
A Model of the Preservation Function

version 6.0

Preservation Task Force

June 2002

i) Model Diagram Descriptions

Purpose: The purpose of this model is to articulate the functions, information, and resources required to preserve authentic electronic records.

Definition: The "Preserve Electronic Records" model describes the processes required to transmit electronic records over time and over generations of information technology and to produce authentic copies of those records. The model is articulated on the basis of the recognition that it is literally impossible to preserve an electronic record as a physical object that exhibits all the required elements of the documentary form of the record. Physically, it is only possible to preserve digital components that contain binary representations of the contents of electronic records and the information necessary to translate the content from the stored representation into the structure and presentation prescribed for the record.

Viewpoint: The model is constructed from the viewpoint of the person responsible for preservation of authentic records. The same person or organization may have other roles or responsibilities, such as appraisal or reference, but coincidental activities are excluded from the "Preserve Electronic Records" model.

When it is determined that a body of electronic records has long-term value, information about those records needs to be provided to the person who will be responsible for preserving them in order for the preserver to determine how the records will be preserved. Feedback from the preserver to the appraiser leads to the articulation of terms and conditions for the transfer of the records. Except in the case of a body of records that will be transferred all at once to the preserver, this feedback loop may extend in time for as long as the records creator continues to create or maintain records belonging to the body of records selected for preservation. During that time, changes in the creator's record keeping may entail changes in the terms and conditions for transfer. One term for transfer is the stipulation of when records should be transferred to the preserver. The preserver's active involvement with the records begins at that point.

The preserver also has a role in responding to requests for copies of records and for information about the records, even though the viewpoint of this model does not include the responsibility for determining access rights, providing information informing potential users about records that may be of interest to them, or otherwise communicating with users. Requests for records and for information about records held in the preservation system are directed to the preserver through the intermediary of the person responsible for reference and access. Nonetheless, the process of reproducing an electronic record from its stored digital components may fail to produce an authentic copy of the record. Therefore, the person responsible for preserving the record must exercise control over reproduction in order to ensure that the record is effectively transmitted over time in authentic form.

Scope: The "Preserve Electronic Records" model encompasses activities from the point where it is determined that a body of electronic records has long-term value to the production of a copy of a preserved electronic record. This scope needs to be subdivided into two parts: the first covers information about the records; the second, the records themselves. The role of preserving records includes all of the activities necessary to ensure the transmission of authentic electronic records over time. First, there is interaction with the process by which aggregates of records are selected for preservation. At this stage, the person responsible for preservation needs to determine whether the records can be preserved and given established capabilities and capacities, or alternatively to plan actions to expand those capabilities and capacities. The role of preserving extends to the delivery of copies of preserved records to end-users. At this end stage, the person responsible for preservation needs to control production of copies, because only end-

to-end preservation control—include transfer from the records creators through delivery to end-users—can ensure the authenticity of copies.

The "Preserve Electronic Records" model operates at two different levels. Some of the activities in the model—for example, Bring in Electronic Records—operate on sets of electronic records. Other activities, such as Output Electronic Record, operate at the level of individual records.

The level of detail in the description of processes in the model is limited by the fact that it is intended to apply to any and all electronic records that may be selected for preservation, and that it is intended to be valid for all preservers. Thus, the model provides for the operation of external—legal, societal, stakeholder—requirements as controls on preservation process. It assumes that the preserver is responsible to a specific institution and that external requirements are interpreted by the institution to determine how they apply to the preservation of electronic records. The model does not detail the impact of any specific institutional controls, although it does indicate where such controls impact the process. Similarly, the model does not detail the preservation of any specific record, body of records, class of records, or class of digital component of electronic records. At present, the model does not detail the operation of any specific technique (such as migration, technology preservation, or persistent object preservation) for overcoming technological obsolescence or for maintaining the capability of producing authentic copies of electronic records. However, it does delineate the process both for selecting the approach to be taken in any case and where the technique should be applied.

Source: The "Preserve Electronic Records" model was developed by the Preservation Task Force of the InterPARES Project based primarily on the knowledge of the multidisciplinary experts who were members of the task force, supplemented by information gathered from the members' institutions, by a survey of digital preservation projects, and by the products of the InterPARES Authenticity and Appraisal Task Forces.

IDEF(0) Diagrams

A0, Preserve Electronic Records.

Given Information about Electronic Records Selected for Preservation, and the Transfer of those records, the "Preserve Electronic Records" model transmits electronic records over time. In response to a Request for a Record and/or Information about the Records, the process produces copies of those records and, if requested, certifies the authenticity of the copies. The preservation process can also output the digital components of an electronic record and relevant information enabling the recipient to reproduce the record from those components. If a request is only for information about a record, the available information is delivered. The process also outputs information about how the preservation function has been exercised.

The records preservation function is controlled by Archival Requirements, the State of the Art of Information Technology, Institutional Requirements. It is accomplished by Persons Responsible for Preservation, using Information and Communications Technologies in appropriate Facilities.

Preserve Electronic Records.

The process, Preserve Electronic Records, involves four sub-processes: Manage the Preservation Function, Bring in Electronic Records, Maintain Electronic Records, and Output Electronic Record. The first of these functions controls the other three; the other three provide feedback to the "Manage" function.

Manage the Preservation Function.

Managing the preservation function involves analyzing Information about Electronic Records Selected for Preservation and about Electronic Records Transferred and Accessioned Records to Determine Preservation Requirements, to Select Preservation Technologies suitable for the Specified Requirements for Preservation; Specify a

Preservation Strategy which determines precisely how and when selected preservation technologies will be used to preserve a target body of records; and related procedures and controls. These processes produce the Preservation Strategies which control all other preservation processes: bringing records in, maintaining them, and outputting them, the Technological Infrastructure necessary to carry out these processes, and the Targeted Preservation Methods applied to the objects within the scope of each Preservation Strategy. In addition, managing the preservation function entails evaluating execution of the three other preservation processes and using the results of this evaluation to improve the management process.

A1.1, Determine Preservation Requirements.

Determining preservation requirements consists of four distinct processes: determining technical specifications for transfer and for storage of records in logical and physical files, determining the specific archival properties of records that must be preserved, determining how these properties are instantiated in the digital components of the records, and producing a synthesis of the requirements articulated in these analyses. There is also an ancillary process of determining the actual basis for presuming that the records creator maintained and transferred authentic records. Its output is also factored into the synthesis of preservation requirements.

The first process considers only archival properties of records and archival aggregates, regardless of how their properties are instantiated in digital objects or what software is needed to execute the methods of each type of digital object. It determines preservation requirements that technology must satisfy and that control the use of technology in preservation. Archival properties are defined for classes of individual records, for archival aggregates, and for the presentation of records and aggregates for use.

The second of the principal processes, determining how archival properties are instantiated, is represented by and decomposed into three sub-processes. First information about classes of records is analyzed to determine how records in each class are composed of their Digital Components. Second, information about how archival aggregates in the body of records are constructed and ordered is reviewed to determine what will be required over time to reinstantiate aggregate structures, with members in proper order. Third, information about how individual records and archival aggregates are presented is analyzed in order to develop specifications for reproducing records. Each of these three steps and also the analysis of the presumption of authenticity produce appropriate requirements for preservation, which are then synthesized in the final process to produce a comprehensive and coherent set of requirements for preserving a body of records.

A2, Bring in Electronic Records.

The process of bringing in electronic records consists of the essentially mechanical step of registering receipt of a transfer, followed by verifying, on the basis of information about the transfer, whether the records purportedly included in the transfer have been selected for preservation. If so, the digital files received are reviewed to ensure that they contain the records authorized for transfer, culminating in a formal decision to accept responsibility for preserving the records.

A2.3, Examine Electronic Records.

Examining electronic records is a process of comparing the records received in a transfer to what was expected about those records, based on information in appraisal and on the documentation received with the transfer, in order to ensure that the transferred records satisfy requirements specified in the applicable Preservation Strategy, to determine if the records can be preserved, and to take any action necessary to ensure their preservation.

A3, Maintain Electronic Records.

