PEASE AWARD

Serving Up EAD: An Exploratory Study on the Deployment and Utilization of Encoded Archival Description Finding Aids

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Abstract

This study explores the current methods for deploying EAD finding aids to identify the most promising practices being used, examines how much and what type of evaluation archivists are gathering from end-users regarding deployment methods, identifies archivists' perceptions regarding the use of EAD-encoded finding aids, and in general, attempts to further the study of electronic access to archival collections. The focus of this paper is the current state of deployment methods for EAD, including how long and what types of deployment methods are being used, why they were selected, what changes, if any, are being planned, and what types of challenges are associated with them. The paper also focuses on archivists' perception of end-user utilization of EAD and explores the evaluation upon which this perception is based, including how and on what basis archivists formulate their perceptions.

In the past eight years several archival repositories have begun using the Encoded Archival Description (EAD) Document Type Definition (DTD) to prepare electronic finding aids for presentation on the World Wide

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Web. While the technology is relatively new, many archival institutions have embraced EAD because of its appeal as a Standard Generalized Markup Language (SGML) standard (ISO 8879) for structuring and automating finding aids, the archivist's traditional access tool.[1] Finding aids can be any descriptive document used by archival repositories that provides information about the content and nature of materials, e.g., registers, inventories, calendars, series descriptions, card catalogs, and institutional guides. As the first data structure standard to "facilitate distribution via the Internet of detailed information about archival collections," EAD enables remote researchers to search archival collections with "effectiveness and thoroughness."[2]

EAD was conceptually introduced to the archival community at the 1993 Society of American Archivists annual meeting in New Orleans. Daniel Pitti, the principal investigator for the Berkeley Finding Aid Project, developed EAD at the University of California, Berkeley. After many development stages that included the testing of the beta version DTD, Pitti and his colleagues released version 1.0 DTD in the fall of 1998.[3] Since its release, the official EAD homepage, maintained by the Library of Congress Network Development and MARC Standards Office, has listed forty-seven institutions and twelve cooperative projects that have used the EAD standard to encode finding aids and have delivered these documents to the Internet through several deployment methods.[4]

Problem Statement

While coding finding aids under the EAD DTD has become much easier with tools such as the Berkeley Template, PERL programs, the text editor Emacs, PSGML (SGML add-on to Emacs), James Clark's SGML parser+ toolkit, and various Word Macros, the implementation of deployment methods has not. For the purposes of this paper, the term "deployment method" will be defined as and used for any electronic delivery system bringing EAD-encoded finding aids to end-users via the Internet. The delivery of SGML documents on the Web

[1] Jackie M. Dooley "Introduction—Encoded Archival Description: Context and Theory." *American Archivist* 60 (Summer 1997): 264.

[2] Society of American Archivists Encoded Archival Description Working Group. *Encoded Archival Description Application Guidelines, Version 1.0.* (Chicago: Society of American Archivists, 1999.), v.

[3] Jackie M. Dooley, "Introduction," 264.

[4] When the author gathered research for the paper (2001: January–February), the Official EAD web site <http://www.loc.gov/ead> maintained by the Library of Congress Network Development and MARC Standards Office (NDMSO) was current only up to October 2000. Returning to view the EAD site upon completion of this paper, the author found the latest update for the EAD web site listed as 23 March 2001. Currently, the link to "EAD Sites on the World Wide Web" is linked to the University of Virginia's web site <http://jefferson.village.virginia.edu/ead/sitesann.html>. The information found at Virginia's web site is listed as being "parallel to that at the Library of Congress."

has been described as a "serious obstacle," because of the "limited options" for deployment methods.[5] Institutions have been experimenting with several different deployment methods, which have had various amounts of success displaying EAD-encoded finding aids. Approaches used included the HyperText Markup Language (HTML) and proprietary SGML EAD (which require specialized search software); and more recently, Extensible Markup Language (XML) and other "X*L" standards that are simplified subsets of SGML for use on the Web.[6] While software developers are presently devising new deployment methods to improve delivery of EAD finding aids, institutions currently deploying EAD finding aids have been criticized for a lack of evaluation of the effectiveness of electronic finding aids.[7] Indeed, the archival profession has been criticized for a general lack of end-user evaluation.

Goals

At this time the success of EAD is unclear. Early implementing institutions have spent a good deal of time and expense encoding finding aids and mounting them on the Web. There are, however, few, if any, evaluation studies, making it difficult to assess the efficacy of all this activity. The present survey of EAD deployment and evaluation activities that repositories have undertaken aims to lay the foundation for meaningful assessment. Specifically, the goals of this exploratory study are to gain insight into current methods for deploying EAD finding aids, to identify the most promising practices, and, in general, to further the study of electronic access to archival collections. This study begins the process of examining how much and what type of evaluation archivists are conducting regarding deployment methods for EAD-encoded finding aids. It also explores the perceptions archivists have regarding end use of EAD-encoded finding aids.

The focus of the paper is, first, to explore the current state of deployment methods for EAD. Questions in this area include:

1. What types of deployment methods are implementers employing?
2. How long have implementers delivered EAD-encoded finding aids?
3. Why have implementers selected deployment methods?
4. Are implementers planning changes in deployment methods?
5. What types of challenges did institutions face when they began implementing EAD?

[5] Daniel V. Pitti, "Encoded Archival Description: The Development of an Encoding Standard for Archival Finding Aids." *American Archivist* 60 (Summer 1997): 278.

[6] Daniel V. Pitti, "Encoded Archival Description," 277.

[7] Jill Tatem, "EAD: Obstacles to Implementation, Opportunities for Understanding." *Archival Issues* 23, no 2 (1998): 155.

Secondly, this article focuses on implementing archivists' perceived utilization of EAD by end-users and explores the evaluation upon which this perception is based. Questions to be addressed include:

1. Are professionals developing any standards or policies for the evaluation of deployment methods for EAD finding aids?
2. Are implementers collecting feedback from users?
3. How are implementers formulating their perceptions towards utilization of EAD-encoded finding aids by end-users?
4. Upon what type of information are implementers basing their perceptions?

