

Digital Records Pathways: Topics in Digital Preservation

Module 5: From *ad hoc* to Governed – Appraisal Strategies for Gaining Control of Records in Network Drives

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Digital Records Pathways: Topics in Digital Preservation

1 Preface

Digital Records Pathways: Topics in Digital Preservation is an educational initiative developed jointly by the International Council on Archives (ICA) and the International Research on Permanent Authentic Records in Electronic Systems Project (InterPARES). It offers training to archivists and records professionals in the creation, management and preservation of authentic, reliable and usable digital records. The program assumes that the user has a solid grounding in basic concepts of records management and archival theory, and builds on that knowledge.

Consisting of eight independent modules, *Digital Records Pathways* addresses the theoretical and practical knowledge needed to establish the framework, governance structure and systems required to manage and preserve digital records throughout the records' lifecycle.. Each module addresses a specific topic of relevance to the management and preservation of digital records. The program is provided free of charge on the ICA website at www.ica.org/.

1.1 About the ICA and InterPARES

The ICA and InterPARES are committed to establishing educational materials for the continuing education of archivists and records managers, to build upon foundational knowledge, disseminate new findings, and to equip archivists and records professionals with the necessary specialized knowledge and competencies to manage and preserve digital records.

The International Council on Archives (ICA) (www.ica.org) is dedicated to the effective management of records and the preservation, care and use of the world's archival heritage through its representation of records and archives professionals across the globe. Archives are an immense resource. They are the documentary by-product of human activity and as such an irreplaceable witness to past events, underpinning democracy, the identity of individuals and communities, and human rights. But they are also fragile and vulnerable. The ICA strives to protect and ensure access to archives through advocacy, setting standards, professional development, and enabling dialogue between archivists, policy makers, creators and users of archives.

The ICA is a neutral, non-governmental organization, funded by its membership, which operates through the activities of that diverse membership. For over sixty years ICA has united archival institutions and practitioners across the globe to advocate for good archival management and the physical protection of recorded heritage, to produce reputable standards and best practices, and to encourage dialogue, exchange, and transmission of this knowledge and expertise across national borders. With approximately 1500 members in 195 countries and territories the Council's ethos is to harness the

cultural diversity of its membership to deliver effective solutions and a flexible, imaginative profession.

The International Research on Permanent Authentic Records in Electronic Systems (InterPARES) (www.interpares.org) aims to develop the knowledge essential to the long-term preservation of authentic records created and/or maintained in digital form and provide the basis for standards, policies, strategies and plans of action capable of ensuring the longevity of such material and the ability of its users to trust its authenticity. The InterPARES project has developed in three phases:

InterPARES 1 (1999-2001) focused on the development of theory and methods ensuring the preservation of the authenticity of records created and/or maintained in databases and document management systems in the course of administrative activities. Its findings present the perspective of the records preserver.

InterPARES 2 (2002-2007) continued to research issues of authenticity, and examined the issues of reliability and accuracy during the entire lifecycle of records, from creation to permanent preservation. It focused on records produced in dynamic and interactive digital environments in the course of artistic, scientific and governmental activities.

InterPARES 3 (2007-2012) built upon the findings of InterPARES 1 and 2, as well as other digital preservation projects worldwide. It put theory into practice, working with archives and archival / records units within organisations of limited financial and / or human resources to implement sound records management and preservation programs.

1.2 Audience

The audience for this program includes archivists and records and information professionals interested in expanding their competencies in the management of digital records. Taken as a whole, the modules form a suite of resource materials for continuing professional education with particular focus on issues influencing the preservation of reliable, accurate and authentic digital records.

1.3 How to Use the Modules

Each module consists of theoretical and methodological knowledge and its practical application, illustrated through case studies and model scenarios. While the modules have been developed by InterPARES Team Canada, and are therefore illustrated with examples from the Canadian context, each module is customizable for a specific domain or juridical context. For wider applicability, they have been translated into the languages of the ICA partners.

The modules can be studied individually according to need and interest, or as a set, covering the range of competencies required. They can be self-administered by individuals, or offered through professional associations or workplace training. The modules also contain a number of templates that allow universities and professional associations to adapt and to develop specific course curricula, on-site training materials for students and professionals on digital recordkeeping and preservation issues.

Universities and professional associations are free to adapt the materials and develop their own context-specific course curricula and training kits.

1.4 Objectives

The modules have the following objectives:

- To provide educational resources based on cutting edge research in digital records issues to professional archival and records management associations for the benefit of their members;
- To provide archivists and records managers with the necessary theoretical knowledge as well as procedural and strategic skills to develop, implement and monitor a digital recordkeeping and/or a preservation program;
- To illuminate theoretical concepts with practical applications through real life examples drawn from case studies, anchored in specific administrative and technological contexts;
- To provide university programs with content and structure for courses on digital records management and preservation.

1.5 Scope

Digital Records Pathways: Topics in Digital Preservation consists of the following modules:

- Module 1: Introduction – A Framework for Digital Preservation
- Module 2: Developing Policy and Procedures for Digital Preservation
- Module 3: Organizational Culture and its Effects on Records Management Selection and Appraisal of Digital Records
- Module 4: An Overview of Metadata
- Module 5: From *Ad Hoc* to Governed – Appraisal Strategies for Gaining Control of Digital Records in Network Drives
- Module 6: E-mail Management and Preservation
- Module 7: Management and Preservation of Records in Web Environments
- Module 8: Cloud Computing Primer

Each module consists of some or all of the following components as appropriate:

- **Overview** of the topic and scope of the module;
- **Learning objectives** and expected level of knowledge upon completion;
- **Methodology** or the procedures to follow in order to apply the module;
- **Templates (where appropriate)** to facilitate the implementation of the module;
- **Case Study(ies)/Scenarios (where appropriate)** that provide real-world examples of module topic
- **Exercises** covering key learning points;
- **Review questions** to enhance comprehension and understanding of the topic;
- Additional **Resources** for the topic, including **readings, standards** and other **templates** for reference

Overview of the set			
1. A Framework for Digital Preservation 2. Developing Policy and Procedures for Digital Preservation			Foundational
3. Organizational Culture	4. An Overview of Metadata	5. Appraisal Strategies	General purpose
6. E-mail	7. Websites	8. Cloud Computing	Specific purpose
International Terminology Database			Foundational

1.6 International Terminology Database

The terminology used in the modules reflects common usage in archival and records management communities of practice. To ensure common understanding, and minimize potential confusion that may arise from regional or jurisdictional practice, all modules are supported by the International Terminology Database, available at <http://www.web-denizen.com/>. As well, certain specific terms are included in short glossaries in each module.

Module 6: From *ad hoc* to governed: Appraisal strategies for digital records in distributed environments

2 Introduction

Organisations today are handling vast quantities of paper and electronic documents and records that need to be managed and preserved as a logical whole. For many organisations, linking paper recordkeeping systems with digital records and recordkeeping systems creates a hybrid system that is difficult and time consuming to manage. Many organisations create and maintain their digital records in *ad hoc* systems of shared network drives, without the benefit of electronic records management systems (ERMS) or electronic document and records management systems (EDRMS), which are costly to acquire, implement and manage. Even small organisations may find themselves using a combination of different applications to manage their digital records, including document or content management systems, databases, and shared network drives. As many organisations consider moving all or some of their records into cloud storage for cost benefits, complexity and risks to accountability, authenticity, and reliability are likely to increase. It is critical that organisations be confident that they have control over their records, regardless of the technologies employed to create, maintain and preserve them.



See Module 8: Cloud Computing Primer for more information about the benefits and risks of using cloud computing services.

Even when digital records are classified or filed according to official file plans and governed by authorized retention and disposition schedules, disposition may be inconsistently applied to electronic records, allowing an uncontrolled accumulation of records to be stored on servers, desktops, or external media such as thumb drives. Alternatively, if disposition is carried out in an uncontrolled environment, audit trails of record destruction will not be self-generating, but must be manually created, often in paper. Appraisal of electronic records is often not done, or not done systematically, and the authenticity and reliability of an organization's electronic records may be questionable or hard to establish. This can have serious consequences, including lost productivity when documents cannot be easily found or accessed; problems with version control; lack of compliance with legal and regulatory requirements; negative exposure in event of legal action by or against the organization; and security vulnerabilities.

2.1 Aims and Objectives

The purpose of this module is to outline an action plan for appraisal that will help an organization gain control of their digital records. Implementation will be one step to

move from a record-creating and recordkeeping environment where unstructured digital records and documents are created, stored and maintained in uncontrolled or manually controlled systems (shared network drives are common in today's business environment), to a more controlled record-creating and recordkeeping environment. This might mean moving to a more strictly controlled and organized system of networked drives, or migrating records to an ERMS or EDRMS. It may also be used to prepare an organization to transfer records that are no longer in active use to the custody of an archives or other trusted preserver.

This module consists of two parts. Part 1 begins with a brief outline of the history and theory of selection and appraisal of records (regardless of format, but specifically presented with digital records in mind). Next, it presents the rationale for appraisal of digital records and offers a template for documenting the appraisal process that can be customized for individual circumstances. The section concludes by addressing the issues of appraisal by the creator as the creator determines issues of retention and disposition, and issues of appraisal by the preserver as the preserver considers issues of acquisition and preservation.