Maintaining electronic records entails managing information about them, managing the storage of their digital components, and updating those components when necessary, as indicated by the applicable Preservation Strategy. The process outputs information about

preserved records and the digital components of requested records. If necessary because of updated preservation strategies and methods, it updates the digital components so that records and/or archival aggregates can be reproduced using the updated methods.

A3.1 Manage Information about Records.

Managing information about records entails maintaining information about the records and, on request, retrieving information about the records and, if needed, information about their digital components.

A3.2, Manage Storage of Digital Components of Records.

Managing the storage of the digital components of electronic records starts with putting into storage the components of a body of records accepted for preservation in accessioning. It is completed by retrieving and outputting digital components in response to a request. This process also entails periodically refreshing storage media before current media start to deteriorate and updating the storage system in response to changes in storage technology. This process also involves monitoring stored files to ensure that they are intact, and, if not, taking action to correct any storage problems encountered.

A4, Output Electronic Record.

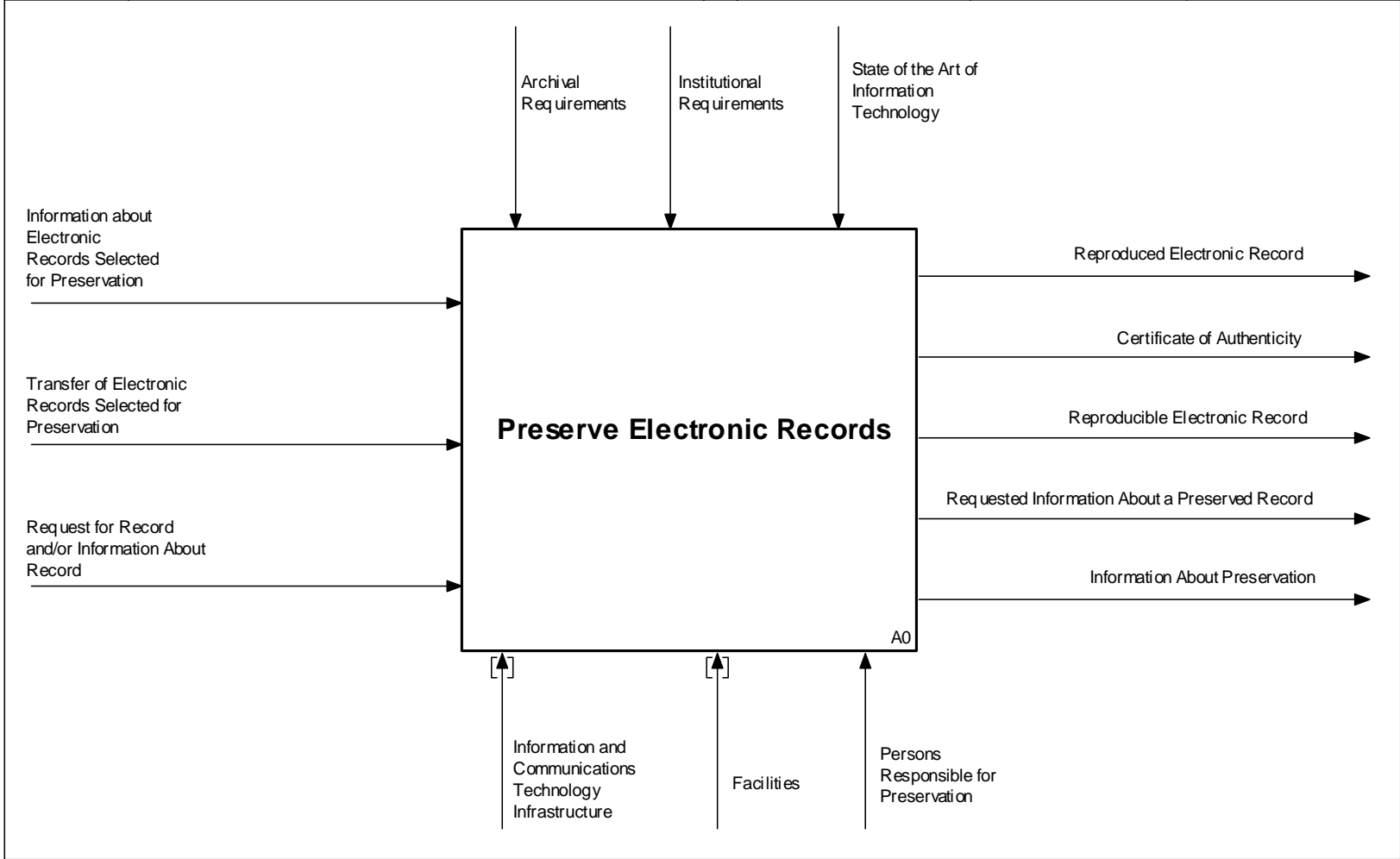
An electronic record, its digital components, or information about the record are output in response to a request initiated outside of the preservation process. Each request needs to be managed in order to ensure that there is a response and that the response is appropriate. The first step in responding to an external request is to issue a retrieval request for the desired information or digital components. The response to this retrieval request is reviewed to ensure that the retrieved information or components are complete and correct. If the external request was only for information, the requested information is sent to the requester. If the request is for reproduction of a record, the method prescribed in the Preservation Strategy for the records is applied to the digital components and the reconstituted record is then either presented to the external requestor or suitably packaged for delivery via telecommunications. If specified in the request for a copy of the record, the process produces a certificate attesting to the authenticity of a reproduced copy. Alternatively, if the external request was only for digital components, the process reviews for complete and correct retrieval of those components, then packages them for delivery without reproducing the record.

The Output Electronic Record process may also be invoked when records in a transfer are being examined, in order to verify that the records in the transfer can be preserved and reproduced.