EAD: Development

EAD is part of a succession of technologies that archivists have been developing to improve description of and access to their holdings. It follows the development of the MARC AMC format, which was completed in 1983.[8] The development of EAD has been described as "the next logical step in the evolution of archival descriptive standards and the answer to MARC for finding aids," but it must be remembered that MARC is used for cataloging records, while EAD is used for describing the full text of finding aids.[9] Nevertheless, MARC's development as a nonproprietary, publicly-owned descriptive markup standard "strongly influenced the developers of EAD and determined the nature of EAD's design to a large extent."[10] While the design concepts of MARC helped to guide EAD's evolution, developers decided that MARC was not the best available scheme for structuring archival surrogates in an electronic environment. They viewed MARC as unsuitable for three primary reasons: it was limited in length (OCLC restricts the total number of characters per record), it didn't accommodate hierarchical structure (while a finding aid does), and MARC AMC's user community was seen as too small and under-funded to support state-of-the-art hardware and software development.[11]

Looking for a means by which to encode full-text finding aids to meet the needs of the archival community, developers began investigating the feasibility of Standard Generalized Markup Language (SGML). SGML intrigued the developers because, like MARC, SGML is a standard (ISO 8879), but unlike MARC,

[8] For discussions about MARC AMC, see Steven L. Hensen, "The Use of Standards in the Application of the AMC (Archival and Manuscripts Control) Format," *American Archivist* 49 (Winter 1986), 31–40; Nancy Ann Sahli, "Interpretation and Application of the AMC (Archival and Manuscripts Control) Format," *American Archivist* 49 (Winter 1986), 9–20; and Richard P. Smiraglia, ed., *Describing Archival Materials: The Use of the MARC AMC Format* (New York: Haworth Press, 1990).

[9] Kris Kiesling, "EAD as an Archival Descriptive Standard." *American Archivist* 60 (Summer 1997): 345.

[10] Daniel V. Pitti, "Encoded Archival Description," 275.

[11] Daniel V. Pitti, "Encoded Archival Description," 275–76.

SGML provides for unlimited levels of hierarchical structure, has no size limitations, and has a potentially much larger user community. SGML is a set of formal rules that define and express the logical structure of documents, which enables full-text search software to control the searching, retrieval, and structured display of documents. These rules allow for members of a particular community, such as archivists, to develop and share specific markup schemas for document types, known as document-type definitions, or DTDs.[12] Because archival finding aids share similar parts and structure, developers were able to "form a class of documents for which a DTD could be and was developed."[13] Developers were able to design the EAD DTD to identify and name elements that "reflected both the content and structure of traditional archival finding aids."[14]

EAD: Implementation

Because of the relatively short history of the EAD standard, very little literature has evaluated or even explored the utilization of deployment methods for EAD-encoded finding aids. A search of library and archival journals since 1993 reveals a dearth of information about deployment of EAD-encoded finding aids. Those works that discuss EAD concentrate more on theory and implementation of the EAD structure, or present various implementation case studies at archival institutions, rather than the delivery of EAD-encoded finding aids to general remote users. The Society of American Archivists, in association with the Network Development and MARC Standards Office of the Library of Congress, has released the *EAD Tag Library,* which "conveys information about the three principal tasks" achieved by the EAD DTD: the breakdown of elements; the identification of attributes; and the expression of the relationship between elements.[15] Two special issues of the *American Archivist,* volume 60, numbers 3 and 4, focus on the context and theory of the EAD DTD and report on the several case studies where institutions have implemented EAD.

Only one work, the *EAD Applications Guidelines,* which introduces EAD "from a number of perspectives—administrative, technical, and most importantly, archival," discusses the options for deploying EAD-encoded finding aids and delivering them through browsers, file formats, and stylesheets.[16] These

[12] Society of American Archivists Encoded Archival Description Working Group. *Encoded Archival Description Tag Library, Version 1.0.* (Chicago: Society of American Archivists, 1998).

[13] Society of American Archivists Encoded Archival Description Working Group, *Encoded Archival Description Tag Library, Version 1.0, vii.*

[14] Janice E. Ruth, "Encoded Archival Description: A Structural Overview." *American Archivist* 60 (Summer 1997), 312.

[15] Society of American Archivists Encoded Archival Description Working Group, *Encoded Archival Description Tag Library, Version 1.0, vii.*

[16] Society of American Archivists Encoded Archival Description Working Group, *Encoded Archival Description Application Guidelines, Version 1.0.,* 143–159.

options, however, are practical applications and don't provide any critical analyses. In 1999 the EAD Roundtable introduced the *EAD Cookbook* as an extension of the *EAD Application Guidelines,* as a "simple model encoding protocol" for authoring and publishing EAD finding aids.[17] Similar to the *EAD Tag Library* and the special issues of the *American Archivist,* the *EAD Application Guidelines* and *EAD Cookbook* are written for the archivist. None of these articles or monographs discusses the effectiveness and usefulness of EAD deployment methods from the standpoint of the end-user.

EAD: Deployment

Most of the EAD literature concerns the implementation of the DTD written from the perspective of the archivist looking to establish EAD at his or her institution, rather than as a critical analysis of the standard and its success. Thus far, only Jill Tatem, in her article about the diffusion of EAD as an innovation (1998), has addressed archivists' positive and negative perceptions of EAD to suggest why EAD holds appeal for professionals.[18] She states that, while many institutions have adopted EAD, the widespread adoption of EAD depends on changing some of the negative perceptions held by a number of archivists surrounding the implementation of EAD. Using Everett Rogers' theory of diffusion of innovation, Tatem focuses on the perceptions of EAD "held by target adopters—archivists" (1998, 156), and analyzes those perceptions for the five motivations of relative advantage, compatibility, complexity, trialability, and observability.[19]

Tatem finds that proponents identify the perceived advantages of EAD as ease of use for locating archival materials by end-users, increased visibility of archival holdings, and a reduction in future costs associated with migrating files to newer formats, but states it would be helpful to view EAD's benefits as immediate and tangible, such as showing that users require "less mediation or assistance" when using EAD finding aids for structural purposes.[20] Tatem goes on to identify a perception held by most proponents that EAD is compatible with traditional paper registers and is seen as the successor to MARC AMC. The perceived disadvantage is SGML's reliance on a single hierarchical structure, which is at odds with the uniqueness of traditional archival holdings, and that finding

[17] A link to the *EAD Cookbook* can be found at: <http://jefferson.village.virginia.edu/ead/cookbookhelp.html>.

[18] Jill Tatem, "EAD: Obstacles to Implementation," 155–169.

[19] Relative advantage is "the degree to which an innovation is perceived as better than the idea it supercedes;" compatibility is "the degree to which an innovation is perceived as being consistent with the existing values, past experiences, and needs of potential adopters;" complexity is "the degree to which an innovation is perceived as difficult to understand and use;" trialability is "the degree to which an innovation may be experimented with on a limited basis;" and observability is "the degree to which the results of an innovation are visible to others." Everett M. Rogers, *Diffusion of Innovation*, 4th ed. (New York: Free Press, 1995), 15–16.

