SAA-RAO Access to Electronic Records Working Group: Annotated Bibliography

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Many thanks to the archivists listed below who contributed to the annotated bibliography!

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Access Policies

Adams, Margaret O'Neill. "Analyzing Archives and Finding Facts: Use and Users of Digital Data Records." *Archival Science* **7, no. 1 (2007): 21-36.**

Abstract: This article focuses on use and users of data from the NARA (National Archives and Records Administration), U.S. Who is using archival electronic records, and why are they using them? It describes the changes in use and consequently user groups over the last 30 years. The changes in use are related to the evolution of reference services for electronic records at NARA, as well as to growth in the types of electronic records accessioned by NARA. The first user group consisted mainly of researchers with a social science background, who usually expected to handle the data themselves. The user community expanded when electronic records with personal value, like casualty records, were transferred to NARA, and broadened yet again when a selection of NARA's electronic records became available online. Archivists trying to develop user services for electronic records will find that the needs and expectations of fact or information seeking data users are different from those of researchers using and analyzing data files.

Annotation: Adams examines the changes in users and uses of NARA electronic records over a period of 30 years. She identifies two main communities of users: those analyzing data to produce new knowledge, and those looking for specific information. Online access to electronic record files through the Access to Archives Databases (AAD) tool increased the number of users in both communities by drawing attention to the resources and by increasing ease of access particularly to personal information. Adams concludes that recognizing the different needs and expectations of user communities will be useful when developing user services models for new types of digital records.

AIMS Work Group. *AIMS Born-digital Collections: An Inter-institutional Model for Stewardship.* **United States: AIMS Project, 2012.**
http://www2.lib.virginia.edu/aims/whitepaper/AIMS_final.pdf**.**

Abstract: None

Annotation: This white paper describes the AIMS project, a collaboration between four institutions—one in the United Kingdom (University of Hull), and three in the United States (Stanford University, University of Virginia, and Yale University)—to establish practices and infrastructure for born-digital stewardship. The AIMS project partners discuss the four functions of stewardship: collection development, accessioning, arrangement and description, and discovery and access. They discuss objectives for selecting and implementing access models based on the requirements of the collection and of the designated user community. They also provide examples of access models and explain various factors to consider when selecting one.

Bak, Greg, and Pam Armstrong. "Points of Convergence: Seamless Long-term Access to Digital Publications and Archival Records at Library and Archives Canada." *Archival Science* **no. 8 (2009): 279-93.**

Abstract: In 2004, Canada's national library and national archives merged to form Library and Archives Canada (LAC). LAC has become more than the sum of its parts, creating synergies between library and archives collections and services, realizing efficiencies and satisfying user demands for seamless access to all holdings. LAC has already created and launched Fed Search, an online search tool that provides clients with single-search access to library, archives, and online collections. LAC is in the process of building a Trusted Digital Repository that will combine ingest, preservation, management and dissemination services for archives and library collections.

Annotation: Bak and Armstrong discuss the different tools and methodologies Library and Archives Canada (LAC) are using to provide access to diverse digital objects through a trusted digital repository. This digital repository is based on the Open Archival Information Systems Reference Model (OAIS), where Canadian documentary digital heritage can be identified, acquired, managed, preserved, discovered, and disseminated. Bak and Armstrong explain the LAC single-search access tool, Fed search, and how it mediates bibliographic and archival descriptive metadata through using MODS. Theyalso discuss in detail how LAC is building a Trusted Digital Repository to become compliant with Trustworthy Repositories Audit and Certification (TRAC). Bak and Armstrong describe LAC's TDR policy for ensuring the integrity, authenticity, and continuing access to digital collections. Another important component to ensure access to digital objects is through implementing persistent identifiers for digital objects, by which LAC has selected Archival Resource Key (ARK). The ARK facilitates high-quality and persistent identification of information objects. The ultimate goal for LAC TDR is to provide a simple, comprehensive, online access and long-term preservation for Canada's digital documentary heritage.

Christen, Kimberly. "Opening Archives: Respectful Repatriation." *American Archivist* **74, no. 1 (Spring/Summer 2011): 185-210.**
http://archivists.metapress.com/content/4233nv6nv6428521/fulltext.pdf.

Abstract: In the last twenty years, many collecting institutions have heeded the calls by indigenous activists to integrate indigenous models and knowledge into mainstream practices. The digital terrain poses both possibilities and problems for indigenous peoples as they seek to manage, revive, circulate, and create new cultural heritage within overlapping colonial/postcolonial histories and oftentimes-binary public debates about access in a digital age. While digital technologies allow for items to be repatriated quickly, circulated widely, and annotated endlessly, these same technologies pose challenges to some indigenous communities who wish to add their expert voices to public collections and also maintain some traditional cultural protocols for the viewing, circulation, and reproduction of some materials. This case study examines one collaborative archival project aimed at digitally repatriating and reciprocally curating cultural heritage materials of the Plateau tribes in the Pacific Northwest.

Annotation: Christen discusses "digital repatriation" of cultural heritage materials to indigenous communities. She challenges archivists to be flexible, imaginative, and culturally sensitive in their application of standards and access policies to digital archives of indigenous materials. When defining access, Christen goes beyond viewing materials, to describing materials in a way that acknowledges traditional indigenous knowledge systems. She uses the Plateau People's Web Portal as a case study and she advocates for "reciprocal curation," which is the set of practices allowing both scholars and indigenous communities to upload and manage digital objects. This provides standard metadata as well as specific traditional knowledge.

Kirschenbaum, Matthew G., Richard Ovenden, and Gabriela Redwine. *Digital Forensics and Born-Digital Content in Cultural Heritage Collections*. Washington, D.C.: Council on Library and Information Resources, 2010.
http://www.clir.org/pubs/reports/reports/pub149/pub149.pdf.

Abstract: None

Annotation: A broad discussion of digital forensics and its applications in cultural heritage institutions, particularly digital archives. Of interest here is Section 3.1.1, "Access Controls and Oversight of Use." Kirschenbaum, Ovenden, and Redwine suggest the need to establish a sense of trust with a potential donor through personal relationships as well as through technological provisions for security. They list necessary provisions for controlling access to digital content so that privacy and security will not be compromised. They also suggest the need to consider the monetary value that digital archival material may come to hold as such material becomes better understood. This then makes the need for security even more pressing. This high-level discussion of necessary access controls does not get into the technical details of how to set up or maintain such controls.

Prelinger, Rick. "Points of Origin: Discovering Ourselves through Access." *The Moving Image* 9 no. 2 (2009): 164-75.

Abstract: None

Annotation: In this article, Prelinger discusses how archivists need to advocate for broadly expanded access to moving image collections. This article is organized into three sections. First, the common reasons why archivists limit access to moving image collections beyond mediated access in repository reading rooms. Second, the roadblocks to providing public access to moving images and how commercial distribution of archival footage in public repositories such as YouTube and the Internet Archive provide wider access to archival footage than traditional repositories. Third, Prelinger discusses proactive modes of thinking regarding policies and methods that provide wide access to moving image archives. Prelinger argues that too much focus on the preservation and protection of moving image collections can hinder potential access. Digitization of moving images provides preservation and accessibility. Ultimately, moving image archives must expand access to collections in order to benefit both users and

archives. Access goes beyond providing user services. It is a formative practice which exposes archives and archivists to changing cultural and social practices outside the traditional repository.

Case Studies

DeRidder, Jody L., Amanda Axley Presnell, and Kevin W. Walker. "Leveraging Encoded Archival Description for Access to Digital Content: A Cost and Usability Analysis." *The American Archivist* **75, no. 1 (2012): 143-170.**

Abstract: Most digitization depends on costly item-level description for search and access. However, capturing such descriptions for content in extensive collections is often not feasible. To overcome this barrier to online access for large manuscript collections, the authors developed a method for linking digitized items into the EAD finding aid, which speeds content to the Web at a fraction of the usual cost. In the NHPRC-funded grant Digitizing the Septimus D. Cabaniss Papers, the authors demonstrated this model and developed the work flows and open-source software for implementation. This article assesses cost effectiveness and reports on a usability test with primarily novice users.