ii) Model Diagrams

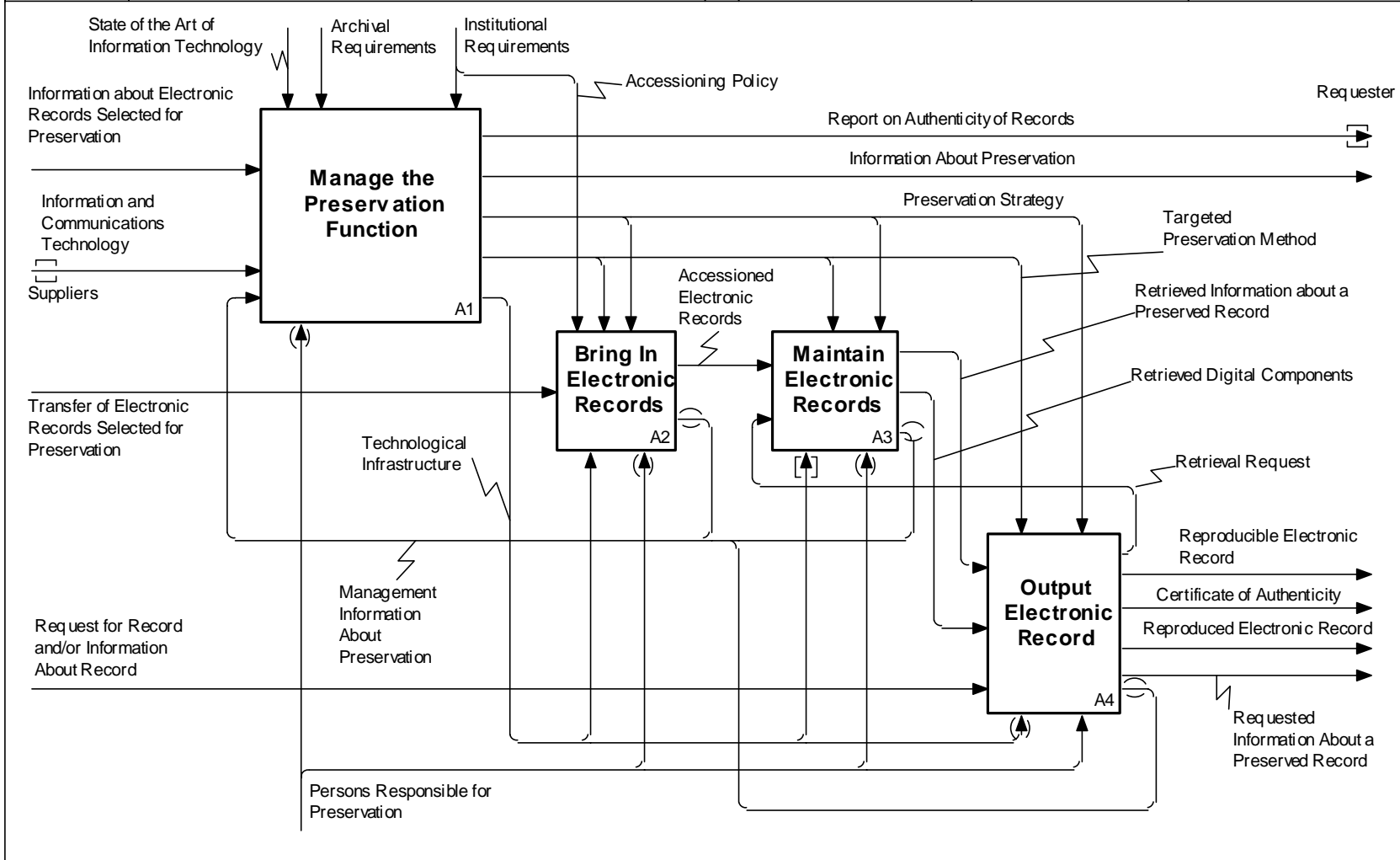
MODEL INFORMATION	
TITLE	<i>Preserve Electronic Records</i>
AUTHOR	Preservation Task Force, InterPARES Project
MODEL TYPE	IDEF(0) function model. IDEF(0) (Integration Definition for Function Modeling) is a U.S. Federal Information Processing Standard (Publication 183, as issued by the National Institute of Standards and Technology). "A function model is a structured representation of the functions, activities or processes within the modeled system or subject area." See < http://www.idef.com > for more information.
PURPOSE	<p>The purpose of this model is to articulate the functions, information, and resources required to preserve permanent, authentic electronic records.</p> <p>The InterPARES Project will use this model to identify and develop the procedures and resources required for the implementation of the conceptual requirements and criteria identified in the project's Authenticity and Appraisal research domains.</p>
VIEWPOINT	Person responsible for preservation
SCOPE	This model is constructed within the framework established by the <u>Reference Model for an Open Archival Information System (OAIS)</u> , which is an ISO Draft International Standard (DIS). [See < http://ssdoo.gsfc.nasa.gov/nost/isoas/ > for more information.] The 'Preserve Electronic Records' model includes 'Preserve Electronic Records' model activities and related ICOMs specifically required for the preservation and delivery of authentic electronic records. While some of these activities fall within the Ingest, Distribution and Management activities in the OAIS model, the 'Preserve Electronic Records' model excludes aspects of those activities not essential for preservation.