[20] Jill Tatem, "EAD: Obstacles to Implementation," 159.

aids upon which EAD is based are not useful for unmediated end-user access. Tatem concludes that it is counterproductive to position "EAD as useful in only one service model when its potential utility is much broader."[21]

Tatem also identifies negative perceptions regarding EAD. She lists the primary perceived disadvantages as a lack of an adequate delivery system, the view that EAD is just the latest trend, and the view that a relational database is a more effective storage system. Perhaps more fundamentally, she notes that many archivists believe SGML software is expensive and hard to use and that EAD is too hard to understand. She suggests that the widespread adoption of EAD depends on the availability of easy-to-use software on both the publisher and user ends, and proposes that XML may improve the software situation as it is designed to be simpler to apply than SGML. The EAD development process has been intensely observed through conference presentations, print publications, web sites, and electronic discussion lists. Again, the scarcity of SGML-aware browsers prohibits the observation of EAD's full capabilities: "An EAD finding aid that looks and acts like an HTML finding aid is unlikely to reflect the advantages of EAD."[22]

Tatem argues that improving EAD's ease of use depends "on advances in authoring and browsing software."[23] Full-text search software is considered "the most sophisticated and technically complex delivery method" because it permits end-users to simultaneously search the contents of several finding aids.[24] Currently, there are several software delivery systems available for deploying finding aids electronically. Software used by implementing institutions include RLG's *Archival Resources, InQuery, DynaText, Internet Explorer 5.0, OmniMark, Isite, MultiDoc Pro, Panorama, Internet Archivist—EAD, Cheshire II,* and *Livelink,* as well as languages such as *MySQL, Perl,* and *Verity Query Language.*[25]

Although there are multiple methods for delivering EAD-encoded finding aids, most delivery systems conform to one of three general types: server-side technology, such as *DynaText;* client-side technology, such as *Panorama;* and index databases such as *Livelink.* To provide access to collections, an archives

[21] Jill Tatem, "EAD: Obstacles to Implementation," 161.

[22] Jill Tatem, "EAD: Obstacles to Implementation," 162.

[23] Jill Tatem, "EAD: Obstacles to Implementation," 155.

[24] (Society of American Archivists Encoded Archival Description Working Group. *Encoded Archival Description Application Guidelines, Version 1.0.,* 147.

[25] Information regarding the deployment methods can be found at the following URLs: RLG's *Archival Resources* <http://www.rlg.org/arr/index.html>, *InQuery* <http://www.sovereignhill.com>, *DynaText* <http://www.ebt.com/index2.htm>, *Internet Explorer 5.0* <http://www.microsoft.com/windows/IE/>, *OmniMark* <http://www.omnimark.com/home/home.html>, *Isite* <http://www.cnidr.org/ir/ir.html>, *MultiDoc Pro* <http://www.citec.fi/company/it/mdp/>, *Panorama* <http://www.interleaf.com/Panorama/page3.html>, *Internet Archivist—EAD* (), *Cheshire II* <http://cheshire.lib.berkeley.edu/>, *Livelink* <http://www.opentext.com/livelink/index.html>, as well as languages such as *MySQL* <http://www.mysql.com/>, *Perl* <http://www.perl.com/pub>, and Verity's *Query Language* <http://www.verity.com/products/index.html>.

can install software that indexes the files and formats them to display on a web-accessible server. This server-side software allows archival repositories that maintain documents in the SGML format to deliver and present them in HTML, which is compatible with browser software for the World Wide Web. The *DynaText* publishing system, which includes *DynaWeb,* is considered a server-side software package because it maintains documents in SGML format then converts files to HTML, which then can be presented on the Web. However, the *DynaText* publishing system is cost prohibitive and is no longer being supported. Another system considered to be server-side software is *Internet Archivist-EAD,* which exports documents from the native format to HTML and XML, but does not produce the stylesheets that are essential for presenting XML documents. The company that manufactures this system, Interface, has suspended sales of the system until there is an assessment of XML's impact on deployment technologies.

An archives can also rely on client-side software that requires users to load software that configures their browser to read EAD-encoded finding aids and accompanying stylesheets mounted on a web-accessible server. SoftQuad, Inc.'s *Panorama* software system, considered an end-user tool, "can display documents marked-up in SGML, given an associated SGML document type definition (DTD) and a specification that maps each SGML element and entity in the DTD to a rule for displaying that element or entity, generally referred to as a style sheet."[26] Like *DynaText, Panorama* is no longer supported because few users have downloaded the proprietary software.

Archives may also choose to employ an SGML search engine to interface with a database. OpenText's *LiveLink* is an index that has no special browser requirements; all finding aids are stored in SGML but delivered in HTML format. The *LiveLink* program provides a web-accessible interface to finding aids with phrase and keyword search capabilities in a variety of indexes.

EAD: Evaluation

The *EAD Application Guidelines* lists the great disadvantage of delivering EAD-encoded finding aids through full-text search software as being the high cost associated with acquiring search engines and that, even if affordable, most require "advanced computing skills to program and maintain."[27] Theoretical and practical design concerning "query interface, the type and level of indexing and the presentation of the results set" still have not been clearly developed.

[26] Bradley C. Watson, "Arbitrary SGML Viewers and Their Role in On-line Text Delivery Systems." *Annual Review of OCLC Research,* available at <http://www.oclc.org/oclc/research/publications/review95/part1/sgml.htm>.

[27] Society of American Archivists Encoded Archival Description Working Group, *Encoded Archival Description Application Guidelines, Version 1.0.,* 148.

In order for archivists to refine these applications, "more experience with retrieval issues" is needed to "clarify user understanding of and requirements for both the search interface and the display of results."[28] The current dilemma is how archivists are getting this experience.