Part 2 is an action plan that offers a workflow to gain control of unstructured digital records. The plan attempts to remain technology-neutral. Therefore it neither recommends nor suggests that organisations adopt a particular recordkeeping system as a means of gaining control over records. Rather, it attempts to put in place the steps required to implement principles and guidelines that will increase control over records and boost confidence in their reliability, accuracy and authenticity over time and across technological change.

2.2 Learning Outcomes

Upon completion of this module, you should be able to:

- Distinguish the main methods of appraisal commonly used to appraise digital records,
- Evaluate your organization's record-creating and recordkeeping environment and make recommendations for improvement,
- Identify the appraisal strategy in use in your organization and evaluate against the template in this module, or if your organization does not have an appraisal strategy,
- Create a framework within which to carry out appraisal in your organization,
- Establish and/or ensure the authenticity and reliability of your organization's digital records,
- Prepare your organization's digital records for migration to a structured and secure records management or records preservation system, such as an ERMS or EDRMS, or trusted digital repository, and,

- Know where to locate additional information and resources that will facilitate understanding and implementation of cloud computing technologies.

2.3 Definitions / Concept Explanation

Unstructured electronic (digital) records are those documents relied upon and managed as records that were created using desktop applications (as opposed to being created using database systems).

Shared drives, also known as network drives, are folders on an organization’s network, available to one or more users of the network, where users file and maintain unstructured electronic documents and records created with desktop applications. Shared drives cannot function as a true recordkeeping system and the use of shared drives is rarely controlled. While some measure of systematic development and monitoring can be brought to bear on shared drives, they do not offer the capacity to capture and preserve records that can be relied upon in the long term.



See the ICA International Terminology Database at www.web-denizen.com for more terminology relevant to this module.

A Note About Terminology: Electronic vs. Digital

Early literature distinguished traditional paper records from “machine readable” records – those records whose form could be recognized, accepted, and interpreted by a machine, such as a computer or other data processing device. The term, “machine-readable,” encompassed a wide variety of storage media, including punched paper cards, magnetic discs, cassettes, paper tape, and magnetic tape.¹ As storage media evolved, “machine-readable record” gave way to “electronic record,” a generic term defined as “an analogue or digital record that is carried by an electrical conductor and requires the use of electronic equipment to be intelligible by a person.”² During the course of the InterPARES research, the term “electronic record” began to be gradually replaced by the more restrictive term “digital record,” defined separately as “a digitally-encoded object and the metadata necessary to order, structure or manifest the object’s content and form,” where “digital object” is taken to mean “a discrete aggregation of one or more bit streams and the metadata about the properties of the object and, if applicable, methods of performing operations on the object.”³

¹ Charles Dollar (1978), “Appraising Machine-Readable Records,” *American Archivist* 41, No. 4, Oct. 1978, p. 423-430.

² IP2 Terminology Database

³ Ibid.

In the course of this module, the term “electronic records” will be used when cited literature uses this term. In all other circumstances, the term “digital records” will be adopted.

3 Part 1: Selection and Appraisal of Digital Records

3.1 Introduction

Appraisal is the process of assessing the value of records for the purpose of determining the length and conditions of their preservation.⁴ With preservation, appraisal is referred to as a core archival concept⁵, and yet the subjective nature of determining “value,” and thereby consigning one record to destruction while preserving another to societal memory has been a source of discussion for many decades. This is particularly true in the era of digital records, when the volume of material created and needing to be managed is increasing at unprecedented rates. Appraisal of digital records also assembles evidence for the presumption of authenticity, identifies those digital components necessary to ensure the preservation of authentic records, and establishes the feasibility of preservation given the resources and constraints of the preserver.⁶

Archivists have developed many appraisal strategies with which to determine value of the growing volume of records in all formats in contemporary organisations. This module does not champion one strategy over another. However, regardless of the appraisal strategy(ies) your organization favours, a few key points underlie a theory of appraisal regardless of method.

*Analysis is key to appraisal*⁷

Different appraisal strategies have prioritized different modes of analysis – primarily structural, formal, functional, or some combination of the three. Regardless of the mode of analysis, all archival theorists agree that systematic and rigorous analysis of records and records creators is key as a precursor to professional appraisal.

Appraise early, appraise often

Digital records present unique challenges. Research into the nature of digital records has shown that in order to preserve digital records, consideration to their preservation must begin at the time of their creation, or the design of systems of records creation. The decision to preserve depends on appraisal. Therefore, in the digital environment, appraisal decisions begin at the time of records creation. Because technological systems are constantly evolving and changing, appraisal decisions must also be monitored, reviewed, and updated over time.

⁴ InterPARES Terminology Database, http://www.interpares.org/ip3/ip3_terminology_db.cfm?status=glossary.

⁵ IP2 p.189

⁶ Ibid.

⁷ Schellenberg, quoted in Duranti (Structural and Formal Analysis)

3.2 Background

Although no one today questions the capacity for information recorded electronically or digitally to function as a record of actions and transactions, and be subject to appraisal, retention, disposition or preservation, this has not always been so. To give but one example, in 1936 the National Archives of the United States declared census data captured on punch cards to be “non-records” with no requirement for preservation. Computers were perceived as tools, e-records were considered transitory and only paper records were accepted into archival custody. Twenty years later, T. R. Schellenberg, then Director of Archival Management at the National Archives, reversed that understanding and declared computer punch cards to be records. However, as they were neither easy to consult nor readable by humans without intervening equipment there was, he believed, there was no need to keep them. By 1960, much data input into computers was stored on magnetic tape. General wisdom held that computer tapes were considered interim media between a data input and a paper output, and it was still the paper that was considered the record and managed accordingly.⁸

It was not until 1978 that Charles Dollar⁹ called for continuing retention of electronic records, evaluated, or appraised, by a dual process of technical and intellectual considerations. He considered such records to have informational value only, with no legal or business value, thus distinguishing and annexing these electronic records from traditional records in a creator’s fonds. This view was challenged several years later by the Public Archives of Canada, which called for computer generated records to be appraised in the context of the whole of a creator’s records and on the basis of the same taxonomy of values as traditional records.

As archivists grappled with the issues of value and application of appraisal criteria to electronic records, the legal status of electronic records was also a subject of intense debate. In common law countries, case law has been responding slowly to the increasing use of computer records, and legislation is changing to reflect the new reality.

In the course of appraisal, regardless of the methodology or theoretical framework adopted, the goal is to retain and preserve records that provide for accountability, rights, privileges and obligations, evidence, and societal memory. By the early 1980s, the following recommendations governed the appraisal of electronic records:

- computer records should be appraised in the context of the whole of a creator’s records,
- appraisal of computer records should be based on the same taxonomy of values as traditional (predominantly paper) records,

⁸ Luciana Duranti (1996), “The Thinking on Appraisal of Electronic Records: Its Evolution, Focuses, and Future Directions,” *Archivi & Computer* (6), p. 493-518.

⁹ Charles Dollar (1978), “Appraising Machine-Readable Records,” *The American Archivist* 41(4), <http://www.jstor.org/stable/40292816>.

- appraisal should be conducted on intellectual grounds rather than technical, legal, or management-related criteria,
- value of computer records should be judged in the entire administrative and documentary context, and
- paper records which are considered transient and not worthy of long-term preservation may, in fact, have ongoing value when in digital form because of the manipulability of their contents.¹⁰

Findings of InterPARES (International Research on Permanent Authentic Records in Electronic Systems) have shown that archivists need to incorporate three important shifts in their approach to appraisal in the digital environment.¹¹

- Evidence in support of the authenticity of the records must be intentionally and explicitly documented, due to their fragility and manipulability,
- Because the structure and content of digital records is not linked in the same way as it is for analogue records, the digital components that together form the record, and are separable, must be identified and preserved in order to reproduce the complete record, and
- Because digital preservation is complex and costly, the feasibility of preservation – both financial and technical – must be assessed as part of the appraisal process.

In light of these findings, InterPARES concluded that:

- Appraisal of digital records should happen at or near the time of creation, and appraisal criteria may be built into the recordkeeping system's design,
- Appraisal decisions should be revisited throughout the records' lifecycle, to address the rapid rate of technological change, and
- Information compiled during appraisal(s) should be linked to the records and carried forward throughout their lifecycle.

The next section discusses these issues in greater detail, and outlines the methodology of appraisal of digital records.

¹⁰ Ibid.

¹¹ The following discussion reflects the findings of the InterPARES project and can be found in IP2 pp.187-191

3.3 Methodology

3.3.1 Why appraise?

Appraisal is often considered to be one of the core functions of the archival profession. It is through the act of appraisal that those records that will support legal rights and obligations, business processes and transactions, organizational and personal accountability, historical and societal memory are identified. Appraisal assesses the continuing value of records, and overtly documents evidence to support the presumption of their authenticity. Although the archival value of records is independent of their medium, in the digital environment, appraisal should identify the digital components of the records that must be stored in order to preserve and reproduce authentic and complete copies. Finally, appraisal evaluates the feasibility of preserving the records in light of existing financial and human resources and technical capacity of the preserver.¹²

3.3.2 Who should appraise?

Appraisal is a joint responsibility of the creating and/or transferring agency (the creator) and the preserving agency (the preserver), such as the archives or other trusted repository. (Note that the creator and preserver may be the same organization.) The creator should determine how long it needs to retain its records to support its business processes, based on legal and regulatory requirements, business, or other needs. This is recorded in retention and disposition schedules. The role of the preserver is to look beyond the short-term interest of the creating agency when appraising records and consider issues such as the records' continuing value(s), the assessment of the authenticity of the records, and the feasibility of their preservation.