Annotation: DeRidder, Presnell, and Walker provide an excellent and thorough overview of the advantages and drawbacks of making digitized collections available through linked digital objects within EAD finding aids (which the user then browses to find content), rather than providing access to digital objects cataloged at the item level within a content management system (with a searchable interface). Unsurprisingly, the former is much faster and cheaper than the latter. Of course, these are not the only factors that need to be taken into account when planning a digitization project. They also compare the usability of each access model for three different user groups: experienced archival researchers, graduate students, and undergraduate students. A detailed description of their workflow provides a model for other institutions and their meticulous results analysis and presentation are fine examples for others needing to report back to grant-funding agencies.

Edwards, Chloë, Amy F. Brown, Meg Eastwood, Martha Tenney, and Kevin O'Donnell. "Processing internal hard drives." *Practical Technology for Archives* **1 (November 2013),** http://practicaltechnologyforarchives.org/issue1_edwards/.

Abstract: As archives receive born digital materials more and more frequently, the challenge of dealing with a variety of hardware and formats is becoming omnipresent. This paper outlines a case study that provides a practical, step-by-step guide to archiving files on legacy hard drives dating from the early 1990s to the mid-2000s. The project used a digital forensics approach to provide access to the contents of the hard drives without compromising the integrity of the files. Relying largely on open source software, the project imaged each hard drive in its entirety, then identified folders and individual files of potential high use for upload to the University of Texas Digital Repository. The project also experimented with data visualizations in order to

provide researchers who would not have access to the full disk images—a sense of the contents and context of the full drives. The greatest challenge philosophically was answering the question of whether scholars should be able to view deleted materials on the drives that donors may not have realized were accessible.

Annotation: Edwards et. al, four students at the University of Texas at Austin's School of Information, describe a semester-long project in which they attempt to recover data from eleven hard drives spread across two collections of the Dolph Briscoe Center for American History and provide access to archival content at three levels: drive level, folder level, and file level. The students completed each level in a separate phase, and the article chronicles each of these phases in detail. The authors make a particularly valuable contribution in their explanation behind each step of the process as well as their explanation behind each software choice to complete the respective step. Software used during the project include FTK Imager for disk imaging and metadata extraction, TreeSize Professional for data visualization, 7-Zip for folder archiving, and the New Zealand Metadata Extractor for metadata ingest into the repository.

Forstrom, Michael. "Managing electronic records in manuscript collections: A case study from the Beinecke Rare Book and Manuscript Library." *American Archivist* **72, no. 2 (2009): 460-477.**

Abstract: This paper reports on the management of electronic records in manuscript collections at the Beinecke Rare Book and Manuscript Library at Yale University. The paper offers a case study exploring the InterPARES 1 Authenticity Task Force "Requirements for Assessing and Maintaining the Authenticity of Electronic Records" and archival description as models for assessing and maintaining the authenticity of copies of electronic records in manuscript collections. The paper focuses on rules in Describing Archives: A Content Standard (DACS) applied to description in finding aids.

Annotation: Forstrom provides an examination of the requirements for assessing and maintaining the authenticity of electronic records as laid out by the InterPARES model and how these requirements can be applied to born-digital material acquired as part of manuscript collections. Forstrom argues that maintained authenticity requires transparency in describing the history and management of electronic records in finding aids and considers the suitability of DACS for achieving this. Forstrom concludes that DACS-compliant description presents an effective means by which to provide description that meets this need for transparency.

Kirschenbaum, Matthew G., Erika L. Farr, Kari M. Kraus, Naomi Nelson, Catherine Stollar Peters, Gabriela Redwine, and Doug Reside. "Digital materiality: Preserving access to computers as complete environments." *California Digital Library.* **UC Office of the President: California Digital Library, 2009. http://escholarship.org/uc/item/7d3465vg.**

Abstract: This paper addresses a particular domain within the sphere of activity coming to be known as personal digital papers or personal digital archives. We are concerned with

contemporary writers of belles-lettres (fiction, poetry, and drama), and the implications of the shift toward word processing and other forms of electronic text production for the future of the cultural record, in particular literary scholarship. The urgency of this topic is evidenced by the recent deaths of several high-profile authors, including David Foster Wallace and John Updike, both of whom are known to have left behind electronic records containing unpublished and incomplete work alongside of their more traditional manuscript materials. We argue that literary and other creatively-oriented originators offer unique challenges for the preservation enterprise, since the complete digital context for individual records is often of paramount importance--what Richard Ovenden, in a helpful phrase (in conversation) has termed "the digital materiality of digital culture." We will therefore discuss preservation and access scenarios that account for the computer as a complete artifact and digital environment, drawing on examples from the born-digital materials in literary collections at Emory University, the Harry Ransom Center at The University of Texas at Austin, and the University of Maryland.

Annotation: This article reports on the outcomes of site visits and planning meetings between those working with born digital materials from collections at Emory University, the Harry Ransom Center at The University of Texas at Austin, and the University of Maryland; site visits and meetings were funded by the National Endowment for the Humanities' Office of Digital Humanities. The article summarizes the work being done at each institution to process born-digital collections, including materials from the Salman Rushdie papers, the Michael Joyce papers, and the Deena Larsen collection. In each case, the article talks briefly about what access options are either being considered or implemented. The article also examines digital materiality, focusing in particular on how this might impact the ways in which future scholars wish to engage with born-digital materials and how access models should be designed in order to facilitate this kind of research. The article stresses the importance of taking the digital materiality of an object into consideration during acquisition and processing so as not to limit eventual research and access options. It also discusses the relevance of the full computing environment to future researchers and the consequent importance of its preservation.

Light, Michelle. "Managing risk with a virtual reading room: Two born digital projects." In *Reference and access: Innovative practices for archives and special collections,* **edited by Kate Theimer, 17-35. Lanham, MD: Rowman & Littlefield, 2014.**

Abstract: In March 2010, the University of California, Irvine, launched a site to provide online access to papers of Richard Rorty in the form of a virtual reading room. Although we didn't know it then, we quickly learned that we were one of the first academic repositories in the United States to risk providing remote, online access to born-digital manuscripts. The virtual reading room mitigated the risks involved in providing this kind of access to personal, archival materials with privacy and copyright issues by limiting the number of qualified users and by limiting the discoverability of full-text content on the open web. In January 2013, we launched a site providing access to another group of born-digital materials, the papers of Mark Poster. The two collections had as many differences as they did commonalities, and a comparison of the two projects is useful for understanding the range of decisions and issues that ultimately impact access to born-digital personal manuscript collections.

Annotation: Light compares two projects at UC Irvine, both of which aimed to provide remote, online access to born-digital materials: the Richard Rorty papers and the Mark Poster papers. Light describes development of a virtual reading room using DSpace and processing decisions made based on the available resources, the features and limitations of DSpace, and the copyright and privacy concerns posed by the collections' content. Light describes how the online approach was originally modeled on policies in place for the physical reading room, which allowed them to argue that remote, online access was within already established access policies. The chapter focuses in particular on how the library has prepared to respond to challenges related to copyright and outlines their case that this falls under fair use. Light closes by arguing that "best practices for managing born-digital materials are becoming too fastidious and resource intensive at the expense of access" (p. 33) and encourages archives to take more risks in providing access responsibly.