Even if and when archivists are able to develop and widely use new technologies, Tatem has criticized the archival profession for its failure to include end-users in the planning and evaluation activities associated with the development of EAD.[29] Citing literature of human-interface design, Tatem has recognized that end-users should not be viewed as a homogenous group, that different cognitive styles, domain knowledge, system knowledge, and information needs require "different functionality and interfaces" in order for end-users to successfully employ digital tools.[30] For purposes of this study, "end-user" will be used when describing those general users of the finding aid that are not professional archivists. This group includes academic scholars, researchers, students, and the general public. Tatem notes the lack of empirical research in the archival literature about the general effectiveness of finding aids, and has concluded that the profession's ability to evaluate the contributions of EAD is limited.[31]

In the next step suggested by Tatem, archivists should evaluate utilization of EAD finding aids by end-users to see if EAD is being used or not used, and if not used, explore the reasons why. This will help archivists understand how users manipulate electronic finding aids, and to evaluate whether what is being developed is really "improving" access for end-users. The motivation of archivists to adopt EAD has centered on the anticipation of improved access and structure, a standard for all archivists to use. Fundamental to improved access, deployment methods should be viewed by archivists as the most important key to improved delivery and searchability of EAD-encoded finding aids. Without an understanding of the effectiveness of such deployment methods, archivists cannot improve access to their holdings. Implementers of the EAD must begin the formal process of evaluating the utilization of EAD delivery systems by end-users.

Methodology

This study explores the current delivery systems used to deploy EAD-encoded finding aids at the forty-seven institutions listed as current implementers of the EAD DTD on the EAD homepage. It also to explores how much

[28] Society of American Archivists Encoded Archival Description Working Group, *Encoded Archival Description Application Guidelines, Version 1.0.,* 148.

[29] Jill Tatem, "EAD: Obstacles to Implementation," 163.

[30] Jill Tatem, "EAD: Obstacles to Implementation," 156.

[31] Jill Tatem, "EAD: Obstacles to Implementation," 165.

and what type of evaluation early implementers are conducting regarding deployment methods for EAD-encoded finding aids, including the perceptions archivists have regarding use of EAD-encoded finding aids.

The data set of forty-seven implementing institutions was chosen based on information provided on the official EAD web site.[32] The Library of Congress Network Development and MARC Standards Office maintain the web site to fulfill the mission of the EAD Roundtable to encourage the development of the EAD DTD through the distribution of information. Institutional information was provided "as part of that maintenance support."[9] While other institutions may be implementing EAD, it was assumed that current archivists listed on the EAD homepage would have the same commitment as the EAD Roundtable to encourage the development of the EAD DTD, and would be the professionals other institutions would turn to for information regarding EAD. In effect, the current implementers have become information sources for others looking to adopt the EAD standard.

Potential respondents were professional archivists at the forty-seven institutions listed as deploying EAD-encoded finding aids through electronic sources (see Appendix A). On March 28–29, 2001, these professionals were sent an introductory e-mail request for participation in the study. The message briefly described the scope and intention of the study and why they were being asked to participate. Information was given regarding the procedure for participating, the contact information for the primary researcher, the advisor, and the URL for the questionnaire. Of the forty-seven institutions listed as current implementers, only forty-six were contacted. One institution was part of a consortium and that group was listed separately as a participating institution.

From the forty-six institutions, thirty-one archivists (67%) responded to the survey during a four-week period, March 28, 2001 to April 23, 2001. Fifteen archivists (32.5%) returned surveys to the first e-mail request and three (7%) responded that their institutions were not currently deploying EAD-encoded finding aids, either because they were at an early stage of development, or because they did not provide EAD services directly. The thirty-one other institutions that did not respond during the second week were sent a second e-mail requesting their participation. Of these thirty-one archivists, thirteen responded to this request. The remaining fifteen institutions (32.5%) did not respond to the request, but there is no reason to believe these nonrespondents are inherently different from the respondents.

Data was derived from a series of questions administered through an online survey. These questions were straightforward queries designed to be open-ended enough for respondents to expand upon in detail (see Appendix B). All

[32] (http://www.loc.gov/ead) Note that this page was updated March 2001, two months after the author's initial visit. Some information may have changed.

questions addressed the deployment methods for EAD-encoded finding aids and the presumed effectiveness of these methods. The findings should give insight into current and "best practices" for deploying EAD-encoded finding aids, what deployment challenges institutions have encountered, and how archivists perceive whether or not end-users fully utilize the capabilities of deployment methods (such as subject-searching in SGML). It also will aid the further study of user access to archival collections.

Findings: Deployment

In the first section of the survey, entitled "Deployment," questions focused on the current state of deployment methods for EAD, including what types of delivery methods archivists are employing, how many finding aids they have deployed through each method, how long have they deployed EAD-encoded finding aids, why they selected certain deployment methods over others, whether changes in deployment methods are being planned, and what types of challenges faced archivists when they began implementing EAD. Questions 1.1., 1.2., 1.3., and 1.5. were objective multiple-choice or fill-in-the-blank queries. Questions 1.4., 1.6., 1.7., and 1.8. were open-ended queries designed to allow respondents to explain the reasons for making certain choices and to expound upon the challenges encountered when developing systems for delivery of EAD-encoded finding aids.

Question 1.1. asked respondents to identify the deployment method(s) currently being used at their institution in order to find out how each institution was delivering EAD-encoded finding aids electronically. This data not only provides a picture of EAD practice, it also is informative as to retrieval possibilities. Currently, web search engines can't identify SGML or HTML generated on the fly. Therefore, those institutions relying solely on SGML or HTML on the fly as a delivery method are precluding their finding aids being retrieved by web search engines, such as Alta Vista or Google.

Most institutions applied several types of deployment methods, with the most common delivery system cited by respondents being the client-server software system *Panorama.* Of the twenty-eight surveys received, nine institutions listed *Panorama* as their deployment method, seven listed Inso's (formerly EBT) *DynaText,* six used other delivery software (direct HTML links, Perl, etc.), four chose to use OpenText's *LiveLink,* two opted for *Verity Query Language,* two employed *Internet Archivist-EAD,* and one each used *Internet Explorer 5.0, OmniMark, Isite,* or *MultiDoc Pro.* Because it is difficult to fully assess the effectiveness of a deployment method if only one institution that uses the system responds, only those responses regarding *Panorama, DynaText,* HTML, *LiveLink,* and *Internet Archivist-EAD* will be specifically cited. Other responses submitted will be used to make general points about deployment methods.

Questions 1.2 and 1.3. were used to formulate the rate by which institutions were creating and displaying EAD-coded finding aids. Question 1.2. asked participants how many finding aids were delivered in each type of deployment format (e.g., how many in HTML, server-side SGML, client-side SGML, etc.) in order to analyze the distribution of finding aids delivered in each deployment method. Question 1.3. asked how long archivists had been delivering EAD documents through the deployment method in order to compare the length of time the deployment method had been used versus the number of finding aids delivered by that deployment method.

