

## **WHAT ARE THE ISSUES REGARDING INFORMATION TECHNOLOGY AND ELECTRONIC RECORDS?**

Over the past several decades, information technology has dramatically changed the way you conduct your business as a government agency or historical society. Records and information that once existed only on paper now often appear in electronic form, requiring you to learn how to manage, store, and preserve electronic records. And while electronic records can have tremendous advantages over paper-based records, they do bring their own specific—and sometimes more complex—issues that you need to consider.

In this chapter you will learn about the issues surrounding information technology and electronic records, and how preserving electronic records compares to preserving more traditional paper ones. This chapter also offers advice on some tools and methods to help you, as well as discussion of three common types of electronic records: digital images, e-mail, and web pages.

### **Why should you be concerned about information technology and electronic records?**

The creation and use of electronic records is commonplace in daily life from home to business to government. Electronic records exist in a variety of forms and formats, such as digital images, email, web pages, databases, spreadsheets, and word-processing documents, and can be stored in a variety of ways ranging from personal pocket-sized flash drives to networked servers.

As discussed in Chapter 1 of these guidelines (*What do you need to know about government records?*), the definition of a government record in Minnesota is not dependent upon its physical format or storage media. Content determines whether or not something is a record. It does not matter, for instance, if your correspondence is in paper form or in an e-mail system—both the paper letter and the e-mail can be an official record and need to be managed as such.

Two laws discuss the use of electronic records: the Uniform Electronic Transactions Act (UETA), passed during the Minnesota 2000 legislative session; and the federal Electronic Signatures in National and Global E-Commerce Act (E-Sign). These acts are important because they place electronic documents and digital signatures on the same legal footing as their paper counterparts.

### **What are the benefits of electronic records?**

Depending on how you make use of them, electronic information systems and electronic records may reduce your operating costs and can greatly improve access for users where appropriate. For example:

- Electronic records can often be accessed from a central storage location by more than one person and from multiple locations. Such a system can produce savings in terms of distribution costs, storage, and staff time.
- Metadata (descriptive information about records) can often be captured automatically by an electronic information system, reducing the need for arduous and error-prone manual data entry.
- Electronic information systems can facilitate the management of electronic records, reducing storage and management costs, and ensuring compliance with applicable laws. For example, such a system may be able to automatically locate records that are at the end of their retention period and prompt staff as to appropriate disposal actions.

## What are the legal issues associated with electronic records?

Although electronic records are now commonly accepted in court, care must be taken to ensure that they are authentic and reliable. The fact that electronic records can be easily manipulated often raises doubts about their trustworthiness. Has the record been changed since its creation? If so, by whom and when? During legal actions, the burden of proving the authenticity and reliability of electronic records is yours.

Fortunately, the tools mentioned in Chapter 3 of these guidelines (*How do you describe government records?*) offer you assistance. Metadata can help you track changes to records, and your documented policies and procedures can demonstrate the trustworthiness of your electronic records. Moreover, using standards and metadata can save you considerable expense and hardship should your records ever be required for litigation. Not only do you pay the expense of producing records, but also you could face monetary damages and unfavorable court actions if you have not properly managed your records. For more guidance on establishing the trustworthiness of your records, refer to the Minnesota State Archives' *Trustworthy Information Systems Handbook*<sup>1</sup> and *Electronic Records Management Guidelines*<sup>2</sup>. In addition, the 2006 Amendments to the Federal Rules of Civil Procedure<sup>3</sup> concerning the discovery of "electronically stored information" offer practical guidance applicable to any litigation.

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<sup>1</sup> Minnesota Historical Society. *Trustworthy Information Systems Project*. State Archives Department. July 2002. <http://www.mnhs.org/preserve/records/tis/tis.html>

<sup>2</sup> Minnesota Historical Society. *Electronic Records Management Guidelines*. State Archives Department. March 2004. <http://www.mnhs.org/preserve/records/electronicrecords/erguidelines.html>

<sup>3</sup> U.S. Courts. *Federal Rulemaking. Amendments to the Federal Rules of Civil Procedures* [including rules 16, 26, 33, 34, 37, 45 and Form 35]. [http://www.uscourts.gov/rules/EDiscovery\\_w\\_Notes.pdf](http://www.uscourts.gov/rules/EDiscovery_w_Notes.pdf)

## How does managing and preserving electronic records compare to that of paper records?

Electronic records have certain characteristics that can make them more complex to manage and preserve. Some of these issues are listed below.

### **Tracking electronic records is more difficult.**

Unlike paper records, electronic records may be more difficult to browse through as you search for the file you need. Certain practices such as naming conventions, filing system schemes, metadata, and indexing can give you greater access to your electronic records, and make tracking and retrieving them more accurate and efficient.

### **Identifying and tracking official copies of electronic records is more difficult.**

Because they are less tangible than paper records, it is difficult to indicate official copies of electronic records. Moreover, electronic records are easily distributed and convenience copies can proliferate, raising storage costs and creating confusion. Metadata can be used to indicate whether a record is an official or convenience copy, both for daily business purposes as well as to facilitate records management.

