
Practical Tools for Electronic Records Management and Preservation

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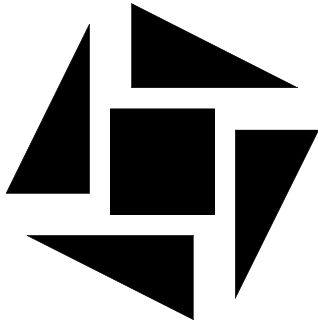


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PRACTICAL TOOLS FOR ELECTRONIC RECORDS MANAGEMENT AND PRESERVATION



This briefing paper summarizes the results of a cooperative project sponsored in part, by a research grant from the National Historical Publications and Records Commission.

The project, called “Models for Action: Practical Approaches to Electronic Records Management and Preservation,” focused on the development of practical tools to support the integration of essential electronic records management requirements into the design of new information systems.

The project was conducted from 1996 to 1998 through a partnership between the New York State Archives and Records Administration and the Center for Technology in Government.

The project team also included staff from the NYS Adirondack Park Agency, eight corporate partners led by Intergraph Corporation, and University at Albany faculty and graduate students.

Organizations need to create and maintain records to carry out their business activities and to document actions and decisions. Organizations are increasingly relying upon electronic information to manage work and make decisions. Many transactions that were once paper-based are now being performed electronically, as networked computer systems that once played a purely supportive role have moved to center stage. However, with the shift from paper to digital information, many organizations find that their current electronic records are not sufficient to support the evidentiary needs of their business functions. Others face the problem of linking documents created in different forms and formats to business transactions. Many organizations are in danger of losing access to records stored in personal computers, e-mail boxes, or personal local area network directories. From an archival perspective, focused on the long-term societal and organizational need for records, these problems result in partial or complete loss of records of enduring value.

In recent years, significant theoretical work has been done in the area of electronic records management; however, little of this work has been translated into practical, implementable solutions. This briefing paper bridges the gap between theory and practice by presenting generalizable tools that link records management practices to business objectives. This connection can be understood most readily at the business process level where workflow, information flow, and service delivery come together.

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ELECTRONIC RECORDS MANAGEMENT GOALS

This paper presents an easy to understand foundation for electronic records management considerations. It also presents practical tools that seamlessly integrate into the system design process and result in the identification of technical specifications and opportunities for improving performance through improved access to records. The tools also identify critical management and policy factors that must be in place to support a full system implementation. These tools can be used by any organization to:

- 1. Bring the record to the forefront of system design activities.** The tools shift the focus from technology to business processes and the records associated with these activities. They establish the concept of a ‘record’ as the centerpiece of system design efforts and bring the maintenance and ongoing accessibility of records to the forefront of the system design and development process.
- 2. Identify electronic records functionality as part of system design.** The business requirements that underlie the records management requirements drive the selection of appropriate supporting technologies. The tools pose questions associated with ongoing internal and external secondary access to records, support the selection of appropriate technologies, and identify important system migration issues.
- 3. Create electronic records that support legal and evidentiary needs.** The tools support the identification of all authenticity requirements tied to a business process including legal admissibility. They reveal how authenticity and evidentiary needs cannot be addressed by technology alone and must be supported by appropriate management practices and organizational policies.
- 4. Create electronic records that are accessible and usable over time.** The business process focus of the tools identifies the specific record components that must be captured at each step during the course of a transaction. They address issues associated with ongoing access to records over time, and identify technology, management, and policy strategies to ensure that records are appropriately captured and that they remain accessible for both current and future use.
- 5. Integrate diverse document forms and formats into records.** The tools help organizations identify the diversity of forms and formats that a system must accommodate and facilitate the identification of technical strategies that can be used to ensure that the required forms and formats are integrated into a record and accessible over time.
- 6. Identify need for internal and external primary and secondary access to records.** The tools help identify access needs from the perspective of internal users during a business transaction, as well as internal and external access needs after a transaction has been completed. The questions are designed to identify the components of a record required by each of these user types as well as their preferred or required mechanisms for accessing them. The tools, therefore, help ensure that the value of information collected and maintained during a business process will be maximized across all user groups and over time.



