



Electronic Records Management Business Case



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Utah Department of Administrative Services Division of State Archives

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Project Vision Statement:

For State Archives who needs to remain the acknowledged internal subject matter experts on records management, the electronic records management (ERM) strategy is a collection of definitions, distinctions, best practices, and industry standards that will enable the efficient use of state government resources and continued confidence in the state's records management stewardship. Unlike the current records management approach in the state, this strategy will encompass both paper and electronic records.



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Executive Summary

Introduction

Most records are not created on paper anymore. As computer systems and applications proliferate and are further embedded into regular work processes, information is being created in a digital medium (commonly referred to as being “digitally born”) at an ever-increasing rate. Estimates by the National Association of State Chief Information Officers (NASCIO) indicate that 97 percent of all information is now created and maintained electronically.¹ This presents unique challenges for the Division of State Archives and Records Service (State Archives), as well as all state agencies who are concerned about managing electronic information and records.

Goals

There are two primary goals which must be addressed:

- Provide policies, standards, and guidelines for managing electronic records in the state of Utah (State Archives).
- Provide technical solutions to help manage all formats of electronic records in the state of Utah (Department of Technology Services (DTS)).

Business Drivers

There are several business drivers which emphasize the need for solutions to manage electronic records:

- eDiscovery – increasing demand for finding and retrieving information in legal matters, and increasing penalties for not being able to produce it.
- E-record Vulnerability – essential electronic records are at risk in disasters and other emergencies.²
- Increasing Use of Technology – there is ever-increasing amounts of records being created in or converted to electronic formats.³
- Government Records Access and Management Act (GRAMA) – constant demand for information the public is entitled to.
- Loss of Investment – records document business processes and decisions the state has paid for; their loss would require resources to redo the work. Some losses may not be recoverable.
- Efficiency – demand for efficiency drives technological advances, which drive the state to be able to define policies, standards, procedures, and tools to manage electronic records.
- Online Storage Costs – records stored in active online environment without regard to the business value of the information equals higher cost.
- Archival Professional Guidelines – sets standards with which records stewards must be compliant.

¹ “Seek and Ye Shall Find? State CIOs Must Prepare Now for E-Discovery!,” by Mary Gay Whitmer, NASCIO, 2007, <http://www.nascio.org/publications/documents/NASCIO-EDiscovery.pdf> .

² “Ready for the Challenge? State CIOs and Electronic Records: Issues, Opportunities and Best Practices,” by Doug Robinson, NASCIO, 2008, <http://www.nascio.org/publications/documents/NASCIO-E-RecordsChallenges.pdf>.

³ *Ibid.*



- Transparency – the emphasis on transparency in government and online public access to records results in a need for adequate records management solutions.⁴

Challenges and Issues

The challenges that State Archives and DTS face in identifying and implementing an ERM program include:

- Lack of awareness by records creators
- Multiple varieties of file and media formats
- Disbursement of records data throughout multiple sources
- Lack of robust guidelines and automated support tools

Risks

There are multiple risks associated with not defining and implementing an ERM program. Records management is a business solution. The loss of benefits by ignoring that solution are tied directly to operational costs in terms of both efficiency and storage fees. The risks of not being able to fulfill GRAMA and eDiscovery requests alone are significant. Additionally, the lack of an ERM program will impact day-to-day business processes at an increasing rate until it is addressed.

The ERM Model

State Archives has identified a model upon which it will base its ERM strategies, policies, practices and procedures. The model will drive the business and technical requirements that will allow DTS to provide technical solutions for the ERM program.

Recommendations and Next Steps

To define and implement an ERM program, State Archives will:

- Pursue state-wide engagement on ERM strategy and implementation
- Establish an advisory group
- Define business requirements
- Work with DTS to review and find technical solutions
- Pursue resources necessary to support an ERM solution

⁴ *Ibid.*

1 Introduction

1.1 State Archives' Mission

The mission of the Division of State Archives and Records Service (State Archives), a division of the Department of Administrative Services (DAS), is to:

- Assist Utah government agencies in the efficient management of their records,
- Preserve those records of enduring value, and
- Provide quality access to public information.

1.2 The ERM Model

State Archives' responsibilities align with a model developed in the Electronic Records Management (ERM) field (see Figure 1).

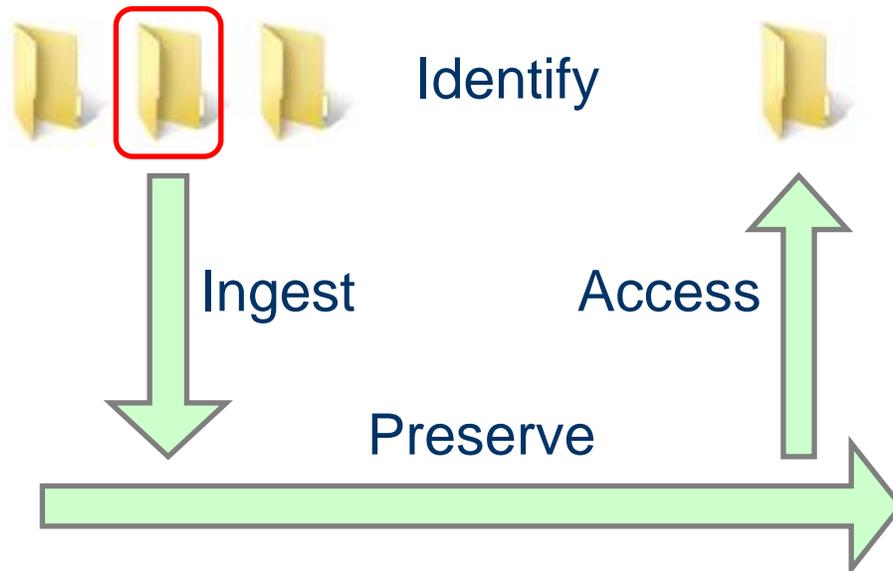


Figure 1: ERM Model

The model emphasizes the holistic approach needed in ERM—not just a focus on a particular aspect of the model. State Archives has always maintained this full view in its approach to handling records and must do the same in the electronic records arena.

For instance, State Archives acts as a records management consultant to state and local government agencies demonstrated in the identify/ingest component of the model. Consulting⁵ works in concert with agency management and staff to develop and implement standards, guidelines, and best practices in the handling of the agency's records.

⁵ It should be emphasized that in its consulting role, State Archives has neither authority to compel an agency to adopt recommendations or procedures nor authority to monitor, audit, or ensure compliance of any agency's records management practices; each agency assumes the responsibility of managing its own records.

An agency may use the State Records Center Operation for storage and periodic agency access to records (the preservation and access components in the model).

After meeting their retention period, non-permanent records are destroyed. Permanent records are transferred to Archives Operation (custody) for permanent preservation and access (the preservation and access components in the model).

1.3 Responsibilities

State and local government agencies need to fulfill their respective missions, comply with the Government Records Access and Management Act (GRAMA), manage their records in efficient and cost effective ways, be prepared for legal discovery requests, and provide transparency to the public.

