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Archival Outlook
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Last month I offered my personal reflections on the question: "What is an archivist?" Because I wanted something that would help people unfamiliar with our profession understand what we do, my answer was necessarily simplistic.

> Archivists select and keep documents, photographs, sound recordings, and other records that have enduring value as reliable memories of the past and help people find and understand the information they need in those records.

Although I defined *archivist* in terms of what we do, our profession is distinguished by core concepts that all archivists should know. A large body of theoretical and applied knowledge serves as the underpinning for all aspects of the archival enterprise. Mastering that knowledge answers another common question: "How do you become an archivist?"

Knowledge is a tool. The more we know, the more tools we have. The more tools we have, the better we can do our jobs. As we face the challenges of electronic records, we must also face our need for new knowledge. We need new tools for new materials. Where to begin?

The physical nature of electronic records and digital information is fundamentally different from their paper counterparts. I can't imagine an archivist who didn't grow up with paper. Paper is pervasive in our culture, and few think about it as a technology. (Once, when surveying records in a Central Texas courthouse, I found a cache of termite-infested tax forms. Even paper technology can have bugs.) Paper technology has a number of invaluable features that makes it particularly effective for recordkeeping. It's easy to annotate records by writing in the margins or marking up the text. Not only is it easy to distinguish such annotations from original text, it is often easy to see what the original text was. In general, these features must be designed into electronic records, and many electronic recordkeeping systems may not support these features. If an electronic record can be invisibly altered without evidence of the change, how can we be assured that the text we read today is the same as what was written in the past? To learn more about the nature of electronic records, I recommend you read Abigail J. Sellen and Richard H. R. Harper's *Myth of the Paperless Office* (MIT Press, 2001).

Writing on paper is immediately fixed; it resists change. If the writing is in ink, it may be effectively immutable (although if in pencil, it may not). Most papers are relatively stable; you'll likely be able to read paper records in fifty years, and many will last much longer than that. David M. Levy's *Scrolling Forward: Making Sense of Documents in the Digital Age* (Arcade, 2001) helped me appreciate the importance of this essential characteristic of records.

Rapid changes in technology and the instability of digital media will make it difficult to read electronic records much sooner than that. How many reading this article have 5¼-inch floppy disks with WordStar files somewhere at work or at home? (I have about a dozen, and my summer project is to migrate them to a CD using the Open Document format.) A great introduction to the challenges of preserving electronic records is Bryan Bergeron's *Dark Ages II: When the Digital Data Die* (Pearson Education, 2001).

To counter technological change and media degradation, we must migrate electronic records from obsolete to new software and media formats. Are migrated electronic records the same as the original? The text may be the same, but the appearance may be different. The underlying encoding of the text and formatting will certainly be different. Even if we can read the records, will they be acceptable in courts as an original? If there are many copies of the record (for example, on backup tapes and redundant systems), which is the "original"? Peter Hirtle's "Archival Authenticity in a Digital Age" and David M. Levy's "Where's Waldo? Reflections on Copies and

Authenticity in a Digital Environment" gave me a lot of insight into these problems. Both are reproduced in *Authenticity in a Digital Environment*[1] (Council on Library and Information Resources, 2000), a work worth reading in its entirety.

Digital signatures offer a robust solution to demonstrating authenticity and integrity. Using public key cryptography, a digital signature can offer nonrefutable evidence of who signed a document and that the document has not been altered. This may sound like science fiction; in fact, Neal Stephenson's novel *Cryptonomicon* (Avon, 1999) was a great tale and helped me understand how digital signatures really work.

We must protect records, and in the digital age that means we must address the problem of malicious hackers and environmental threats. Firewalls and antivirus software can do a lot to prevent attacks, but keyboard criminals often use social engineering to bypass barriers and gain unauthorized access to systems using information people give them. Steven Levy's *Crypto: How the Code Rebels Beat the Government – Saving Privacy in the Digital Age* (Viking, 2001) reads like a novel and can help archivists spot attacks.

Beyond these technical considerations, technology has changed how information and records are used. Archivists must understand the environment in which records are created to appreciate their original and potential value. Thomas H. Davenport's *Information Ecology: Mastering the Information and Knowledge Environment* (Oxford, 1997) is a good starting point, even though not specifically about electronic records. Among other things, Davenport's book exemplifies how contemporary literature avoids the use of the word *record* in favor of the trendier *knowledge* and *information*. For a more technical discussion of electronic recordkeeping systems, see *Creating and Maintaining Proper Systems for Electronic Record Keeping*[2] (National Electronic Commerce Coordinating Committee, 2002).

Electronic records have had a significant impact on litigation, and archivists and records managers should be aware of the implications. Many organizations have settled out of court rather than face the costs of discovery of electronic records. We can provide advice on effective recordkeeping that will minimize the impact of discovery and open records requests. Two excellent resources are *The Sedona Principles*: *Best Practices Recommendations and Principles for Addressing Electronic Document Production*[3] (Sedona Conference, 2004) and *The Sedona Guidelines: Best Practice Guidelines and Commentary for Managing Information and Records in the Electronic Age*[4] (Sedona Conference, 2004).

This list of some of the works I've found particularly useful is just a start! There are many more valuable works in each area.

Professionals are expected to keep up with new knowledge in their field. Education never ends. We must recognize that the applied knowledge of how we do our jobs in a paper environment does not translate into the digital arena. The rapid and radical changes in records and recordkeeping mean that, in many ways, archivists must learn our profession anew to survive in the digital era. We must ask: What applied skills do archivists need to learn to be able work with digital materials?

Another question is more important, however. We must also ask how the world around us has changed. At an abstract level much of archival theory remains not only relevant but of critical value. We must be prepared to reconsider theory to account for the changing world. If we merely recreate traditional practices into the digital era, we will miss the opportunity to change – and

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[1] Online at http://www.clir.org/pubs/reports/pub92/pub92.pdf.
[2] Online at http://www.ec3.org/Downloads/2002/creating_systems.pdf.
[3] Online at http://www.thesedonaconference.com/dltForm?did=SedonaPrinciples200401.pdf.
[4] Online at http://www.thesedonaconference.com/dltForm?did=RetGuide200409.pdf

grow – as a profession. Technology has changed the face of the records we work with, but only archivists can change the face of the profession to ensure that we remain relevant.