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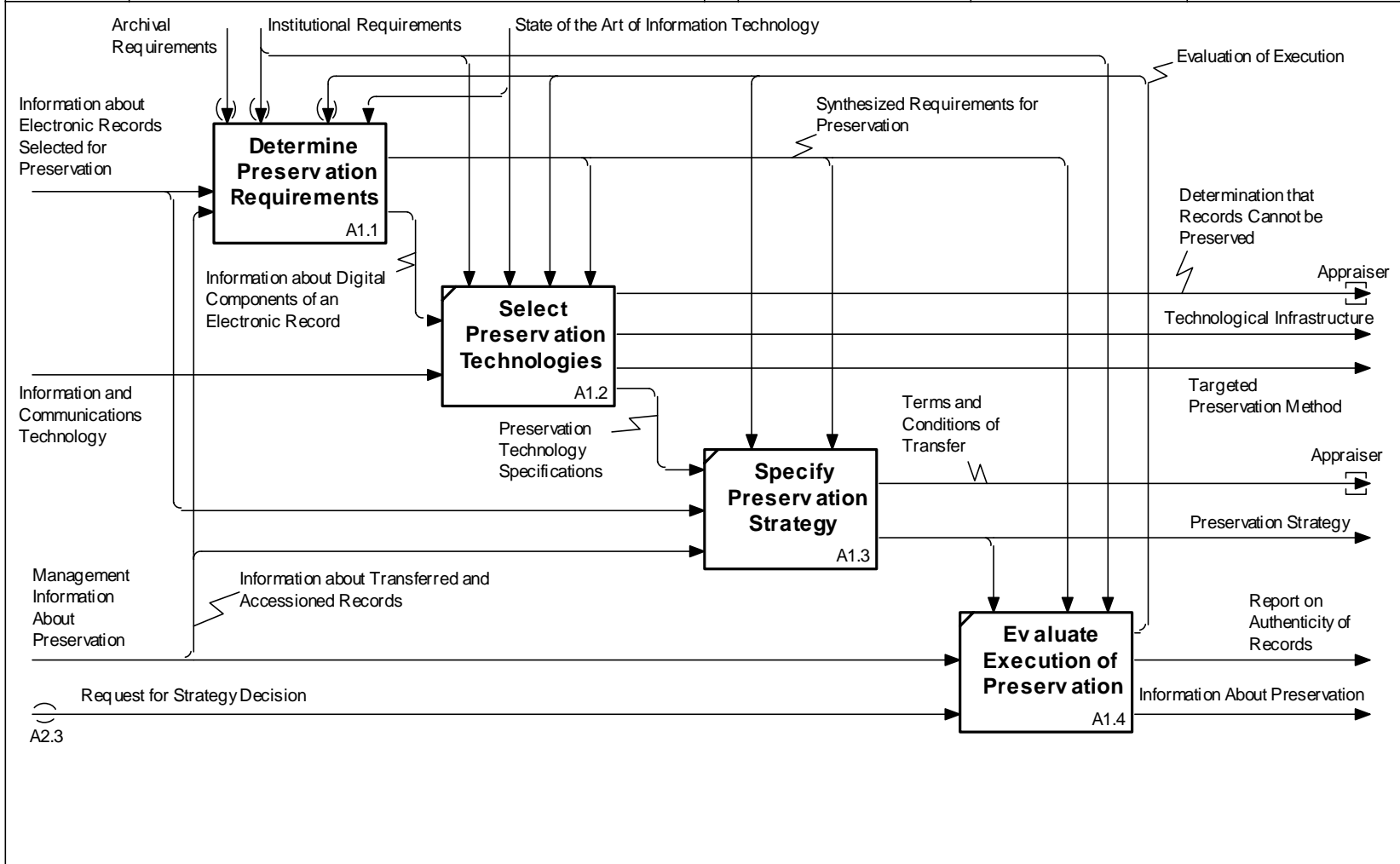
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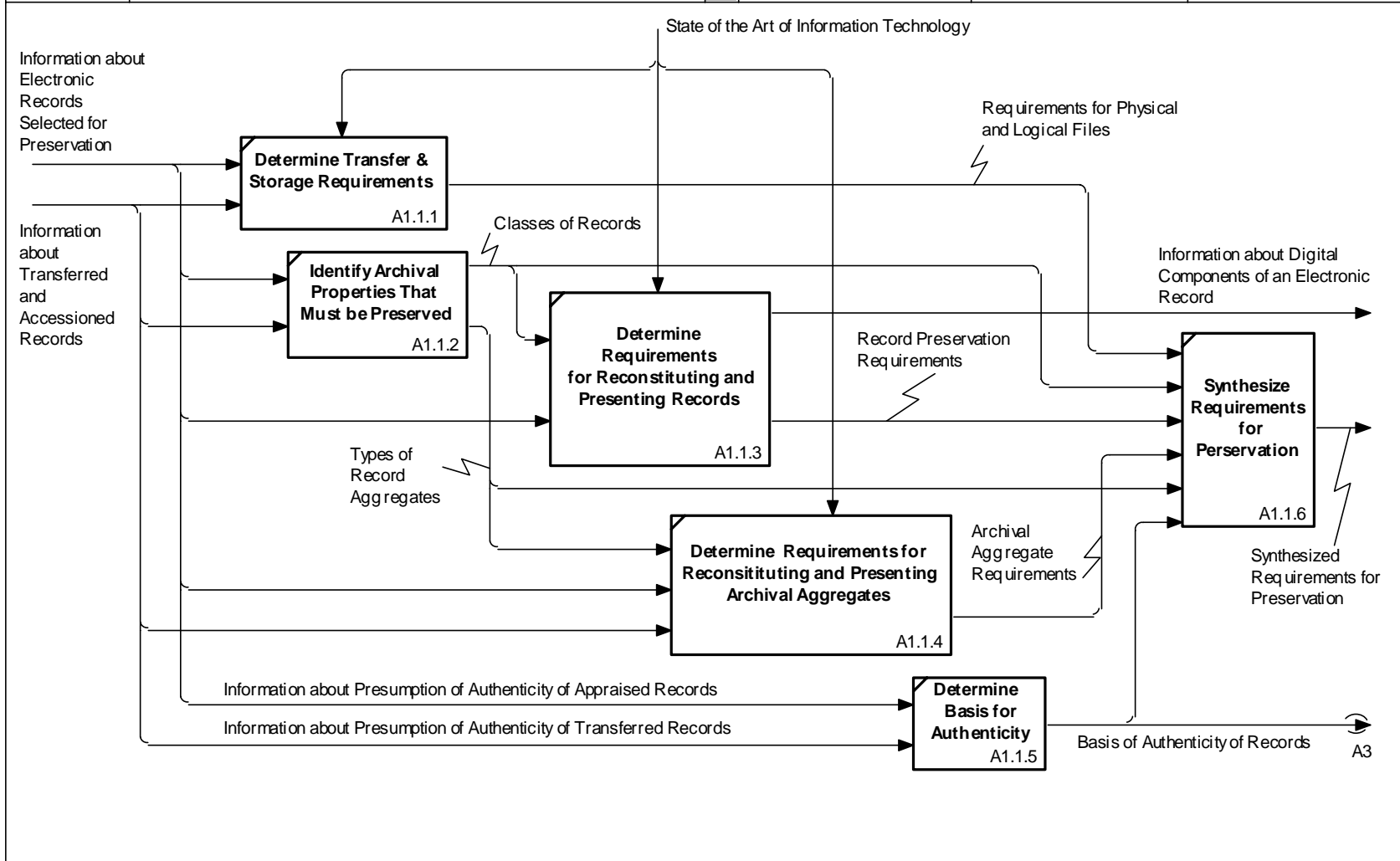
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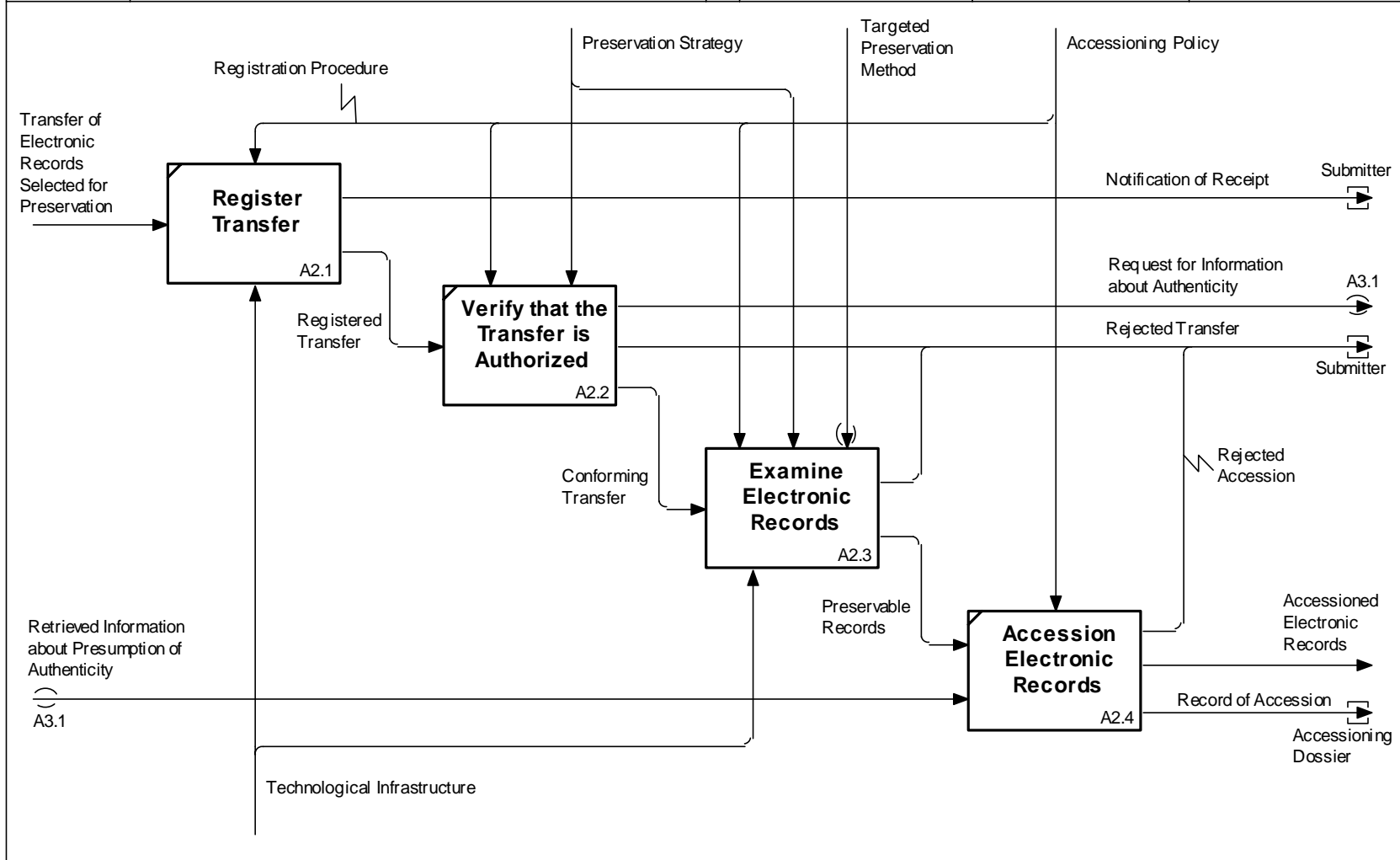
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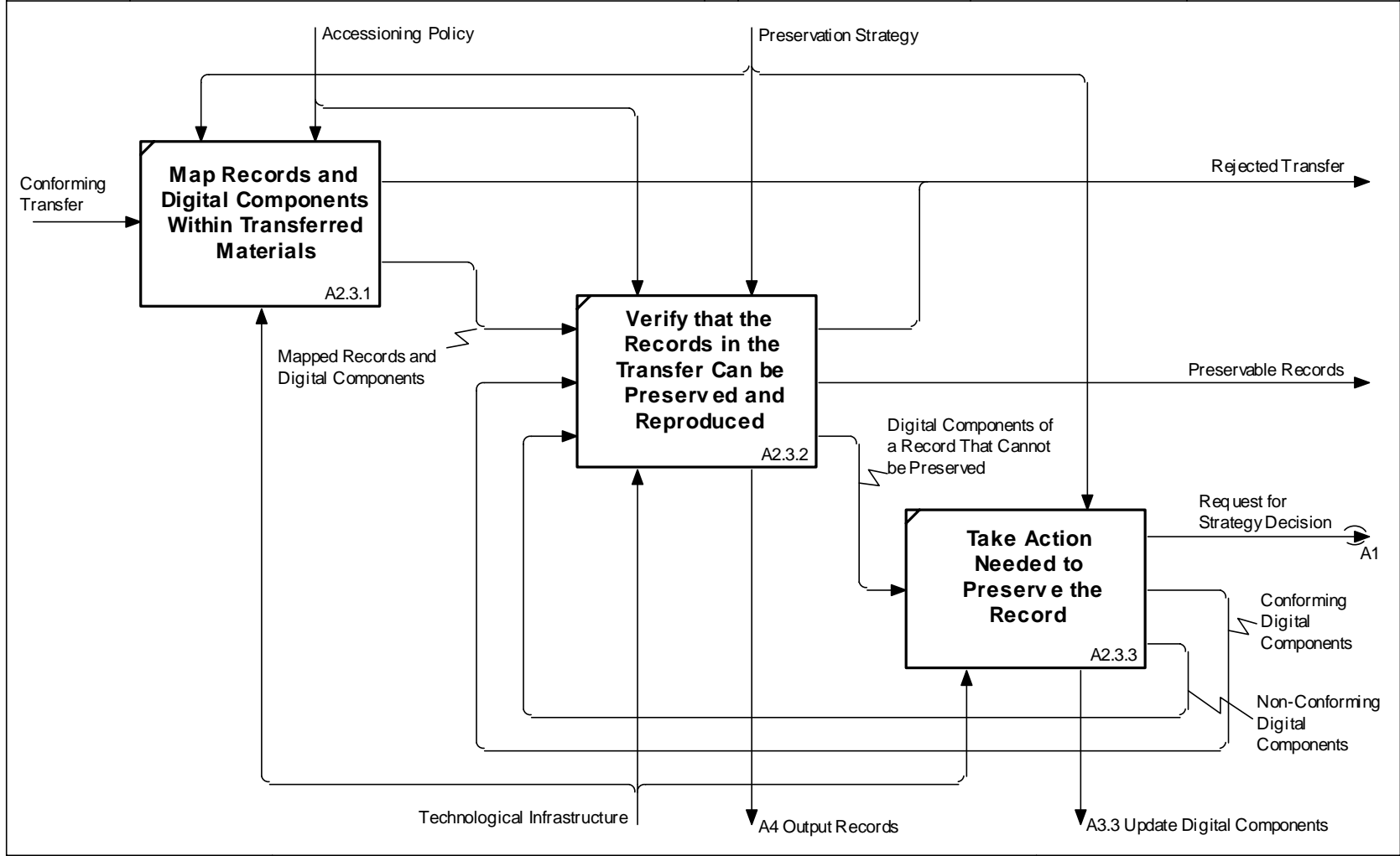