Of the twenty-eight institutions that responded to the survey, eleven began using EAD before 1998 and seventeen began using EAD in 1998 or later. The range of time for implementation was from 1994 to December of 2000. Since 1995 archivists have employed *Panorama,* and two institutions have applied it as late as 1999. Four of the earliest implementers (1994–1996) of EAD chose *DynaText.* Six institutions (mostly new implementers) responded that they only deliver HTML versions of their finding aids, and two institutions have been using *Internet Archivist-EAD* since 1998. All the archivists using *Panorama* also deliver finding aids in other formats, one giving the reason that "we didn't like the idea of users downloading dedicated software," and the six institutions that only deliver HTML finding aids felt HTML was advantageous because there is no "software, browsers, or database with which to offer SGML/XML documents, either static or dynamically, with stylesheets."

Because no questions were asked about the total number of collections, it is beyond the scope of this paper to analyze what percentage of an institution's collection's finding aids have been encoded using EAD. Nor is it possible to compare the percentages of HTML versus SGML versus all electronic formats, because most respondents did not completely answer question 1.2. However, some generalizations can be made. The amount of encoding ranges from a high of 5,900 finding aids encoded by EAD structure to a low of twelve EAD-encoded finding aids delivered. The institution with the highest number of finding aids was also the institution with the longest implementation and deployment time. The institution that has deployed twelve finding aids began using EAD in January 2000, while the newest implementer (December 2000) has already deployed 110 EAD-encoded finding aids in both HTML and SGML/XML. All but one of the implementers that used the beta version had more than three-hundred EAD-encoded finding aids deployed through various methods. Those implementers that began using version 1.0 had far fewer finding aids in electronic formats. A respondent currently using two deployment methods (HTML and *Panorama*) to deliver EAD-encoded finding aids stated that they were "still experimenting" with their deployment method.

Question 1.4. asked why archivists chose their current deployment method. Most responses show that the current deployment method was selected because of cost (funding from grants), relative ease-of-use, and accessibility. The

perception was that the selected method was affordable, easy to implement, and easy to use.

A common reason respondents gave for choosing their deployment method was ease of use. Most of the institutions using *Panorama* employ HTML as their other deployment method because it is "easier to markup and deliver" and "it seemed like the easiest and safest bet." Two archivists based their decision on delivering finding aids through *Internet Archivist-EAD* because of ease of use, with one answering that "participating in [a consortium project already using *Internet Archivist-EAD*] was the easiest way our institution could get finding aids on the web."

Cost was also a factor in choosing deployment methods. Many archivists chose *Panorama* based on limited funding, suggesting that making end-users pay for browsing software was less expensive for the institution than buying a server-side software system such as *DynaText*. Most of the earliest implementers, however, chose *DynaText* because EBT offered grants to make it affordable, with five archivists replying that their institution received grants or funding to purchase the software system. Archivists also chose HTML based on cost. These respondents believe that until archivists can develop a "cost-effective server-side XML delivery system," HTML will be their "preferred choice" for delivering finding aids.

Reflecting just how new this technology is, the earliest implementer stated that the reason for choosing *DynaText* was that "it was the only one available at the time." Four institutions adopted *LiveLink* because it was "readily available" and "already in use" at another department in the institution. One HTML implementer stated that they use XSLT stylesheets to generate static HTML pages because of ease of deployment, cost effectiveness, and availability of technology. (It is interesting to note that these finding aids are searchable on the World Wide Web even if they are not searchable in-house). This archivist felt the benefits of searchable finding aids were overrated: "Making EAD searchable would have given us very little benefit for much cost, knowing our staff and user searching patterns." As mentioned above, the archivists delivering finding aids through *Internet Archivist-EAD* chose a system that had already been purchased.

Questions 1.5. and 1.6. inquired whether implementers had any plans for changing their current deployment method strategies, and if so, what were those plans. From the responses received, it appears that most institutions are looking to improve their access by changing aspects of their deployment method. No one mentioned discarding the EAD DTD structure altogether. In fact, many commented that the structure is a benefit, but it seems that archivists perceive problems coming from the deployment methods. Respondents also mentioned the challenges of selling the idea of EAD to management, and how end-users who didn't have client-side search engines could access their collections. Nineteen participants responded that they had plans for changing their deployment methods, while nine did not have any plans for change. The types

of plans being investigated included moving to new technologies that are more sophisticated, with most respondents looking into XML. Reasons for decisions to change included planning for better access to the finding aids, ease of use for end-users, better navigability, and new technologies that offer more "sophisticated" capabilities than offered by current deployment methods.

Changes being planned by archivists using *Panorama* included changing from SGML to XML, delivering finding aids in PDF files, and developing a "cooperative effort to standardize delivery for several [repositories]." Most are still developing their plans, and two have begun the processes of changing. Only one of the nine institutions had not made any plans for changing from *Panorama*. One institution has begun converting finding aids from *Panorama* to delivering static HTML created through XSL Transformations because "our search engine is horrible, and we have zero control over how and when we index files." The other implementer is converting existing finding aids to XML and HTML formats because "it will provide better access to our finding aids, which are currently only available through SGML browsers." These findings suggest that implementers perceive this client-side server as an inadequate tool for delivery of future finding aids.

Although most archivists using *DynaText* responded that they were planning to change their delivery system, most are still in the development stages. Only one institution had definite plans for changing its delivery system, converting SGML files into XML. However, it was not going to replace the SGML guides, but was creating XML guides in addition to the SGML. The other five institutions had no definite plans for changing the delivery of their finding aids, but were investigating other methods for delivery, mentioning XML and PDF files as possible replacements.

Two of the institutions using *LiveLink* had no plans for changing their deployment method, while the other two have begun making plans to convert SGML files to XML files. One said that while it is converting to XML files, the indexing will remain the same, but that conversion to XML will "present a much easier to understand results screen and navigational procedure for the files." Two of the six archivists delivering HTML finding aids had no plans for changing the deployment method. The other four either listed converting files to XML or storing finding aids in a service database. The hope of one archivist, which seems to be shared by all, is to have a "cost-effective server-side system for delivering formatted documents" that will permit "searching across all XML documents." Neither institution delivering through *Internet Archivist-EAD* has made plans for changing deployment methods, with one responding that management "has not made any new decisions" about the deployment of on-line finding aids.