FUNCTIONAL REQUIREMENTS TO ENSURE THE CREATION, MAINTENANCE, AND PRESERVATION OF ELECTRONIC RECORDS

The *Functional Requirements to Ensure the Creation, Maintenance, and Preservation of Electronic Records* were developed to communicate to program and information technology managers what organizations must achieve to ensure that electronic records are created, maintained, and preserved to support their operational, informational, and evidentiary needs. These requirements should be implemented in any system developed to support an organization's business processes. The *Functional Requirements* rest on a concise definition of a 'record.' We define a 'record' as the complete set of documentation required to provide evidence of a business transaction.

Underpinning all three functional requirements is the concept of 'compliance.' The laws, regulations, and policies that authorize or define a specific government business process, either explicitly or implicitly, define the records management requirements for that process. The

requirements identify the records that must be created and may define requirements for records management, access, content, and structure. Many professions or disciplines also have established standards or best practices for records management related to their fields. An organization must identify these requirements and determine how they will be implemented. In addition, changes in the legal and regulatory environment and in professional standards need to be monitored and reflected in modifications to the requirements. Each requirement can be mapped to a compliance factor based in law, regulation, standard, or best practice. The use of the term 'best practice' refers to practices formally adopted or generally accepted by a profession or discipline. Examples of best practices include Generally Accepted Accounting Principles and the American Health Information Association's Recommended Practices for Information and Documentation.

A 'record' is the complete set of documentation required to provide evidence of a business transaction.

Three Functional Requirements for Electronic Records Management & Preservation

- 1. Records Capture** – Records are created or captured and identified to support the business process and meet all records management requirements related to the process.
- 2. Records Maintenance and Accessibility** – Electronic records are maintained so that they are accessible and retain their integrity for as long as they are needed.
- 3. System Reliability** – A system is administered in accordance with best practices in the information resource management (IRM) field to ensure the reliability of the records it produces.

1. RECORDS CAPTURE

Records are created or captured and identified to support the business process and meet all recordkeeping requirements.

Justification: Organizations must capture or create records necessary to carry out a business process and to meet the specific recordkeeping requirements tied to that process. The capture and creation of electronic records requires that the system supporting the business process can capture or create records in the required form including required informational content and contextual elements (e.g., authorizations, date stamps). Records must also be identified when they are captured to ensure their accessibility, usefulness, and preservation.

- A. Create or capture a record for all defined business transactions at the appropriate point in the business transaction or information life-cycle.
- B. Import records related to business transactions created in other environments.
- C. Records comply with business process requirements as far as structure, content, and context of creation.
 1. Allow only authorized individuals to create or capture records at the appropriate point in the business transaction or information life-cycle.
- D. Identified-Unique identifier for each record.
 1. Minimal record identification data (meta data) is available for all records.
 - a. Identity of record creator or source or owner (business unit).
 - b. Date of receipt or creation.
 - c. Level of security or restricted access.
 - d. File classification.
 - e. Indexing information such as subject or thesaurus terms.
 - f. Records disposition information (may be linked to file classification).

2. RECORDS MAINTENANCE AND ACCESSIBILITY

Electronic records are maintained so that they are accessible and retain their integrity for as long as they are needed.

Justification: Agencies are required to retain electronic records to meet minimal legal retention requirements imposed by business process specific administrative needs and legal or regulatory requirements. Records need to be maintained so that they are reliable and authentic. In addition, they should be legally disposed of only under an authorized disposition plan. Agencies also need to ensure that records remain accessible and useable to support the primary purposes for which they were created and any predicted secondary purposes for as long as the records must be legally retained. Records designated as ‘archival’ must be preserved in an accessible and useable form on a continuing basis by the agency or transferred to the relevant archival authority.