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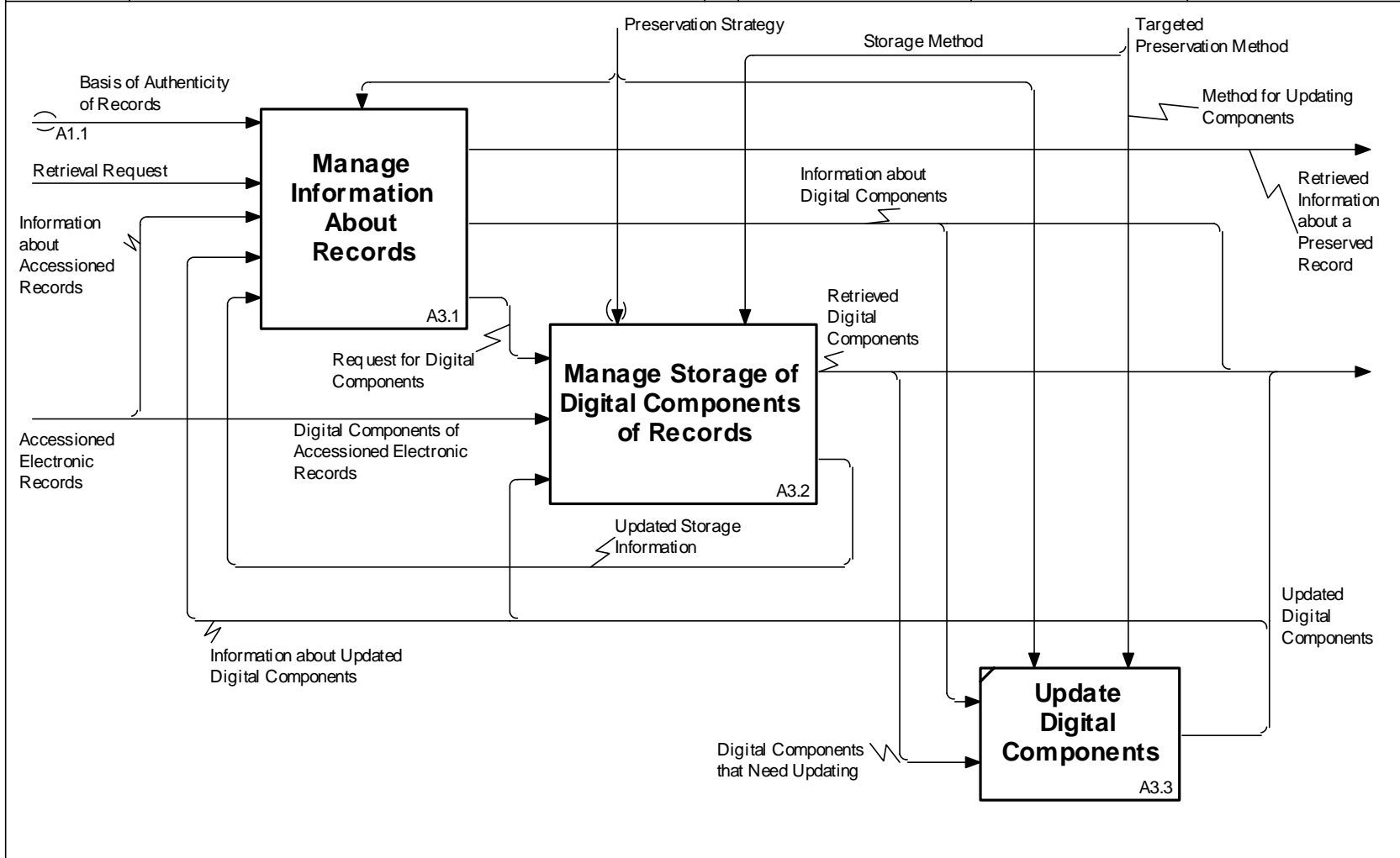
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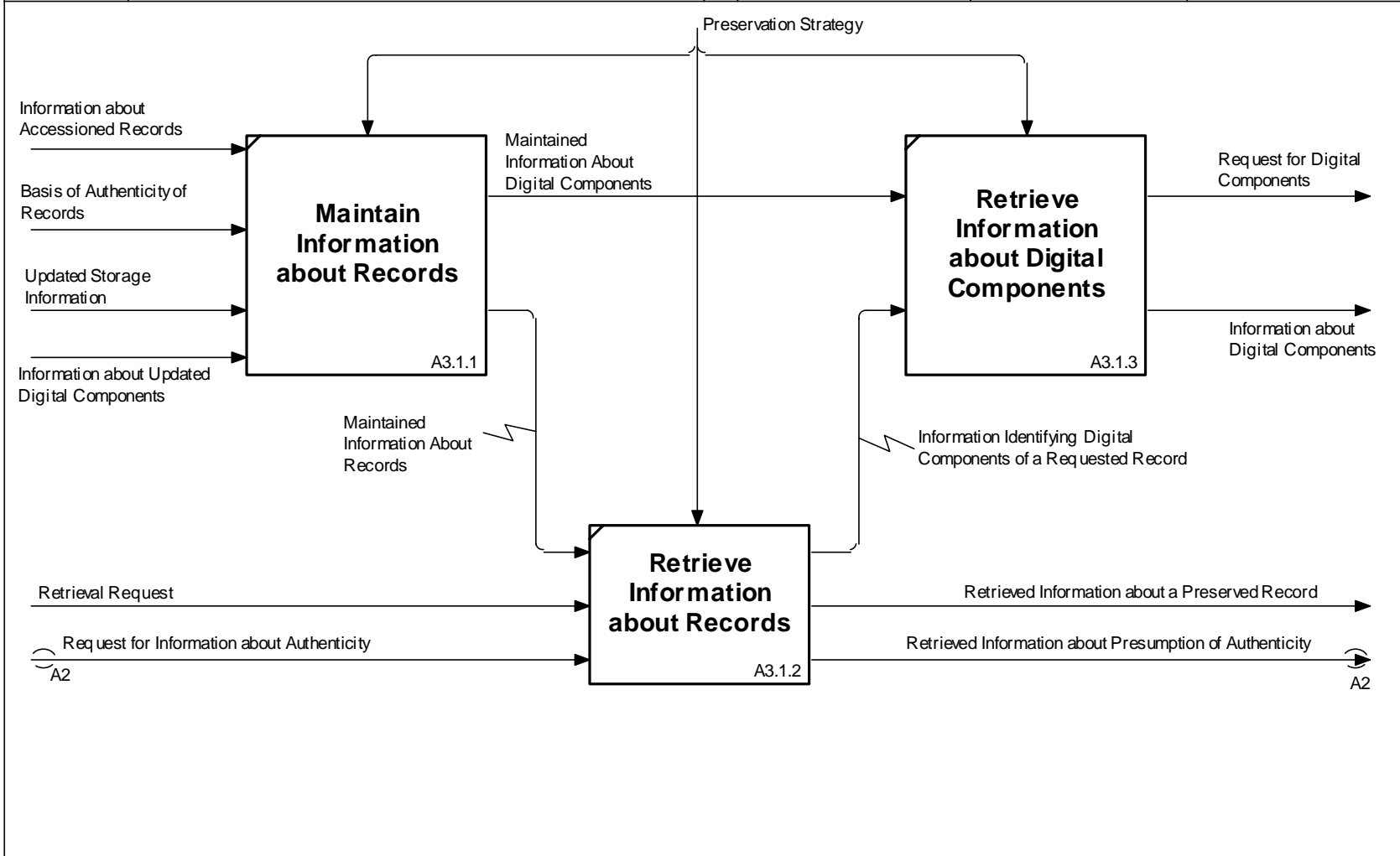
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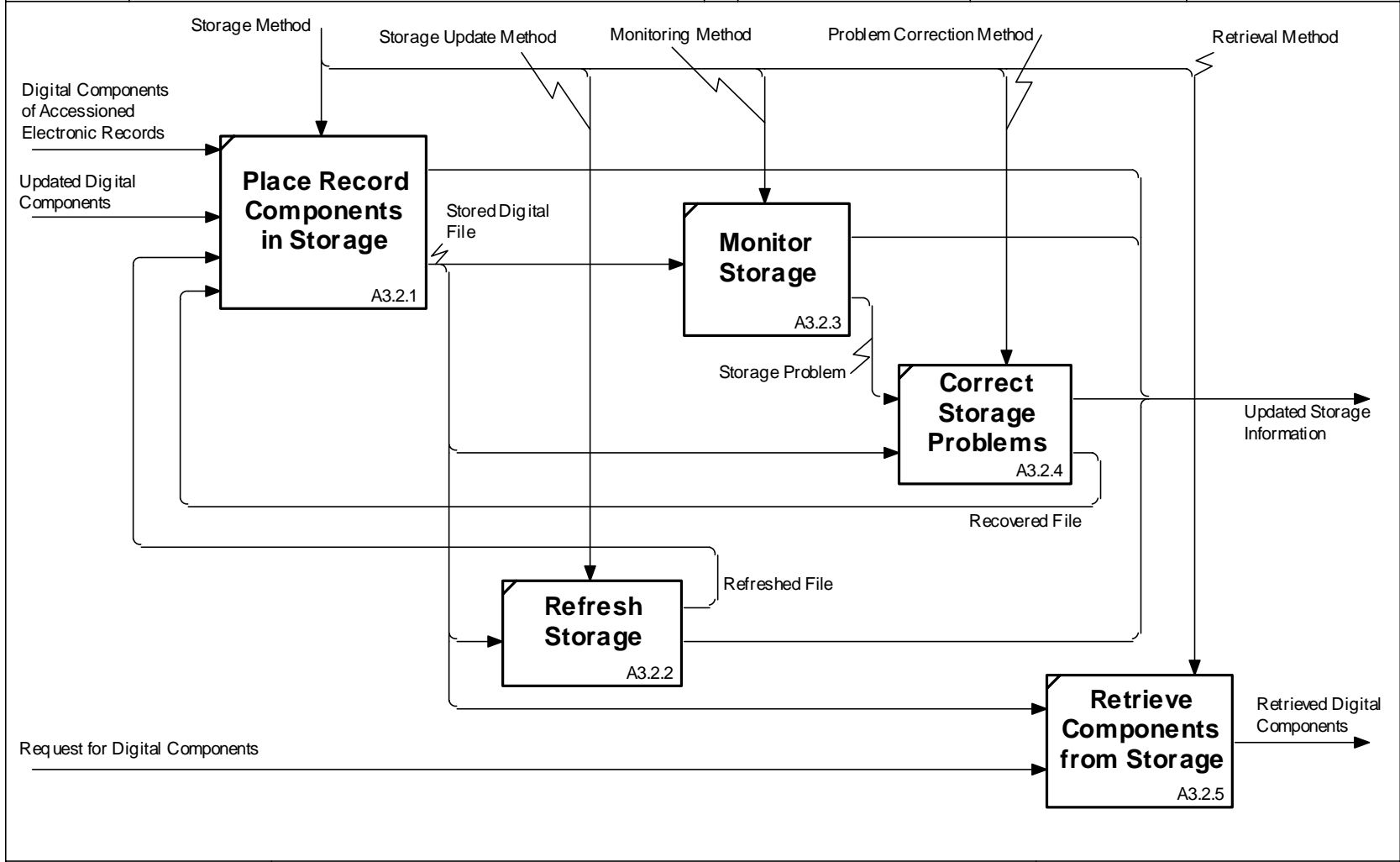
