections	15.91%	49
Providing archivists with a tool to better search across collections and assist patrons	6.49%	20
All of the above	63.64%	196
	308	

Table 12. Importance of Online Finding Aids for Access to Collections

Extremely important	70.80%	177
Very important	20.80%	52
Moderately important	6.80%	17
Slightly important	1.20%	3
Not at all important	0.40%	1
		250

Half of the survey participants answered "definitely yes" that using EAD finding aids improved usage and/or access to their collections (see Table 13). Additionally, the majority of archives have not seen negative impacts to putting finding aids online (using any method, not just EAD) (see Table 14).

The institutions that answered "yes" submitted comments to explain the negative impacts they observed. The 18 out of 41 respondents said that more discoverable collections mean more demand on archives staff and resources. One participant stated, "Putting finding aids online increases discoverability which then creates more demand. If you don't have the capacity to handle that demand with existing staff and no additional staff are added to handle that demand, then existing staff have to be shifted to handle the demand cutting into time that could be used for accessioning and processing" (A290). Of the 41 respondents, 10 indicated that users do not understand finding aids without mediation or explanation. As a solution to helping users, one respondent explained, "Our description now slants toward keyword searches at the expense of hierarchical description, and there can be a resulting loss of understanding concerning the relation of records to each other and of the collection as a whole" (A295). The

Table 13. Usage and Access to Archival Collections Was Improved by Using EAD to Create Finding Aids

Definitely yes	49.50%	99
Probably yes	28.50%	57
Might or might not	16.00%	32
Probably not	3.50%	7
Definitely not	2.50%	5
	200	

Table 14. Negative Impacts from Posting Finding Aids Compared with Proportion of Finding Aids Institutions Have Online

		١	Proporti	on of fir	iding aic	Is online	9
		All or Almost All	More than 50%	Less than 50%	Less than 25%	None	Total
See negative impacts from putting finding	Yes	13	9	2	10	6	40
aids on online?	No	97	41	18	32	4	192
	Not sure	4	5	0	2	3	14
	Total	114	55	20	44	13	246

third highest response, with 7 out of 41, was related to the public's demand for more collections and files to be digitized: "People want us to scan entire collections! Finding aids are not enough for the public" (A303). Other responses mentioned several other negative impacts of posting finding aids online: 1) It is not a preferred method for representing collections with restricted, confidential, or sensitive content; 2) the need to keep up with technology upgrades; 3) the varied quality of finding aids is publicized; 4) Keyword searching capabilities weaken the archival context provided in finding aids; 5) finding aids become out of date; and 6) users are confused when institutions post some finding aids while other collections are not represented online.

Table 14 compares the number of finding aids archives have online and whether or not posting them has negative impacts. Archives that did not see any negative impacts have "all or almost all" of their finding aids online. Approximately 16% of respondents indicated that having finding aids online has a negative impact, yet of those respondents over half have more than 50% of their finding aids online.

THE FUTURE OF EAD

So where does the future of EAD stand? Most archives who participated in our survey have finding aids online, with the majority of them using EAD. Moreover, 46% of respondents have "all or almost all" of their finding aids online. We wanted to find out if the other 54% plan to increase their percentage of finding aids online in the next 5 to 10 years. Sixty-six percent of the 247 responses to this question answered "definitely yes." The majority of participants also indicated that they plan to post "all or almost all" of their processed collections in the next 5 to 10 years (see Table 15). Depending on the number of finding aids an institution currently has online, it may not have many more to post. Conversely, an institution without online finding aids may not plan to post any. Many of those without finding aids online or not using EAD are private or corporate institutions whose mission is not public.

Just as it is valuable to understand how relevant archives perceive EAD to be, looking forward to how relevant it could be in the future is important to consider as well. What method will be used to put more finding aids online? Will archives use EAD or not? We wanted to find out if archives feel that EAD will be a useful tool for the future or not. Fifty-five percent said that they are not sure if EAD online finding aids will continue to be the standard for the next twenty years (see Table 16).

Clearly, many respondents are unsure of the fate of EAD. Some of the 75 comments to this question adamantly predicted the demise of EAD, and others were more contemplative. The respondents varied on their answers, with many

Table 15. Respondents' Goals over the Next 5 to 10 Years for Increasing the Number of Finding Aids Online

			Institution's goal for the next 5 to 10 years					
		All or almost all processed collections online	Increase online presence to more than 75% of collections online	At least 50% of processed collections online	At least 25% of processed collections online	No plan to increase the percentage of finding aids online	Total	
Will institution in-	Definitely yes	125	19	11	5	3	163	
crease the percent- age of finding aids	Probably yes	20	8	4	3	4	39	
online in the next 5 to 10 years?	Might or might not	6	1	2	2	5	16	
10 years:	Probably not	0	0	0	0	0	0	
	Definitely not	0	0	0	0	0	0	
	Total	151	28	17	10	12	218	

Table 16. Will EAD Online Finding Aids Continue to Be the Standard for the Next 20 Years?