The responsibilities of State Archives and state and local government agencies are simplified in the following diagram (see Figure 2).



Figure 2: Records Responsibilities Diagram

1.4 Electronic Records Management

As computer systems and applications proliferate and are further embedded into regular work processes, information is being created in a digital medium (commonly referred to as being “digitally born”) at an ever-increasing rate. Estimates by the National Association of State Chief Information Officers (NASCIO) indicate that 97 percent of all information is now created and maintained electronically.⁶ In such an environment, guidelines and practices adopted for a largely paper-record world may prove insufficient.

In order to fulfill its responsibilities, State Archives is working in conjunction with the Department of Technology Services (DTS) to understand the needs and challenges, review the best practices, and define a strategy for electronic records management.

The purpose of business case is to:

⁶ “Seek and Ye Shall Find? State CIOs Must Prepare Now for E-Discovery!,” by Mary Gay Whitmer, NASCIO, 2007, <http://www.nascio.org/publications/documents/NASCIO-EDiscovery.pdf>.



- Characterize the current environment based on a variety of input from State Archives and other stakeholders within the state,
- Identify business requirements for managing electronic records within Utah,
- Address best practices in use by other states across the country as well as governing bodies like the National Archives and Records Administration (NARA), and
- Provide a set of recommendations regarding next steps in addressing the challenges associated with ERM.

1.5 ERM Business Drivers

There are a number of business drivers for having an effective ERM solution in place, the most important drivers:

- eDiscovery
 - One of the major considerations and drivers for effective electronic records management is eDiscovery. eDiscovery, by definition, is the process in which electronically stored information is reviewed, processed, and presented for the purposes of litigation or regulatory requests. Amendments to the Federal Rules of Civil Procedure, enacted in late 2006, now compel civil litigants to preserve and produce electronic evidence on demand. Examples of electronic documents and data subject to e-discovery are e-mails, audio files, data on handheld devices, metadata, graphics, photographs, spreadsheets, websites, and other types of digital data.⁷ For agencies that are not prepared for eDiscovery, the cost of complying with the law and requests from courts can be expensive.⁸ Experts advise that the best solution to manage eDiscovery problems is a strong records management program.⁹
 - A good records retention policy, which includes applying retention schedules to electronic records, may provide a safe harbor when defending against a spoliation claim:
 - If an agency has and follows a records retention policy *and* institutes a litigation hold when litigation is reasonably anticipated: “Absent exceptional circumstances, a court may not impose sanctions under these rules on a party for failing to provide electronically stored information lost as a result of the routine, good-faith operation of an electronic information system” Fed. R. Civ. P. 37(e) and Utah R. Civ. P. 37(g).
- E-record Vulnerability

⁷“E-Discovery Defined,” by Sally Kane, About.Com, <http://legalcareers.about.com/od/glossary/g/Glossary.htm>.

⁸“eDiscovery Best Practices: Six Things You Can Do To Optimize eDiscovery Efforts,” by Barry Murphy, Forrester, 2007, <http://www.forrester.com/Research/Document/0,7211,42121,00.html>.

⁹ “Accelerate Your Retention Management Strategy,” by Barry Murphy, Forrester, 2007, <http://www.forrester.com/Research/Document/0,7211,43964,00.html>.



- The vulnerability of essential electronic records during disasters and other emergency creates a need for good management of electronic records.¹⁰
- Increasing Use of Technology
 - The use of computer and email systems and the Internet to conduct the business of state government, leads to ever-increasing amounts of records being created in or converted to electronic formats.¹¹
- Government Records Access and Management Act (GRAMA)
 - In addition to legal matters that require the storage and retrieval of electronic information, electronic records are governed by GRAMA. Records are defined in terms of their function, not format. The most important aspect in identifying a record is the content: is the information meaningful in conducting business and for how long? Records are required by law to be provided to a requestor within a certain time frame if the request is approved. These time frames are short, usually within ten days. An effective records management solution will enable the state to respond to these requests in a timely manner, minimizing the costs of finding and accessing information.
- Loss of Investment
 - Records document business processes and decisions the state has paid for, and their loss would require resources to redo that work. Examples range from road construction designs done in the past which are necessary to engineer future repairs, to the location of nuclear waste, to contracts the state has entered into and from which it expects to receive services. Records protect the legal rights of both government and its citizens. These losses may not be recoverable:
 - many records document a moment in time that can't be recreated;
 - there may be nothing tangible to go back to in order to reverse-engineer a decision, process, or asset;
 - replication of the work may simply be too time-consuming.
 - Unlike paper, loss of electronic records is guaranteed unless actively managed. You can ignore a box of paper for 100 years, open it up, and the information is perfectly readable. If the state ignores electronic records for 10 years, the fragility of the media and technological obsolescence will make access difficult. The longer you wait to manage these records, the less likely the data will be recoverable.
- Efficiency
 - Government and businesses alike have an increasing pressure to be more efficient. The demand for efficiency drives advances in technology, which, in

¹⁰ "Ready for the Challenge? State CIOs and Electronic Records: Issues, Opportunities and Best Practices," by Doug Robinson, NASCIO, 2008, <http://www.nascio.org/publications/documents/NASCIO-E-RecordsChallenges.pdf>.

¹¹ *Ibid.*



turn, drives records management stewards to manage electronic records in ever changing and increasing electronic formats. The state must be able to identify and manage records so they can be used throughout their lifecycles. Additionally, there is increasing demand to decrease need for physical storage space.

- Online Storage Costs
 - Electronic records are usually stored in an active online environment, where the data is easily available to the user, and network systems respond quickly when someone wants to open a document. This accepted (and expected) ease of use comes at a cost, where high availability equals higher cost. However, not all documents have the same business value or are actively and frequently used. Lower-cost storage strategies could be implemented if records management principles are applied to electronic data sets. Such strategies would have minimal impact to the user, as documents would still be readily available, but the price of storage would be much less.
 - Although storage costs are generally trending downward, any amount spent on data that doesn't need to be kept, or valuable data that could be stored at a lower cost, is simply a waste.
 - There is a direct parallel between the purpose of records management and storage costs when it comes to paper records. In the paper environment, records that are accessed more frequently than once a month should reside in the office. Once the records become semi-active or inactive, they should be stored off-site, where building costs per square foot are reduced. This is one reason why the State Records Center is valuable for agencies, so that they can better use their office space for office work. To accomplish this, decisions are made with regard to sets of records, according to their business value, and retention schedules are applied. These decisions need to be made to electronic data sets as well, and then implemented in the electronic storage environment, where storage costs reflect the activity level and business value of the records. Essentially, electronic records are at the stage now that paper records were back in the 1940s, when little records management was in place, and a problem was growing.
- Archival Professional Guidelines
 - State Archives needs to be compliant with professional electronic records management standards. Standards developed by the U.S. Department of Defense have been embraced by the larger recordkeeping community as a valid measure of features necessary for good electronic recordkeeping systems. These standards are named 5015.2. There is no practical implementation strategy for applying these guidelines in the state electronic environment.
- Transparency

- The emphasis on transparency in government, including online public access to records on spending, performance, procurements, and contracts, results in a need for adequate solutions to manage these records.¹²

2 Current Records Management Environment

2.1 General Flow of Records

State Archives provides a well-defined records management template for paper records (see Figure 3 and Appendix B).

