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Ready for the Challenge? State CIOs and Electronic Records

Issues, Opportunities and Best Practices

As a core business activity of state government, public services create information, generally structured in the form of records. It is obvious – records matter and are essential to state government. However, states continue to struggle with new challenges presented by a growing portfolio of electronic records and digital content that must be preserved. Within this context, the issue of electronic records (or e-records) management has emerged as a high-priority policy and technology issue for State CIOs. Drivers of this increasingly important issue include:

- use of computer and email systems and the Internet to conduct the business of state government, leading to ever-increasing amounts of records being created in or converted to electronic formats
- the trend toward increased consolidation of state IT resources, such as data centers and email systems, and shared services within state government[1]
- recent amendments to the Federal Rules of Civil Procedure regarding the discovery of electronic information (or e-discovery) in litigation
- the vulnerability of essential electronic records during disasters and other emergencies
- the introduction of new electronic collaboration platforms in state government that create e-records in forms that are transitory, yet still document the business of government
- a growing emphasis on transparency and accountability in state government, including online public access to records on spending, performance, procurements and contracts

Collaborating for Success - It Takes an Entire State Government

E-records management and digital preservation require the involvement of many stakeholders to successfully accomplish the goals of better organized state government records and the preservation of digital records that have long-term historical value. Public officials have observed

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that with the move from paper to digital records and explosion of "born digital" content, government organizations must seek new models and strategies for properly managing electronic information assets. The State CIO is a primary stakeholder with expertise in how e-records management approaches and technologies fit within the state's strategic IT direction and enterprise architecture. The State CIO may recommend solutions to better manage and preserve e-records and digital content.

Since e-records management is a cross-boundary group effort, other stakeholders must be involved to ensure a collaborative and holistic approach. This may include: state archivists, state records managers, the Secretary of State's office, state legal counsel and the Attorney General's office, and business unit and program owners.

The Foundation - Definitional Issues

First, clarification of a few common terms is necessary, since state definitions for "records", "data", and "public records", vary greatly. For purposes of this brief, the following definitions apply:

E-Records: This term generally reflects a document, regardless of format, that is evidence of conducting state business. For example, a record may memorialize a transaction conducted by the state. In this brief, an "e-record" is a government record that is electronic form, which could range from email to word processing documents to digital images.

E-Records Management: E-records management is an approach to organizing government records so that they are locatable, retrievable, and stored in accordance with state records retention schedules. This also includes the timely deletion or destruction of e-records after the expiration of retention time periods, unless extenuating circumstances such as litigation

require otherwise.

Digital Preservation: While many state records retain their value over a limited period of time, there are some government documents that have significant historical or other value and must be retained permanently. State archivists normally oversee which records are encompassed within this category and ensure the preservation of those records.

Governance of E-Records Stakeholders

As with any broad initiative that cuts easily across state agency borders, e-records management and digital preservation first necessitate the creation of a solid governance structure. Successful IT governance ensures that state government is effectively using information technology in all government lines of business. This requires that the decision rights for IT investments and deployment are properly shared between the business and IT functions within state government. This provides a firm foundation for such a large effort and helps to ensure that all stakeholders with expertise and unique perspectives to contribute are included.[2]

The governance structure for an e-records management initiative is a critical first step, because many states have approached e-records management on a piecemeal basis, with agencies managing their own e-records as well as the technology to facilitate retention, storage, and deletion. Hence, many states will face the challenge of examining and harmonizing a potentially disparate set of:

- records retention laws,
- records retention schedules,
- records management solutions,
- policies and procedures.

A state-wide – *or enterprise-wide* - collaborative, methodical process for working through these issues is imperative in reaching a solution that will be successful

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across agency boundaries. For example, states have found that the discipline of their enterprise architecture program provides the framework for this type of collaborative process.