McCarthy, Gavan. "Towards an Archival Commons License: Managing access to the private domain in the digital universe." *Comma* **2012, no. 2 (2012): 141-150.**

Abstract: This paper proposes the establishment of a web-enabled Archival Commons Licence (AC) to meet the needs of the archives and the community more generally to streamline ethical web access to records held in archives, in particular to born-digital and digitised materials. The Creative Commons Licence (CC) provides a useful model and a working example of the infrastructure needed to support such a service. However, Creative Commons was designed for materials that were always intended for the public domain. Archival materials are not, as a rule, created with publication in mind meaning that for most of these materials the CC licence is not appropriate. At the heart of an Archival Commons licence is the recognition and codification of the obligations that a user should sign up to before getting access to archival materials. Experiences in Australia provide practical examples and a basis for reflection on similar proposals elsewhere. It appears to be achievable but its impact will be much greater if it can be coordinated internationally.

Annotation: McCarthy describes two case studies where institutions in Australia have made digitized content available online, with a focus on the challenges and risks involved in doing so, and how some of those challenges and risks could be mitigated by the development of an Archival Commons license. Taking inspiration from the Creative Commons license, the author proposes a model by which an independent access management service--separate from the actual public interface or space where digitize records are stored--provides "ethical and responsible channels through which users can gain access to records" online. This service would require standardized metadata describing the conditions under which a user gains access, a description of the obligations to which they agree upon signing up to the service, and some method by which data about users and what they view is collected and returned to the archives in question. McCarthy acknowledges that such a license would only be able to serve the majority of cases; there will always be special cases requiring direct human mediation between user and archivist before access can be granted. The author concludes that this proposal marks

a conceptual shift away from access policies guided by restrictions and towards access policies guided by "the recognition and codification of obligations and responsibilities that a user should sign up to before getting access to archival materials."

Wilsey, Laura, Rebecca Skirvin, Peter Chan, and Glynn Edwards. "Capturing and processing born-digital files in the STOP AIDS project records." *Journal of Western Archives* **4, no. 1 (2013): Article 1.**
http://digitalcommons.usu.edu/cgi/viewcontent.cgi?article=1026&context=westernarchives.

Abstract: In September 2012, the Manuscripts Division of the Stanford University Libraries Department of Special Collections and University Archives completed a one-year National Historical Publications and Records Commission (NHPRC)-funded project to process the records of the STOP AIDS Project, an HIV prevention non-profit organization in San Francisco, California. This project marked the department's first large-scale processing project to capture and process born-digital records. Building upon the nascent framework outlined by the AIMS white paper and the infrastructure developed by Stanford University Libraries, the project team captured born-digital records and implemented new processing strategies using digital forensics tools. This case study will document the strategies and workflows employed by the project team to capture and process the born-digital component of the STOP AIDS Project records. We will describe the successes, challenges and roadblocks encountered while forensically imaging 3.5 inch floppy disks, Zip disks, and CDs using Forensic Toolkit (FTK) Imager software. We will then outline our approach to processing nearly 30,000 unique digital files captured from the computer media using AccessData Forensic Toolkit (FTK) software, discuss our current delivery strategy, and offer some concluding thoughts.

Annotation: This article describes an entire processing project, with some focus given to arrangement and description, and access from page 17 onwards. The authors question whether researchers will find imposed arrangement on born-digital materials useful, or whether navigating files "through access points such as file type (e.g. documents, spreadsheets, graphics), date, or keyword searches better suit their needs." Access for the STOP AIDS project records was achieved via a secure network server accessed from the reading room. Files are arranged by document type within a main collection folder. If more advanced searching options are required by a researcher (such as cross-collection searching or full-text searching), researchers can make an appointment with the digital archivist for additional assistance. This is considered a short term solution until Hypatia is fully functional. The article highlights the difficulties in providing description on a scale required by born-digital materials.

Ethics

Becker, Ronald L. "The Ethics of Providing Access." *Provenance, Journal of the Society of Georgia Archivists* **11, no. 1 (1993): 57-77.** http://digitalcommons.kennesaw.edu/provenance/vol11/iss1/6.

Abstract: Archivists today make some of the most difficult ethical and legal decisions at the public service desk. It has always been a difficult process to balance the archivist's legal and ethical obligations to the researcher, to the donors of collections, and to the institution served and, furthermore, to factor in obligations to those who often are not even aware that archives hold materials that impact on their lives. Balancing equality of access for all patrons with institutional needs and requirements is at least as difficult. Despite sincere efforts to limit the acquisition of restricted material, many important and potentially useful collections are restricted. Indeed, some have never been used. Naturally, archivists would like to encourage the use of collections that reveal a wealth of information documenting social, economic, literary, and educational history.

Annotation: Becker addresses the ethical challenges of providing access while also being cognizant of privacy concerns, especially regarding third-party donors. He looks specifically at the SAA Code of Ethics, which calls for "weighing the need for openness against the need to respect privacy rights." He calls for policies that will address privacy concerns and uses the Rutgers University Archives as his primary case study.

Danielson, Elena. *The Ethical Archivist*. **Chicago: Society of American Archivists, 2010.**

Abstract: None

Annotation: Danielson discusses the ethical challenges archivists face on a regular basis. She provides case studies and raises questions to consider in the event of specific scenarios. Chapters 4: Equitable Access, 6: Archives and Privacy, and 7: Authenticity and Forgery deal specifically with the ethical issues surrounding access to digital records. Danielson argues that cost and volume are the two main threats to access; archivists must assess those threats along with their ethical responsibilities of access, while being cognizant of the privacy and authenticity concerns inherent in digital archives.

Eichhorn, Kate. "Beyond Digitisation: a Case Study of Three Contemporary Feminist Collections." *Archives and Manuscripts* **42. no. 3 (2014): 227-237. doi: 10.1080/01576895.2014.958866.**

Abstract: Using three contemporary feminist activist collections as case studies, this article challenges assumptions about digital archives and, more generally, digital collections. First, it challenges the widespread perception that so-called digital archives are necessarily democratizing. Second, it examines how archivists and special collections librarians may adopt new media platforms, often in surprising ways, even as they avoid the development of large-

scale digitization projects. Finally, and most notably, this article makes a case for recognizing how archivists and special collections librarians may use new media platforms to open up access to collections that exceed the narrow scope of digitization projects. Here, what is foregrounded is not necessarily the limits of digital archives, but rather the limited way in which we continue to think about digital mandates in relation to archives.

Annotation: Eichhorn questions the notion that digitized archival collections are inherently democratic and are a cost-effective means of preservation. She focuses on three feminist collections, the traditional marginalization of which suggests a natural desire to increase access through 'democratic' digitization. Eichhorn argues that because digitization of entire collections is rarely, if ever, possible, individual items that are digitized lose the context of the collection as a whole. In the case of the Duke University zine collections and the Riot Grrrl Collection at New York University, a broader picture of feminism would be obscured taking this piecemeal approach. In the case of the Barnard College Zine Library, enhanced access to the actual zines was the preference, and resources were devoted to cataloging and tagging materials rather than broad scale digitization.

Horn, David E. "The Development of Ethics in Archival Practice." *The American Archivist* **52, no. 1 (1989): 64-71.**
http://americanarchivist.org/doi/pdf/10.17723/aarc.52.1.nk661527341j0610.

Abstract: A code of ethics is a statement of generally accepted standards for judgment and conduct that addresses responsibilities unique to a profession. In the 1970s, changing responsibilities and increased complexities for archivists created a need for a comprehensive code of ethics. A Society of American Archivists committee wrote a code, which was adopted by the Society. The author, who chaired that committee, compares the code with the statement written in 1955 for the National Archives and with the codes of similar professions. General adherence to the principles in day-to-day practice and continuing discussion of ethics will lead to reevaluation and revision of the code of ethics.