Question 1.7. asked archivists what they would do if resources were not an issue in regard to EAD. There didn't seem to be any difference in the answers among archivists using various deployment methods. Most respondents listed converting

inconsistent content of earlier finding aids, hiring more staff, and creating better tools for easy transformations to other formats. Only one respondent suggested developing more user studies to analyze "what works and what doesn't" in finding aids. Another responded that the greatest weakness of EAD is that archivists and institutions are "petrified of distributed custody," and asked the question "Why not have one universal server that serves the needs of the users AND the archivists?" Others used question 1.7. to bring up points about EAD in the context of the archives as a whole. One respondent strongly supported processing collections over encoding, arguing that processing "is still the essential activity of an archive upon which EAD depends, although the point is often lost on those who make the decisions." Finally, one archivist summed up what many probably feel is true:

> Given our other needs, I don't think a "perfect" EAD implementation ranks very high on the list. Digital projects in general can become a bottomless pit for money. The true question should be, "How much financial and human resource support should be given to EAD?" The answer is "it depends." Given our current situation, I have much more pressing processing and basic preservation needs.
>
> Much of the work in guiding researchers to the most appropriate material in that collection has always been, and always will be, done by a reference archivist or staff member who knows the collection well and can work with the patron in using the finding aid. The on-line environment has not yet changed that, since patrons still contact the archives personally using a telephone call or e-mail. Now EAD has a role to play in helping people find things before contacting the archives, but even if every finding aid were marked up with perfect and deep metadata, and fully searchable on those metadata fields, you still would need a reference archivist to help the researcher get to what they need. Now, let's keep in mind that most of the EAD markup done at this institution, and others as well, consists of pretty good collection level markup, and horrible folder level markup. In order to really markup the folder level properly to make it searchable, one would have to employ controlled vocabularies, standardized tag usage, use of the attributes in the <date> tag, etc. In other words, you would need the equivalent of a library cataloger who would read each piece of paper in the folder and then make agonizing decisions about how to classify. Is this a wise use of institutional resources? Hardly.

In order to determine what types of problems institutions were having with delivering EAD question 1.8. asked respondents to identify the biggest challenges for deployment,. Unfortunately, the question seemed to be too general, although several of the responses were very informative. All of the participants stated that the biggest challenges they faced when implementing EAD were tools, time, and staff. One of the earliest implementers, who used *DynaText,* said that "convincing colleagues of the value of implementing EAD" was one of the biggest challenges. Most stated finding technically competent

staff and the time to develop encoding routines were great challenges: "We have no full-time EAD encoders, only two staff [members] who can encode, and neither of us can spend more than ten percent of our time encoding." One archivist summed up the challenges as

> the misperception of EAD as a derivative "web" format, rather than as a "source" format. This seriously limits what can be done with EAD. Education and training has been a problem, even for those properly "evangelized." 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.

Other challenges respondents mentioned regularly were the "lack of easy-to-use programs aimed at SGML development" and the effects associated with this challenge. Institutions using *LiveLink* commented upon the lack of staffing needed to do all the encoding and the time it took to convince administrators to support EAD, viewing staff training as a problem because "the learning curve for EAD markup is very steep." Another response mentioned the challenge of developing programs for automatic conversion from old databases to EAD. Both institutions that use *Internet Archivist-EAD* responded that finding the time and staff to create finding aids, convincing administration of the "worth and potential of EAD," and becoming efficient and proficient with the technical aspects of launching finding aids on the Web were challenges. Commenting on the challenges to implementing EAD, two of the archivists delivering finding aids in HTML replied that there were few challenges: "The whole process was pretty easy" and "went fairly smoothly." But the question must be asked as to whether these are truly EAD finding aids.

Findings: Utilization

The second part of the survey, entitled "Utilization," focused on archivists' perceptions regarding end-user utilization of EAD, and explored the evaluation upon which these perceptions are based. Questions addressed whether professionals are developing any standards or policies for the evaluation of deployment methods for EAD finding aids, whether archivists are collecting feedback from users, and, if they are not developing any formal standards for evaluation, how they are formulating their perceptions of end-user utilization of EAD-encoded finding aids and on what information they are basing these perceptions. Questions 2.1., 2.2., 2.3.a, 2.3.b, 2.4., and 2.5. were objective multiple-choice or fill-in-the-blank queries. Questions 2.2.a and 2.3.c were open-ended queries designed to allow respondents to explain what type of feedback they were receiving and how their deployment method could be better utilized, if it were not being used to the fullest extent of its capabilities. Among the various deployment methods used by respondents, there does not appear to be a

significant difference associated with the delivery system regarding respondents' perceptions on end-user utilization. Therefore, only generalized comments can be made regarding deployment methods.

Question 2.1. asked respondents if they were tracking the number of "hits" their EAD finding aids received during the week. One of the easiest ways archivists can evaluate their web site is to track the number of hits it receives. However, tracking hits has a mixed reputation. Some archivists feel that tracking hits does not accurately gauge the use of a web site because each separate entity associated with the page (graphics, text, icons, etc,) will show up as a hit, thus inflating the number of hits a web site seems to have received. This is evident in the responses, where one respondent noted that their figure of two thousand hits was "derived from relevant text pages downloaded via *DynaWeb*" with the total number of hits being "nearly 10 times this when GIF files and frames are taken into consideration." Regardless of the accuracy of tracking, the assumption was that most institutions would track hits just to say they do it. The findings, however, produced a different picture. Eleven (39%) archivists responded that their institution tracked hits, while seventeen (61%) replied that they do not track hits.

Question 2.2. asked respondents if they had identified some sort of information from end-users that could be considered feedback regarding EAD finding aids. Eighteen (64%) archivists responded that their institution received feedback from end-users, while ten (36%) replied that they have not received any feedback from end-users. From the responses, it cannot be determined whether respondents are basing their perceptions of EAD use on one instance or a hundred, or even what archivists label as "feedback."

By comparing respondents' answers to question 2.1. and 2.2., it can be seen that only ten institutions currently track hits and have received some sort of end-user feedback on EAD. Eight responses indicated that archivists were receiving feedback but not tracking hits, while one response indicated the opposite—the respondent was tracking hits, but had not received any end-user feedback. The nine remaining institutions neither track hits nor receive end-user feedback, and it is unclear upon what information these archivists are basing their perception of user traffic.

Table 1 How Archivists Are Evaluating EAD Use

	Number	Percent
Tracking hits and receiving user feedback	10	36
Not tracking hits but receiving feedback	8	29
Tracking hits but not receiving feedback	1	4
Neither tracking hits nor receiving feedback	9	32
Total	28	101*

* Greater than 100% because of rounding

Question 2.2a asked respondents to elaborate on the type of feedback received to see if archivists are drawing on end-user feedback as a basis for their perceptions, what type of feedback they are receiving, how they are gathering it, and what their perceptions are. Most participants identified end-user feedback to be anecdotal and impressionistic data, gleaned through e-mail, written feedback, and personal interaction with researchers. Ten responses specifically mentioned e-mail messages as feedback, while six responded that one-on-one reference question-and-answer sessions or unsolicited comments from end-users were the informal means for gathering feedback. Only three respondents indicated that they have instituted formal processes for user feedback. One institution has an on-line feedback page connected to its site; however, the response stated that only one end-user has offered any evaluation of the site. Another institution has had a user survey administered for a study but has not yet received the resulting data. This indicates that most respondents are not basing their perceptions about end-users' utilization on any formal system of evaluation.