In addition to the State CIO's ability to offer enterprise-wide expertise on technology's role in e-records management, other stakeholders have their own areas of expertise to contribute. Records managers possess detailed knowledge about a state's records retention requirements and how they apply to records in many different forms. State archivists likely focus on which records have historical or other significant value that necessitates permanent storage. From the legal perspective, the state attorney general and other state lawyers have an interest in being able to readily locate and retrieve information requested during litigation and e-discovery. Their goal is to avoid legal liability for being unable to produce requested electronic documents. In addition, mechanisms and systems that facilitate easier searches through mounds of electronic records can save legal counsel substantial amounts of time and state resources. Finally, agencies must be able to contribute their perspectives with respect to e-records management and how new initiatives might impact, and hopefully improve, their business processes, productivity, and compliance with records retention requirements.

While there is no single governance structure or approach to e-records management and digital preservation that will work for all states, there are a number of best practice approaches from which states can choose. Virginia and Oregon are highlighted as examples.

Virginia's E-Records Approach through Enterprise Architecture

The Commonwealth of Virginia is organizing its e-records management efforts and implementing an Enterprise Content Management system through its established Enterprise Architecture (EA) program.[3] The EA forum provides an ideal

home for e-records management initiatives, since it takes a holistic view of the state government enterprise, the cross boundary business processes and seeks to include many stakeholders from a broad range of multiple disciplines.

To begin this effort, the Commonwealth will add a Records Management and Digital Preservation Domain to its Enterprise Technical Architecture (ETA). This domain will be similar to the ETA's Security Domain in that it cross-cuts all other domains. The objective is to embed records management into the IT governance and development process in a manner similar to the Federal Enterprise Architecture Records Management Profile, which covers both electronic and non-electronic records.

As Virginia proceeds with its initiative, it plans to use Enterprise Content Management software to establish a "Center of Excellence" (or "CentEx") to develop an overview document that highlights architectural constraints and general architectural planning information for system architects and line-of-business application designers. From there, the Enterprise Content Management system will be piloted in two state agencies and the Library of Virginia. Concurrently with these efforts, the Commonwealth will develop the Records Management domain in its technical architecture. The work group dedicated to developing this domain will include the state's Information Technology Agency, the state's library, and representatives from small, medium and large agencies with subject matter expertise.

At the same time, the Commonwealth's Enterprise Architecture program will conduct a data collection initiative to develop comprehensive information on state agencies' applications, and IT assets and tools. This will then be mapped to solutions within the current, or "as is", business architecture.[4]

Oregon's E-Records Approach through a Community of Practice

The State of Oregon has created "Communities of Practices" (CoPs) under the state's CIO Council in a number of disciplines. Each CoP is a collaborative group of experts and stakeholders who are brought together to examine a specific area of government and develop a common enterprise approach to improvements in the specified area. To address the need for an Electronic Records Management System, the Oregon CIO Council created a CoP to explore that issue.

Since the CoP is a collaborative effort, it is chaired by the state's Secretary of State Archivist, while the CIO Council serves in the capacity of a Steering Committee. It includes representatives from: the Secretary of State's office, corrections, forestry, human services, justice, transportation, revenue, consumer and business services, the state library and lottery, judicial department, the University of Oregon, and the administrative services agency (including both IT and procurement). The State CIO's Office provides assistance in terms of executive management-level support, preparing materials, such as meeting agendas and minutes, researching and developing work product deliverables, creating and managing a resource website, and providing CIO Council updates on the CoP's progress.

To ensure a common understanding of the e-records management discipline, the CoP began with creating a glossary of common e-records and digital preservation terms.[5] In keeping with its charge, the CoP has accomplished the following to date:

- researched common business needs, best practices and benchmarks
- produced Enterprise Records Management System (ERM) standards
- produced guidelines for the ERM system
- produced a sample statement of work and system requirements document
- issued a final report with long-term recommendations[6]

The E-Records Management and Digital Preservation Business Case

A key enabler or a primary impediment to e-records management and digital preservation initiatives is the dedication of adequate resources both in terms of staffing and funding. Initiatives that take an enterprise approach can require a substantial investment of resources to cover costs for personnel, training, consulting, system integration and maintenance, storage, back up, conversion, processing, indexing, a library function and data retrieval.[7]

Financing Model Options: To assist states with considering innovative ways to fund technology initiatives, NASCIO has previously completed research that identified and described innovative state IT funding and financing models that were successful in the states.[8] A 2008 survey project will soon update this research and offer new perspectives. Many of these models may be applicable to e-records management and digital preservation projects. Options include:

- benefits funding (funding through benefits realized by project implementation)
- bonds
- budget and appropriation strategies
- fee-for-service revenue
- investment funds
- outsourcing and managed services
- performance-based contracting
- public-private partnerships
- purchasing and procurement strategies
- sharing services
- grants

Common Benefits of Improved E-Records Management and Digital Preservation: As states pursue efforts to improve e-records management, they must consider the key benefits that will accrue to the operation of government and citizens. Some of these benefits are likely to be common across the states and are described below.