Annotation: This article includes a history of ethics in the archives profession and argues for the need for continual reevaluation and revision of codes of ethics to address the continually changing media. The author also recommends policies and procedures that ensure day-to-day compliance with ethical standards.

MacNeil, Heather. *Without Consent: The Ethics of Disclosing Personal Information in Public Archives***. Chicago: Society of American Archivists, 1992. Reprint, Lanham, Maryland: Scarecrow Press, Inc., 2001.**

Abstract: None

Annotation: MacNeil discusses the archivist's challenge of balancing the societal desire for access with the personal desire for privacy. While MacNeil does not deal specifically with digital records, the discussion of access and privacy is universal across paper and digital records. She

addresses many of the privacy and access-related challenges that archivists may face and emphasizes the need for an ethical code, respect for humanity, and policies and procedures to justify decisions.

General

Adams, Margaret. "Archival Reference Services for Digital Records: Three and a Half Years Experience with the Access to Archival Databases (AAD) resource." In *New Skills for a Digital Era: A Colloquium sponsored by National Archives and Records Administration, Society of American Archivists, and the Arizona State Library, Archives and Public Records: Washington, DC, May 31 - June 2, 2006*, proceedings edited by Richard Pearce-Moses and Susan E. Davis, 95-104. http://www.archivists.org/publications/proceedings/ NewSkillsForADigitalEra.pdf.

Abstract: Set within a discussion of NARA's custodial program for electronic records and the reasons for the development of the Access to Archival Databases (AAD) tool, this case study explores the impact of AAD on NARA's reference services for electronic records. Has the availability of AAD changed its nature or the nature of reference services in the traditional still picture or textual records units? Has there been a change in the research community served by NARA's electronic records program or in the types of services expected by the public? In the course of this scenario explication, the case study implicitly considers the evolution in the skills archivists have needed to offer reference services for electronic records. We include a discussion of some "generic" lessons learned from NARA's reference experiences related to digital records generally, and through AAD in particular. In conclusion, skills are discussed briefly in the context of the digital environment.

Annotation: Until the release of the Access to Archival Databases Tool (AAD) in February 2003, NARA's basic reference services for ER involved offering information *about* the records, limited service providing information *from* the records, and some copies of digital data files. Over the 30+ years of NARA's custodial program for ER, NARA have been able to generalize that the universe of potential uses of digital records (ER) fall into 1-2 groups: (1) persons involved in research intending to create new knowledge or understanding from the data and (2) persons seeking archival materials as a source of specific factual or personal documentation ("seeking record-level access rather than copies of files or other aggregates of digital data"). Development of AAD provides series and file-level descriptions for the records it contains and retrieval capabilities for online access to NARA's "most in demand" digital records. AAD provides access to over 85 million historic ER created by more than 30 agencies of the US federal government. As a result of AAD, there has been an enhanced awareness of NARA's ER custodial program.

The author suggests that the archival skills required for responding to user expectations for ER are the same as analog. "Knowledge of the subject matter of the records, understanding of the modes of access offered for the records, and the technical specifics related to these modes." Learning to use the appropriate technologies for the archival functions to be performed is an

essential skill for archivists in the digital era. To process, preserve, and provide access to digital archival materials requires using the tools of digital technologies. Unlike the analog world where the authenticity of recorded information and the medium on which it is recorded are one and the same in perpetuity, maintaining the authenticity of a digital record is not bound to specific media over time.

Daigle, Bradley J. "The Digital Transformation of Special Collections." *Journal of Library Administration* **52, no. 3-4 (2012): 244-264. doi: 10.1080/01930826.2012.684504.**

Abstract: The effect of digital technology on special collections has been profound and ongoing. The purpose of this article is to explore the effect born digital materials, digitization, and intellectual property have had on special collections in the 21st century. In particular this study will focus on how archival materials have been significantly transformed by interacting with digital technology—providing both challenges in management and opportunities for new online environments to expose this content worldwide. Finally, a research experiment underway at the University of Virginia Library offers a framework that may help highlight some strategies for exploiting new opportunities going forward.

Annotation: Digital transformation of special collections is as a result of three elements: born-digital materials, digitization, and intellectual property. The author outlines software developments and technologies which continue to reshape approaches to archives: Encoded Archival Description (EAD), archival management tools (e.g. Archon, Archivists' Toolkit); discussion of born digital materials and the archival workflow; developments in digital forensics tools to assist archivists' ability to process thousands of files. In his discussion of intellectual property and copyright, the author states that these issues "pose some of the most significant challenges to the digital transformation of special collections materials...the shifting terrain of IP has a broad and far-reaching impact on special collections." A nuanced rights management system is a major component of special collections infrastructure. The author provides a brief discussion of rights scenarios to consider when planning the digitization of special collections materials. The article concludes with a discussion of the University of Virginia's attempts to integrate its data management strategies based on "granular data management."

Evans, Joanne. "Designing dynamic descriptive frameworks," *Archives and Manuscripts*, **42:1 (2014): 5-18. doi: 10.1080/01576895.2014.890113**

Abstract: Cultural heritage professionals use descriptive metadata as a tool to manage and mediate access to the memory texts in their custody. With digital and networking technologies exploding the possibilities for capturing recorded memories and memorializing lives, loves and losses, they can, and should, revolutionize our recordkeeping metadata management frameworks. Embracing the 'archival turn' requires relinquishing our role as the dominant descriptive storyteller, but are our current descriptive models and systems a barrier rather than a facilitator of such a transformation? In this paper the author adopts an autoethnographical approach to explore her experience of developing archival systems since the advent of the Web

in the mid-1990s. The story involves a range of metadata schemas and models, questioning their ability to enable the design of interfaces to recorded knowledge and memories that tap into and unleash the dynamic capabilities of the new technologies and their potential to reflect a multiplicity of voices. The paper will contribute to the growing body of literature about the role of archival professionals in shaping recorded memory through their standards and practices, challenging our image as merely silent partners and neutral players.

Annotation: Evans addresses a need to describe digital records differently than traditional paper records. She argues that digital records require archivists to develop frameworks and standards for metadata rather than allowing passivity. Digital records also require a redesign of traditional hierarchical descriptive models. She lays out her experience working in various repositories, working with databases of descriptive metadata. In order for digital records to be accessed, appropriate metadata must be applied, and the metadata applied determines whether that exists or not.

McCausland, Sigrid. "A Future Without Mediation? Online Access, Archivists, and the Future of Archival Research." *Australian Academic and Research Libraries* **42, no. 4 (2011): 309-319.**

Abstract: Since the 1990s, the availability of online finding aids and digitized surrogates of original records has changed the landscape of archival research. Progress towards the virtual reading room has been uneven and sometimes contentious. Digitization is portrayed either as the answer for the future of access to archives or, conversely, as a threat to traditions of rigorous research using primary sources. The roles of the reference function in archives and the reference archivist have changed with the advent of digitization and Web 2.0 technologies, but how are institutions and archivists responding to these challenges? And how can reference archivists serve the new and old research paradigms simultaneously? This paper discusses the impact of online access to finding aids and archival records on users, archivists and institutions through a review of the literature.

Annotation: The author has reviewed a fairly broad range of archival and library literature, primarily from the first decade of the 21st century. In her discussion, she explores the relationship between online access to archival materials and archival finding aids, archivists, and the practice of archival research. She defines the latter as accessing and using original records within archival control for intellectual inquiry. Her goal was to determine whether or how the availability of online archival resources impacts archival reference mediation or intermediary activity, whether archival reference practices need to change, and whether archival institutions are adapting to provide services that fit potentially changing patterns of research use. She concludes that archival reference mediation is still needed, albeit with adaptations, and that archival reference service practices will change, especially to meet the needs of different user groups.