- A. Maintain integrity of records as created {all related data, documents, proofs of authenticity (e.g., electronic signatures) that comprise a record of a business transaction can be accessed, displayed, and managed as a unit}.
 1. Records or part of record can be easily retrieved in normal course of all business processes in a timely manner throughout the entire retention period.
 2. Records are searchable and retrievable for reference and secondary uses including audits and legal proceedings throughout the entire retention period.
 - a. Complete records can be migrated to new system.
 - b. Related meta data can be migrated to new system.
 - c. Functionality necessary for predicted use of records can be reproduced in new system.
- B. Accessible
 1. Records or part of record can be easily retrieved in normal course of all business processes in a timely manner throughout the entire retention period.
 2. Records are searchable and retrievable for reference and secondary uses including audits and legal proceedings throughout the entire retention period.
 - a. Complete records can be migrated to new system.
 - b. Related meta data can be migrated to new system.
 - c. Functionality necessary for predicted use of records can be reproduced in new system.

[Note: Functionality should be based on predicted use based on status of records. For inactive records, the ability to search and retrieve records may be sufficient. For records still actively engaged in a business process, full functionality may be necessary.]

3. Copies of records can be produced and supplied in a useable format for business purposes and all public access requirements.
- C. Disposition
1. Authorized records disposition plan can be implemented.
 2. Authorized individual validates or changes records destruction or transfer.

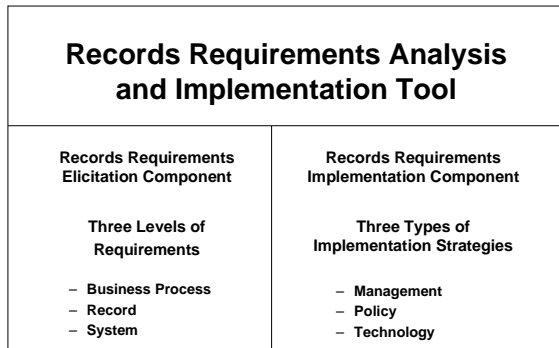
3 . SYSTEM RELIABILITY

System should be administered in line with best practices in the information resource management (IRM) field to ensure the reliability of the records it produces.

Justification: The acceptance of records for legal, audit, and other purposes is contingent on establishing their authenticity and reliability by demonstrating the trustworthiness of the system used to produce them. Systems that produce records must be shown to do so in the normal course of business and in an accurate and timely manner. System administration must incorporate established best practices in the data processing field. Policies, procedures, training and support programs, and controls must be documented.

- A. Recordkeeping system employed exclusively in normal course of business.
- B. Redundant (paper) recordkeeping system is discontinued.
- C. System management roles and responsibilities are assigned.
 1. Principle of separation of duties is implemented.
- D. Adequate system controls are in place.
 1. Audit trails developed and implemented within the system.
 2. Routine tests of system performance are conducted.
 3. Reliability of hardware and software is tested.
 4. Adequate security is provided to prevent unauthorized access, changes, and premature destruction of records.
 5. Controls for the accuracy and timeliness of input and output are established.
 6. Problem resolution procedures are in place.
- E. Disaster recovery plan is in place.
- F. All system management policies and procedures are defined and documented.
 1. Changes in policy and procedure are documented and implemented.
- F. Training and user support are adequate to ensure system procedures will be implemented by users.

THE RECORDS REQUIREMENTS ANALYSIS AND IMPLEMENTATION TOOL



The **Records Requirements Analysis and Implementation Tool (RRAIT)** supports the identification of records management requirements, as well as strategies for their implementation. The RRAIT is composed of two parts: the *Records Requirements Elicitation Component (RREC)* and the *Records Requirements Implementation Component (RRIC)*. Combined, the components facilitate the identification and implementation of application-specific records management requirements.

The **Records Requirements Elicitation Component (RREC)** facilitates the identification of records management requirements during business process improvement and systems analysis activities.