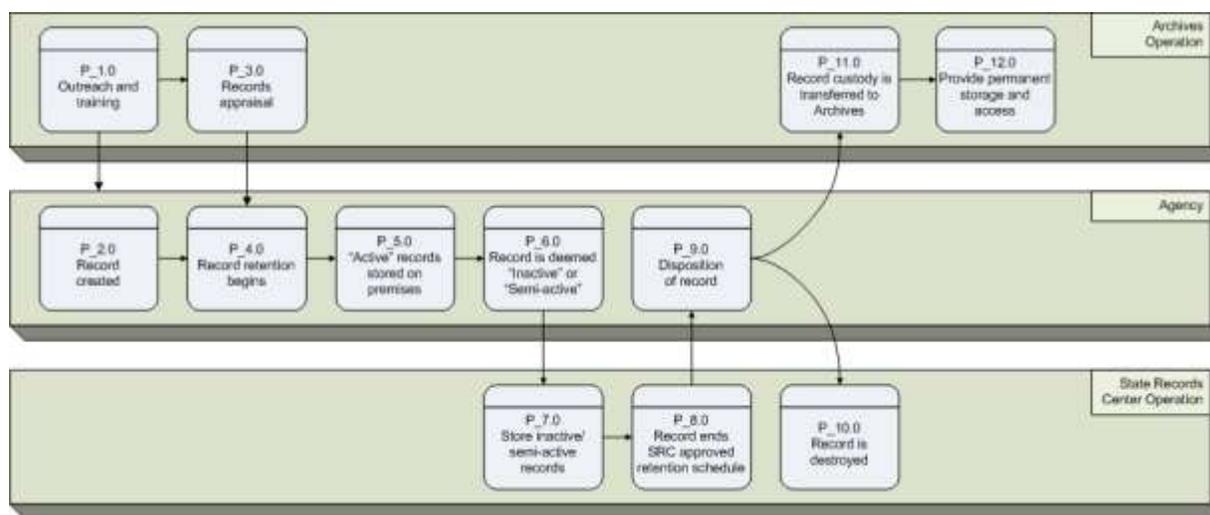


Figure 3: Records Retention and Transfer Flow

As identified in the figure, each agency is responsible for working with State Archives to identify their records and retention periods. The agency must manage and provide access to its records through their active period,¹³ their inactive period, and to the end of their retention periods.¹⁴ The preceding depiction represents the general flow of records through their active and inactive/semi-active periods. (Note that agencies are not required to transfer their inactive/semi-active records to the State Record Center if they choose to store them internally.) Non-historical records are managed, retained, and disposed of according to an approved records retention schedule. No record may be destroyed except in compliance with the approved retention period. Most records (90%) fall into this category.

Permanent records are transferred to State Archives' custody at the end of their records retention period.¹⁵ State Archives is the official custodian of all noncurrent records of

¹² *Ibid.*

¹³ Active records are records that are used more frequently than once per month.

¹⁴ Inactive records are records that are no longer used on a consistent basis, generally once per month or less, per file drawer.

¹⁵ A permanent record is a record that must be retained and made accessible permanently. Only permanent records go into State Archives' Archive operation/custody.



permanent or historical value that are not required by law to remain in the custody of the originating governmental entity. Permanent records may be retained by an agency if the records are required to be kept in the agency's custody for administrative, fiscal, or legal needs.¹⁶

2.2 Defining Retention Schedules

Retention schedules are approved by the State Records Committee (SRC),¹⁷ a GRAMA-mandated body. The SRC reviews and approves all agency-proposed retention. State Archives maintains an SRC-approved general retention schedule that any agency can adopt.

2.3 Records Management Standards, Guidelines, and Practices

State Archives defines and maintains standards, guidelines, and practices in compliance with GRAMA and best practices for state agencies to use in developing and implementing records management practices. These standards and practices include such concepts as retention, accessibility, content maintenance, and security.

State Archives offers regular training sessions to help agencies (and other organizations) understand records management requirements and how to implement the established standards and guidelines.

3 Electronic Records Management Challenges

The challenges for electronic records can be looked at in a variety of ways, but the ERM model¹⁸ is a useful framework in which to circumscribe the various facets of this problem.

There are challenges common to all electronic record management issues (e.g., the variety of formats electronic records can take). Other challenges exist that are relevant to the layers of the ERM model; challenges specific to identifying and ingesting, preservation, and access.

3.1 Common Challenges

3.1.1 File Format Variety

Electronic records take on a variety of forms. Common formats include text-based documents, databases, spreadsheets, web pages, drawings and diagrams, maps, electronic mail (email), and more. All formats must be considered and appropriately addressed in a comprehensive ERM strategy. Each file type can present unique challenges. For instance, saving, preserving, and accessing an entire database is very different from saving, preserving, and accessing a series of maps which is different in kind from a collection of web pages or video files, etc. Depending on the type of file it is, it will usually have metadata associated with it. Metadata is data about data, of any sort in any media type. It is information about who created a document, and when;

¹⁶ UCA§ 63G-2. Government Access and Management Act.

¹⁷ The SRC is composed of seven members including a private sector records manager, the State Auditor or the Auditor's designee, a designee of the Division of State History, the Governor or Governor's designee, one citizen member, one elected official representing political subdivisions, and one individual representing the news media. UCA§ 63G-2-501,502. Government Access and Management Act.

¹⁸ Gleaned from Mr. Max Evans during one of the subject matter interviews. Mr. Evans is former director of the National Historical Publications and Records Commission, the granting arm of the National Archives.



size; and who changed it, and when. It is a record of events about the particular file. Metadata is useful in identifying a particular file's properties when searching for specific information. Accurate and correct metadata is critical for ERM.

3.1.2 Media Format Variety

Example A: The CD

Within the state, electronic records are often written to a compact disc (CD). The CD is usually placed in a storage box either within the agency or at the State Archives Records Center. If someone wants to access the information on the CD, the CD must be retrieved and inserted into a disc drive. Today this is a straightforward process, but in the future there are challenges that must be considered

- **Damage:** A CD can be scratched or damaged in some way leaving the information irretrievable or unreadable.
- **Degradability:** Over an extended period of time a CD will not be able to deliver the information contained on it.¹⁹
- **Obsolescence:** Like the floppy disc, the CD, or its operating system, may become obsolete in the future, requiring State Archives to either maintain obsolete technology or to upgrade/convert information to newer technology formats. Either of these options will be costly.

While this is just an example, the state faces similar challenges with each and every other electronic format that currently exists and will face more challenges as new electronic formats emerge.