Exercise: Discuss who, in your organization, should be responsible for appraisal of your organization's digital records. Are your digital records currently kept in your organization or transferred to another agency? Draw an organizational chart to place that person or persons in your organization's hierarchy.

3.3.3

When should appraisal happen?

Ideally, the act of appraisal should be done at or near the moment the records are created. Appraisal early in the records' lifecycle increases the probability that adequate documentation will be created that will provide rich contextual information about the records, and early identification of records requiring long-term preservation will mitigate against inadvertent loss and technological obsolescence.

Appraisal decisions require regular monitoring to ensure that the actual appraisal decisions and records dispositions are carried out. There may be a time lag between the

¹² IP2 pp. 187-190

time when appraisal is first conducted and when the records dispositions are carried out. During this time lag, there may be changes in the business and recordkeeping environment such as changes in the business procedures and technological environment which may either affect the initial assessment regarding the continuing value of the records and the feasibility of preserving them or affect the business process in carrying out the records disposition. As such, the preserver needs to work closely with the creator to understand their respective roles and responsibilities, ensure that records retention functionalities are incorporated in the system, ensure that there is adequate documentation about the recordkeeping system and specify the terms and conditions of transfer and the procedures involved in the transfer of records into the custody of the preserver.

Exercise: When does appraisal happen in your organization? Are retention and disposition assessments carried out on a regular basis?

3.3.4 What should be appraised?

All documents determined to be the records of an organization should be appraised. Archival repositories have specific statutory obligations in managing public records, to acquire and preserve records in order to protect the rights and obligations of citizens, and to preserve the documentary memory of society. Consequently, the question of what to appraise depends on the juridical context of the country and of the specific organization, the legislative framework, the archival tradition, the value system and the mandate of the preserver.

Exercise: What records in your organization, have been identified for long-term preservation?

3.3.5 How to conduct appraisal of digital records

The outline described in Section 4 offers a model and a chain of activities on the selection and appraisal of digital records that can be applied in different juridical contexts. This outline does not prescribe the appraisal criteria, recognizing that this is a value-based construct which varies across institutions and in different juridical and cultural contexts.

3.3.6 Managing the selection function

There are various definitions of the terms “selection” and “appraisal.” Some definitions, such as those of the Society of American Archivists, view selection as synonymous with appraisal.¹³ For the purpose of this module, we define selection as:

the appraisal strategies, monitoring procedures, and disposition rules and procedures within the permanent preservation system, together with the tools and mechanisms needed to effect selection of records;

and we define appraisal as:

the process of assessing the value of records for the purpose of determining the length and conditions of their preservation.¹⁴

Selection is therefore understood to be a more encompassing activity, which includes appraisal as part of its activities. Selection is an overall framework which sets out the broad management framework, articulating the appraisal strategy in terms of establishing the appraisal criteria, procedures on how to assess authenticity of digital records, procedures involved in monitoring the appraised records, and procedures involved in carrying out the actual disposition of records (which includes either authorized destruction of records or transfer of records into the custody of the preserver).

3.3.7 Appraising digital records

The process of appraisal involves the following four activities:

- Compiling information about digital records,
- Assessing the value of the digital records,
- Determining the feasibility of preserving authentic digital records, and
- Making the appraisal decision.

Compiling information about the records and their context

Appraisal requires extensive and intensive research to gather information about the context in which the records are created and generated, and their form and content. Some of the sources that will help archivists to understand the context of the agency’s mandate, functions and its recordkeeping environment include publicly available sources such as annual reports, mission statements, procedures regarding specific business activities, and technical documentation. The preserver can also obtain additional information through

¹³ SAA Terminology – check this and get URL

¹⁴ IP3 Glossary

conducting interviews with the key stakeholders including business owners, records managers and IT personnel.

There are five contexts of records' creation and maintenance:

- Juridical/administrative context
- Provenancial context
- Procedural context
- Documentary context
- Technological context

Judicial/administrative context

The judicial/administrative context is the “the legal and organizational system in which the creating body belongs.”

Sources of information on how archivists can understand the judicial-administrative context include without limit:

- Statutes and legislation of the agency,
- Strategic directions and business work plans,
- Job descriptions on key stakeholders involved in the creation and utilization of records.

Exercise: Identify the statutes and legislation that govern your organization. Does your organization have a strategic plan and business work plans that will illuminate the administrative context of your organization? Who are the key records creators? Who uses the records created by your organization (internal and external stakeholders)?

Provenancial Context

The provenancial context provides information about the **creating body, its mandate, structure, and functions. This information can be found in:**

- Mission and mandate of the agency,
- Organizational chart,
- Reports delineating how the functions of the various business units contribute to the overall mission, mandate and/or strategic directions of the agency.

Exercise: Gather the mission statement, organizational chart(s), and annual reports. What impact do these documents have on records creation in your organization?

Procedural Context

This refers to the business procedures that govern the creation of records. Some of the sources of information that enable the preserver to understand the procedural context of the records include without limit:

- Policies, procedures and workflows documenting business process,
- Business process modeling tools,
- Interviews with business users, their internal and external stakeholders/customers and management.

Exercise: What policies, procedures and workflow documents exist in your organization that influence record creation? What record types result from these controls?

Documentary context

The documentary context is the archival *fonds* to which the records belongs, and its internal structure. Understanding the documentary context involves analyzing the file classification scheme, examining the documentary form of the records including extrinsic and intrinsic elements (see callout), the metadata schema and the record profile.

Intrinsic elements: elements of documentary form of a record that constitute its internal composition, and that convey the action in which the record participates, and its immediate context. These elements include the names of persons involved in the creation of the record; dates relevant to the record; the place of origin; the subject of the record; the attestation; and statement of validation.

Extrinsic elements: elements of documentary form that constitute its external appearance, including features of presentation such as images, graphics, layout, hyperlinks, etc.; electronic signatures; electronic seals; and digital timestamps.

Technological context

The technological context includes the characteristics of the hardware, software, and other components of an electronic computing system in which records are created. Sources that enable the preserver to better understand the technological context include without limit, technical documentation of the system, system architecture and design,

user manual and source codes. It may also involve interviewing end users and IT personnel.

Exercise: Document the five contexts of records in your organization (administrative/juridical, provenancial, procedural, documentary, and technological) and discuss how they will impact records appraisal.

Assessing value

The process of determining the value of records involves two main components:

Assessing continuing value

Records have value to their creator for legal, evidentiary, and business reasons. Value may also adhere to records for cultural, historical and research purposes. Archivists assess the continuing value of records through various means. For some, the value of the records can be determined through a taxonomic approach by assessing the content of the records and determining their legal, administrative and informational value. Archivists may also look at the broader societal values and the potential for the preserver to identify and preserve records for those with no voice or representation in society. Archivists may adopt a bottom-up approach in terms of assessing the value of the records or they may prefer a top-down approach by assessing the mandate, functions, programs and organizational structure of the agency and its interaction with citizens and society.

Assessing the authenticity of the records

In the analog environment, records are authentic when they are made, received and set aside in the usual and ordinary course of business. Their authenticity is then presumed when they are transferred to archival custody. However, this is not the case for digital records. The authenticity of digital records is at risk and is easily compromised when records are transmitted across space (when records are exchanged and communicated over a network) and over time (when records are stored on a storage device or during upgrades to the hardware and/or software).

The authenticity of records depends on their identity and the integrity. Assessing a record's authenticity involves examining the documentary form of the record, its relationships with other records in a recordkeeping system, and analyzing the context behind the creation and maintenance of the record. The identity of a record is defined as the "whole of the characteristics of a document or a record that uniquely identify it and distinguish it from any other document or record" (InterPARES 3 Terminology Database). The identity of the records can be determined from specific attributes of the records such as:

- Persons involved in the creation of records. For example, name of author, name of writer, name of addresses, name of originator, subject matter.
- Dates. For example, the date the record was created, and the date record was transmitted.
- The archival bond. For example, classification code, indication of attachments.



See the “Requirements for Assessing and Maintaining the Authenticity of Electronic Records” at

http://www.interpares.org/book/interpares_book_k_app02.pdf.

Determining the integrity of the records involves assessing their completeness to achieve the purpose for which they were created, and ensuring that they remain unaltered in all essential respects. This involves examining access privileges regarding the creation, modification, use, and destruction of digital records, procedures protecting them from corruption or loss, and procedures to mitigate the deterioration of media and technological obsolescence.

If the preserver has grounds to believe that the authenticity of the records has been compromised and that the records no longer fulfill their original intent and purpose, the preserver will need to conduct a risk assessment and weigh the value of preserving records whose authenticity may be questionable.

Determining the feasibility of preservation

Determining the feasibility of preservation consists of three activities:

Determining the records elements to be preserved: Identify the elements of the record that establish its identity and integrity that need to be preserved in order to ensure the record’s authenticity.

Identifying the digital components to be preserved: Unlike analog records where the elements of the record are intrinsically linked to the media, the intellectual and physical components of digital records may not coincide. Depending on system configuration and design, essential record elements may be manifested in digital components in various ways such as through the content of the record, its metadata, and the context behind the record’s creation.