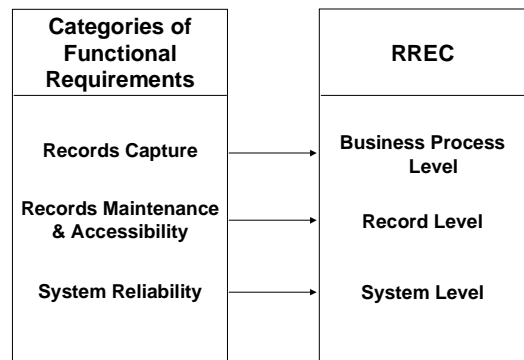
The RREC itself is divided into three levels:

1. **Business Process Level** - focuses on records management requirements associated with the business process that is to be automated.
2. **Record Level** - captures records management requirements associated with access and use over time, for both the record in aggregate and its component parts.
3. **System Level** - focuses on how, from a technical standpoint, the information system will accommodate the integration of, and ongoing access to, record components.

The **Records Requirements Implementation Component (RRIC)** supports the identification of management, policy, and technology strategies that address the requirements once they have been identified by the Business Process, Record, and System Levels of the RREC.

The figure on the next page presents the conceptual overview of the RRAIT by combining the components and levels into an integrated picture of the tool and its various areas of emphasis.

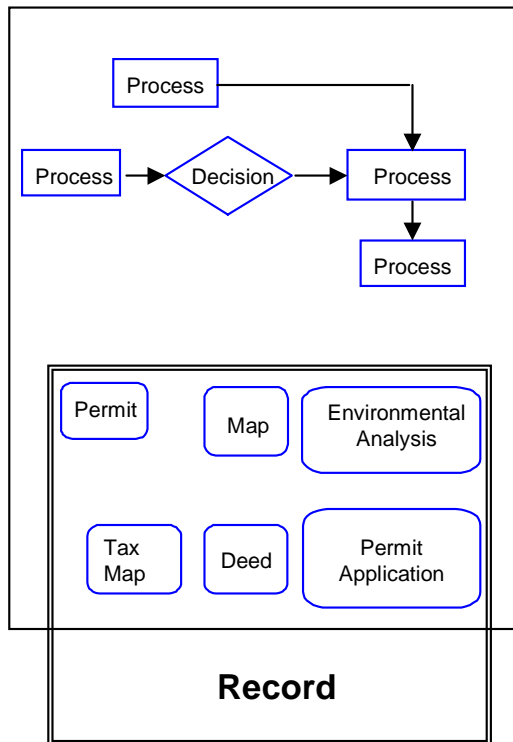
THE RECORDS REQUIREMENTS ELICITATION COMPONENT



The RREC translates the *Functional Requirements* into a set of questions or prompts that assist in the comprehensive identification of application-specific records management requirements. The goal is to seamlessly integrate the capture of these requirements into activities normally conducted during business process improvement and system design. The three components of the RREC can be mapped directly to the three categories of *Functional Requirements* as shown in the figure above.

The following sections present an overview of each of the three levels of the RREC. For each level, we provide a description of objectives, specify questions to be addressed, and give steps and hints for use.

RREC



**Records Requirements Elicitation Component
Business Process Level - for each sub-task:**

1. Documents or information accessed
2. 'How' or 'when' requirements associated with the process
3. When is the record modified?
4. What components of the record are created or modified?
5. Information about the record components
6. Proofs of authenticity associated with the record components

**Records Requirements Elicitation Component
Record Level**

1. What is a 'record'?
2. What is a legal minimum record?
3. Required record structure
4. Information about the record
5. Information to verify authenticity and interpretation
6. Internal access mechanisms
7. External access mechanisms
8. Reproducing records for external dissemination
9. Records disposition plans

**Records Requirements Elicitation Component
System Level**

1. Integrating records from other systems
2. Systems migration
3. Technology standards:
 - a. Meta data requirements
 - b. Industry standards
 - c. Jurisdictional standards

Hardware,
Software,
and
System
Administration

**Records Requirements Implementation
Component**

For each of the identified RM Requirements:
Can it be addressed through technology?

- If yes...
- a. Will policies need to be developed or changed?
 - b. What sorts of management practices will be required?

- If no...
- c. What policies and management strategies will support the requirements?