3.1.3 Data Disbursement

Example B: E-Records from Multiple Sources

Figure 4 depicts how a report could be derived from multiple sources—in this case from two discrete databases found on two separate servers. Suppose, in this example, that the final report is not the record but rather some or all of the underlying data used to create the report. This could create a scenario where the data sitting in Row A of a given database table (the row containing some of the report data) may require certain retention or permission rules while the data sitting in Row B of the same table may not. Keeping track of and executing rules of such dispersed data at such a granular level can be challenging.

¹⁹ Note that currently the life of a CD is predicted to be up around ten years if all storage conditions are normal. See the National Archives, <http://www.archives.gov/records-mgmt/initiatives/temp-opmedia-faq.html>, for archival life of CD's.

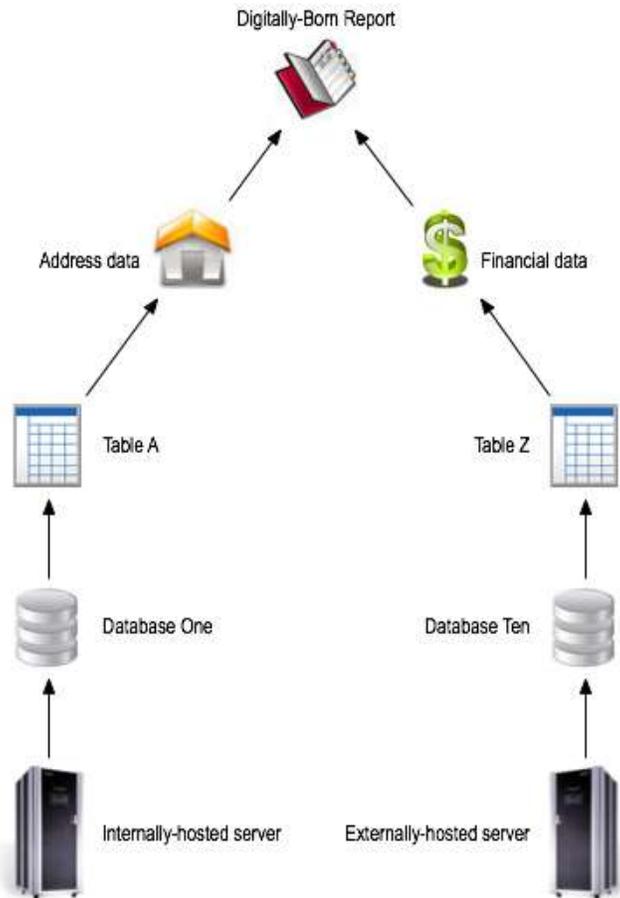


Figure 4: Digitally-Born Report Diagram

3.2 Lack of Robust Guidelines and Automated Support Tools

Another element of the electronic records challenge faced by State Archives involves the lack of a state-wide approach regarding effective standards, guidelines, and practices for ERM as well as a lack of enterprise-wide automated ERM tools and systems.

While guidelines and practices exist, they are not comprehensive enough and do not provide an optimal solution for effectively identifying records, given the growing number of electronic documents. The challenge is to fully integrate standards and practices into a fully comprehensive ERM and into daily business practice.

Currently there is no recommended automated solution(s) identified to support the management of electronic information that become records, preserving electronic records for long periods of time, or automating the workflow of electronic records through their active, inactive, and archived phases of their life cycle.

3.3 Getting Records into the System

As indicated in the ERM model, the first activities are to identify the records and then to get them into the records management system. The ubiquity of computers throughout the

enterprise allows for the possibility of a large number of people to create an electronic record. In such an environment, all staff members who create or deal with electronic records should be trained on the basics of determining whether a given document or piece of information is a record and managing it as such by placing it in an appropriate “container.”

State employees who create electronic information are sometimes unaware of their records management requirements. Agencies struggle with providing the right guidance to these individuals, even though each agency identifies a records officer and/or records manager to assist and advise agency staff on records management requirements. Further complicating this challenge is the lack of a recognized records officer career track within the state. Responsibilities for the records management function are often assigned to those who are entry-level or to individuals who have other primary responsibilities and cannot devote the appropriate amount of time to fully support the records management role.

3.4 Preserving the Records

An ERM strategy must address how records are backed up, retained, destroyed or preserved, handled, and managed. A viable ERM plan should also take into account some of the coming trends (e.g., Software as a Service [SaaS], cloud computing, virtualization, etc.) within the IT industry where the state’s electronic records may be created, managed, and/or stored on equipment and/or systems outside of the state’s walls.

To further define the components of an ERM strategy, a determination must be made regarding storage media. In 2002, State Archives identified the use of magnetic tape as the preferred storage medium for electronic records. However, the equipment to create and copy magnetic tape is becoming harder to find which suggests that magnetic tape, like disc storage or other media, has limitations and life cycles that must be taken into consideration. An ongoing migration effort will be required to ensure data on a medium that is about to become obsolete is moved to the medium of the day in order for everything to remain accessible (see Figure 5).

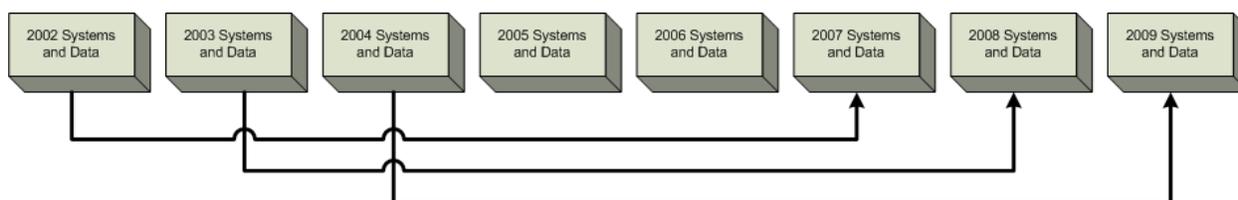


Figure 5: Constant Migration

3.5 Accessing the Records

There are implications in trustworthy access. For instance, without a well-defined, enterprise-wide policy on what can or cannot be stored in an electronic records-keeping system or repository, is an agency to assume it can store any file types and they will be accessible at any point in the future? And with constantly migrating data from soon-to-be outdated formats to the current platforms and environments for preservation, won’t the state also have to address the challenges associated with constantly upgrading the equipment, operating systems, and software licenses of most or all of the systems that will be used to access stored data?



4 Business Risks

Section 3.0 identified some of the challenges associated with ERM. Failure to address these challenges invites unnecessary risks.

4.1 Risks Associated with Not Getting Records into the System

The primary risk is that of cost, due to loss of critical information, the necessity to recreate information that is no longer available, or the amount and quality of storage purchased for records with questionable business value. Failing to identify an electronic record or identifying it incorrectly due to a lack of processes, standards, guidelines, knowledge, and/or systems does not eliminate the legal standard surrounding the retention of records. The business risk to the state may be in the form of legal actions due to an agency's inability to produce a record during an e-Discovery request. This could result in an embarrassment to and/or monetary penalties against the state for the inappropriate retention or destruction of records.