With a formal e-records management strategy and execution, state agencies benefit from more organized e-records in terms of having information readily available and accessible for public policy decision-making, open public records requests and inter-agency or inter-governmental collaboration and information sharing. Additionally, e-records management projects provide an opportunity for agencies to simplify and streamline their back-office activities to increase efficiency, productivity, and legal compliance. The focus of many e-records management initiatives has been internal, particularly for those records with fiscal and accounting value. These types of records often document the agency's financial transactions and obligations. With the emerging theme of greater state government transparency and accountability, these records now have an external-facing value. It is obvious that easy discovery, presentation, and access to fiscal e-records will continue to grow as an expectation by the public.

Improving e-records management across the state enterprise will lead to a substantial reduction of *risk* and *liability*. With more information existing in electronic form, states face the risk that information will be lost or not retrievable in the event of a lawsuit. If e-discovery record searches result in an inability to produce requested records, the state could face penalties, adverse jury instructions at trial, or even the loss of a court case. However, an *enterprise approach* to managing e-records can ensure that records are:

- appropriately identified,
- properly classified,
- maintained according to records retention policies,
- stored in a way that makes them easily locatable and retrievable, and
- effectively destroyed or preserved according to retention policy and schedules
- addressed in the state's emergency response plan and adequately protected during a disaster

Improved e-records management also can reduce legal risk associated with non-compliance with state or federal laws and regulations.

For State CIOs, a focus on this universal business problem offers a shared services opportunity: an enterprise e-records storage, management and digital archival environment shared by agencies. With a shared services model, the potentials risks associated with non-integrated, proprietary or standalone systems can be avoided. This will save states substantially by precluding each agency's attempt at creating and funding its own solution. States that have consolidated their email environments may find opportunities to explore ways to improve the management of e-records by introducing an enterprise email archiving solution.

Minnesota's Study of E-Records Management and Digital Preservation Approaches

Some states may be asked by the legislature or other governing body or official to develop a business case for a variety of possible approaches to e-records management. For example, in Minnesota, the State CIO responded to a legislative request to conduct a study to examining approaches to e-records management and digital preservation and then report findings and recommendations.

The Minnesota survey was submitted to stakeholders to determine their e-records management and digital preservation needs and views on the creation of one or more standards with respect to records formatting. Coordinated by the state's Office of Enterprise Technology (OET), working through a steering team that included the state archivist, legislative reference librarian and OET's Director of Strategic Planning, the study garnered close to fifty responses. Respondents included a wide-range of state agencies and even libraries, companies and citizen interest groups. The report noted that stakeholder groups that are often

overlooked include: citizens, small businesses, real estate, regional economic development organizations, nonprofits and other jurisdictions. The study focused on the following areas:

- management guidelines for state archives as they pertain to electronic documents
- public access to information
- expected storage life of electronic documents
- costs of implementation
- potential savings

Additionally, OET and the steering team evaluated the policies of other states and nations, industry history and trends, and the state's information architecture. The report ultimately recommended policy steps, such as working with stakeholder groups on collaborative approaches to records management and preservation, and did not recommend the adoption of one standard format at the current time.[9]

A FRAMEWORK FOR ACTION

The "As Is" Environment: Once a governance structure has been established and funding is made available, a state e-records initiative then will likely involve an examination of the current, or "as is", environment. In the beginning, states may find that agencies do not have a standard means of organizing, classifying, storing, retrieving or disposing of electronic records. In addition, state agencies may be at varying levels of technological maturity, with some agencies having advanced systems of managing their electronic records, while others may rely on printing and filing as their e-records management program. However, it is only through determining the "as is" environment that states can create a vision of their "to be" or target e-records environment and then take steps to make that vision a reality.