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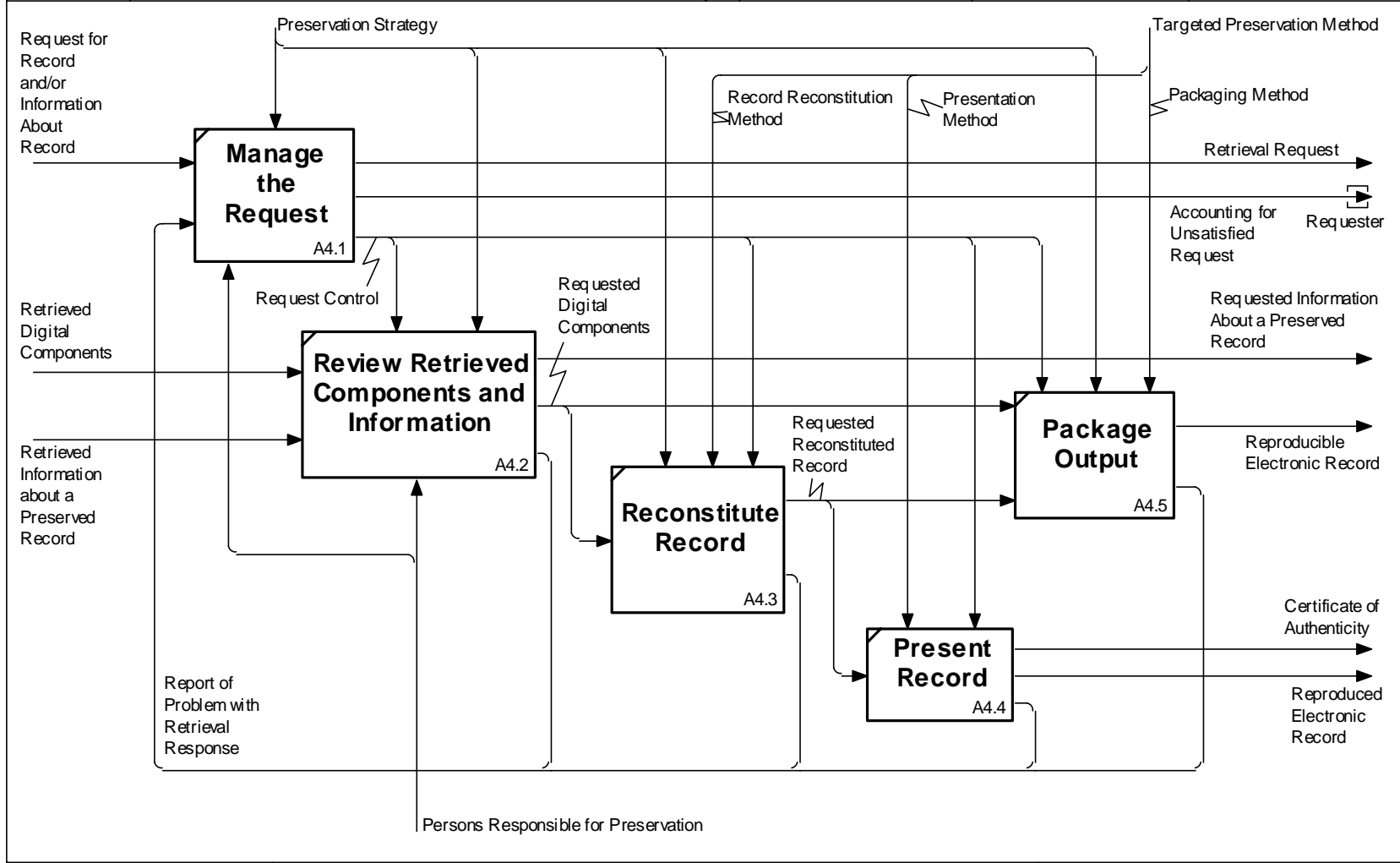
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NODE: A3.2	TITLE: Manage Storage of Digital Components of Records	NUMBER:
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			RECOMMENDED			
	NOTES: 1 2 3 4 5 6 7 8 9 10		PUBLICATION			