State agencies must comply with GRAMA and transparency in government regulations²⁰ where it is mandated that government business must be conducted in open and full view of the public. Electronic information must be accessed if a court needs it for evidence in a legal proceeding, also known as eDiscovery. There may or may not be penalties associated with non-compliance, but every agency is still legally obligated to do so.

4.2 Risks Associated with Not Preserving Records Properly

Suppose an agency identifies a record according to the appropriate processes and protocols but it is not ingested into the ERM preservation component of the ERM model. Suppose that it was properly entered into the preservation component, but it is not managed appropriately and is allowed to remain in its original file format or on its original media and is not placed in rotation for periodic system migrations. The record would eventually be lost and/or become unusable.

4.3 Risks Associated with Being Unable to Access Records

As in Section 4.2, suppose a record (say some geographic data) is properly identified and entered into the system and is under proactive management in the preservation component. Four years hence the data is requested as part of a legal discovery. During the intervening time, suppose the state and/or industry trends move away from the file format used to store the geographic data; DTS no longer supports it and does not have a workstation available to read the particular file. The state would be able to produce raw data but would have to either configure its systems to read the particular file or contract with an outside party to do so. Significant delays and unnecessary costs would result from either scenario.

²⁰ "Transparency in Government — How American Citizens Influence Public Policy," by Ellen M. Katz, U.S. Department of State's Bureau of International Information Programs, 1999, <http://usinfo.state.gov/products/pubs/transgov/records.htm>.



5 Records Management Business Requirements

5.1 Core Requirements

State Archives has four core requirements for managing electronic records. They must be:

- **Accessible**—the records must be available for appropriate use for the duration of the retention period.
- **Authentic**—the records must be what they claim to be and have integrity, that is, have not been changed, deleted or otherwise altered.
- **Reliable**—the data within the records is at all times retrievable (i.e., no loss of data is acceptable).
- **Secure**—all of the people allowed to view records according to the classification of the records, and only those people, should have access.

In addition, the systems must be **trustworthy**, that is, the hardware and software and processes to manage the electronic records must be reasonably secure from misuse and intrusion.

5.2 Business Function Requirements

The following business functions provide requirements for the ERM strategy and solution:

- **Accessibility**—the strategy and solution must identify means to make electronic records information accessible from the agency or State Archives.
- **Preservation**—the strategy and solution must identify means to preserve electronic records in the agency or State Archives to the full extent of the retention requirement.
- **Records Tracking and Destruction**—the strategy and solution must identify means to track retention and to destroy electronic records that have reached the end of their retention schedule.
- **Archival Custody**—the strategy and the solution must identify means to accession electronic records from an agency to the State Archives' operation.

5.3 Supporting Requirements

In order to support State Archives core requirements and the requirements of the business functions, the following supporting requirements must be met:

- Standards, guidelines, and best practices must be robust enough to encompass multiple formats of electronic records.
- Standards, guidelines, and best practices must be kept up-to-date and keep pace with technology changes.
- Standards, guidelines, and best practices must be easy to understand and to implement consistently state-wide.
- Business processes must be defined for the various electronic formats according to the various retentions and dispositions of the records.



- Automated solutions must be identified and implemented to make managing the increasing volume of electronic records practical and effective.
- Any technology solutions must be financially feasible and compatible with DTS architectural standards.
- Any technology solutions must be compatible with the defined standards and business processes.

6 Best Practices

Approximately 450 pages of material were reviewed from 22 states and industry best practices reports.

- There appears to be no comprehensive, widely-accepted model or framework for the ERM field.²¹ There are a number of useful models, distinctions, best practices, and tools that are designed to address different aspects of the overall ERM problem area. The field appears to be in the early stages of its maturity continuum.
- Most organizations seem to be addressing their respective ERM issues by engaging in ongoing analysis, forming cross-disciplinary advisory teams, and providing very high-level guidelines to its members. None of the states or industry reports surveyed displayed even one example of an entity with a detailed, comprehensive ERM approach.

Since no entity can be found possessing a comprehensive ERM strategic framework, these findings suggest the need to piece together a strategy from selected best practices and discrete models that appear to fit the particular needs and constraints of state agencies and their respective environments. The resulting mosaic will not only serve the state's needs but will be a useful addition to the growing ERM body of knowledge.

The subject matter experts (SMEs) interviewed seemed to agree that manual processes only take an organization so far in its efforts to gain control in the identify and ingest layers of the aforementioned model. At some point, it seems like implementing an ERM software package becomes necessary in order to capture and tag records appropriately in large quantities and to automate record management processes as much as possible.

Other SMEs elaborated on best practices in preservation, suggesting limiting the number of file types allowed into long-term storage. For instance, an organization may create a policy stating text documents will only be stored in a PDF/A file format. Word, WordPerfect or other word processing file types would be required to be converted to PDF/A in order to be admitted into the long-term repository. This allows for easier and more cost effective management of the repository as well as more seamless platform migrations.

There is mild debate (which ultimately comes down to the preferences and resources of each organization) surrounding how many copies of a given file to preserve and which ones. For example, a file is saved in the long-term repository as XYZ.08. A new version of the software used to produce the file comes available in 2012, and support for the 2008 version is expected to end around 2013. The repository manager may save XYZ.08 to XYZ.12. Five years later, the software company may come out with its 2017 version and the file could be saved again as

²¹ Similar to what the Zachman Framework would be to the field of enterprise architecture planning (EAP).



XYZ.17. There is widespread agreement about keeping the first two created versions of the file. However, when the third version is created, some prefer to keep only the first and latest versions, while others keep the two most recent.

Depending on the value of the records and available resources, some organizations preserve records offsite on tape drives in Location A and on redundant server arrays in Location B. Files are stored in multiple locations on a variety of media and/or servers in order to prevent loss of data from a hardware failure. Advances in grid or cloud computing with multiple massive server farms (both public and private) is expected to have a large impact on this layer over the next two to five years.

Having controlled file types in the repository makes accessing the files easier as the agency may only need to maintain and keep current one software package for a given file type versus several.

As the ERM field continues to mature and State Archives continues its project, other best practices will emerge and continue to be documented and adopted as it makes sense to do so.

7 Future Environment

The future environment for ERM in the State of Utah is characterized as follows:

- ERM Advisory Group

The State of Utah will form a cross-disciplinary advisory group from the state's executive branch that includes State Archives, Department of Technology Services, the Attorney General's Office, the Governor's Legal Counsel, Risk, and other agencies as appropriate to the business needs. This group will meet regularly to discuss records management issues and to set records management policy for the state.

This advisory group will also maintain an active and productive relationship with members of the Utah State Legislature in order to provide well-researched feedback and implementation estimates for GRAMA and other similar laws and to ensure any relevant legislation is worded with a balance of idealism and realism in the realm of records management.

- National Presence

State Archives will participate actively in regional and national forums, conferences, and professional organizations in the development of the growing ERM body of knowledge, industry best practices, and standards. In this role, the Utah State Archives will be nationally recognized as a leader in the ERM field and is periodically used as a benchmark by a variety of entities seeking to gain more control and understanding of their own ERM activities.