There is less discussion about whether archival institutions are adapting their services, aside from some examples from Australia and the UK. The article's bibliography is itself a useful

source for literature on reference services and the impact of online technologies. In particular, the link to the Council of Australasian Archives and Records Authority's *Statement of Principle: Online Access to Public Records* is highly relevant in the context of the overall discussion. In addition, one of the topics usefully brought to the fore is the challenge of protecting privacy while providing online archival access.

Pearce-Moses, Richard and Susan E. Davis. "Knowledge and Skills Inventory." In *New Skills for a Digital Era: A Colloquium sponsored by National Archives and Records Administration, Society of American Archivists, and the Arizona State Library, Archives and Public Records: Washington, DC, May 31 - June 2, 2006***, proceedings edited by Richard Pearce-Moses and Susan E. Davis, 1-31. http://www.archivists.org/publications/proceedings/ NewSkillsForADigitalEra.pdf.**

Abstract: None

Annotation: In June 2006 the National Archives and Records Administration, the Society of American Archivists, and the Arizona State Library, Archives and Public Records sponsored a colloquium, *New Skills for a Digital Era*. The colloquium was held in Washington, DC and brought together information professionals, educators, archival managers, and technologists, all of whom had practical experience working with digital records and publications. The colloquium was convened to address the question: "What are the skills that information professionals must have to work with e-books, electronic records, and other digital materials?" Discussion sessions formed the heart of the colloquium; each session began with a presentation of one or two case studies related to specific archival functions, including Reference and Access. The presenters were asked to use their case studies to illustrate the practical skills that professionals working with digital materials need to do their jobs.

The Pearce-Moses and Davis essay is based on notes recorders took during all of the discussion sessions. Commentary is organized into generally conceived functional areas. The first part of the essay, Knowledge, is subdivided into wide-ranging topical areas that provide a framework for discussing new or expanded knowledge necessary to thrive in the digital era. The Skills section addresses three broad categories: management skills, technical (hard) skills, and soft (facilitative) skills. The subsection on Technical Skills provides further exploration of all archival functions and is the most expansive segment of the essay.

Given the variety archival environments represented at the colloquium, the essay does not provide an exhaustive inventory of the skills needed by archivists in the digital era. Rather it is a seriously considered and valuable analysis of the range of skills required by varying types of archives in a changing environment. It recognizes that, generally speaking, a repository of digital materials requires staff familiar with all of the discussed technical skills, but that few if any individual staff will need or possess education or experience in all of them. Furthermore, despite the prominence of technical skills in the colloquium discussions, a consensus also formed around the necessity for soft skills: communication and collaboration, plus creativity and a willingness to take risks.

Zhang, Jane and Dayne Mauney. "When Archival Description Meets Digital Object Metadata: A Typological Study of Digital Archival Representation." *The American Archivist* **76, no.1 (2013): 174-195.**

Abstract: The relationship between archival description and descriptive metadata of digital objects has not been explicitly discussed in the literature. The discussion will enhance our understanding of the relationship between archival context and digital content, a significant topic in a networked digital environment. The data collected in this study show that archivists have made conscious efforts to build connections between archival description (context) and digital items (content), and, as a result, distinct representation models have emerged from digital archival practice. However, at the level of integration of archival context and digital content in digital archival representation, archivists are challenged to achieve an ultimate goal of making digital archives more accessible and better contextualized in the digital world.

Annotation: Zhang and Mauney examine the current practice that archives take to describe digital records. They argue that while archival records are understood based on their broader context within a collection, digitized records pose a challenge because they are often taken from that context. Zhang and Mauney look at various institutions to see how archivists are overcoming the challenge of providing context and access to digital collections. They observed three separate models of access: embedded, segregated, and parallel and provide arguments for and against each system. They ultimately argue that while the parallel model is sufficient for current practice, archivists must continue to develop strategies for more improved access.

Legal Issues

Behrnd-Klodt, Menzi L., and Christopher J. Prom, eds. *Rights in the Digital Era.* **Chicago: Society of American Archivists, 2015.**

Abstract: None

Annotation: *Rights in the Digital Era* is the second installment in SAA's series, Trends in Archives Practice. *Rights in the Digital Era* includes four modules: *Module 4: Understanding Copyright Law* by Heather Briston, *Module 5: Balancing Access and Privacy in Manuscript Collections* by Menzi L. Behrnd-Klodt, *Module 6: Balancing Access and Privacy in the Records of Organizations* by Menzi L. Behrnd-Klodt, and *Module 7: Managing Rights and Permissions* by Aprille C. McKay.

The Trends in Archives Practice publishing initiative is designed to represent the best of current practice, and it certainly succeeds in *Rights in the Digital Era*. The four modules are interrelated but can also stand alone according to the user's needs and interests. Each module includes appendices with further readings, case studies, sample documents such as notices and deeds of

gift, and a glossary. The authors clearly explain concepts and laws applicable to archives, and electronic records in particular. Practical approaches and recommendations are provided throughout. *Rights in the Digital Era* is essential reading for all archivists working with electronic records.

Eschenfelder, Kristin R., and Grace Agnew. "Technologies Employed to Control Access to or Use of Digital Cultural Collections: Controlled Online Collections." *D-Lib Magazine* **16, no. 1/ 2 (2010): 1-12. http://www.dlib.org/dlib/january10/eschenfelder/01eschenfelder.html.**

Abstract: This article describes the results of a survey investigating the use of technological protection measure (TPM) tools to control patron access to or use of digital cultural materials made accessible by U.S. archives, libraries and museums. Libraries reported using a broader range of systems than archives or museums including repository software, streaming media servers, digital library software and courseware. In terms of controlling access to collections, most respondents reported using IP range restrictions and network-ID based authorization systems. Some reported restricting access to approved terminals or individual user registration systems. In terms of controlling use of collection items, respondents reported reliance on resolution limits, clips and thumbnails, and visible watermarking. A lower percentage reported use of click-through license agreements. Few institutions reported using new technologies to control access or use such as pop-ups, disabling right click copy and save functionalities, invisible watermarks, viewers or cross-institutional authentication systems.

Annotation: Once an archive has established its legal obligations in controlling access to electronic records, it must evaluate the tools and systems available for doing so. Eschenfelder and Agnew discuss the advantages and disadvantages of different technologies, the various kinds of institutions in which they are used, and possible reasons for an institution to choose one over another.

Goldman, Ben and Timothy D. Pyatt. "Security Without Obscurity: Managing Personally Identifiable Information in Born-Digital Archives." *Library & Archival Security* **26, no. 1-2 (2013): 37-55. doi:10.1080/01960075.2014.913966.**

Abstract: This article examines current archival thinking and practice surrounding the identification and management of personally identifiable information (PII) found in born-digital collections in an academic repository context. Data from recent surveys and reports, along with examples of how several different repositories have attempted to balance management of born-digital records that require access control, inform the recommendations of the authors.

Annotation: Goldman and Pyatt provide a useful summary of federal laws that impact archives, privacy protection guidelines from professional associations, including SAA, and a discussion of the role parent institution policy may play in managing PII. The authors' recommendations are concrete and practical, backed by research, and illustrated with real-world examples. Specifically, they advise archivists to implement privacy policies and strategies for managing PII in electronic records, and to engage donors, IT staff, and researchers throughout the process.

Hirtle, Peter B., Anne R. Kenney, and Judy Ruttenberg. "Digitization of Special Collections and Archives: Legal and Contractual Issues." *Research Library Issues: A Quarterly Report from ARL, CNI, and SPARC* **no. 279 (2012): 2-4.** http://publications.arl.org/rli279/**.**

Abstract: None

Annotation: Issue 279 of *Research Library Issues* is devoted to the findings and resources generated by the Association of Research Libraries' Working Group on Transforming Special Collections in the Digital Age. This first article in the issue provides a quick introduction to its contents and describes the two ARL Model Deeds of Gift and a Model Digitization Agreement included in the publication. Both Model Deeds of Gift allow repositories to make donated material available online, however they differ in complexity according to differing institutional needs. The Model Digitization Agreement is intended to be used when outsourcing digitization projects to vendors.