NODE: A4	TITLE: Output Electronic Record	NUMBER:
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iii) Activity Definitions

A0, Preserve Electronic Records

Under the control of Archival and Institutional Requirements, and limited by the possibilities available within the State of the Art of Information Technology, preserve electronic records received in Transfer of Electronic Records. To preserve the records, the process uses Information about Electronic Records Selected for preservation. The process will also accept input of a Request for Record and/or Information about a Record and produce, in response, either the Requested Information about a Preserved Record, a Reproduced Electronic Record, or a Reproducible Electronic Record. The process will produce a Certificate of Authenticity from any Reproduced Electronic Record if requested. The process also produces Information about Preservation, including information about the process itself, the records being preserved, and how the process preserves their authenticity. Electronic records are preserved by Persons Responsible for Preservation using Information and Communications Technology and Facilities. The technology infrastructure and facilities are used in all subprocesses; therefore, they are implicit, rather than explicit, in all decomposition diagrams.

A1, Manage the Preservation Function

Operating under the control of Archival and Institutional requirements and in light of knowledge of the State of the Art of Information Technology, preservation is managed by producing a comprehensive preservation framework consisting of sets of preservation strategies and preservation action plans, each linked to a specific body of electronic records selected for preservation, along with the technological infrastructure and preservation methods needed to implement the action plans. These outputs are all used in execution of the preservation function. The "Manage" process also outputs information about the preservation function and about records being preserved and, on request, will produce a report on the authenticity of one or more records. The "Manage" process produces its output using information received from appraisal about bodies of records selected for preservation, information received from the ingest process about transferred records, and management information received as feedback from all processes involved in execution of the preservation function. Management activities are accomplished by persons responsible for preservation.

A1.1, Determine Preservation Requirements

Determine the archival requirements for preserving and reproducing an electronic record by interpreting and applying external controls on the preservation function to information received from the Select Electronic Records function about the records to be preserved, and information about transfers and accessions received as feedback from the "Bring In," "Maintain," and "Output" Electronic Records processes. This entails identifying the classes of objects that must be preserved, including types of records and ordered groups of records, and specifying, for each class, the attributes and methods that must be preserved, as well as the requirements for certifying that any reproduced record is authentic. Determination of archival requirements is guided by evaluation of prior experience in applying such requirements to records that have been transferred to the archives. The evaluation will not alter the external requirements, but will improve their articulation and application. The result of this process will be Synthesized Requirements for Preservation, where the specification consists in identifying what archival and institutional requirements apply to what records and how each applicable requirement is to be implemented.

A1.1.1, Determine Transfer & Storage Requirements

Limited by the State of the Art of Information Technology, use information about Electronic Records Selected for Preservation and about Transferred and Accessioned Records to determine how the records will be written in physical and logical files both for transfer and for storage to produce Requirements for Physical and Logical Files.

A1.1.2, Identify Archival Properties that Must Be Preserved

Limited by the State of the Art of Information Technology, use Information about Electronic Records Selected for Preservation—and also Information about Transferred Records when, on examination, their properties are found to be different than what had been determined in appraisal—to identify the types of archival properties that must be preserved. This activity will identify the Classes of Records that exist within a body of records selected for preservation. For each Class of Record, determine how Archival Science, the preserver's Institutional Requirements (tunnelled to this diagram), determinations made in appraisal, and/or the records management practices of the records creator, indicate specific archival properties that must be preserved, including intrinsic or extrinsic elements of form. For the body selected for preservation, specify the Type(s) of Arrangement of records established by the records creator and identify how archival bonds are expressed. For each archival property that must be preserved, determine the parameters, measures, or other evidence that will be used to identify the property and to verify that it has been preserved intact.

A1.1.3, Determine Requirements for Reconstituting and Presenting Records

Under the control of Archival and Institutional Requirements (tunnelled to this activity), use Information about a body of Electronic Records Selected for Preservation , Information about previously Transferred and Accessioned Records from that body, and about Classes of Records, to identify the digital components of each class of record, how a record is composed from its digital components, and how it should be presented in order to articulate the requirements for reconstituting a record from its digital components and presenting the record in the documentary form stipulated for that class of record. The information is reviewed in light of the State of the Art of Information Technology, which indicates if current methods of composing a record from its digital components are likely to become obsolete or if there are alternative methods that might be preferable. By revealing possible technical alternatives, the State of the Art of Information Technology also indicates the extent to which archival properties depend on specific technologies. The result of this process is a set of Record Composition Requirements for each class of records, including the parameters, measures, or other evidence that will be used to verify that a record has been reconstituted from its digital components properly.

A1.1.4, Determine Requirements for Reconstituting and Presenting Archival Aggregates

Guided by Archival Science and Institutional Requirements (tunnelled to this diagram), use Information about a body of Electronic Records Selected for Preservation—and also Information about Transferred Records when, on examination, their properties are found to be different from what had been determined in appraisal—along with information on Type(s) of Record Arrangement to determine how to identify an archival aggregate, identify the records or other aggregates that belong in it, specify the ordering of the members within the aggregate and of the aggregate within the archival fonds, and how the aggregate should be presented for use. The information is reviewed in light of the State of the Art of Information Technology, which indicates if current methods of arranging records are likely to become obsolete or if there are alternative methods that might be preferable. By revealing possible technical alternatives, the State of the Art of Information Technology also indicates the extent to which archival properties depend on specific technologies. Define criteria that will be used to determine if records and aggregates have been properly arranged when the aggregate is reconstituted. This activity will produce Requirements for Arranging Records.

A1.1.5, Determine Basis for Authenticity

Guided by Archival Requirements and Institutional Requirements (both tunnelled to this diagram), review information collected and created in appraisal about how the records creator satisfied the Benchmark Requirements for Preservation in order to determine how the appraiser's presumption of authenticity of the records will be documented when the records are transferred, and what impact that presumption will have on both preservation of the records and certification of the authenticity of copies produced by the preserver. Subsequently these conclusions will need to be verified and, if necessary, corrected on the basis of information about the records when they are brought in. Methods for documenting the presumption of authenticity include preserving the appraiser's report(s) on the subject; preserving documentation produced by the records creator which provides evidence of how the benchmark criteria were addressed; and creating archival description. The information produced in this process is output as the "Basis of Authenticity of Records," which is sent to activity A3.1 to be maintained and used to verify the established basis when records are brought in and to satisfy requests for such information.