### **Information technology keeps changing.**

Unlike paper records, which are intelligible to the human eye, electronic records require both hardware and software to be usable. But as technology and technical standards continue to advance at an increasing rate, equipment and applications can become outdated and replaced very quickly. Records created with older technology might not be compatible with newer versions, making your records inaccessible. When upgrading your information system, be sure that the content of your records remains unchanged and accessible before you dispose of your old system. You might need to convert your records to a new or different software version or hardware platform to keep them accessible for as long as required by your retention schedules. Your budget should reflect the need for such periodic migration and conversion.

### **Electronic storage media have short life spans.**

Electronic storage media have relatively short life spans. This requires you to periodically migrate your records to new media. Such action will help ensure that your records are accessible for as long as required.

### **Disposal of electronic records is more complex.**

When you delete files they might not necessarily be removed completely—the files are typically only removed from the storage media's directory or table of contents. The complete record, or portions of it, might still be retrievable even if it has been overwritten with new information several times.

Commercial software packages can assist in this disposal process, but they might not be able to guarantee complete erasure. In the case of magnetic storage media, such as tapes, you can degauss, or demagnetize, the media to completely and permanently remove files, a procedure which has the added benefit of allowing you to reuse the media. Of course, the best way to

ensure complete and permanent electronic record disposal is to destroy the storage media itself. You need to decide which record disposal method is best for you based on the sensitivity of the information in the record. You might want to consider using a private company that can guarantee the disposal of records of all types.

**Staff training on electronic information systems is more costly and time-consuming.**

The training required for a paper-records system may be minimal and can often be easily accomplished on the job. However, to manage electronic records you will need to train your staff on the technical systems used for their manipulation and storage (e.g., computer hardware, software applications, operating systems), as well as on any applicable laws, policies, and procedures. This training is more costly than that for paper-based systems; you may have to use outside training organizations such as a local community college or private company. Normal staff turnover and the frequent replacement of electronic information systems as technology improves will require an on-going training program.

## **What tools can you use to help manage electronic records?**

The necessary task of managing your electronic records can seem intimidating, but fortunately there are several tools you can use to simplify this task and make your recordkeeping system more efficient and reliable: standards and guidelines, metadata, and documentation.

### **Standards and Guidelines**

Following written standards and guidelines for record creation, content, structure, storage, and disposal will result in a records system that is more efficient to manage and use. For example, a standard that instructs you to use a particular online form to record business transactions or which specifies that addresses can only include certain abbreviations will help to ensure that information is recorded consistently. Or perhaps a guideline will instruct you to store records that relate to a particular project all in the same location, making it easier to locate and retrieve the records. The consistency and uniformity that standards and guidelines bring will benefit not only your records management program, but also your daily business functions.

### **Metadata**

Metadata is descriptive information that facilitates management of, and access to, other information. Although optimal metadata varies between different record sets, it commonly includes information such as the name of the record creator, the date and time of creation, a record identifier, key words, the record location, and a description of the record content. A traditional example of metadata would be the bibliographic information found in card catalogs.

Properly designed and implemented metadata can help locate an electronic record; locate the official copy of an electronic record; determine whether a record has been modified; determine who has access to a record; and ensure proper record disposition is performed at the end of a retention period. While inconsistent, inaccurate, and inadequate metadata can give rise to a number of records management problems.

## Documentation

Be sure to carefully and thoroughly document your standards, guidelines, policies, procedures, and systems, and make this information conveniently available to all staff members as appropriate. Having your documentation current and kept in one location is especially useful in times of audits, disaster recovery, and litigation.

It is easiest to document a system when it is first installed. If a shortage of time and resources keeps you from documenting those that have been in use for some time, you might want to focus on the systems that contain:

- Records vital to your operation
- Unique and valuable records that are not duplicated elsewhere
- Records that are used frequently
- Records that have a high public profile

The State Archives' *Trustworthy Information Systems Handbook*<sup>4</sup> shows you how to document your information systems and assess the risk associated with your recordkeeping practices.

## What should you know about digital imaging?

When you scan paper records, you are creating digital image files that can be displayed, manipulated, and stored electronically—in other words, electronic records.

Before converting paper records to electronic format, you should compare the costs and benefits of your current system to those of an electronic information system. Be sure to consider the additional costs of record tracking and disposal, changing technology, documentation, metadata, and standards and guidelines development. Implementing an electronic solution might be expensive up-front, but may lead to great savings and improvement in productivity and efficiency in the long run.

Digital imaging may be beneficial if you have a large backlog of paper records or if your paper records are used heavily. On the other hand, automating a current system might only lead to marginal savings. For instance, spending an enormous amount of time digitizing canceled checks may relieve you of having to store large quantities of paper, but the time taken by the process might not actually be well-spent since checks typically have a relatively short retention period and might be accessed only occasionally by few people.