Smith, Kevin L. "Copyright Risk Management: Principles and Strategies for Large-Scale Digitization Projects in Special Collections." *Research Library Issues: A Quarterly Report from ARL, CNI, and SPARC.* **no. 279 (2012): 17-23.** http://publications.arl.org/rli279/**.**

Abstract: None

Annotation: Smith argues against a risk-averse approach to mass digitization projects. Rather than avoiding digitization out of fear of lawsuits over copyright infringement, libraries should approach digitization as they do other legal issues, such as negligence or employment discrimination. He provides two principles for administrators to apply minimize risk when planning a project and four strategies to evaluate the risk of potential projects.

Steele, Jordan. "Preserving History, Preserving Privacy: E-mail, Archival Ethics, and the Law." *Archival Issues* **32, no. 2 (2010): 99-109.**

Abstract: This paper examines legal and ethical issues surrounding privacy in E-mail. The author attempts to identify the legal and ethical parameters that govern archivists when managing electronic correspondence (E-mail) within archival collections. The author then suggests criteria for organizations and individuals who wish to perform a "privacy audit" on E-mail accounts.

Annotation: Steele provides a broad overview of the legal and ethical considerations involved in providing access to email. Privacy law is complex and varies from state to state; archivists should refer to local laws when formulating access guidelines. In the absence of legal guidance, Steele advises that archivists look to ethical frameworks including SAA's Code of Ethics.

Preservation

Brown, Adrian. "Preserving Digital Objects." In *Practical Digital Preservation: A How-To-Guide for Organizations of Any Size*, **193-242. Chicago: Neal-Schuman, 2013.**

Abstract: This chapter address the strategies and techniques required to ensure that digital information remains accessible and usable over the long term. Practical, cost-effective approaches suitable for smaller organizations are discussed.

Annotation: The concept of authenticity must be the informing principle behind any approach to preservation. The chapter identifies three essential characteristics of an authentic digital object: (1) **reliability**—the object must be a full and accurate representation of the cultural or business activity to which it attests; (2) **integrity**—the object must be protected against unauthorized or accidental alteration (via the use of bitstream preservation methods, for example); and (3) **usability**—long-term access to the object must be provided in the face of changing technical environments. Brown outlines the challenges involved in preserving each of these three characteristics and presents strategies for mitigating risks.

Brown, Adrian. "Providing Access to Users." In *Practical Digital Preservation: A How-To-Guide for Organizations of Any Size*, **243-272. Chicago: Neal-Schuman, 2013.**

Abstract: Access provides the very *raison d'etre* for digital preservation: what we are seeking to preserve is a viable means of access to digital objects, now and into the future. This chapter looks at the practical, technical, and legal challenges of providing access to users today.

Annotation: Access requires that users are able to do three things: (1) find digital objects of interest; (2) understand the options for accessing a given digital object; and (3) access the digital object. This chapter discusses options and considerations for providing access to users. Brown urges institutions to situate resource discovery within existing systems wherever possible. He emphasizes the importance of understanding the needs and expectations of users and the conditions under which accessed objects are used. Decisions about access models should be based firmly on that understanding. Finally, Brown advises readers to define a scheme for assigning persistent and citable identifiers to all digital objects. The chapter ends with a discussion of three case studies at UK institutions currently providing access to digitized content.

Reed, Barbara. "Reinventing Access." *Archives & Manuscripts* **42, no. 2 (2014): 123-132. doi: 10.1080/01576895.2014.926823.**

Abstract: In 1989, David Bearman threw virtual bombs at the practices of the archival profession. In Australia, we responded to the emerging issues of digital recordkeeping influenced by Bearman's challenging analysis. However, access has long been an area somewhat neglected within the Australian recordkeeping profession. Addressing this is core to reconceptualising the access function for the future in the digital environment.

Annotation: Reed provides a theoretical examination of how the archival profession can reconceptualize the function of providing public access in the digital environment. She recommends placing an emphasis on the human dimension of archives, focusing on the users of and the people in the records, in order to develop effective access practices.

She argues that archivists need to work collectively to build a coherent professional view on the role of access and identify opportunities for engagement with digital objects that extend beyond the walls of the institutional archives. Building the infrastructure to support this reconceptualization of access is key to its success and Reed suggests that institutions take advantage of the linking and relationship-building opportunities afforded by the Web to increase the discoverability of their records.

Stewart, Claire. "Preservation and Access in an Age of E-Science and Electronic Records: Sharing the Problem and Discovering Common Solutions." *Journal of Library Administration* **52, no. 3-4 (2012): 265-278.**

Abstract: As academic libraries grapple with the challenge of preserving their own digitized special collections, intensification of interest in preserving other electronic content may present opportunities to collaborate with organizations on campus. This article offers a brief introduction to some of the core issues in digital preservation, and suggests an orientation to the problems that can be helpful in thinking about how to join forces with others on campus.

Annotation: This article provides an overview of digital preservation and electronic records. Stewart provides suggestions for how academic libraries can effectively partner with key campus groups and "extend traditional library expertise to identify common problems and work together to solve them while simultaneously redefining what preservation means for its own collections and programs." Stewart states that "libraries' understanding of the value of both metadata and preservation will be among their most valuable contributions to the new grand challenge facing knowledge creators." The author identifies opportunities for and barriers to collaboration.

Von Suchodoletz, Dirk, Klaus Rechert, and Isgandar Valizada. "Towards Emulation-as-a-Service: Cloud Services for Versatile Digital Object Access." *The International Journal of Digital Curation* **8, no. 1 (2013): 131-142. doi: 10.2218/ijdc.v8i1.250.**

Abstract: The changing world of IT services opens the chance to more tightly integrate digital long-term preservation into systems, both for commercial and end users. The emergence of cloud offerings re-centralizes services, and end users interact with them remotely through standardized (web-)client applications on their various devices. This offers the chance to use partially the same concepts and methods to access obsolete computer environments and allows for more sustainable business processes. In order to provide a large variety of user-friendly remote emulation services, especially in combination with authentic performance and user experience, a distributed system model and architecture is required, suitable to run as a cloud service, allowing for the specialization both of memory institutions and third party service providers.

The shift of the usually non-trivial task of the emulation of obsolete software environments from the end user to specialized providers can help to simplify digital preservation and access strategies. Besides offering their users better access to their holdings, libraries and archives may gain new business opportunities to offer services to a third party, such as businesses requiring authentic reproduction of digital objects and processes for legal reasons. This paper discusses cloud concepts as the next logical step for accessing original digital material. Emulation-as-a-Service (EaaS) fills the gap between the successful demonstration of emulation strategies as a long term access strategy and it's perceived availability and usability. EaaS can build upon the ground of research and prototypical implementations of previous projects, and reuse well established remote access technology.

In this article we develop requirements and a system model, suitable for a distributed environment. We will discuss the building blocks of the core services as well as requirements regarding access management. Finally, we will try to present a business model and estimate costs to implement and run such a service. The implementations of EaaS will influence future preservation planning in memory institutions, as it shifts the focus on object access workflows.

Annotation: The authors discuss the opportunities offered by a cloud-based emulation service designed to enhance access to digital objects. Emulation is currently challenging as a preservation strategy because of it often requires access to obsolete software and specialized expertise. The development of cloud-based emulation services, available via remote access, makes emulation more accessible to a broader range of institutions and expands the possibilities for digital preservation. The authors discuss what such an emulation service would require and present a possible business model for such a service.