- ERM Outreach

In its ongoing outreach efforts to state agencies, State Archives will reach out to state agencies and other local government entities to promote the ERM model and define an implementation strategy that will work for each agency. State Archives will work with each agency on a case-by-case tailor the strategy for the agency's specific needs. The strategy spans from simple, more manual records management



processes that can be implemented in a relatively short period of time to the more complex and larger-scale solutions.

- Technical Solutions

In its ideal state, the future of ERM in Utah will have all necessary hardware, software, and infrastructure elements for the entire spectrum of ERM processes in place. These technical solutions will be approved by DTS, and under DTS's maintenance, back-up, and disaster recovery protection plans.

All ERM systems and processes will meet the requirements outlined above and allow for efficient e-Discovery, transparency in government, cost-effective document storage, compliance, and, in some cases, even knowledge management opportunities throughout Utah government.

8 Gap Analysis

The gap between where the ERM in the State of Utah is now, and where the state should be includes:

- Formal establishment of the advisory group

In July 2008, an informal meeting to identify desired participants was held. Not yet a working group, the group will need to review the research State Archives has compiled, organize an ongoing communication plan and meeting schedule to regularly address ERM policy decisions, and determine the most appropriate timing and methods to reach out to members of the Utah State Legislature.

- National presence

State Archives is already involved in forums and conferences around ERM issues. As it progresses through the ERM model and begins to have successful implementations with state agencies, it will seek to elevate its profile on the national ERM best practices, body of knowledge and standards scene by offering lessons-learned, models, articles, etc., to the ERM community.

- Outreach and Identification of agency needs and priorities for ERM

The outreach has not yet been launched; however, presentations and a baseline implementation strategy have been developed to begin the work with the agencies.

- Identification and implementation of ERM technical solutions

Requirements for technical solutions have not been gathered yet. DTS will work closely with State Archives and the agencies to define the technical requirements.

9 Implementation

At this point no specific solutions have been identified, however, an approach to better understanding specific business needs and defining requirements from which potential solutions can be identified is recommended. These can be defined and developed using an ERM implementation maturity model.



An iterative approach would allow the state to implement steps, policies, and procedures in a progressive manner. Through a process of structured elaboration, a selection of work, tools would be available in the short term to assist state agencies. Over time a full ERM approach would naturally develop as solutions were put in place in a sequenced manner. Those electronic records issues in the forefront of need and controversy would be highest priority to address. Agencies would assist in the identification and specifications of building ERM solutions. Other state agencies would receive business value as solutions are implemented and made available on an enterprise level.

Obtaining resources to support ERM solutions will be an ongoing challenge that the state, State Legislature, State Archives, and state agencies must address. By using the iterative approach, funding opportunities will be identified for specific solutions. Valuable steps could be taken sequentially, based upon the available resources—with state funding or by taking advantage of other opportunities.

A maturity model is a strategy for a business process. Solutions evolve from the simple to the complex, usually within five steps. Each step adds an increasing amount of business value (or maturity) to the strategy, and consequently more effort and resources are required for that step to be put into effect. The model organizes the steps needed for the implementation of an electronic records management plan, defining the variety of formats, priorities of issues, risks, and goals that are part of an ERM schema. It will direct the state in the appropriate directions and gauge the tools needed to accomplish ERM goals (see Appendix D for Implementation Maturity Model).²²

10 Recommendations and Next Steps

10.1 Recommendations

- Pursue state-wide engagement on ERM strategy and implementation.
- Establish the advisory group to recommend and regularly review policies, guidelines, and best practices for the creation, maintenance, long-term preservation of and access to electronic records created by Utah state government.
- Work with agencies to understand agency requirements and identify funding strategies for implementing ERM solutions.

10.2 Next Steps

- Establish the advisory group
 - State Archives has reached out to the Attorney General and the Governor's Legal Counsel to identify and invite appropriate members. The support and commitment of these members needs to be enlisted.
 - Convene a meeting to establish advisory group roles, responsibilities, and guidelines; establish relationships; to review needs and priorities; and to define meeting schedules to regularly address the state's ERM issues.
- Prepare and present ERM presentations to the Governor's Cabinet and, subsequently, state agencies.

²² "Accelerate Your Retention Management Strategy," by Barry Murphy, with Kyle McNabb and Diana Levitt, Forrester, 2007. <http://www.forrester.com/Research/Document/0,7211,43964,00.html>.