Moreover, states also may quickly find that they are dealing with a number of disparate, incongruent laws that dictate how they must address issues involving

official records. Areas of the law that impact e-records management could include data access, information sharing and privacy, records retention and disposition, data and systems security, disaster recovery, and oversight of IT system development and operations.[10] Part of improving e-records management in a state could involve harmonizing legal definitions, such as how a state defines a "record", as well as harmonizing conflicting legal provisions that could impede e-records improvements.

It's a Matter of Scope: In examining other states' successes and lessons learned, the State of Minnesota observed in its study on e-records that "broad efforts tend to fail, at least partially, because they do not prioritize their efforts based on the value of specific record sets. The plain fact is that some government information is more valuable than other information." Hence, project scoping is a key success factor for these types of initiatives. A prioritization must take place to determine which records are most important to manage and preserve, such as financial records subject to audit, so that they can be addressed first. Incorporating principles of project management from the start can also greatly reduce the risk of project failure.[11]

What is a Record and How Long to Keep It

The role of records retention laws and schedules is to assist state agencies in taking intellectual control over their e-records by being able to determine what information qualifies as a record and how long records should be kept.[12] While laws vary from state-to-state, a record normally is a piece of information that documents an organization's "functions, policies, decisions, procedures, operations" or other significant activities.[13] From there, decisions can be made about whether a record can be made publicly available or produced in the event of an open records or Freedom of Information Act request.
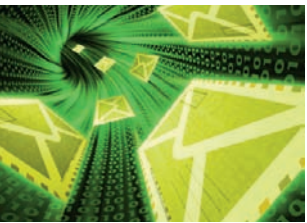
Since this brief is focused on electronic, as opposed to paper records, it is important to note that records retention schedules typically do not classify records according to their form or media. Such schedules typically consider only the *content* of records in determining how long they should be stored. For example, financial records may be classified together and assigned a common retention period. The owner of the records, usually a state agency, is tasked with applying general records retention requirements to its records or even determining agency-specific subject matter retention periods.[14] While many states have consolidated data centers or other centralized systems that store records from multiple agencies, the location of records does not normally place ownership on the state's enterprise IT agency. Instead, ownership normally remains with the agency that *created* the record.

In today's electronic world, it is not unusual for there to be many electronic copies of the same record and for that record to be transmitted, probably by email, to others. This raises questions of who owns such records. In the case of multiple copies of transmitted records, it is normally the sender's responsibility to see that records retention schedules are applied properly. Note that this could differ with emails sent by citizens to agencies. Moreover, the transmission of a record by email should not change the corresponding retention period that applies to the record.[15]

Considerations for Email and Records Retention Schedules: The retention of records in email form will vary according to the state. However, it is important to note some common concepts may apply. These are especially important, since ever-increasing amounts of state government business are conducted via email.

- The bulk of email may not need to be stored because of its transitory nature. However, a notable exception would be legal counsel's email.
- Standards exist for addressing the retention of emails and include

standards from such organizations as the American National Standards Institute and others.
- Email systems may have auto-archive functions that should be turned off to avoid interference with compliance with records retention schedules.
- Auto-delete functions may necessitate that employees classify their emails before a specified time period elapses, such as 90 days, after which an email will be deleted.
- Emails may be classified and stored in folders of similar content or retention period—this should be done when an email is received to avoid conducting this process for hundreds of emails at a time.[16]

Managing and Storing E-Records

Once records retention schedules have been tailored to agency needs, the process must begin to determine how to apply technology to those records to facilitate their management and storage.

Fast-Moving Technology: Technological obsolescence is a primary issue for states in determining what types of solutions or technologies to choose. The concern stems from the fact that technology is evolving at an accelerated rate. This means that, for example, the hardware and software many agencies use today will likely be obsolete in a few years. These concerns are magnified in the e-records context in the following ways:

- Record formats may change and become unreadable even by subsequent releases of the software that created them.
- Electronic objects can be subject to undetectable changes, making it difficult to maintain the evidentiary status of the records.
- Some systems for document management don't preserve the content, structure, context and integrity of the record over time.[17]

The crux of the challenge states face is that they must select technologies that

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properly manage and store electronic records, while ensuring that the inevitable obsolescence of the technology does not compromise the records' integrity or accessibility.