York, Jeremy. "A Preservation Infrastructure Built to Last: Preservation, Community, and HathiTrust." In *Proceedings of The Memory of the World in the Digital Age: Digitization and Preservation*, **edited by Luciana Duranti and Elizabeth Shaffer, 92-107. UNESCO, 2013.** http://www.hathitrust.org/documents/york-MemoftheWorld-201209.pdf.

Abstract: This paper describes the strategies HathiTrust is taking to build a collaborative infrastructure capable of ensuring long-term access to digital collections at scale. HathiTrust's approach recognizes the deep interplay of social and technical factors that support our collections, and will determine their persistence and availability over time.

Annotation: HathiTrust is a partnership of academic and research institutions that are pooling resources to collaboratively preserve and provide access to the cultural record. In order to build a preservation infrastructure to operate on a large scale, HathiTrust approaches preservation as a social and collaborative activity. The overall aim of their approach is to meet the needs of a targeted community of academic and research institutions that steward and manage the digital archive and their immediate users. The article describes the strategies HathiTrust is implementing to address issues of authenticity, reliability, scalability, sustainability, and

discovery and access. By following HathiTrust's example of focus on community needs and social factors, repositories can gain a broad base of support for their activities.

Records Management

Childs, Sue, Julie McLeod, Elizabeth Lomas, and Glenda Cook. "Opening Research Data: Issues and Opportunities." *Records Management Journal* **24, no. 2 (2014): 142-162. doi.org/10.1108/RMJ-01-2014-0005.**

Abstract: Purpose – This paper aims to explore the issues, the role of research data management (RDM) as a mechanism for implementing open research data and the role and opportunities for records managers. The open data agenda is premised on making as much data as possible open and available. However, in the context of open research data there are methodological, ethical and practical issues with this premise.

Design/methodology/approach – Two collaborative research projects focusing on qualitative health data were conducted. "DATUM for Health" designed and delivered a tailored RDM skills training programme for postgraduate research students in health studies. "DATUM in Action" was an action research project between researchers from information sciences, health, mathematics and computing, looking at planning and implementing RDM.

Findings – Three key issues emerged about what research data is appropriate to make open/accessible for sharing and reuse: re-using qualitative data conflicts with some of the epistemological and methodological principles of qualitative research; there are ethical concerns about making data obtained from human participants open, which are not completely addressed by consent and anonymisation; many research projects are small scale and the costs of preparing and curating data for open access can outweigh its value. In exploring these issues, the authors advocate the need for effective appraisal skills and researcher-focused RDM with records managers playing a useful role.

Research limitations/implications – The findings come from two small-scale qualitative projects in health studies. Further exploration of these issues is required.

Practical implications – Records managers have new crucial opportunities in the open data and RDM contexts, bringing their expertise and experience in managing a wider range of data and information. They can help realise the benefits of multiple perspectives (researcher, data manager, records manager and archivist) on open research data.

Social implications – Researcher-focused RDM offers a mechanism for implementing open research data.

Annotation: The authors use two research data management (RDM) projects to explore issues surrounding open access, sharing, and reuse of research data. The authors assert that RDM "is one approach for maximizing the potential for open data, and the records management

profession is ideally positioned to facilitate" it; what's more, those "best able to undertake this RDM are the researchers themselves," and the first place to start is with creating a data management plan (DMP).

Cocciolo, Anthony. "Challenges to Born-Digital Institutional Archiving: the Case of a New York Art Museum." *Records Management Journal* **24, no. 3 (2014): 238-250.** http://dx.doi.org/10.1108/RMJ-04-2014-0023.

Abstract: Purpose – The purpose of this paper is to highlight the challenges to born-digital institutional archiving using a New York Archive Museum (NYAM) as a case.

Design/methodology/approach – The digital record-keeping practices at NYAM were studied using three data sources: focus groups with staff, totaling 81 individuals, or approximately one-third of all staff; analysis of network file storage; and analysis of digital records in archival storage, or specifically removable media in acid-free archive boxes.

Findings – This case study indicates that the greatest challenges to born-digital institutional archiving are not necessarily technological but social and cultural. Or rather, the challenge is getting individuals to transfer material to a digital archive so that it can undergo the technological transformations needed to ensure its long-term availability. However, transfer is impeded by a variety of factors which can be addressed through education, infrastructure development and proactive appraisal for permanent retention.

Practical implications – This paper highlights the challenges to born-digital institutional archiving, yet notes that these challenges can be overcome by following a multi-pronged approach.

Originality/Value – This paper outlines the challenges to born-digital institutional archiving, which is not often discussed in the literature outside of the context of higher education.

Keywords – Electronic records management, Born-digital archives, Museum archives

Paper type – Case study

Annotation: The author examines the challenges presented by born-digital institutional records using a case study of an art museum's approach to the tasks of selecting, preserving, and providing access to the historical and legally valuable born-digital documentation it creates in its business operations. All departments of the museum were surveyed for born-digital material—including the archives, where not only business functions were examined, but the collection itself (processed and unprocessed) was reviewed for electronic records of permanent value and at-risk or obsolete file formats.

The author advocates a multi-stage approach to the challenges of appraising for permanent retention the vast amount of digital data created and held by the museum: 1) development of

the infrastructure and the workflows necessary for the accession, preservation, and accessibility of this born-digital material; 2) educating, supporting, and encouraging staff about the capacities for preservation and access; 3) "proactive appraisal…appraising digital files for permanent retention in consultation with authoring department, and performing the transfer."

Park, Eun. G., Manon Lamontagne, Amilcar Perez, Irina Melikhova, and Gregory Bartlett. "Running Ahead Toward Interoperable E-Government: The Government of Canada Metadata Framework." *International Journal of Information Management* **29 (2009): 145-150.**

Abstract: The Government of Canada (GoC) has implemented several standardization initiatives toward establishing e-government in order to systematize the capture, description, organization and dissemination of data and information. This study examines the GoC's metadata strategy through the adoption of a Dublin Core (DC)-based metadata scheme toward establishing one unified metadata framework. The study examines the credibility of DC in relation to interoperability, application profiles, and controlled vocabularies and further provides a discussion on the current problems associated with metadata and possible improvements across government agencies in the GoC.

Annotation: The Canadian government adapted Dublin Core to describe government web resources in 2001; since then, many governmental departments and agencies have developed metadata management services to advance information interoperability, that is "the capability of different programs or systems to exchange and communicate data via a common set of protocol or data sets." The authors assert that since "each professional domain…and discipline…supports its own approach to the management of digital information, there seems to be no sharing of standards, practices and experiences across sector; therefore, a governance structure that coordinates the digital information environment is needed to assure future accessibility."

Zhang, Jane. "Correspondence as a Documentary Form, its Persistent Representation, and Email Management, Preservation, and Access." *Records Management Journal* **25, no. 1 (2015): 78-95.**

Abstract: Purpose – The aim of this paper is to construct a systematic way of thinking about correspondence as a documentary form and discuss the role its persistent representation features play in management, preservation and access of email correspondence.

Design/methodology/approach – Using the method of diplomatic analysis as a guiding theory, the paper conducts a historical review of correspondence recordkeeping and email systems in the American context, analyzes the evolution of its persistent representation features and discusses the implications on current email management and archival practices.

Findings – Correspondence as a document form and its persistent representation features have played an important role in traditional correspondence recordkeeping and electronic mail management. The design of systems to manage, preserve and access email records should

reflect the characteristics and functionality of email records, capable of retaining email correspondence as a documentary form supported by its persistent representation features.

Research limitations/implications – The research in this paper mostly covers secondary sources with a regional focus. The analysis covers important historical developments in correspondence and email recordkeeping and archival practices. The study uses examples of email archives available online, and further research can be developed when more email archival collections are processed and constructed.