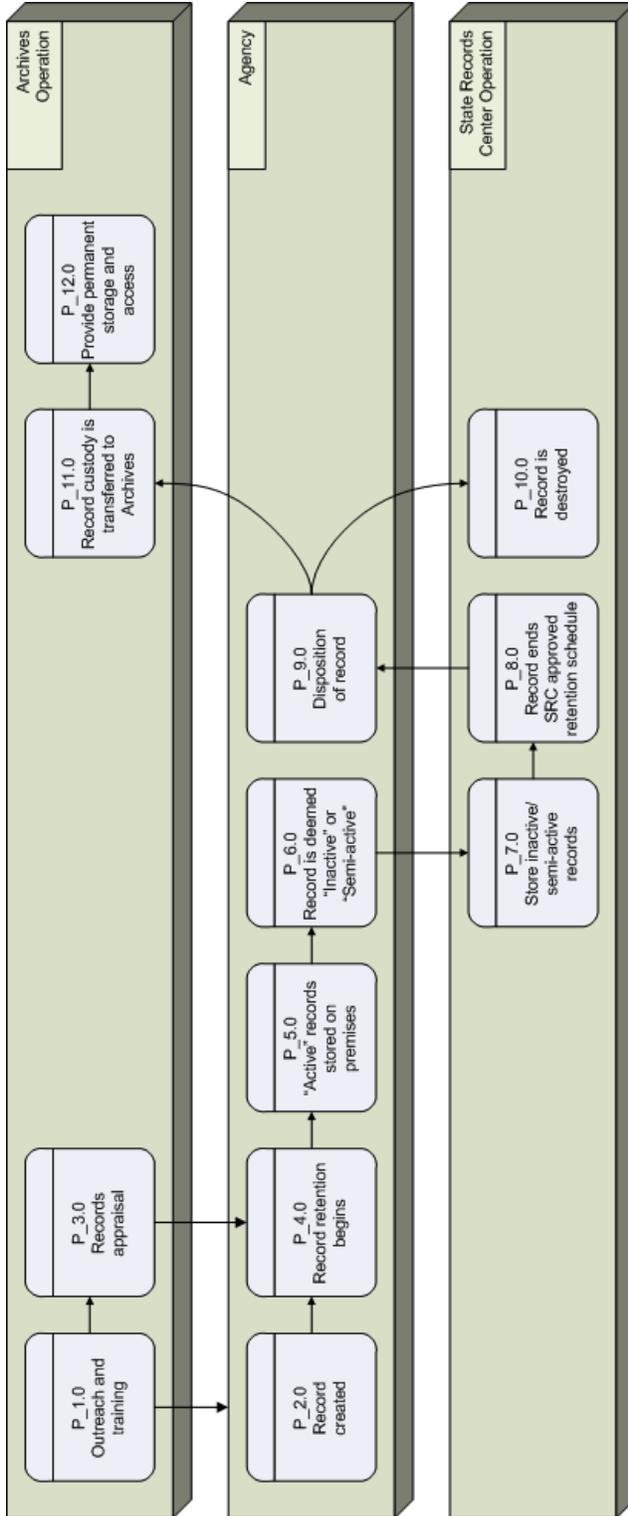


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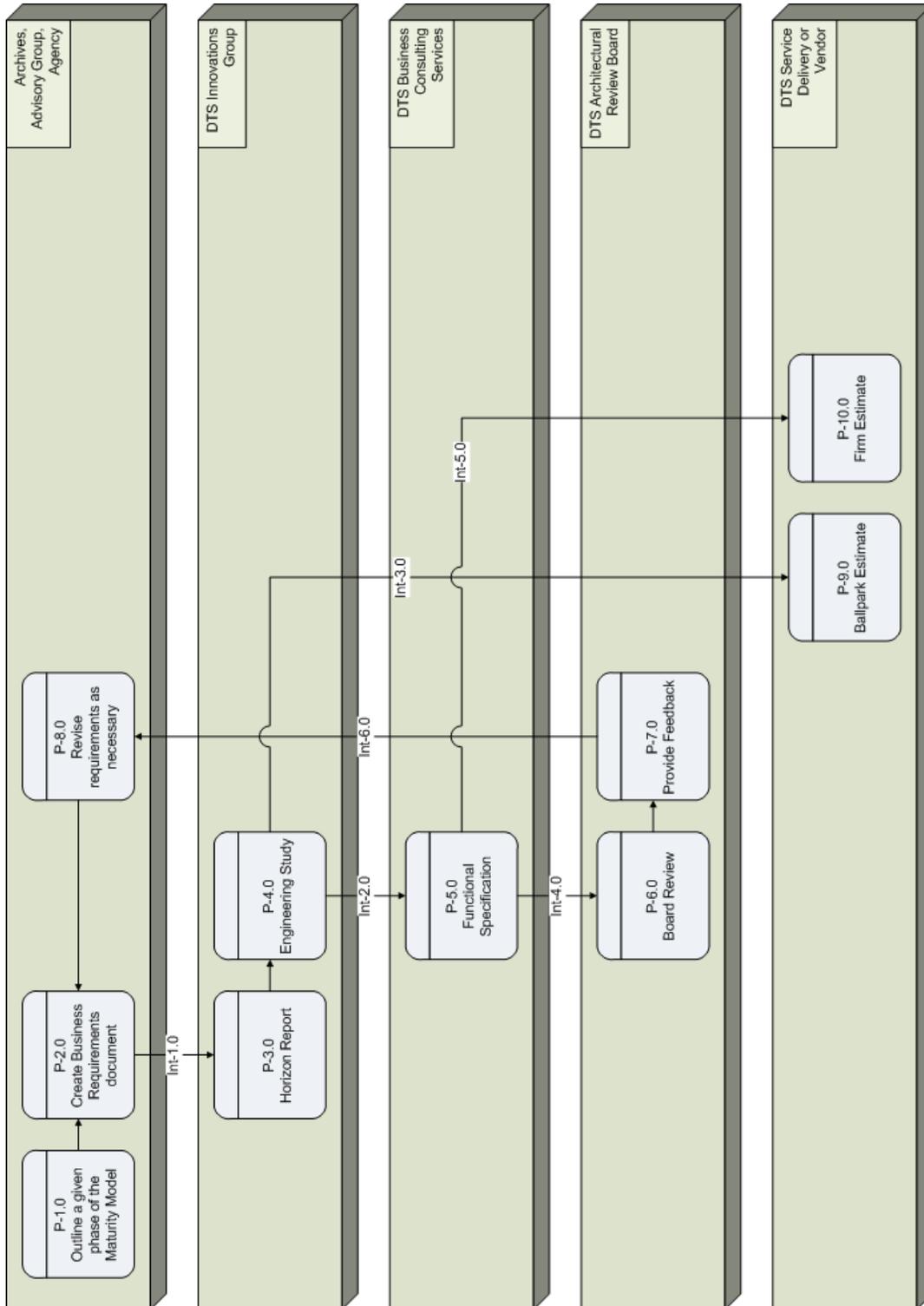


- Work with agencies to identify ERM priorities within their business and services; define implementation strategies to address those needs; and define funding strategies for implementing ERM solutions.

Appendix A: Archive Process for Paper Records



Appendix B: DTS Approval Process





Appendix C: Definitions

| Term | Definition |
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| Access | The ability or opportunity to gain knowledge of stored information |
| Accessibility | The attribute of records or information being available for appropriate use over time. For e-records accessibility includes having the technical means and metadata (data describing how, when, and by whom an e-record was created, and how it is formatted) to access, use, and understand the records. |
| Accession | Materials physically and legally transferred to a repository as a unit at a single time; an acquisition. |
| Acquisition | When materials are received by a repository as a unit; an accession. |
| Archives Operation | The repository in which materials created or received by the state in the conduct of its business are preserved because of the enduring value contained in the information they contain or as evidence of the functions and responsibilities of their creator, materials are maintained using the principles of provenance, original order, and collective control. |
| Authenticity | <p>A condition that proves that a record is genuine based on its mode (i.e., a method by which a record is communicated over space or time), form (i.e., the format or media that a record has upon receipt), state of transmission (i.e., the primitiveness, completeness, and effectiveness of a record when it is initially set aside after being made or received), and manner of preservation and custody.</p> <p>Also refers to the methods used to verify the source or origin of an e-record. Authenticity is closely related to the concept of integrity.</p> |
| Custody / Official Custody | The responsibility for implementing policy for the care and access of records. |
| DOD 5015.2 STD from the Department of Defense | This standard is broad, and the Department of Defense was one of the early departments to address electronic records. It is meant to be more for compliance, inasmuch as one is compliant with the standard. It defines the basic requirements based on operational, legislative and legal needs that must be met by records management application products acquired by the Department of Defense (DoD). It defines requirements for managing classified records and includes requirements to support the Freedom of Information Act (FOIA), Privacy Act, and interoperability. |
| Dublin Core | The Dublin Core is a metadata element set which is a standard for |