Enterprise Electronic Storage Options: During an e-records initiative, states may consider solutions for the enterprise that can be used by multiple agencies. Typical categories of solutions include:

Electronic Records Management System (ERMS): Manages records from their creation to final disposition, including categorizing and locating them.

Electronic Content Management System (ECMS): Organizes, controls and facilitates the publication of a large body of documents, including versioning and track changes.

Electronic Document Management System (EDMS): Facilitates the creation of a document and allows for storing, editing, printing and other processes. It usually provides a single view of multiple databases.

In the broader picture, Electronic Records Management Systems may include content management and document management components.[18]

Within the context of some e-records initiatives, some states may examine whether to adopt a standard file format to be used on an enterprise basis. In examining this issue, important considerations center upon technology obsolescence in a quickly changing technology environment. Backwards compatibility issues also have been part of this conversation in terms of gauging the impact on agencies that are unable to purchase software to comply with a standard file format.[19]

Email Storage Options: Many agencies conduct the vast majority of their business via email. It is a readily available and frequently used communication tool to which most employees, whether public or private sector, have become accustomed. This increased use of email has lead to issues of how to store emails that must be retained for varying lengths of time. Many State CIOs are facing this issue in the context of the trend towards greater consolidation of state email systems.

Michigan's Email Policy

As opposed to storing all emails within employees' email in-boxes, states should opt for policies and solutions to store email in a systematic way outside of the employee's in-box. The benefits of this approach range from overall cost reductions to reducing storage space required for non-critical emails.[20] The State of Michigan's standards for email storage include the following:

- limitations on email account size
- limitations on email size
- an auto-delete function to delete all email content after 90 days
- an archiving function outside of the email system to save email that must be retained for longer than 90 days
- an auto-archive function that an employee may turn on to avoid manual archiving, which is also acceptable
- systematic backup functions[21]

Options for storing archived emails range from the creation of an email archive to storage on hard drives or peripheral devices. Printing to paper is another option. However, caution must be applied when exercising this option. Legal precedence indicates that a paper printout that serves as the official record of an email correspondence may not be sufficient in all instances because of questions regarding the authenticity and integrity of email printouts. States using this option should ensure that any email printouts serving as an official record include: the sender's and recipient's email name and address, the name and address of any additional recipients, the message subject as declared by the sender, and the date and time of transmission.[22]

Security, Confidentiality and Integrity: In determining how to store electronic records, protecting the security, confidentiality and integrity of those records is critical. Electronic records do not serve their purpose if they are subject to scrutiny over security-related concerns. The authenticity of the e-record must not be questioned if the need arises. For example, security policies and measures must be in place to prevent the alteration or deletion of stored electronic records. This can be of particular concern when migrating stored electronic records from one platform to another, which is invariably necessary for e-records that are intended to be stored long-term, such as birth and death records.

Moreover, records such as birth, death, health and real property transactions, contain sensitive personal information. Information from such records has been used by criminal elements to commit identity theft and financial fraud. States must ensure that security and privacy policies provide heightened protection to such records across the state enterprise. Employees who have access to electronic storage resources with sensitive records should be well-trained to understand their sensitivity and know how to avoid compromising those records. In addition, verification through periodic audits is an important way to monitor whether problems have arisen with respect to sensitive records.

A Word About Digital Imaging: Digital imaging provides the technological means to "capture, store, retrieve, display, process and communicate or disseminate" electronic records. Again, due to the rapid pace of technology, states must closely examine how to store digital images of records so that they will be preserved even if a migration to another hardware or software platform is necessary. Adopting enterprise technology standards for the digital image format is a common approach to reduce the diversity of file formats and cost of migration. Retrospective conversion of e-records as digital images can be costly and time consuming.

The State of Alabama developed guidelines for digital imaging that were adopted by the State of Kansas. These guidelines provide insight and recommendations for digital imaging and are organized by project phase, including project planning, systems specifications and selection, and system implementation. The guidelines provide recommendations on planning for technology obsolescence and ensuring the integrity of digitally-imaged records.