If you do decide to digitize your paper records try to use non-proprietary or open source technology and formats and choose your hardware and software, and vendors carefully. Consult with other state agencies that are familiar with the technology and use of digital imaging, and

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<sup>4</sup> Minnesota Historical Society. *Trustworthy Information Systems Handbook*. State Archives Department. July 2002. <http://www.mnhs.org/preserve/records/tis/tis.html>

learn from their experiences. For more information on digital imaging, refer to the State Archives' *Digital Imaging Guidelines*<sup>5</sup>.

## How should you manage e-mail?

E-mail is relied upon as a convenient means of communication. Like paper correspondence, e-mail messages can qualify as government records, depending on the content. Given that e-mail is generally informal and can be easily created, manipulated, and deleted, you should have an organizational policy that governs its use. Your policy should answer questions such: What e-mail content constitutes a record? When and how should e-mail be saved? In your retention schedules, you should treat e-mail as you would any other type of correspondence, and specify the medium of the official copies (paper or electronic). Be sure your staff becomes familiar with your policy to help ensure that e-mail is handled properly and consistently.

Like other government records, e-mail may need to be stored long-term. If you retain e-mail in its electronic form, store it outside the e-mail system (a particularly important step if messages in your e-mail system are purged automatically at certain intervals) and in a way that it can be easily retrieved. Make use of indexing and standardized methods of storing e-mail so you can easily locate individual e-mails by author, topic, or subject. You also need procedures for retaining e-mail attachments. Do not rely on backup tapes for keeping e-mail long-term since files stored on such tapes are difficult to locate and are often overwritten. Furthermore, backup tapes are not commonly included in retention schedules (in fact, backup tapes often contain a variety of record types with varying retention periods).

If you store e-mail in paper form, be sure to print the "To", "From", "CC", "BCC", "Date", and "Subject" header fields as well as the message content. E-mail attachments should also be printed and retained with their associated message.

## How should you manage web pages?

The Internet can make the distribution of information easier and less expensive, and, as a result, many government entities offer information online. If you do provide information through a web site, there are two important issues concerning the site content that you need to consider.

First, you might need to manage the content of the web site as if it were a government record. Do you offer certain information through your web site only? Will viewers act on the information offered through your web site? If the answer to any one of these questions is yes, then your web pages themselves might be government records and you may need to manage them as such. As part of your web page retention plan, consider questions such as these: How will you store previous versions of your web site content? Is the appearance of the information

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<sup>5</sup> Minnesota Historical Society. *Electronic Records Management Guidelines: Digital Imaging*. State Archives Department. March 2004. <http://www.mnhs.org/preserve/records/electronicrecords/erdigitalimaging.html>

on the web site important? How will you provide access to old versions of web pages? How long should old web page content be retained?

Second, you should place metadata (such as the page creation date, page revision date, and names of those responsible for page content) on each page. The metadata can be displayed along with the information on the web page, or it can be included in the page source code, which can also be viewed using the browser. The Minnesota Office of Enterprise Technology has endorsed a Web Metadata Standard<sup>6</sup> applicable to web pages developed by all government web pages.

## Where can you get more information on information technology and electronic records?

### Minnesota Historical Society, State Archives<sup>7</sup>

This web site offers the *Trustworthy Information Systems Handbook*, which describes methods for establishing the trustworthiness of information systems at any stage of the system development lifecycle. The tools in this handbook will also assist you in determining the level of risk associated with your current records management practices. The State Archives' web site also offers several annotated lists of online resources covering topics such as the UETA, metadata, data warehousing, Extensible Markup Language (XML), data modeling, imaging, and search engines. As well, you will find guidelines and FAQs offering advice on imaging, legal, and storage issues.

### Minnesota Office of Enterprise Technology<sup>8</sup>

The Minnesota Office of Enterprise Technology offers guidelines and standards on topics such as data models, data administration, digital signatures, Internet use, and telecommuting. These guidelines and standards provide valuable models for similar work found at all levels of government.

### Council of State Archivists, Archives Resource Center<sup>9</sup>

Valuable information on programs and activities in other state and local governments can be found at this web site.

### Society of American Archivists (SAA)<sup>10</sup>

There are many resources available through the SAA bookstore on electronic records.

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<sup>6</sup> Office of Enterprise Technology; IRM 21 Web Metadata Standard. June 19, 2002. <http://tiny.cc/1hP2f>

<sup>7</sup> Minnesota Historical Society. *Home Page*. State Archives Department.

<http://www.mnhs.org/preserve/records/index.html>

<sup>8</sup> Office of Enterprise Technology. *Home Page*. <http://www.oet.state.mn.us>

<sup>9</sup> Council of State Archivists (CoSA). *ARC: Archives Resource Center*. May 30, 2009.

<http://www.statearchivists.org/arc/index.htm>

<sup>10</sup> The Society of American Archivists. *Home Page*. <http://www.archivists.org/>