Many of the archivists perceived that end-users were pleased with access. Several commented that their patrons "like the fact that they could find what they wanted on-line before they arrived to see the records," and noted that patrons came to the archives "with printouts of our finding aids." This, some archivists felt, contributed to the overall satisfaction patrons have with EAD-encoded finding aids, because the process "saves time and expense of mailing finding aids, [and] saves time of reference staff when asked questions that can be immediately referred to [in] the finding aid." However, several archivists were skeptical of end-users' knowledge of and ability to distinguish between EAD, HTML, and other types of electronic finding aids. Several respondents suggest that end-users do not "distinguish between EAD and non-EAD" and suspect that end-users "use the HTML versions" because they believe "hardly anyone goes to the trouble of getting an SGML browser when an HTML version" is available, and one archivist's response indicated that end-users "give equally good feedback for the PDF finding aids." Even without formal standards for end-user evaluation of EAD-encoded finding aids, archivists find that the informal anecdotal and impressionistic feedback they receive from their end-users is "sufficient to keep us moving forward."

Question 2.3.a asked respondents if they perceived user traffic of EAD-encoded finding aids through their deployment methods to be high, medium, or low. With the exception of one response, all archivists perceived user traffic to be either medium, (seventeen-61%) or low (ten-35%). The one archivist who perceived there to be a high use of user traffic does not track hits and has not received any end-user feedback. It would seem from this data that archivists base their perception of use on informal user feedback.

Question 2.3.b asked respondents if they thought their deployment method was being used to the fullest extent of its capabilities. Half of the

archivists replied that they perceived use of their delivery system's capabilities to be moderate. Four archivists indicated that they perceived their deployment's capabilities were being used either to "maximum use" or "reaching maximum use," while ten perceived use to be "less than moderate" or having "potential for more use." Most of these responses followed consistently with whether respondents answered "yes" to tracking hits and receiving feedback, or "no" to tracking hits and receiving no feedback. Those archivists who track hits and receive user feedback perceived the use of their deployment's capabilities to be high, while those who had no discernable evaluation data tended to perceive that their deployment's capabilities could be used more often. Three respondents who perceived their repositories' delivery system capabilities as reaching or achieving maximum potential tracked hits and had received user feedback, and used a combined delivery system of HTML and SGML/XML formats. The other respondent, who perceived the use of the repository's delivery system capabilities as reaching maximum potential, also used a combined delivery system and answered "no" to tracking hits but had received feedback. Six of the archivists who answered "no" to tracking hits and receiving user feedback answered either that there was potential for more use (1) or there was less-than-moderate use (2).

Question 2.3.c asked archivists to elaborate on areas in which their deployment method could be improved. Ten archivists commented that increased visibility and improved access and searching capabilities would allow end-users to better utilize their EAD finding aids. Three felt they could improve the utilization of their sites if their institution linked finding aids to the local OPAC. One commented, "It would be nice if there was a way that our material could be pooled with other . . . archives. People doing research with us, are often doing research with other . . . archives [with similar holdings]." Others believe deployment capabilities depend heavily on the quality of the content, and admit their deployment method could "support much more sophisticated intellectual access than we have provided for." One admitted that the poor quality of their older finding aids "limits what we can do on the deployment end." Most advocate

Table 2 Archivists' Perception Regarding The Utilization of EAD

	Tracking hits and feedback	Either tracking hits or feedback	Not tracking hits or feedback	Total
5 = Maximum use	2	0	0	2
4 = Reaching maximum use	1	1	0	2
3 = Moderate use	5	6	3	14
2 = Less than moderate use	2	1	3	6
1 = Potential for more use	0	1	3	4
Total	10	9	9	28

improving upon current stylesheets, tagging and indexing at a finer level (or at least standardizing spelling across finding aids to make name searching more precise), and searching across finding aids and other metadata. Finally, one suggests that "better explanations of how to search and how to interpret results," would lead to better utilization of deployment methods.

Questions 2.4 and 2.5 asked respondents what their perception of user satisfaction was regarding their deployment method's access, and the overall satisfaction of the deployment method. A majority of archivists (twenty-five, 89%) perceived end-users to be "moderately satisfied" or "satisfied" with their deployment method's access, and three responded that end-users were "very satisfied." However, when asked to evaluate end-users' satisfaction with the overall deployment method, only two (7%) thought end-users were "very satisfied," nine (32%) felt users were "satisfied," eleven (39%) believed end-users to be "moderately satisfied," and six (22%) perceived end-users to be "moderately unsatisfied" with deployment methods.

Conclusion

Initially, archivists selected their deployment methods for EAD finding aids based on relative ease of use, accessibility, availability, and affordability. After a few years of implementing the EAD structure and delivering EAD finding aids though various deployment methods, archivists have found that several problems or challenges remain. These include a steep learning curve for the entire EAD process, not having enough resources in the form of time and staff, and most especially, difficulty with deployment software. While archivists are currently employing a variety of deployment methods, there has yet to be developed a single ideal deployment method. Archivists have also found that finding aids, in general, must be improved even before considering EAD. Many institutions have legacy finding aids that have a variety of problems, such as being poorly structured and difficult to understand.

Several archivists identify the EAD structure as a benefit, but perceive problems stemming from the deployment methods, such as the realization that client-side servers may not be the most adequate tools for delivery of future finding aids. Because web search engines can't identify SGML or HTML generated on the fly, several institutions rely on more than one type of deployment method to deliver finding aids. Even with multiple deployment methods, archivists perceive problems with the delivery of EAD finding aids, because some of the current deployment methods, such as *Dynaweb* and *Panorama,* are no longer being supported, while others, such as *Internet Archivist,* have suspended sales pending a review of new technologies. Most current implementers of EAD are engaged in processes that will change the deployment methods delivering EAD finding aids. Institutions looking to improve access to their EAD

finding aids are contemplating new, more sophisticated technologies, such as XML, to allow for better navigability, improved user interface, and more control over what information is retrieved.