Being Proactive with E-Records - Washington State's Email Archiving Initiative

The State of Washington recently embarked on an email archiving system to reduce the response time for public and legal discovery requests, reduce time of searches for relevant information, and maintain compliance with state and federal regulations. The system deploys solutions using standard rule sets and implements business rules. It also includes content analytics to save time with searches, which can be especially helpful for legal counsel. This search mechanism focuses on the content of emails and looks for patterns of relationships rather than words.

In preparation for the project, the Department of Information Services (DIS) recommended that agencies review existing archival policies to determine deficiencies, update internal email policies and procedures and train staff on those new policies and procedures. After completing the vendor selection process, DIS conducted a pilot of the system. Deployment plans, cost models, and Service Level Agreements were also prepared as well as a template for agency deployment.[23]

Promoting Employee Responsibility

As an e-records project nears its conclusion, which may include a newly implemented solution or re-engineered business processes, agency employees, and possibly contractors, will need assistance in understanding their new responsibilities. Adequate employee awareness and training activities are keys to ensuring that employees correctly carry out new policies and procedures and understand how to use any new technologies associated with improved e-records management. This may include in-person or online training courses as well as ongoing follow-up and training to ensure that employees understand their part in ongoing records retention compliance. Training and awareness should include the following areas:

Photo credit C. Fager, Louisiana State Archives

- an overview of the issues and challenges related to electronic records management in state government
- records retention policies and schedules along with associated security, privacy and acceptable use policies
- procedures for records retention
- using any new technologies that have been implemented
- understanding how records retention applies to alternate electronic communication devices and methods, such as PDAs, Instant Messaging, and Chat Rooms.[24]

E-Records, Emergency Preparedness and the Continuity of Government

Citizens and their state governments are vulnerable when essential e-records are not protected from harm. The recent experiences with hurricanes, tornadoes, floods, wildfires and other natural disasters have demonstrated that disaster and emergency response planning must address the protection of essential records. These records, often found in state information systems, are critical to the resumption of government operations. The importance of identifying and protecting e-records vital to the continuity of government must be recognized. Are e-records recognized as an asset during emergency planning and response? How are they protected during emergency situations? Have the responsible state agencies developed relationships and communicated about e-records before a disaster occurs?

In a 2007 report, *Safeguarding a Nation's Identity*, the Council of State Archivists assessed records-related preparedness in state government.[25] The verdict: there is a general lack of awareness, preplanning, training and formal inter-agency relationships necessary to adequately protect public and historical records. A key finding was more than two-thirds of the existing continuity of operations plans (COOP) in executive, legislative and judicial branch agencies did not address records.[26] It is clear a significant effort is needed to build awareness among the stakeholders on the protection of essential e-records, understand what is at risk, and relate e-records management to emergency preparedness. The roles and responsibilities of the key agencies managing records and archives need to be well understood before and during a disaster or emergency incident. The state archives and records management programs must have solid working relationships with other state agencies, including those in information technology. As records move increasingly to electronic form, the state CIO and other state technology agencies must be engaged in the process to discuss their role, contributions and to collaborate in the partnership necessary to protect essential e-records.

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The Future of E-Records Management and Digital Preservation: Wikis, Blogs, Instant Messaging, Twitter, and More to Come

With the emergence and adoption of Web 2.0 communication, collaboration and social networking platforms, coupled with the proliferation of mobile devices used for state business, the challenges of identifying, retaining and retrieving government records is clearly evolving. States must embark on ongoing efforts to ensure the safe-keeping and preservation of e-records that document the government processes and serve as evidence of how state governments serve their citizens. With the introduction of more collaboration tools, the technology will continue to outpace policy deliberation, development and adoption. However, for state governments, the fundamental principle still remains - a "record is a record" regardless of the form. With these new tools, the challenges will be educating agencies and state employees of their obligations and identifying all unstructured e-record pathways that will emerge to create and store e-records. As technology continues to evolve and includes possibilities that may not have been envisioned five or ten years ago, those in state government, including State CIOs, must remain vigilant in managing government records in whatever form they may take.

Appendix A: Endnotes

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