Technology,
Management, and
Policy
Strategies

RRIC

RREC - BUSINESS PROCESS LEVEL

The Business Process Level of the RREC was developed to support the identification of records management requirements associated with a given business process. It is also designed to identify records management requirements that are required by law, regulation, professional requirements, or organizational policy and practices at the sub-task level. These distinctions are important in terms of justifying requirements and determining which, if any, sub-tasks can be eliminated or modified.

This level of the RREC seeks information at the record component and business process levels. The records management requirements gathered at this level are focused on collecting information about the process itself, and the modifications to records at points in the process, in terms of how the record is modified (what is added, deleted, or changed) and the individuals who have authority to make the modifications.

The Business Process Level questions identify required information about time clocks associated with the process to ensure that information about start and end times associated with a given task are captured. They also identify other information or documents that may need to be accessed and consulted, but perhaps not integrated into the record, so that, at minimum, the system will allow for references to these sources. This section of the RREC also captures information about the types of documents that must be integrated into the record, as well as any proofs of authenticity, such as original signatures, notarizations, or electronic time stamps, that must be captured at the document or record component level.

The Business Process Level of the RREC also supports the identification of objects (another way to think about components of a record) that can later become the objects in an object-oriented database structure. This level also identifies the required meta data (information about the object including when it was modified and by whom) for each of the objects or components of a record.

Records Requirements Elicitation Component Business Process Level				
1. What is the transaction to be automated (from the perspective of the customer)?				
2. What are the subtasks associated with the transaction?*				
3. For each of the subtasks...				
Basis for the answer				
	Legal	Regulatory	Best Practices	Agency policies & practices
A. What is the purpose of the sub-task? Is it intended to fulfill a legal, regulatory, or operational purpose?				
1. Are there any 'when' or 'how' requirements for the transaction? (i.e. time clocks or standard professional techniques)				
B. What other documents or information must be accessed during the sub-task?				
C. Is the record of the transaction created or modified?				
1. If yes, at what point in the transaction is the record created or modified?				
2. Who is authorized to change or modify the record?				
3. What is the content of the record or the component of the record created or added during the sub-task?				
a. Are there documents or information created by other systems that must be integrated into the record?				
b. Is there any information about the component of the record that must be collected and maintained?				
c. Are there any proofs of authenticity associated with the content created or modified during the sub-task?				
*A sub-task starts a process and ends with a decision point or completes the transaction.				

STEPS INVOLVED IN USING THE BUSINESS PROCESS LEVEL OF THE RREC

1. Gather background information to identify records management issues. Interviews, surveys, and focus groups are useful for this step.
2. Create a process model or diagram that represents the entire business process that is the focus of the analysis. This can be done in a group setting or one or a few people can draft the diagram for review by those who participate in the business process.
3. Conduct a workshop or group decision conference with all staff involved in the process to accomplish the following:
 - 3.1. Develop consensus and common definitions around the process diagram representing the current business process.
 - 3.2. Identify sub-tasks or logical breaks in the process.
 - 3.3. For each of the sub-tasks, pose the questions in the Business Process Level of the RREC (careful transcription and organization of responses is critical).
 - 3.4. Determine, wherever possible, whether the records management requirement is based on a legal or regulatory requirement, professional or agency best practice, or policy.
 - 3.5. Identify areas where there exists uncertainty in the responses and identify individuals for follow-up.
 - 3.6. Based on the responses, begin to identify options for improving the business process.
4. Translate the requirements into system specifications.

Hints:

1. Sub-tasks that result in no change in the record are likely to add no value to the process and may be candidates for modification, elimination, or movement to another part of the process.
2. Minimizing the number of times that a record is passed back and forth between staff within a process can reduce total transaction time. Attempt to identify opportunities for consolidating task work within a pass.
3. Records management requirements that are not based upon legal or regulatory requirements are candidates for modification or elimination. For each of the identified requirements, ask the questions: "Why is it done?" and "Does it need to be done?"