Perhaps most troublesome is that few institutions are developing formal evaluations for monitoring the effectiveness of EAD, and, in fact, there is very little evaluation being conducted. Thus, archivists are basing their perceptions regarding end-user utilization of EAD finding aids on very little quantitative or systematic qualitative data. Most archivists don't rely on tracking hits as an evaluation tool, preferring instead to use feedback from end-users to evaluate the effectiveness of their on-line finding aids. One of the problems with this process is that remote users who do not physically visit archives are being underrepresented in the evaluation. User studies of both real users and focus groups are needed, for archivists to fully develop an understanding of how end-users make use of finding aids.

The little information that is gathered for evaluation suggests that end-users don't seem to care about the structure or format of the finding aids, just the content. A common theme expressed by many respondents was their perception regarding the public's lack of knowledge about EAD, specifically, and archival practices, in general. Archivists seem to feel that the level of awareness and knowledge of archival institution policies and procedures is less than desirable because the public is unfamiliar with researching in an archives. But whose fault is this? Visiting the web sites of EAD implementers reveals that most lack basic information for end-users regarding EAD, such as a description or definition of EAD. Only twenty-six web sites describe or define EAD, and seventeen sites make no mention of EAD, or, if mentioned, never explain how it works or the benefits associated with it. Archivists are failing to educate their end-users regarding EAD specifically, and institutional procedures, generally.

Archival repositories must make a commitment to educate their remote users about the advantages of EAD before they can assume to receive better responses from their users when asked for feedback. The public may not be willing to get involved with evaluating the effectiveness of electronic finding aids, but archivists can draw on scholars such as historians, whom archivists consider a traditional user group because they are familiar with research techniques and archival policies and procedures. This group may be more willing to participate in evaluation of delivery systems if archivists educate them on the benefits of EAD.

In order for archivists to improve their deployment methods they must make a concerted effort to understand and evaluate how end-users are manipulating and using EAD finding aids. Archivists implementing and delivering EAD-structured finding aids must give careful consideration to encoding activity, given its costs, steep learning curve, and little user evaluation and education.

Appendix A

Institutions Listed as Current Implementers of the EAD DTD Found on EAD Web page

American Institute of Physics, Niels Bohr Library
Berkeley Art Museum/Pacific Film Archive
Bodleian Library, Department of Special Collections and Western Manuscripts
Brandeis University Libraries
California State University, Dominguez Hills
Columbia University, Rare Book and Manuscript Library
Cornell University
Duke University, Rare Book, Manuscript, and Special Collections Library
Durham University Library
Emory University Special Collections
Harvard University/Radcliffe College
Historic Pittsburgh Finding Aids project
International Institute of Social History
Iowa Women's Archives, University of Iowa Libraries
Johns Hopkins Medical Institutions, Chesney Medical Archives
Library of Congress Finding Aids Project
Louisiana State University Libraries
Minnesota Historical Society
National Library of Medicine, History of Medicine Division
New York Public Library
North Carolina State University Libraries
Old Dominion University
Public Record Office (United Kingdom)
Rutgers University/Center for Electronic Texts in the Humanities (CETH)
Santa Clara University Archives
Stanford University Library, Department of Special Collections
South Texas Archives, Texas A&M University
State Historical Society of Wisconsin, Archives Division
Syracuse University Library
United Methodist Church Archives—GCAH
University of California, Berkeley (incorporating the On-line Archive of California)
University of California, San Diego, Mandeville Special Collections Library
University of Chicago Library, Department of Special Collections
University of Glasgow, Glasgow University Archives & Business Records Centre
University of Illinois
University of Liverpool Special Collections
University of Notre Dame Archives
University of Michigan, Bentley Historical Library
University of North Carolina at Chapel Hill, Manuscripts Department
University of Pennsylvania, Annerberg Rare Book & Manuscript Library
University of Sydney Libraries (SETIS)
University of Vermont Special Collections
University of Virginia Library, Special Collections Department
University of Warwick, Modern Records Centre
Utah State Archives
Utah State Historical Society
Yale University Library

Appendix B

On-line Survey

Your Institution: _____

I. Deployment

1.1. How is your institution deploying EAD finding aids? (check all that apply)
_____HTML on the fly
_____(SGML or XML) server side (such as DynaWeb)
_____(SGML or XML) client side server (such as Panorama)
_____Plans for search engine
_____No web presence
_____Both HTML and (SGML or XML)

1.2. At your institution, approximately how many finding aids have you deployed in:
_____Electronic formats (total of all format types)
_____HTML not encoded by EAD mark-up
_____HTML encoded by EAD mark-up
_____SGML/XML
_____Other (such as ASCII or a database)

1.3. At your institution, how long have you been deploying finding aids using EAD?
Since (month, year): _____

1.4. Why did you select your current deployment method?

1.5. Do you have plans for changing your deployment method?
_____yes
_____no

1.6. Please elaborate on your plans (how would this change your current deployment method?)

1.7. Suppose you were given unlimited financial and human resource support, how would you like to implement EAD at your institution?

1.8. What have been the biggest challenges for deployment at your institution?

II. Utilization

2.1. Are you currently tracking your SGML/XML finding aid hits?

_____yes

_____no

If your institution does not track electronic finding aids in any format, please continue to question 2.2.

If your institution only uses HTML, please continue to question 2.2.

If your institution only uses SGML and tracks hits, please answer question 2.1.a, and continue to question 2.2.

If your institution uses SGML/XML and HTML and tracks hits, please answer questions 2.1.a and 2.1.b.

2.1.a How many hits do your SGML/XML finding aids receive? (average per week)

2.1.b How many hits do your HTML finding aids receive? (average per week)

2.2. Have you received any feedback from users regarding the use of SGML encoded finding aids?

_____yes (please answer question 2.2.a.)

_____no (please continue to question 2.3)

2.2.a Please elaborate on the type of feedback you have received. (example: user survey, informal question and answer session, email responses, etc.)

2.3.a What is your perception of the user traffic of EAD?

_____High traffic

_____Moderate traffic

_____Low traffic

2.3.b Do you think your deployment method is being used to the fullest extent of its capabilities?

Potential for more use 1 2 3 4 5 Achieving maximum potential

2.3.c How could it be better utilized?

2.4. How satisfied do you think your patrons are with your current deployment's access?

Unsatisfied 1 2 3 4 5 Very satisfied

2.5. On a scale of 1 to 5, how do you perceive user satisfaction regarding EAD deployment methods at your institution?

Unsatisfied 1 2 3 4 5 Very satisfied