Reconciling preservation requirements with preservation capabilities: The preserver must reconcile the requirements to preserve the digital components of the records with practical and management considerations. This includes assessing the institution’s current and future capability of preserving digital records based on staff’s professional knowledge and expertise, the IT infrastructure and the financial resources of the institution.

Make the appraisal decision

The appraisal decision consists of a determination of those records having long-term value. If records with archival value are to be transferred to an archives or other trusted repository, the appraisal documentation will include a list of the digital components of the records, a determination of how they will be transferred, and the identification of acceptable formats and methods of transmission. The preserver must document the appraisal decision specifying the rationale as well as the contextual information, details regarding the authenticity of the records, the appraisal criteria and methodology. It should also state the roles and responsibilities of the creating agency and the preserver and information about the technological context so that the preserver would have adequate information to preserve the records over time.

After an appraisal decision is made and before the actual disposition of records is carried out, the records must be monitored, and periodically reappraised. The preserver needs to document changes to the record, its context and the recordkeeping environment which may warrant revisiting the initial appraisal decision or redoing the appraisal. The objective of monitoring appraised records is to assess whether the initial appraisal decision is still valid. The preserver also needs to monitor the terms and conditions of transfer, to check that the disposition of records carried out and to assess whether changes in the recordkeeping environment may inadvertently affect the business process on how the records can be transferred from the agency to the preserver. The disposition of records involves either the authorised destruction of records or transfer of records into the custody of the preserver.

4 Appraisal Report Guidelines¹⁵

4.1 Introduction

Appraisal consists of four distinct activities: compiling information; assessing value; determining feasibility of preservation; and making the appraisal decision.¹⁶ Assessment of authenticity in the context of assessing value is an integral part of records' appraisal. Appraisal must rest on a foundation of solid research, which will be of particular assistance in assessing record value and authenticity, and identifying digital components that must be preserved.

The recommended process of appraisal is guided by the Chain of Preservation Model (InterPARES 2)¹⁷ and provides a measure of the records' authenticity against the Benchmark Requirements supporting the presumption of authenticity (InterPARES 1). The benchmark requirements are the conditions that serve as a basis for the assessment of authenticity based on the manner in which the records have been created, handled and maintained.¹⁸

The current appraisal guidelines provide for an analysis of legacy files to establish authenticity, data leading to the presumption of authenticity, or if there is an insufficient basis for a presumption of authenticity, the verification of authenticity, and presents the resulting appraisal decisions.

4.2 Appraisal guidelines

4.2.1 Purpose of the appraisal report template

- This appraisal report template brings consistency and standardization to the process of documenting the appraisal of records to be captured into the recordkeeping system.

¹⁵ This Appraisal Report Guideline reflects the appraisal strategy recommended by the Chain of Preservation (COP) Model developed by the InterPARES research.

¹⁶ Terry Eastwood et al., "Part Two: Choosing to Preserve: The Selection of Electronic Records. Appraisal Task Force Report," in *The Long-term Preservation of Authentic Electronic Records: Findings of the InterPARES Project*, Luciana Duranti, ed. (San Miniato, Italy: Archilab, 2005), 78. Online reprint available at http://www.interpares.org/display_file.cfm?doc=ip1_aptf_model.pdf.

¹⁷ See Terry Eastwood, Hans Hofman and Randy Preston, "Part Five—Modeling Digital Records Creation, Maintenance and Preservation: Modeling Cross-domain Task Force Report," in *International Research on Permanent Authentic Records in Electronic Systems (InterPARES) 2: Experiential, Interactive and Dynamic Records*, Luciana Duranti and Randy Preston, eds. (Padova, Italy: Associazione Nazionale Archivistica Italiana, 2008), 225-303. Online reprint available at http://www.interpares.org/display_file.cfm?doc=ip2_book_part_5_modeling_task_force.pdf.

¹⁸ Authenticity Task Force (2002), "Appendix 2: Requirements for Assessing and Maintaining the Authenticity of Electronic Records," *ibidem*, 209. Online reprint available at http://www.interpares.org/book/interpares_book_k_app02.pdf.

4.2.2 Purpose of the appraisal report

- The purpose of the appraisal report is to render open and transparent the decisions made in the process of records appraisal.
- The report articulates the presence or absence of indicators of records' authenticity (InterPARES benchmark requirements) identified through the appraisal process.
- The report becomes a primary point of reference in the iterative process of subsequent records appraisals until final disposition.
- The report is an instrument in holding the appraisers accountable to the citizens of Surrey for the management and preservation/disposition of their public records.

4.2.3 Context of appraisal

This is a summary of the circumstances that have led to the appraisal decision.

- State the reasons for conducting this appraisal (e.g., preparing to capture into an Electronic Document and Records Management System (EDRMS) or a digital preservation application)
- State the status of this appraisal for the current group of records (i.e., first appraisal; subsequent appraisal & reason)
- Who is conducting/has conducted this appraisal?
 - Name
 - Position
- Authority/accountability
- Are these records required to be maintained/preserved?
 - If yes, by what authority?
 - For how long?

4.2.4 Verification of appraisal methodology

- Describe the process by which you undertook the appraisal (e.g., how was research conducted, who/ what departments were consulted).

4.3 Appraisal Analysis

This section documents circumstances of creation and compiles evidence leading to a presumption of the records' authenticity.

- What is the originating office?

- What legislation/regulations/standards pertain to these records?
- Who is responsible for managing/maintaining these records?
- What is the office responsible for maintenance?
- What is the office responsible for long-term preservation?
- Who/what departments have access to these records?
- How has access been monitored/controlled?

- Do these records form a complete series, or are they part of an existing series?
 - If yes, what is the name of the series?
- If these records are not a series, or part of a series, what are the identifiers for the records?
 - Are these records part of a larger aggregate of records?
- What other records/record series do these records relate to?
- Describe the relationship(s) of these records to related records and how the relationship(s) affect appraisal (e.g., is the reason for these records to exist superseded by subsequent records).
- What retention/disposition schedule pertains to these records/series?

- What is the organization and structure of this group or series of records?
- What function, activities or organizational entities do these records support?
- Describe the procedure of creation of these records.
- What controls (human or technological) govern their creation?

- What is the date range of these records?
- Describe the names/types of records being appraised (e.g., memos, reports, minutes).
- List the types of information configuration represented (e.g., textual, graphic, audio).

- List the original file formats.
- Are these records still in active use?
- By whom/for how long?
- What is the retention period—if one has been assigned to them?
- If scheduled for permanent retention, in what format will they be preserved?

- What metadata exist for these records?
- Describe the metadata attached to these records.
- How are the metadata linked to the records?
 - How will this metadata link be maintained?

- Have these records been subject to modification, annotation or other intentional change?
 - If yes, provide details.
- What controls have secured these records against corruption/loss?
- Describe any technological constraints or requirements for the digital components of these records (e.g., are they composed of different types of information configurations: photographs, audio, etc.). How have these constraints or requirements been managed?
- Are there any controlling instruments that need to be acquired with the records?
 - If yes, how will they be linked to the records?

- Is there system documentation that needs to be acquired with and linked to the records?
 - If yes, how will it be linked to the records?

- List any other relevant information.

4.4 Recommendations/Decision

On the basis of this appraisal analysis, a decision can be made about the presumed authenticity of these records, or if authenticity cannot be presumed, about whether there is a need for research to discover evidence of authenticity, and whether these records will be recommended for capture in a recordkeeping system (e.g. controlled shared drives or EDRMS.)

(The following twelve steps are modeled in Figure 1)