RREC - RECORD LEVEL

As shown in the figure to the right, the primary unit of analysis for the Record Level of the RREC is the record itself. In general terms, this section of the tool seeks to capture records management requirements associated with access and use over time, for both the record in aggregate and its component parts. The questions are focused on capturing records management requirements related to the access and maintenance of records once they have been created, or after a business transaction has been completed.

This section of the RREC identifies the specific components of the record that must be retrievable and reproducible for use by both internal and external secondary users. It also focuses on the identification of an organization's records disposition plan, including the individual(s) responsible for disposing of records according to the plan and those responsible for modifying or updating the plan.

The Record Level specifies the information that must be collected in identifying a comprehensive set of records management requirements, but it does not dictate the mechanisms by which the questions are asked and answered. Several methods can be used. For example, the answers can be acquired through interviews of relevant staff, conversations with experts such as legal staff, group decision conferences, or surveys. The method used to answer the questions outlined in the Record Level of the RREC should be determined in much the same way a research method would be selected to answer a research question. A variety of factors need to be considered and the most cost-effective mechanism for gathering the information should be used.

Records Requirements Elicitation Component Record Level
1. What are the current components of a complete or final record of the transaction?
2. What are the minimal components to provide evidence of the transaction? (If you went to court, what would be the minimum information that you would need?)
3. Are there any laws, regs, or professional best practices that specify the structure (including medium, format, relationships) of the record or any of its components?
4. What information must be created to control, manage, and access the record throughout its life-cycle? (What information about the record do you need: e.g. who created it, when, etc.)
5. For each of the components of the record, what information is essential to access, verify the authenticity, interpret the contents, etc.?
6. During what other business processes might you need access to this record? A. For each of these other business processes, which components of the record need to be accessed? B. For each of these business processes, what are the best ways to access the records (i.e. indexing)?*
7. Who are the external secondary users of the record? A. Which components of the record are required by external secondary users? B. For each of these secondary users, what are the most efficient/effective ways of accessing components of the records (i.e. indexing)? C. How will the record be reproduced to meet the needs of internal and external secondary users? D. What are the rules, laws, and regulations that restrict or open access to these records to external users? E. If these records are covered by FOIL: For those components of the record that the Agency wishes to restrict access to, which category of exemption does the component fall under? For each of the components, what format are they currently in (e.g. GIS, database, WP, paper forms, narrative maps) and how will they be reproduced for distribution?
8. What is the record disposition plan?
9. Who is responsible for authorizing the disposition of records?
10. Who is responsible for authorizing the development or changes to the records disposition plan?
* Identify the business process that requires the most robust access and then determine if the other processes require additional access methods

STEPS INVOLVED IN USING THE RECORD LEVEL OF THE RREC

1. Identify all the internal and external users of the record generated by the business process. If necessary, identify a representative sample of users to address the record access needs questions.
2. Identify and gather the required information from individuals within the organization who are familiar with the legal, jurisdictional, and professional best practices associated with the record of the transaction.
3. Identify and gather the required information from individuals internal or external to the organization who have responsibility or authority over the management and disposition of records.
4. Translate the requirements into system specifications.

RREC - SYSTEM LEVEL

Records Requirements Elicitation Component System Level
How will the system accommodate the required integration of records from other systems?
What other systems might these records be migrated to?
What is your system's migration plan?
For each of the technologies being used to support the business process: What are the meta data requirements? What are the industry standards? What are the jurisdictional standards?

The System Level of the RREC is more directly related to technology than the other levels. As shown in the figure above, the questions at this level are focused on *how* a system will support the integration of the information and documents (record components) identified at the Business Process and Record Levels. In other words, the Business Process Level questions facilitate the identification of *what* information and documents must be integrated into a record, the Record Level focuses on *how* the record and its components will be maintained and accessed over time, and the System Level focuses on *how, from a technical standpoint*, an information system will accommodate the integration of, and ongoing access to, record components. This section also poses questions about future system migrations, by focusing on the types of hardware and software platforms that the system may be migrated to over time. These questions prompt the user to consider the feasibility of alternative migration plans which may have an effect on current technology choices.