Yes	31.60%	79
No	13.20%	33
Not sure	55.20%	138
		250

assuming that the standard would continue in some capacity in the future, but others feeling that technology and standards are changing too rapidly for EAD to remain standard 20 years from now. According to one respondent, "Technology and standards are still changing rapidly. There is no way to predict what may or may not supersede EAD. International and national laws may change in such a way that closer cooperation with other nations may be possible which would then impact the standards in place" (A334). Another respondent added, "EAD had great promise, but the inconsistency of its application and the lack of tools designed to make best use of searching using EAD tags hasn't arrived. I think that eventually, researchers and library administrators will realize that while finding aids in general are the best way for an archivist to describe a collection, they are not the best way for a researcher to discover material" (A358). Many suggested that EAD is now a background tool useful for data transfer but not for

searchability as it once was. Others who stated that Google's search engine has made EAD irrelevant as a discovery tool repeated this sentiment.

Several respondents mentioned born-digital materials and the difficulty in representing them in description. "We find EAD finding aids are not as useful for Born Digital Archives. Unfortunately, EAD restricts the finding aid to a hierarchical list, which is not necessarily the kind of arrangement of a Digital Born Archive. We plan to investigate this year possible alternatives like RDF (Linked Open Data)" (A349). Several others also mentioned RDF and linked open data as superseding EAD as a common standard. Still others continued to question the use of finding aids as a means of disseminating archival description: "It is my hope that finding aids, which were created to be a management tool and never meant to be a means of public access, will be replaced by more flexible and user-focused tools. By imprisoning archival information in the relatively isolated EAD format, we lose the ability to interoperate our metadata in aggregators and other collection discovery and display systems. Providing access to the lowest level of description-item, folder, box, etc. and combining like records into collection-level aggregations seems to me to be more flexible in today's interoperable world" (A338). Similarly, one respondent noted, "I believe that if we are truly interested in providing access to the user then we are going to have to adapt and change the way we create finding aids.... I believe finding aids are tools designed for archivists more than for the public, and if we want to make our materials more accessible then structure and format of a finding aid,—thus EAD—will need to change with the times. We really need to study how (and somewhat why) users search for archival materials-more studies re: human computer interaction" (A388).

Conclusion

With the advent of the World Wide Web, archives developed a new tool to provide improved access to their unique collections, and they began putting their finding aids online using a variety of methods. Over the last twenty years, archivists have steadily adopted EAD to post finding aids online. Some repositories chose not to adopt EAD because of lack of resources and skills needed. In today's highly connected world, finding aids should be represented online. Researchers are inundated with information online, where they can access a plethora of resources at their fingertips. The collections of archives that opt out of representation on the Web for whatever reason will go largely undiscovered by the public.

Our survey uncovered some of the factors that influence the decision not to adopt EAD, such as a lack of institutional support for new technology and resources for staff; the time and effort it takes to encode, or convert to, EAD; the need for knowledge and expertise to implement EAD; sensitive content closed to the public; a low comfort level with providing public access; and recent establishment. While repositories may be continually challenged by securing funding, hiring staff with expertise, and keeping up with technology, EAD nevertheless remains relevant due to the large number of archives that have adopted it and continue to use it today to put their finding aids online.

We also learned from our survey responses that, despite the challenges experienced by some institutions, most archivists agree that having EAD finding aids benefits both archives staff and researchers. Those who use EAD now have the advantage of finding aid metadata in a standard descriptive form that can be migrated more easily to an improved version of EAD or another content management program such as Archivists' Toolkit or ArchivesSpace. Users also have the benefit of being able to participate in consortia, and their collections are now more discoverable and easier to search. We also see evidence of archives exploring and using methods and programs other than EAD to put their finding aids online. Our survey data reveal that ArchivesSpace is the most influential and adopted system at this time. The benefits of ArchivesSpace include the ability to post finding aids without encoding them in EAD, but also to have access to EAD when needed, thus providing the best of both worlds to the archivist.

Some of our assumptions were challenged, while others were corroborated. We were surprised to learn that EAD hit its peak of initial adoption early, just two years after the creation of the standard, so our assumption that it took a while for institutions to adopt the new standard proved false. The infusion of grant money to jumpstart EAD projects likely prompted a quicker adoption rate. The recent development and introduction of EAD3 indicates that the archival profession continues to put faith in EAD as a standard. The degree to which EAD3 is adopted will provide evidence as to whether or not institutions continue to adopt the standard now and into the future. Our survey results suggest a strong future for EAD as a standard. EAD has had a major impact on the archival profession and continues to hold an important place in the revolution to standardize archival practices.

Despite its pervasiveness, EAD continues to be a somewhat contentious topic among archivists. Is it worth the time and effort? Do we benefit? Are finding aids the best way to provide collection information to patrons and, if not, what is the point of EAD? How will new and changing standards and technologies influence adoption of EAD or cause a migration away from it? These are questions that the archival profession will continue to debate in the future and may never fully answer.