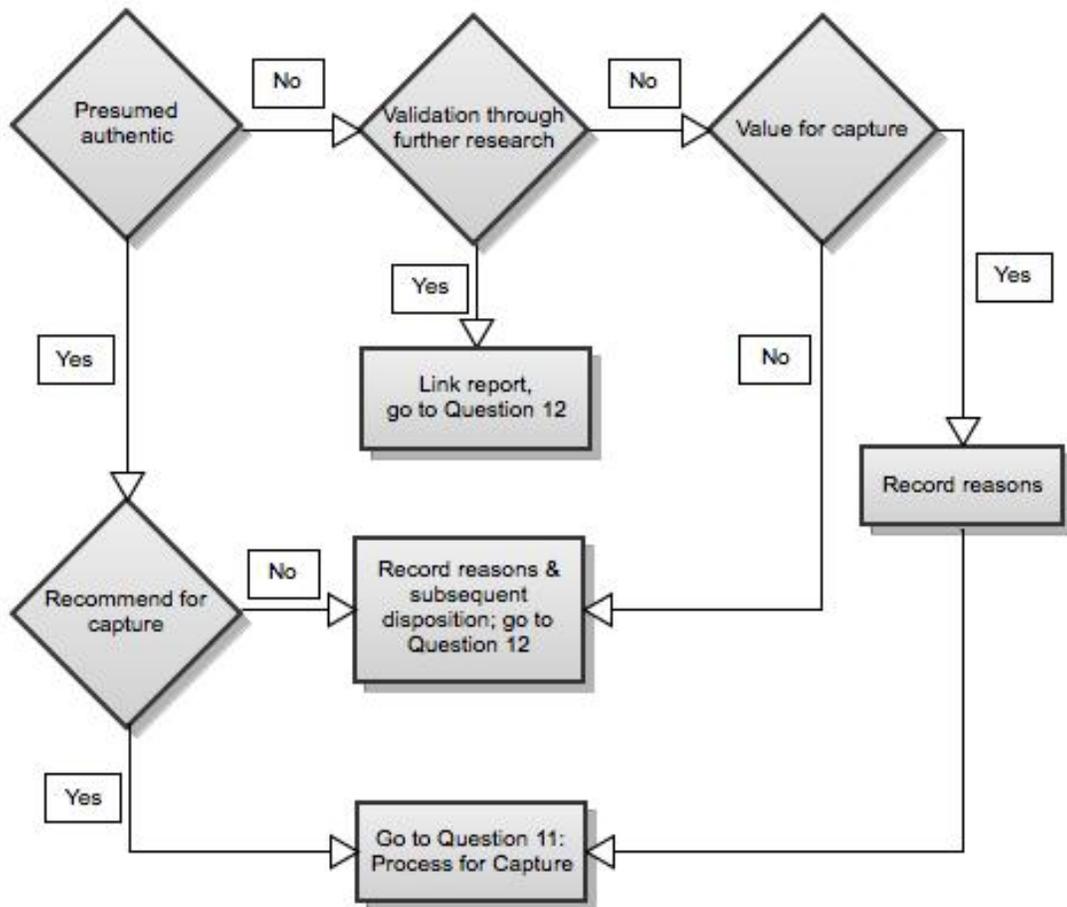
1. Can this body of records be presumed authentic? That is, has the analysis from section 4.3 determined that these records were created in the usual and ordinary course of business, and have been set aside for further action or reference; and that there are documented procedures around their creation, use and maintenance?
2. If yes, (presumed authentic) are these records being recommended for capture to the EDRMS?
3. If yes, (recommended for capture) go to question 11.
4. If no, (not recommended for capture) why not?
 - a. What will be their disposition?
 - b. Continue to section 5.0
5. If they cannot be presumed authentic, will further research/analysis be undertaken to attempt to verify their authenticity?
6. If yes, (further research) append this report to the next stage of analysis
 - a. Continue to next section
7. If no, (no further research) are these records deemed to be of sufficient value to capture even though their authenticity is questionable?
8. If yes, (sufficient value) outline the reasons
 - a. How will this report be linked to the records in the process of capture [through Surrey's metadata schema?]
 - b. Go to question 11.
9. If no, (insufficient value) outline the reasons
 - a. What will be the final disposition of these records
 - b. Continue to next section.
10. If no, (not recommended for capture) what will be their disposition?

- a. Continue to next section.
11. If these records are to be captured, detail the process of capture
- a. In what form will these records be maintained/preserved?
 - b. Will these records be renamed/reclassified?
 - c. If yes, describe
12. When will these records be due for monitoring and, if needed, a new appraisal?

4.5 Authority

- Signature of records manager?
- Signature(s) of person(s) responsible for appraisal?
- Signature of person(s) responsible for appraisal report?

Figure 1: Appraisal research workflow



5 Appraisal Report Template for Government Records¹⁹

For use by an archives or other trusted repository at the time of transfer.

Please complete this form for each batch of records appraised and submitted or based on each record series. A record series is a group of records relating to a particular function, activity or subject.

Date of Appraisal: _____

PROVENANCIAL CONTEXT:

Name of Creating Agency: _____

Name of Transferring Agency: _____

Mandate and Functions of Agency:

Indicate the statutory mandate of the organization, relationship with the parent ministry if applicable as well as any other overlapping or related functions with other agencies. Since appraisal is an analytical process, do try to avoid quoting in verbatim from annual reports and mission statements from the agency.

Identify the Office of Primary Interest where the most important functions and activities take place and where key records are located and its relationship to the current body of records you are appraising. Indicate whether there is overlap with the work of other agencies.

JURIDICAL ADMINISTRATIVE CONTEXT:

Administrative History of Agency

Indicate the year the agency was established, name of predecessor or successor agency, any restructuring which affects the recordkeeping system.

Legislation which affects business procedure and recordkeeping process

TECHNOLOGICAL CONTEXT

For digital records: indicate general operating environment, hardware and software as well as the file formats generated from the system. For paper records, indicate whether the agency has plans to develop an e-registry system and to indicate whether they have other supporting digital records.

RECORDKEEPING INFORMATION

Record Series: _____

¹⁹ This template has been adapted from the Records Appraisal Checklist for Government Records from the National Archives of Singapore (NAS). The NAS was a testbed partner in InterPARES 2.

Date Range of Records: _____

Volume of Records: _____

(Indicate number of physical or electronic files. For databases indicate size in terms of MB/GB/Terabytes)

Media of Records: _____

Subject Files :

Case Files:

Related records:

Indicate the existence of records of other media e.g.: Photographs, posters, newspapers, maps and plans, postcards, AV records, electronic records that may reside within the agency.

Are there any other records which summarize the information held in the records? Are these the best sources of information available?

PREVIOUS RETENTION SCHEDULE

Available under previous schedule : Yes No

Available under previous recommendations : Yes No

Please state the authority number :

Please state previous disposal action:

Summary of records previously transferred by agency:

APPRAISAL METHODOLOGY

Please tick relevant checkboxes

9

Interview with registry personnel and records creators

Functional analysis of the agency

Selective examination of the records

ASSESSING CONTINUING VALUE OF THE RECORDS

(a) Value for the agency's purposes

- Information on the set-up and origin of the agency
- Document important decision-making processes
- Document functions and accomplishment of agency
- Document key operations of agency
- Document key decision making process of top and mid level management

(b) Value for the individual private citizen

- Document rights and obligations of or against the Government

(c) Value for the nation

- Information on nation's sovereignty
- Information on national security
- Information on relations with other countries
- Information on nation building efforts

(d) Other value

- Intrinsic value
- Future research

Additional Comments:

AUTHENTICITY OF RECORDS

Identify the identity of the record and its integrity.

Identity states the existence of a classification scheme, metadata specifying the people who are involved in the record creation process, subject matter, date of creation and transmission and indication of attachments and annotations.

Integrity of the record includes identifying the authoritative record if there are multiple copies, the procedural controls with regard to access, loss and corruption.

DETERMINE THE FEASIBILITY OF PRESERVATION

Determination of the need to maintain the records permanently within its premises and undertake the financial and technical responsibility of migrating the records over time. Issues of cost and technical expertise required for preservation.

ACCESS CONDITION

Indicate access restrictions or conditions on the records during appraisal process; highlight relevant legislation governing agency's functions which affect access to the records.

CITATION OF SOURCES

E.g.: Annual reports, file records from agency.

Agency's Proposed Retention Period and Disposal Action:

National Archives' Approved Retention Period and Disposal Action:

Authority Number : _____

Name of Officer Submitting the Appraisal: _____

Approving Officer:

Date of Approval:

6 Part 2: Gaining Control of Records in Network Drives

6.1 Introduction

There are a number of problems associated with maintaining documents and records in shared network drives. Some of these issues include, but are not limited, to the:

- *Ad hoc* creation and storing of documents and records,
- *Ad hoc* creation of folders and sub-folders,
- Difficulty in implementing and enforcing naming conventions,
- Difficulty in implementing and enforcing records classification,
- Inaccessibility of documents and records to others who may need access; or their existence may simply be unknown,
- Unnecessary duplication of documents that must be e-mailed to co-workers who do not have access to the drive on which they are stored,
- Difficulty in maintaining version control,
- Potential loss of information when an individual leaves the organization,
- Difficulty in maintaining an inventory of documents and records, and accessing them when needed,
- Difficulty of implementing disposition schedules,
- Difficulty (or impossibility) of guaranteeing records' reliability and authenticity.

ISO 15489 defines a records system as an “information system which captures, manages and provides access to records through time” (ISO 15489-1:2001, 3.17). Electronic Document and Records Management Systems (EDRMS) are computer programs designed to offer controls on various aspects of a document or record throughout the life cycle, including creation, receipt, maintenance, access, and disposition. Several important specifications exist for defining the requirements of records systems, including the U.S. Department of Defense standard 5015.2, the European Commission Model Requirements for Electronic and Document Management (MoReq) first published in 2001, reissued in 2008 (MoReq2) and 2010 (MoReq2010). The National Archives in the UK, the National Archives of Australia, and the Archives New Zealand have all published functional requirements for electronic records management systems software.

The workflow methodology that follows can be applied with varying degrees of rigour (and consequently varying degrees of control over records) to any systematic attempt to impose structure and control over an organization's record-making and recordkeeping practices. The greater the degree of control, the more confidence the records creator and records preserver can have about the reliability, accuracy and authenticity of the records in the records management system.