The System Level questions also identify meta data, industry standards, and jurisdictional requirements associated with specific technology choices. For example, technologies such as digital imaging, GIS, and EDI may require different types of meta data and may require that certain standards are met within a given state or nation, or these standards may be tied to commonly accepted industry standards. Additionally, industry, organizational, or professional standards for system administration, back-up, and disaster recovery are identified through this level of the RREC.

**STEPS INVOLVED IN THE USE OF THE SYSTEM
LEVEL OF THE RREC:**

1. For each of the document or record component types, identify how the system will support its integration into the record. In those cases where the record component cannot be included in the record directly, develop an indexing and storage strategy to identify the component and its location outside of the record.
2. Identify other systems that the records may be exported or migrated to over time.
3. Develop a migration plan that includes consideration of each of the identified document or record component types.
4. In conjunction with the use of the RRIC, described below, identify the required meta data, industry, or jurisdictional (state, local, federal) policies, procedures, and standards that must be accommodated by the system.
5. Translate these requirements into system specifications.

RECORDS REQUIREMENTS IMPLEMENTATION COMPONENT (RRIC)

Records Requirements Implementation Component (RRIC)
For each of the identified records management requirements:
Can it be addressed through technology?
If yes, Will policies need to be developed or changed? What sorts of management practices will be required?
If no, What policies and management strategies will support the requirements?

The Records Requirements Implementation Component (RRIC) focuses on the identification of technology, management, and policy strategies to address the requirements identified through the Business Process, Record, and System Levels of the RREC.

The RRIC provides an organizing framework for records management requirements and strategies for addressing them. In some cases, the same technology, management, or policy strategies may address a range of records management requirements. In other cases, specific strategies may be necessary to ensure that the individual requirements are met. For example, one requirement might state that the record of a completed transaction should be moved into an archival vault, at which point no further modifications can be made to the record. This requirement may be supported by technology through the use of workflow features that move the record into another location after the final step in the process has been completed. However, policies must be created that clearly identify the components of a ‘final record’ and when in the process a record is deemed ‘final.’ Further, management practices must be put in place to govern who is authorized to move the record into the vault and what components of the record must be maintained in the archive. Once the management and policy strategies have been determined, technology can be used to allow only the person or persons authorized to archive a record the technical permission or capability to do so. Technology can also be used to provide an audit trail to ensure that only authorized individuals, at the appropriate times, have archived the record. Another policy that would support this requirement would be a prohibition against sharing user IDs and passwords among the system users.

While there is no pre-defined method for using the RRIC, it is very useful to implement it in conjunction with technology awareness activities. We recommend an iterative process of technology awareness, feasibility assessment, and technology selection. This approach helps the organization understand the full range of technology options and their costs and benefits as part of the determination as to whether records management issues should be addressed by management, policy, or technology strategies. Ideally, an organization should strive to maximize the use of technology, and rely less on human factors to ensure that records management issues are addressed. However, this may not always be cost-effective or feasible. Therefore, the costs and benefits of technology strategies compared to management and policies strategies should be addressed as a component of the RRIC.

Implementation Strategies for Records Management Requirements			
	Strategies		
	Policy	Management	Technology
Requirement 1			
Requirement 2			
Requirement 3			
Requirement ...			

STEPS INVOLVED IN USING THE RRIC:

1. Gather information about potential technology choices to support the business process and associated records management requirements.
2. Gather information on such costs as hardware, software, training, development, system integration, development, etc.
3. Assess organizational capabilities or organizational readiness for the adoption of new technology.
4. Conduct an analysis of the cost and feasibility of using initially selected technologies to address the records management requirements.
5. Test the technological capabilities and reassess feasibility for implementation.
6. Identify required complementary policy and management strategies to support the selected technology components.
7. Identify individuals within the organization to assist in the development and implementation of required management and policy strategies.

Hint: The framework above is a useful way to record and compare the different strategies that can be used to implement records management requirements.