Appendix A: Online Finding Aids Survey

1.	Do	you have any finding aids online?
	\circ	Yes
	О	No
	0	We plan to put our first one online soon
2.		nat is your reason for not having your finding aids online? (check all
		t apply)
		Lack of technology support from institution
		Lack of time/too much effort
		Lack of knowledge/expertise
		Too expensive
	О	Other
3.	Wh	nen preparing legacy finding aids do you simply convert the legacy
	fin	ding aid to EAD and put it online or do you re-evaluate the collection
	and	l create a new finding aid?
	O	We convert legacy finding aids directly to EAD and put them online
	О	We do a little bit of both, depending on the collection/finding aid
	О	We always create a new finding aid
	О	Other
4.	Do	you have staff/faculty dedicated to processing collections and creat-
	ing	finding aids?
	O	Yes, at least one full-time employee whose primary responsibility is to
		process collections and create finding aids
	О	Yes, but it is not the full-time employee's primary responsibility
	\circ	Yes, at least one part-time employee is primarily responsible for process-
		ing and creating finding aids
	О	No, I do it myself
	\circ	No, I have student workers/interns do all processing and creating find-
		ing aids
	O	Other
5.	Do	you use EAD to encode your finding aids?
	0	Yes
	O	No
6.	If y	ou are not using EAD, how do you put your finding aids online?
	0	HTML website
	0	PDF on a website
	0	Other

7.	cha	you have been putting finding aids online for over 5 years, have you anged the way you put your finding aids online? Yes, we always used EAD
		Yes, we always used EAD Yes, we moved to using EAD
		Yes, we moved to using EAD Yes, we moved away from using EAD
		No
o		
8.	п у	ou moved to or away from using EAD, what was the reason?
9.	Ha	ve you used any of the following methods/systems to disseminate,
	cre	ate, or manage your online finding aids over the last 20 years? (check
	all	that apply)
	O	HTML website with hand coded EAD
	0	PDF displayed on a website
	0	Archivists' Toolkit
	0	Archon
	0	ArchivesSpace
	0	Other
10.	Ap	proximately how many of your finding aids are online?
	0	All or Almost All
	0	More than 50%
	0	Less than 50%
	0	Less than 25%
	0	None
11.	Ap	proximately what year did you start putting your finding aids online?
	V 1	Pre-1998 2017
12.	Do	you plan to increase the percentage of finding aids you have online
	in 1	the next 5 to 10 years?
	\circ	Definitely yes
	\circ	Probably yes
	\circ	Might or might not
	\circ	Probably not
	0	Definitely not
13.	If s	o, what is your goal for the next 5 to 10 years?
	0	To get all or almost all processed collections online
	0	Increase online presence to more than 75% of collections online
	0	To get at least 50% of processed collections online
	0	To get at least 25% of processed collections online
	0	We do not plan to increase the percentage of finding aids online

14.	In	your opinion, how important are online finding aids for accessing
	col	lections?
	O	Extremely important
	O	Very important
	O	Moderately important
	O	Slightly important
	O	Not at all important
15.	Do	you feel that by using EAD finding aids you have improved usage of
	and	d/or access to your collections?
	O	Definitely yes
	O	Probably yes
	0	Might or might not
	0	Probably not
	0	Definitely not
16.	Do	you see any negative impacts from putting finding aids online?
	О	Yes (please explain)
	O	No
	0	I'm not sure
17.	Wh	nat do you see as the main function of online finding aids?
	0	Providing access to collections
	O	Informing researchers about your collections
	O	Providing archivists with a tool to better search across collections and
		assisting patrons
	O	All of the above
	0	None of the above (please tell us why)
18.	In	your opinion, do you think that EAD online finding aids will continue
	to	be the standard for the next 20 years?
	0	Yes
	\circ	No
	0	I'm not sure
19.	If r	no, why not?
20		and time of institution do you youll for
2 0.	O	nat type of institution do you work for? College/University (state funded)
	0	College/University (state Ithided) College/University (privately funded)
	0	Government
	_	Public Library
		Religious Organization
	0	
	0	Museum

21	Цо	w many ETEs portorm archival work in your rapository?
21.		w many FTEs perform archival work in your repository?
	_	6–10
	_	More than 11
22.		nat is your repository's annual budget (including FTE salaries but not
		duding budget figures for your parent organization)?
	0	7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7
		\$11,000-\$25,000
		\$26,000-\$100,000
		\$101,000-\$500,000
		Greater than \$500,000
	\circ	I don't know
23.	Wh	nat region is your institution located?
	O	US Northeast
	O	US Southeast
	О	US Mid-Atlantic
	O	US Midwest
	O	US Southwest
	О	US Northwest
	О	US Rocky Mountains
	О	US West Coast
	О	Canada
	О	Australia
	О	Western Europe
	O	Central America
	О	South America
	\circ	Caribbean
	0	Other
24.	Wh	nat is the name of your institution?

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