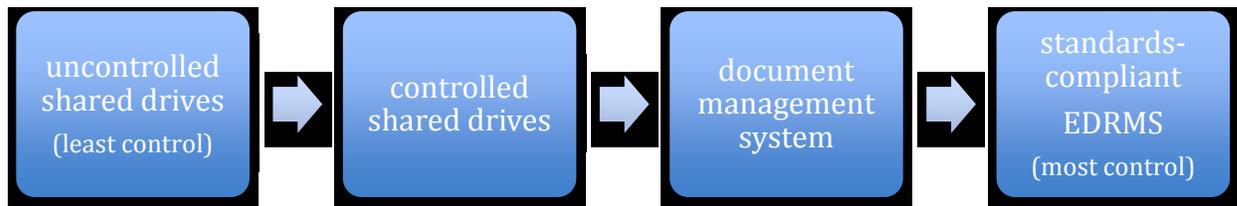


Figure 2: Continuum of control

6.2 Methodology/Procedures

The process of exerting control over records by implementing a custom or commercial records management system is guided by an action research methodology. This methodology is based on an iterative application of practices including data gathering, collaborative dialogue, and participatory decision-making. The workflow includes data collection and analysis that provides rich data about the organization (agency or office) and the records that it creates and maintains and/or preserves.

Approval for a project plan to implement a custom or commercial records management system should be established for each organization at the level of senior management or other administrative or regulatory body. For example, a small private corporation may need the approval of the Chief Executive Officer (CEO) or Chief Information Officer (CIO), while a municipal government may need authorization of City Council (see Case Study below). A process needs to be in place through which the project can be developed, approved and communicated. Without this in place, even the best efforts at developing and implementing a records management system are likely to fail.

Once approval has been received for the project, the following workflow will lead to development and implementation of a system that ensures that:

- Digital records can be created and maintained authentic and reliable;
- Digital records remain usable over time;
- Recordkeeping practices adhere to relevant standards and best practices;
- Records are maintained and preserved in accordance with any relevant regulatory requirements;
- Records identified for long-term preservation are capable of being preserved;
- Digital records are capable of fulfilling their business function.

The workflow consists of the following steps:

- Secure senior management support
- Define the project team (e.g. RM, legal, IT, business managers)
- Prepare background documentation:
 - Document the juridical/administrative context of your organization
 - Document records contexts (describe the recordkeeping environment)
 - Inventory all locations holding documents and records to be analyzed / appraised
- Analyze the technical environment
- Appraise the records
- Prepare for migration
 - Develop naming conventions
 - Identify metadata that needs to be captured and determine how it will be captured
 - Work with records creators (users) in a test group
- Migrate test batch to new environment
- Return to previous steps as required in an iterative manner

The workflow can be modeled using IDEF0 modeling technique. The model outlines the following activities and sub-activities:

1. Establish Project

1.1 Gather data (conduct contextual analysis)

1.2 Develop project plan (business case, risk assessment, prelim action plan, schedule, budget)

1.3 Identify sponsors

1.4 Secure necessary approvals and authorization

2. Analyze the record-creating and recordkeeping environment

2.1 Conduct server inventory

- 2.2 Analyze server roles
- 2.3 Conduct shared drive inventory
- 2.4 Identify shared drives for migration

- 3. Conduct records appraisal
 - 3.1 Assess continuing value
 - 3.2 Assess authenticity
 - 3.3 Determine feasibility of preservation
 - 3.4 Make appraisal decision

- 4. Prepare control activity
 - 4.1 Conduct technical review
 - 4.2 Identify and extract compressed files
 - 4.3 Evaluate file formats
 - 4.4 Remove empty file folders
 - 4.5 apply unique identifiers

A5 Implement controls (conduct disposition)

6.3 Model: Manage Migration of Records Stored on Shared Drives into an Electronic Records Management System

(see Module_04_Shared_Drive_Migration_Model_General.pdf)

7 Case Study

The following case study is based on a case study from InterPARES 3.²⁰ It is not intended to suggest best practice, but to illustrate one method of gaining control of unstructured digital records in shared drives. This method was used successfully in a municipal context for a large and fast-growing urban centre.



You can request a copy of the “Shared Drive Migration Toolkit” from the IP3 Case Study at http://www.interpares.org/ip3/ip3_cs14_report.cfm .

A large and dynamic urban centre with an active paper records management program had been managing digital records for almost two decades outside of the formal records management program. The City Records Management Department wanted to bring the City’s digital records under the control of the RM program. The Department developed a project plan (the Drive Migration Project) to move the City’s unstructured digital records from shared drives to an Electronic Records Management System (ERMS). The mission of the Drive Migration Project was to successfully appraise and transition the City’s digital records to the ERMS for maintenance and long-term preservation, or offline for authorized deletion according to the City’s Corporate File Plan and Retention Schedules. The ERMS would provide records management throughout the information lifecycle, a sustainable foundation for e-business standardization, workflow integration, and enterprise-wide collaboration and paper reduction, in a business environment characterized by continued, rapid growth. The goal was to implement archival theory and methodology that would ensure that the City’s records were being created authentic and maintained and preserved reliable over time and across technological change.

City Profile ca. 2010

Records Management Program

- The records management program had been established for paper records in the late 1970s through a file classification plan with retention schedules,
- A Records Centre was created in the 1980s,
- The first Records Management by-law was passed in 1992,
- The Records Management Manual was last updated in 1999,
- Laserfiche was implemented in 2005 for the digitization of paper records,
- A Records Manager was hired as ERMS Program Director in 2008, and the City affirmed its decision to purchase an ERMS in 2009,

²⁰ Adapted from the City of Surrey case study conducted between 2009 and 2011.

- A new Records Management by-law was passed in 2010 that recognized digital records, and adopted the Corporate File Plan and Records Management Manual as the basis for their management,
- All City employees would have a defined role in records creation and management,
- The Records Management program is custodian of all operational and administrative City records in all formats.

Network & Servers

- Digital entities were created and maintained in a distributed computing environment (wide area network) supported by over 200 servers,
- The majority of the servers were located in a secure server room at City Hall under the control of the Information Technology department,
- Other servers are distributed to secure locations in satellite facilities and connected by a wide area network,
- More than 150 applications were used for creating digital entities.

Shared Drives

- Folders and sub-folders on the shared drives had been created without reference to Corporate File Plan,
- The shared drives were considered a trusted environment and printed copies of records were notarized for legal purposes,
- An estimated 4 million files (text, image, drawings (plans, maps), and audio/visual) were stored on 70 shared drives in approximately 70 different file formats, some of which were legacy.

Unstructured digital records

- Unstructured digital records stored on shared drives:
 - were created or received/captured by staff in the regular course of business,
 - were maintained by staff in the absence of authorized disposition,
- Most employees considered the paper records the 'master records,' though this mentality was slowly changing,
- Many digital entities were low value and were duplicated across drives, existing in various versions, and/or had met their legal and operational needs,
- Other digital entities were mission-critical assets that needed to be identified, reviewed and uploaded to the ERMS repository for long-term management and preservation.

Requirements of the ERMS

- Must be configured to comply with the Records Management By-law and the Corporate File Plan,
- Must function as a trusted digital repository,
- Must enable 'single instance storage' of any record,

- Must enforce 'classify at creation,'
- The five file properties that were to be captured and fixed before migration included:
 - The original File Path
 - Owner
 - Author
 - Create Date
 - Modify Date

The City developed a seven-step project workflow for the production environment:

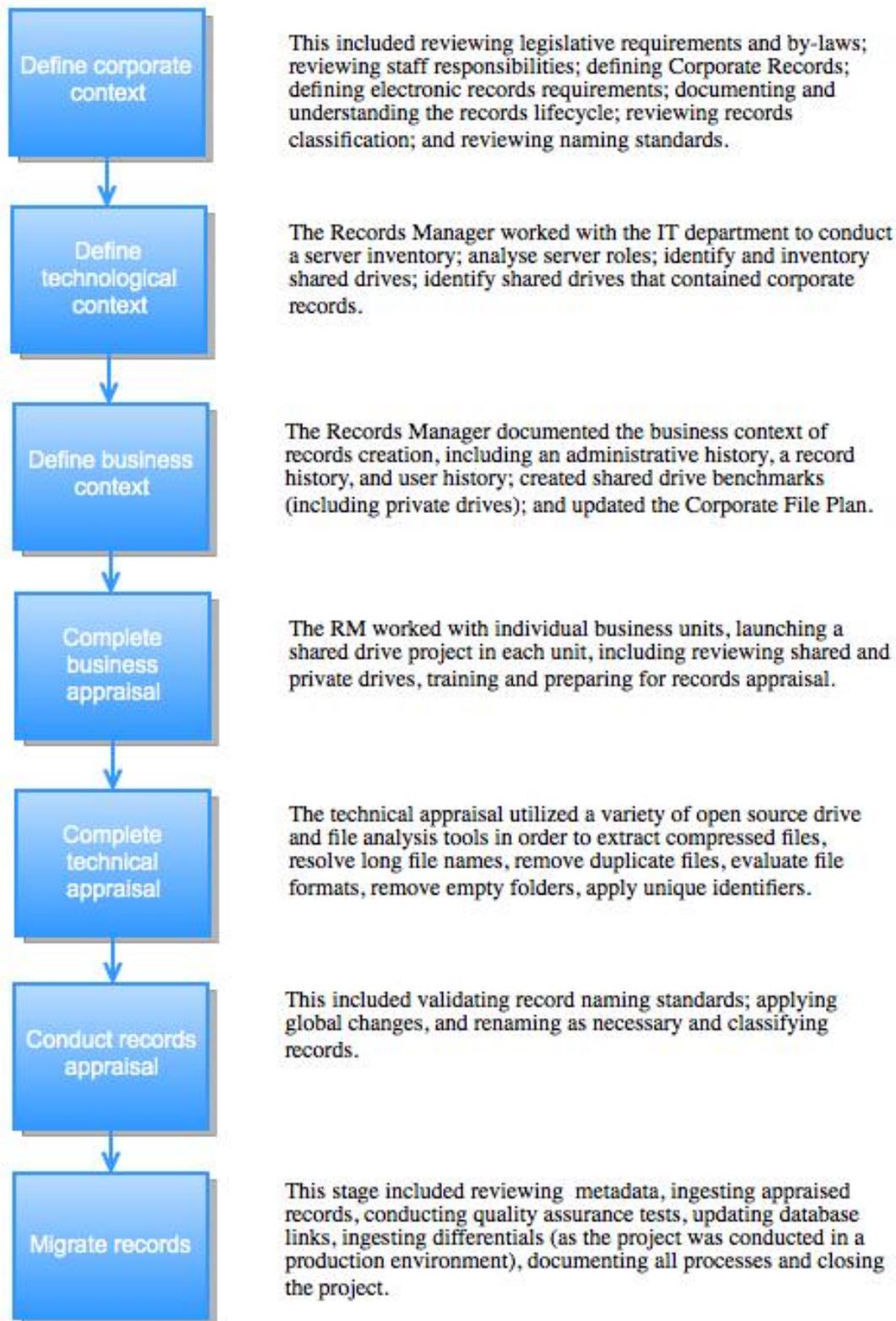
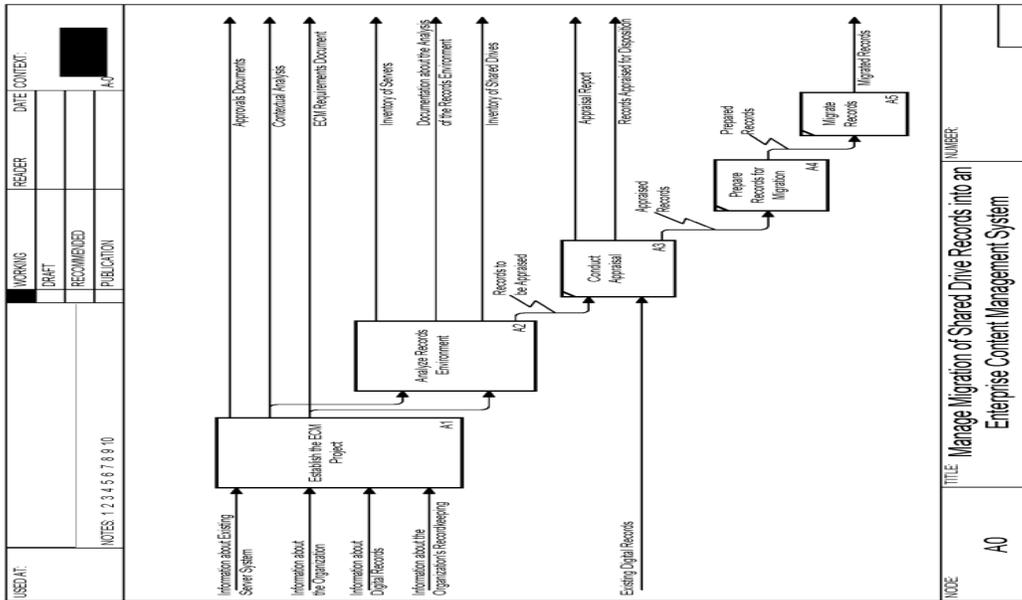
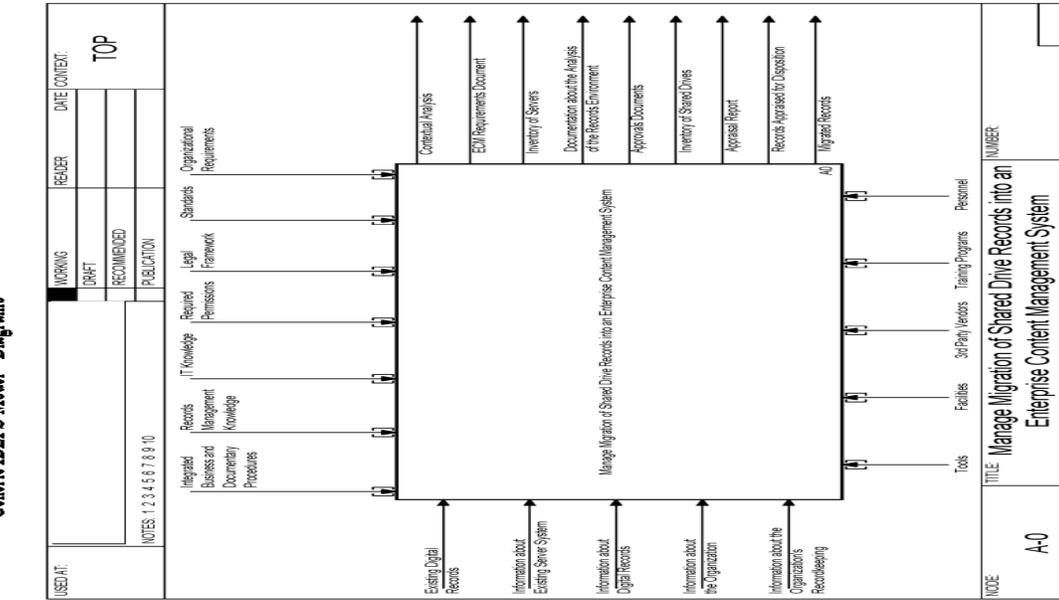
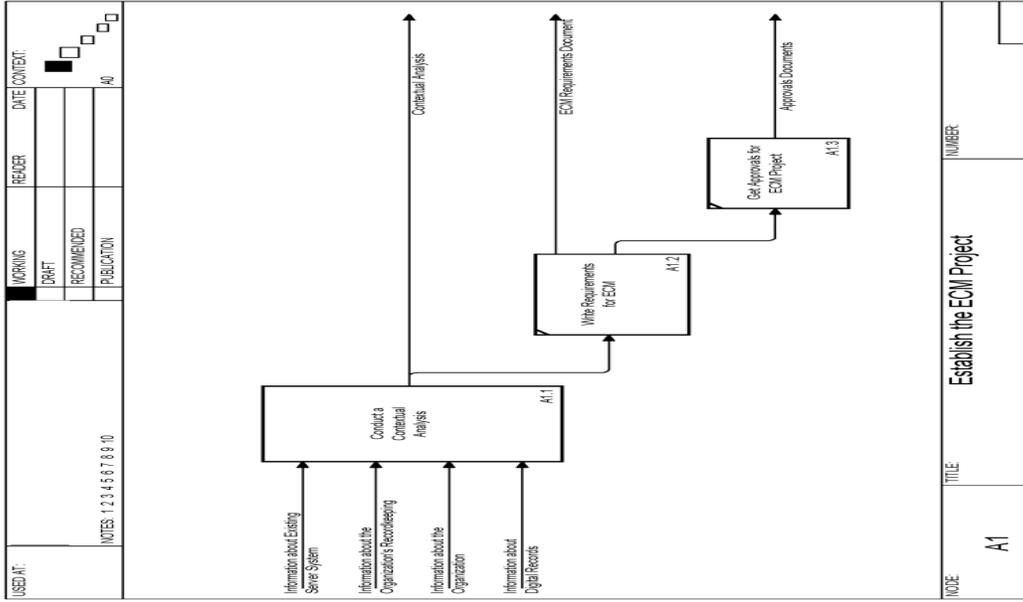
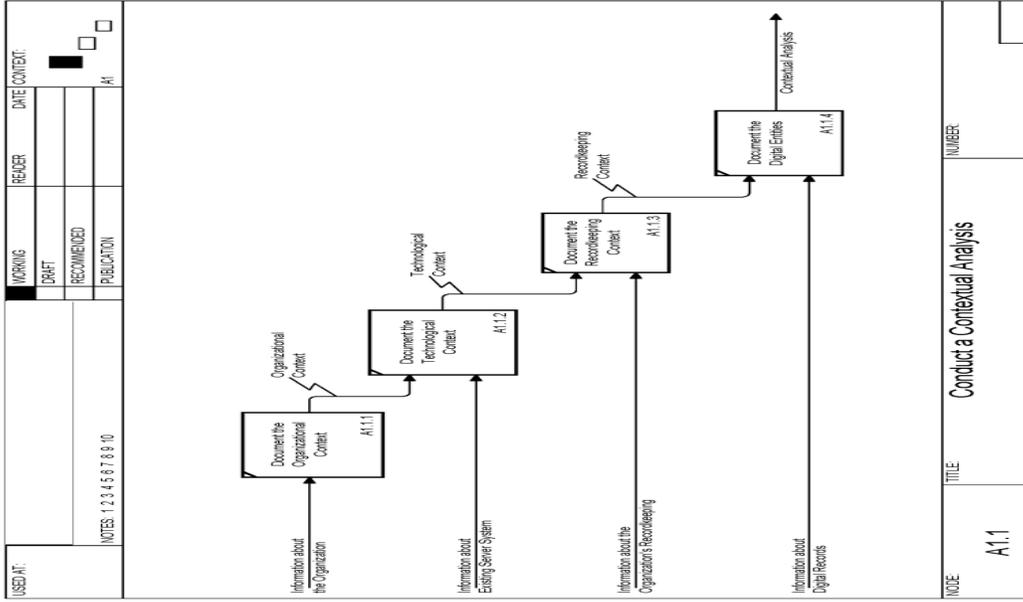