GENERAL GUIDELINES

The *Functional Requirements* present records management requirements in a way that is understandable to both program managers and technical staff. They are system- and business-process focused, which means that both practitioners and system developers can easily relate to them. The language is clear and, perhaps more important, the requirements constitute a concise set of standards that are readily adoptable by busy managers and professionals across organizational types.

The RRAIT focuses on the business process and business objectives. Practitioners indicated that this manner of presentation enabled them to understand the importance of records management requirements in terms of the issues that are critical to them in conducting their work. Records management professionals stated that this approach helps ensure effective communication with practitioners about records management issues.

The RRAIT directly translates records management requirements into user and system requirements. The responses to the questions in the Business Process and System Levels of the RREC are easily communicated to system developers in terms of technical specifications. Additionally, the questions that focus on the documents or components that constitute a record and on internal and external access to records can be readily translated into data model specifications. The tools call attention to long-term access issues, such as migration strategies and meta data, that should be addressed at the initial system design stage to avoid high costs in the long run, or worse, loss of access to important records.

The RRIC, with its focus on implementation, highlights the importance of developing supporting policy and management strategies — critical elements that often receive little or no attention in system development efforts.

Together, the tools provide a sound framework for identifying and addressing electronic records management issues. However, as is the case with any tool designed to assist organizations in addressing key issues, success depends, in large part, on the environmental context within which the tools are applied. Six guidelines for use of the tools are provided below.

1. **An organization must first recognize the importance of its business records and the costs and risks associated with ignoring them.** Without this foundation, it is unlikely that an organization will invest the time and attention to detail that the tools demand.
2. **The degree to which the tools are effective depends upon the organization's readiness and willingness to change.** Change means more than new information systems; it requires supporting management and policy strategies as well as an understanding of the degree to which records management requirements can be addressed by selected technologies. In short, while the tools support the identification of requirements, the underlying factors that surround their implementation determine the ultimate level of success.
3. **One of the most critical factors for effective use of the tools is getting the appropriate people to answer the questions.** All of the internal and external primary and secondary users of the records that will be created and maintained by an information system should be represented. While only a sample of each user type may be involved in answering the questions, it is critically important that all of the types or groups of users be consulted. It may be necessary to bring legal staff or executive management into the process. Legal staff can assist in the identification of statutory or regulatory requirements, while executive level staff will need to be involved in the development of policy and management strategies. Individuals with knowledge of the professional practices associated with a given process are also important participants. System development or technology experts also play an important role in addressing the questions and providing information about product capabilities to support records management requirements. Not all of the players are required during the entire process; some may be brought in to assist as different questions are being addressed. However, identifying and involving all key players at the appropriate point in the process is critical to the successful use of the tools.

4. **The tools help organizations identify the functionality that is required in a system to support records management requirements.** The tools emphasize the selection of technology solutions that maximize inter-operability and adherence to standards, but they are not designed to support product selection. Selection of specific products to provide the necessary functionality must be based on a number of factors including existing infrastructure (both technical and organizational), cost, and expected benefits.
5. **Several methods can be used to answer the questions in the RRAIT.** We strongly recommend that the Business Process Level questions be answered in the context of a business process analysis or improvement activity. The methods for answering questions in other sections should be selected based on their compatibility with the organization's skills and time schedules, and the method's ability to minimize the total cost of the information collection process.
6. **Technology awareness activities should be conducted in conjunction with the use of the tools.** Product reviews, vendor presentations, and conferences focused on technology applications are all ways to increase user awareness of technology capabilities and limitations. These types of activities increase understanding of the strengths and weaknesses of technology types and specific products. A broad appreciation of what technology can and cannot do will help the organization make appropriate technology choices.

This document is available on-line at:

http://www.ctg.albany.edu/resources/pdfrwp/mfa_toolkit.pdf

*The complete project report, **Models for Action: Practical Approaches to Electronic Records Management and Preservation**, CTG Project Report 98-1, is available at:*

<http://www.ctg.albany.edu/resources/pdfrwp/mfa.pdf>

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