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| | <p>cross-domain information resource description. It includes all Dublin Core Metadata Initiative terms (that is, refinements, encoding schemes, and controlled vocabulary terms) intended to facilitate discovery of resources. The Dublin Core has been in development since 1995 through a series of focused invitational workshops that gather experts from the library world, the networking and digital library research communities, and a variety of content specialties.</p> |
| <p>e-Discovery</p> | <p>Federal Rules of Civil Procedure, Fed. R. Civ. P. 37 "(e) Failure to Provide Electronically Stored Information. Absent exceptional circumstances, a court may not impose sanctions under these rules on a party for failing to provide electronically stored information lost as a result of the routine, good-faith operation of an electronic information system."</p> <p>Utah Rules of Civil Procedure, Utah R. Civ. P. 37 "(g) Failure to preserve evidence. Nothing in this rule limits the inherent power of the court to take any action authorized by Subdivision (b)(2) if a party destroys, conceals, alters, tampers with or fails to preserve a document, tangible item, electronic data or other evidence in violation of a duty. Absent exceptional circumstances, a court may not impose sanctions under these rules on a party for failing to provide electronically stored information lost as a result of the routine, good-faith operation of an electronic information system."</p> |
| <p>Government Entity</p> | <p>§UCA 63G-2-103 defines governmental entity as:</p> <ul style="list-style-type: none"> (i) executive department agencies of the state, the offices of the governor, lieutenant governor, state auditor, attorney general, and state treasurer, the Board of Pardons and Parole, the Board of Examiners, the National Guard, the Career Service Review Board, the State Board of Education, the State Board of Regents, and the State Archives; (ii) the Office of the Legislative Auditor General, Office of the Legislative Fiscal Analyst, Office of Legislative Research and General Counsel, the Legislature, and legislative committees, except any political party, group, caucus, or rules or sifting committee of the Legislature; (iii) courts, the Judicial Council, the Office of the Court Administrator, and similar administrative units in the judicial branch; (iv) any state-funded institution of higher education or public education; or (v) any political subdivision of the state, but, if a political subdivision has adopted an ordinance or a policy relating to information practices pursuant to Section 63G-2-701, this chapter shall apply to the political subdivision to the extent specified in Section 63G-2-701 or as specified in any other section of this chapter that specifically refers to political subdivisions. <p>(b) "Governmental entity" also means every office, agency, board,</p> |



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| | bureau, committee, department, advisory board, or commission of an entity listed in Subsection (11)(a) that is funded or established by the government to carry out the public's business. |
| Ingest | The ability of an RMA to bring in exported records and record metadata |
| Integrity | The attribute that the record's contents have not been changed, deleted or otherwise altered. In addition, integrity addresses the accuracy and timeliness of the contents of a record. Both authenticity and integrity are derived from the legal arena and have a strong bearing on the legal admissibility of records. |
| The Open Archival Information Standard (OAIS) | This is a reference model for an open archival information system (OAIS). The purpose was to establish a system for archiving information, both digitized and physical. The model addresses a full range of archival information preservation functions including ingest, archival storage, data management, access, and dissemination. It addresses the migration of digital information to new media and forms, the data models used to represent the information, the role of software in information preservation, and the exchange of digital information among archives. It identifies both internal and external interfaces to the archive functions, and it identifies a number of high-level services at these interfaces. It provides various illustrative examples and some "best practice" recommendations. It defines a minimal set of responsibilities for an archive to be called an OAIS, and it also defines a maximal archive to provide a broad set of useful terms and concepts. |
| Record | <p>§UCA 63G-2-103 defines a record as:</p> <p>(22) (a) "Record" means a book, letter, document, paper, map, plan, photograph, film, card, tape, recording, electronic data, or other documentary material regardless of physical form or characteristics:</p> <p style="padding-left: 40px;">(i) that is prepared, owned, received, or retained by a governmental entity or political subdivision; and</p> <p style="padding-left: 40px;">(ii) where all of the information in the original is reproducible by photocopy or other mechanical or electronic means.</p> |
| Security | Refers to the protection of information assets, including both physical and technical controls over access to information. Security has technical, physical, and procedural components. |
| State Archives | The division within the Utah State government that is responsible for maintaining the state's records of enduring value. |
| State Records Center | A facility operated by the State Archives that is used for low-cost storage of inactive and semi-current records before those records are |



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| | destroyed or transferred to the Archives. |
| Trustworthy System | Computer hardware, software, and procedures that are reasonably secure from intrusion and misuse; provide a reasonable level of availability, reliability, and correct operation; are reasonably suited to performing their intended functions; and enforce the applicable security policy. A trustworthy system is not necessarily a "trusted system" as recognized in classified government nomenclature. |

Definition References

A Glossary of Archival and Records Terminology, by Richard Pearce-Moses, Society of American Archivists, 2005, <http://www.archivists.org/glossary/index.asp>.

Electronic Records Management Software Applications Design Criteria Standards, Department of Defense, <http://www.dtic.mil/whs/directives/corres/pdf/501502std.pdf>

Electronic Records Management Guidelines for State Government Ensuring the Security, Authenticity, Integrity, and Accessibility of Electronic Records: Exposure Draft, A National Electronic Commerce Coordinating Council E-Sign Policy Workgroup Paper, December 2001, http://www.dir.state.tx.us/standards/NEC3-Records_Mgmt_ED.pdf.



Appendix D: ERM Implementation Maturity Model

| | Phase I: Traditional | Phase II | Phase III | Phase IV |
|--------------------------------|--|---|--|---|
| Retention team elements | Records managers / officers (skilled in physical records management) only | <p>Strategy</p> <ul style="list-style-type: none"> ERM Advisory Group <p>Execution</p> <ul style="list-style-type: none"> Records managers / officers (some electronic expertise) Ad hoc IT involvement on specific electronic records that have been designated by the advisory group Ad hoc legal involvement | <p>Strategy</p> <ul style="list-style-type: none"> ERM Advisory Group <p>Execution</p> <ul style="list-style-type: none"> IT (beginning to take more ownership) Ad hoc records management involvement Ad hoc legal involvement | <p>Strategy</p> <ul style="list-style-type: none"> ERM Advisory Group <p>Execution</p> <ul style="list-style-type: none"> Dedicated information management team (owners) Formal IT involvement Formal legal involvement Formal lines of business involvement |
| What is retained? | Physical (paper) records | <ul style="list-style-type: none"> Email records GIS records | <ul style="list-style-type: none"> Web pages Selected email Collaboration workspace files Product plans | <ul style="list-style-type: none"> All email Network file shares Desktop content Mobile device content Hard drive files Structured and business application data |
| Where is information retained? | <ul style="list-style-type: none"> Long-term: Agency site or State Archives off-site warehouse Permanent: State Archives on-site warehouse | <ul style="list-style-type: none"> Standalone records repository Multiple repositories of records Rare to have central view of all records | <ul style="list-style-type: none"> Combination standalone records repositories and some in-place storage (information stays where users put it) Multiple repositories of records | <ul style="list-style-type: none"> In-place storage Central index of all records and locations |
| What tools are used? | <ul style="list-style-type: none"> Physical RM software | <ul style="list-style-type: none"> Electronic RM software – standalone records repository (not integrated with physical RM systems) Search and index | <ul style="list-style-type: none"> Electronic RM software – standalone repository of federated RM Message archiving (standalone) Search and index | <ul style="list-style-type: none"> Electronic RM software – federated RM; integrated with content archiving, search and index, and physical RM Proactive policy management |



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“Accelerate Your Retention Management Strategy,” by Barry Murphy, with Kyle McNabb and Diana Levitt, Forrester, 2007.
<http://www.forrester.com/Research/Document/0,7211,43964,00.html>.