Figure 3: Seven step project workflow

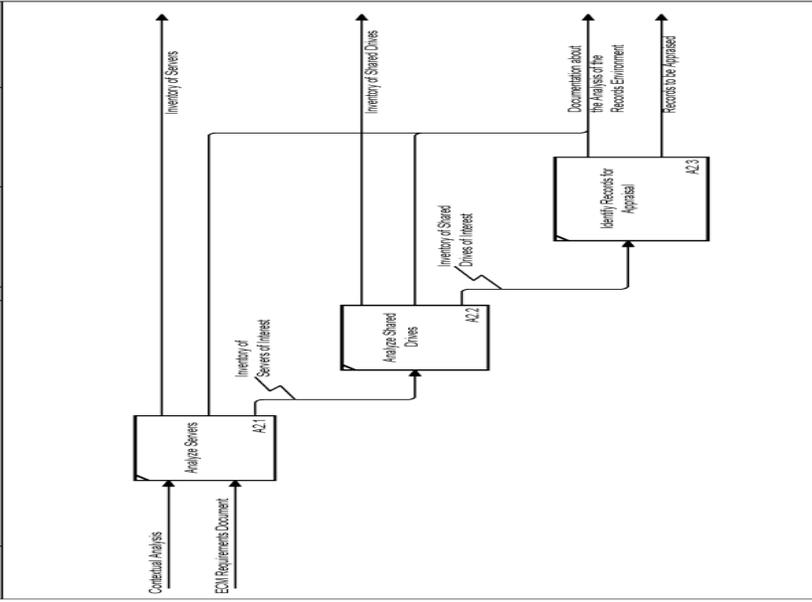
The process has been modeled using the IDEF0 modeling technique:

Generic IDEF0 Model - Diagrams





USED AT:	MORNING		READER	DATE CONT'D:
	DRAFT			
	RECOMMENDED			
	PUBLICATION			
NOTES: 1 2 3 4 5 6 7 8 9 10				A0



NOTE	TITLE	NUMBER
A2	Analyze Records Environment	

Generic IDEFO Model		
Arrows	Arrow Definition	Arrow Note
Prepared Records	Records prepared and ready for migration.	
Recordkeeping Context	The information about the classification, retention and disposition, and other tools used to manage the creation, use, maintenance and disposition of records throughout their lifecycle.	
Records Appraised for Disposition	Records identified for destruction, "dry-place", or transfer to trusted repository for long-term preservation.	
Records Management Knowledge	The concepts, principles and methodologies governing the treatment of records, including the requirements for maintaining authentic copies of records and the records lifecycle.	
Records to be Appraised	The records identified for appraisal.	
Required Permissions	The permission of senior management to manage the records lifecycle.	
Standards	Electronic Records Requirements detailed in standards such as (in Canada) the Canada Evidence Act and Canadian General Standards Board Guidelines 72.11 "Metadata and Electronic Images as Documentary Evidence" 72.34 "Electronic Records as Documentary Evidence."	
Technological Context	The information about the hardware and software used to create records.	
Tools	The information, technology and other equipment and supplies used to manage records throughout their lifecycle.	
Training Programs	The ECM education training program and courses for the organizations staff.	

Generic IDEFO Model		
Arrows	Arrow Definition	Arrow Note
3rd Party Vendors	The organizations authorized vendors to offsite responsibilities for records of the organization.	
Appraisal Report	An analysis for appraisal of all the information collected about all the files on the file shares.	
Appraised Records	Records appraised for long-term preservation.	
Appraisal Documents	The authorization to conduct the ECM project.	
Contextual Analysis	Contextual analysis includes information about the organizational context, the technological context, and the business context.	
Documentation about the Analysis of the Records Environment	The report about the analysis of servers, file shares, and records both of interest for appraisal or for destruction or other management activities.	
ECM Requirements Document	The document outlining the requirements to establish an ECM.	
Existing Digital Records	The active and legacy, structured and unstructured digital records of the organization that are being considered for incorporation into the ECM.	
Facilities	The physical space and infrastructure needed to manage the lifecycle of records.	
Information about Digital Records	Documentation about the creator and extent of the active and legacy, structured and unstructured digital records of the organization.	
Information about Existing Server System	Documentation about the existing servers of the organization.	
Information about the Organization	Documentation about the organizations mission, structure, activities, and existing technological, financial and human resources, as well as information about records related needs and risks.	
Information about the Organization's Recordkeeping	Information about the organizations existing file classification plan, retention and disposition schedules, and other records management knowledge.	
Inventory of Servers	The inventory of all servers of the organization.	
Inventory of Servers of Interest	The inventory of all servers suspected of containing records for migration.	
Inventory of Shared Drives	Inventory of all shared drives.	
Inventory of Shared Drives of Interest	The inventory of share drives of containing shared drives of interest for further analysis.	
IT Knowledge	The state of technology and the skills of the IT personnel.	
Legal Framework	The relevant legal and statutory regulations which govern the management of records throughout their lifecycle.	
Migrated Records	The records which have been appraised and migrated to the ECM.	
Organizational Context	The information about the administrative and organizational context within which records are created.	
Organizational Requirements	The ways in which the organization fulfills legal, operational, administrative, financial and historical obligations.	
Personnel	The people with knowledge, skills, and responsibilities specific to managing	

Figure 4: Model of Shared Drive Migration Process

8 Exercises/Review Questions (to be expanded)

1. "Unstructured electronic records are commonly found on server "shared drives," which are essentially storage locations set up by the network administrator to allow work groups to store and share the files in a common area. The network administrator uses the network operating system to manage access to the shared drives, and log-on scripts determine which work groups own and access the files. So in some ways, the network operating system is the electronic recordkeeping system, while the authoring applications represent the record-creating systems."

Discuss this statement. Is it accurate to call the network operating system an electronic recordkeeping system? Why? Why not?

9 Additional Resources

Author: National Archives of Australia

Title: Why Records are Kept: Directions in Appraisal

Publication Date: First published March 2000 Revised 2003

Publisher: National Archives of Australia

URL:

http://www.naa.gov.au/Images/Why%20records%20are%20kept%5B1%5D_tcm2-4856.pdf

Author: Hilary Jenkinson

Title: A Manual of Archive Administration

Publication Date: 1965 (first published 1922)

Publisher: London: Percy Lund, Humphries and Co.

Author: Theodore R. Schellenberg

Title: [The Appraisal of Modern Public Records, National Archives Bulletin 8](#)

Publication Date: 1956

Publisher: Washington, D.C.: National Archives and Records Service

URL: <http://www.archives.gov/research/alic/reference/archives-resources/appraisal-of-records.html>

Author: Theodore R. Schellenberg

Title: Modern Archives: Principles and Techniques

Publication Date: 1956

Publisher: Chicago: University of Chicago Press

Author: International Records Management Trust

Editors: General Editor, Michael Roper; Managing Editor, Laura Millar

Title: Managing Public Sector Records: Building Records Appraisal Systems

Publication Date: 1999

Publisher: International Records Management Trust

Building Records Appraisal Systems addresses the professional issues involved in determining the continuing usefulness of records, defining the requirements for their retention and disposal and designing and applying disposal schedules in an ongoing continuum of care within a life-cycle records management system. It also describes the process of bringing under control the unappraised products of former record-keeping systems. Directed primarily at the public sector, this resource is also relevant in the private sector. It is largely concerned in its practical application with paper-based records, but may be adopted or adapted for records in other media and formats, including electronic records.

Author: Lois Enns and Gurb Badesha

Title: IP3 General Study 19: File Viewers Final Report

Publication Date: 2012

Publisher: InterPARES

URL:

http://www.interpares.org/ip3/display_file.cfm?doc=ip3_file_viewers_final_report.pdf

During the UBC InterPARES 3 case study on preparing files on preparing shared drive files for migration into an electronic content management (ECM) system (Rogers et al., 2010), the co-investigators identified and adopted a number of utility applications to expedite their work. These utility applications included: a disk space manager, used to collect drive statistics, analyze file formats, create historical profiles, and facilitate metadata discovery; a file manager, used to apply a unique identifier and rename records; a duplication finder, used to identify and remove duplicates based on byte-by-byte comparison; a format identifier, used to identify and resolve missing file extensions; and an empty folder identifier, used to count and (initially) remove empty folders.

In relation to this, the ECM system purchased by the City of Surrey included a file viewer that allowed users to open and annotate specialty drawing files where they did not have the native application loaded on their computer. Although subsequent testing revealed that the viewer module was not well integrated to the ECM system and it was not adopted, the idea that a file viewer might extend the life of a file format was appealing. As a secondary consideration in favour of investigating file viewers, the co-investigators found that during pre-migration file renaming activities, opening files to validate contents was a time-consuming activity, since only a few applications could be kept open on the task bar, and time was spent waiting for applications to open or load, and in flipping between native and utility applications. A file viewer that would enable viewing of multiple formats from a single point appeared to be an avenue worth pursuing.

Seeking to investigate file viewer further, the co-investigators worked with InterPARES 3 to formulate research questions, and four areas of interest were identified: how do file viewers work; what software is available for use; how accurately do file viewers render files; and what role might file viewers play in digital preservation.