Originality/value – A systematic analysis of persistent representation of traditional correspondence and electronic mail provides a useful perspective to reflect on the characteristics of correspondence as a document form and offers some food for thought for records management and archival professionals and assists them in developing systems to better manage, preserve and provide access to email correspondence.

Keywords – USA, Historical research, Record keeping, Correspondence, Digital archives, Electronic mail

Paper type – Research paper

Annotation: The author sketches a useful history of American correspondence practice (personal and corporate) and recordkeeping, from the colonial period to present day email systems. NARA's "Capstone" email management approach and a number of other international programs are discussed. Though the author notes that "very few email archiving projects so far have reached the state of providing online public access," recent developments in this sphere are noted, including the LIbrary of Virginia's Governor Kaine email Collection and Stanford University Libraries' ePADD.

Software and Systems

Carroll, Laura, Erika Farr, Peter Hornsby, and Ben Ranker. "A Comprehensive Approach to Born-Digital Archives." *Archivaria* **72 (Fall 2011): 61-92.**
http://pid.emory.edu/ark:/25593/cksgv.

Abstract: This paper discusses how the arrival of born-digital content in archives and other cultural heritage institutions requires a commitment to practices developed over recent decades in the handling of electronic records, in addition to reconsidered approaches to acquisition and access. These changes are discussed within the context of the manuscripts and computers that comprise Salman Rushdie's personal literary "papers," which are housed at Emory University's Manuscript, Archives, and Rare Book Library (MARBL). Early in the development of the Rushdie project, the library made a commitment to approach the material as holistically as possible, to prioritize the integration of paper and digital, and to balance the needs of the donor with those of researchers. The paper outlines how the library developed

researcher tools that allow concurrent exploration of the paper material and the born-digital material via emulation and item-level, database-driven searches.

Annotation: When processing Rushdie's hybrid collection, Emory University decided to recreate an authentic environment for researchers of the author's digital archives. Recognizing that the materiality of born digital archives can be just as an important as its informational content, Emory chose a dual approach to providing access to this type of material. The project team created a searchable database of Rushdie's documents as well as an emulated version of Rushdie's computing environment. These resources were made available in a workstation accessible in the Manuscript, Archives, and Rare Book Library's reading room. Connections were made between these resources and the finding aid which described the paper materials within the Rushdie collection.

Dean, Jackie and Meg Tuomala. "Business as Usual: Integrating Born-Digital Materials into Regular Workflows." In *Description: Innovative Practices for Archives and Special Collections*, edited by Kate Theimer, 149-161. Lanham: Rowman & Littlefield, 2014.

Abstract: None

Annotation: Dean and Tuomala describe their processing of a hybrid archival collection acquired by the University of North Carolina Wilson Special Collections Library. The collection, the John Kenyon Chapman Papers, offered the library's technical services staff its first chance to process born-digital materials. The authors highlight the decisions they made regarding the collection's arrangement and description, focusing especially on whether and how to integrate the description of born-digital materials with the description of the collection's analog materials. Other focal points of the chapter are the creation of customized software—Curator's Workbench—to prepare submission information packages, the EAD encoding practice for digital objects, and the display of archival records through the university's institutional digital repository. Because it provides a comprehensive survey of procedures beginning with arrangement and concluding with access, this case study will prove especially useful for archival repositories that are currently creating workflows for born-digital collections and seeking to align those procedures with their institution's existing descriptive practices.

Misra, Sunitha, Christopher A. Lee, and Kam Woods. "A web service for file-level access to disk images." *Code4Lib Journal* 25 (2014). http://journal.code4lib.org/articles/9773.

Abstract: Digital forensics tools have many potential applications in the curation of digital materials in libraries, archives and museums (LAMs). Open source digital forensics tools can help LAM professionals to extract digital contents from born-digital media and make more informed preservation decisions. Many of these tools have ways to display the metadata of the digital media, but few provide file-level access without having to mount the device or use complex command-line utilities. This paper describes a project to develop software that supports access to the contents of digital media without having to mount or download the entire image. The work examines two approaches in creating this tool: First, a graphical user

interface running on a local machine. Second, a web-based application running in web browser. The project incorporates existing open source forensics tools and libraries including The Sleuth Kit and libewf along with the Flask web application framework and custom Python scripts to generate web pages supporting disk image browsing.

Annotation: Misra et al. describe the rationale, methodology, and evolution of the open-source software Disk Image Access for the Web (DIMAC), developed by authors Misra and Woods with the support of the BitCurator project at the School of Information and Library Science at the University of North Carolina Chapel Hill. The authors explain that DIMAC emerged from the need for a user-friendly tool that would extract files from a forensic or raw disk image and deliver them to patrons through a researcher's web browser. After briefly mentioning others tools that aim to provide remote access to disk images or files—including OFSMount, Archivematica, and Gumshoe Jr.—the authors describe specifications for DIMAC's design and implementation, the latter of which will appeal most to those readers with an intermediate knowledge of databases and programming. The article concludes by offering sample use cases for libraries, archives, and museums, including the extraction of files using DIMAC in order to prepare content for ingest into Archivematica. This article will be most helpful for repositories that are considering options for providing remote access to disk images and wish to do so using an open-source and relatively lean workflow.

Shein, Cyndi. "From Accession to Access: A Born-Digital Materials Case Study." *Journal of Western Archives* **5, no. 1 (2014): 1-42.**
http://digitalcommons.usu.edu/westernarchives/vol5/iss1/1.

Abstract: Between 2011 and 2013 the Getty Institutional Records and Archives made its first foray into the comprehensive ingest, arrangement, description, and delivery of unique born-digital material when it received oral history interviews generated by some of the *Pacific Standard Time: Art in L.A.* project partners. This case study touches upon the challenges and affordances inherent to this hybrid collection of audiovisual recordings, digital mixed-media files, and analog transcripts. It describes the Archives' efforts to develop a basic processing workflow that applies the resource-management strategy commonly known as "MPLP" in a digital environment, while striving to safeguard the integrity and authenticity of the files, adhere to professional standards, and uphold fundamental archival principles. The study describes the resulting workflow and highlights a few of the inexpensive technologies that were successfully employed to automate or expedite steps in the processing of content that was transferred via easily-accessible media and consisted of current file formats.

Annotation: The article describes the Getty Institutional Records and Archives' use of Ex Libris' digital asset management system, DigiTool, to provide online access to a collection of oral history interviews. Several of the accessions were made available only via onsite computers at the Getty due to rights restrictions. These interviews are included in the digital repository but can only be accessed via a Getty IP address.

Triangle Research Libraries Network. "Born Digital Task Group Report." May 21, 2014.
http://www.trln.org/committee/CollectionCouncil/TaskGroups/borndigital/BornDigitalFinal.pdf.

Abstract: None

Annotation: This report documents the processes and resources related to born-digital workflows at Duke University, University of North Carolina, and North Carolina State University. Topics covered include donor relations, appraisal, arrangement and description, and access. The appendix includes detailed information on how each university is providing access to born-digital material. Approaches described include establishing secure workstations for patron use and creating virtual reading rooms for remote researchers.

Yoneyama, Jun Petersen. "The Access Project." In *Symposium about the Transfer, Preservation of and Access to Digital Records, based on the Danish Experiences*, **Edited by Eirikur Gudmundsson, 41-49. Copenhagen: Danish National Archives, 2009.**

Abstract: None

Annotation: Yoneyama discusses, in some technical detail, a two-pronged approach to providing access to archival databases in the Danish National Archives. Two complementary search modules were developed in order to meet the needs of users with varying degrees of technical expertise. The Records Management System Module resulted in a simple, user-friendly search tool that provides access to the databases through a standardized set of search criteria. The Database Module, which requires knowledge of relational database structure, is a tool that provides users access to the raw databases with documentation and allows them to develop their own queries. The author discusses advantages and disadvantages of both approaches.