A1.1.6, Synthesize Requirements for Preservation

Guided by Archival Science and Institutional Requirements (tunnelled to this diagram), synthesize requirements concerning physical and logical files used for transfer and storage, information about Classes of Records contained in a body of electronic records selected for preservation, Record Composition Requirements applicable to those classes, Requirements for Arranging Records, Requirements for Presenting Records, and the Basis of Authenticity of the Records as maintained by their creator, producing a comprehensive and coherent set of Synthesized Requirements for Preservation of the body of records. These requirements will guide the functions of technology selection, preservation planning, execution, and evaluation.

A1.2, Select Preservation Technologies

Take into account Information about Electronic Records Selected for Preservation and Information about Transferred and Accessioned Records in order to select Preservation Methods that will be used to preserve the electronic records. If this information indicates that existing Technological Infrastructure and one or more current Preservation Methods are applicable and adequate for preserving the records, they should be used. Otherwise, acquire Information and Communications Technology which will provide the necessary Preservation Methods and/or Technological Infrastructure. Specify the scope of applicability of each Preservation Method in terms of its application to types of digital files, target bodies of records, types of electronic records, and/or classes of digital components, along with conditions for its application to each target group, thus defining a Targeted Preservation Method. The process is controlled by Institutional Requirements, such as the institution's information technology architecture and standards, data standards, and related procedures, security requirements, access restrictions, and performance objectives and measures. It is also controlled by the Synthesized Requirements for Preservation of a body of electronic records, applicable Authenticity Requirements for Preservation, and Evaluation of the Execution of the preservation methods that have been used to date. The selection is limited by the State of the Art of Information Technology. The scope of this process includes all methods that could impact the preservation of the records from the time of transfer. These include methods for checking the integrity of the transfer process, methods related to storage of digital components in digital files and on physical media, methods to reconstitute and reproduce records, and methods to enable others to reproduce the records.

A1.3, Specify Preservation Strategy

Guided by the Synthesized Requirements for Preservation, Specifications of the technologies selected for addressing those requirements, and Evaluation of the Execution of Preservation processes and methods, use Information about Records Selected for Preservation, and Information about Transferred and Accessioned Records

to develop a Preservation Strategy for preserving a body of records and producing authentic copies of the records. The goal of a Preservation Strategy is to ensure the preservation of authentic electronic records from the point at which they are transferred to the archival system, through the maintenance of their digital components over time, to the delivery of certifiably authentic reproductions of the records. The Strategy will specify action to take as records are brought in, maintained, and output, the methods to use in each action, and the criteria for measuring success of the action. The criteria are derived from the requirements and refined into measurable form in light of the Preservation Technology Specifications; i.e., the criteria enable measurement of how well a requirement has been satisfied using the applicable preservation method. The Strategy also includes the terms and conditions for transfer of records accepted by the creator, the appraiser, and the person responsible for preservation.

A1.4, Evaluate Execution of Preservation

Consistent with Institutional Requirements for management analysis, and guided by applicable Preservation Strategies and by both Synthesized Requirements for Preservation, analyze Management Information about Preservation in order to determine how well goals and objectives are being achieved. The analysis addresses whether records are being preserved successfully. If not, it identifies the causes of problems and determines how they might be resolved or avoided. Identify cases where rules or objectives conflict, are unclear, insufficient, inappropriate or misdirected, as well as possible improvements in operation. Assess whether the set of Preservation Strategies in effect are coherent and not conflicting. Determine if Preservation Methods are operating as intended and whether the Technological Infrastructure is adequate and appropriate. Produce evaluations of both performance strategies and the overall preservation framework. Review Management Information about the Output of Electronic Records to determine if requirements for authentic copies are being satisfied and to characterize customer satisfaction. Determine if advances in the State of the Art of Information Technology indicate that the selection of preservation technologies should be revisited. Produce an Evaluation of Execution appropriate to guide other management processes. Output Information about Preservation for external stakeholders. Produce a Report on Authenticity of Records to respond to any challenge to the adequacy and efficacy of the preservation process. This process may be triggered by a Request for Strategy Decision.

A2, Bring in Electronic Records

Following direction established in the preservation strategy for a given body of records selected for preservation, the "Bring In" or ingest function applies preservation method(s) targeted to that body of records to implement the preservation action plan for those records by processing each transfer of electronic records into accessioned electronic records. The ingest process also produces information about each transfer of electronic records, which is used in the "Manage" process to confirm or revise the preservation strategy and action plan(s) applicable to those records, and also management information which is used to evaluate execution of the ingest function. The process is carried out by persons responsible for preservation, using infrastructure technology.

A2.1, Register Transfer

Following the Registration Procedure defined by the Preserver's Accessioning Policy, register the transfer of electronic records by capturing information about the transfer, such as submitter's name, record creator's name, and the date of receipt of the transfer in a Record of the Transfer, and establish basic control over the materials transferred by identifying what has been transferred and where it is located. The registration record forms the basis for identifying and tracking materials in the transfer and information about it in all other preservation processes. The registration process should also inspect what was received in order to ensure that the physical transfer has been accomplished correctly. This inspection provides quality assurance of the physical transfer, but does not address any questions related to the specific records reportedly contained in the transfer. Registration produces a Notification of Receipt, which is sent to the submitter. This

notification should describe any problem identified in receiving the transfer, such as network errors in transmission, missing media volumes, or obvious damage, and request the submitter to send a new transfer or otherwise correct the problem. The Registered Transfer is forwarded for verification that it is authorized.

A2.2, Verify that the Transfer Is Authorized

Acting under the Preserver's Accessioning Policy, determine if the transfer is authorized; i.e., it comprises the records that have been selected for preservation, and those records have been submitted either by the records creator or an agent acting for the creator. Verification that a transfer is authorized is based on comparing the terms and conditions for transfer, established as part of the Preservation Strategy during appraisal, with information accompanying the Registered Transfer. This information is reviewed to determine if it indicates that the transfer was sent by an authorized person; it comprises records specified for transfer; it includes necessary information about the records, their digital components, and the basis for asserting the authenticity of the records as received; and that the materials transferred are of the correct types and in the specified formats. This verification may include steps that are specific to the records reportedly contained in the transfer whenever such specific tests are set out in a Preservation Action Plan related to the records. If the terms and conditions of transfer have been satisfied, the Conforming Transfer is passed to the next step, where its contents are examined. Otherwise either the transfer is rejected outright or the submitter is asked to address any problems identified. If a transfer is determined to be authorized, a Request for Information about Authenticity of the records is sent to activity A3.1 This request is for the information about the basis for presuming the authenticity of the records as maintained by the records creator. That information was developed in determining the requirements for preservation of the body of records. The retrieved information will be factored into the final decision on whether to accession the records.

A2.3, Examine Electronic Records

Acting under the preserver's Accessioning Policy and in accordance with the Preservation Strategy established for the records reportedly included in the transfer, examine the digital files and digital components of records in the transfer, along with accompanying information to: (1.) determine if the transfer actually includes all records and aggregates of records specified in the terms and conditions of transfer and that these records and aggregates are adequately and accurately described in the accompanying information to enable their preservation, reproduction in authentic form, and interpretation; (2.) identify any actions required to preserve both the individual records transferred and the archival sets in which these records belong; (3.) initiate technical or other preservation actions that should be taken immediately and schedule preservation actions that should be taken at a later date. This examination will include any specific tests included in a Preservation Action Plan for the records. If on examination any record, digital component, or aggregate is found to have unexpected properties that would make it difficult or impossible to follow the established Preservation Strategy, or would make it questionable whether following that strategy would satisfy archival requirements, the situation should be reported to the "Manage" function for evaluation. If the evaluation results in a change in the applicable Preservation Strategy, the "Manage" function will issue a Preservation Action Plan specifying how to resolve the problem(s) identified in the examination. If the results of the examination are positive, the records in the transfer are deemed to be suitable for preservation, and the Preservable Records are forwarded to be accessioned. If the examination reveals unresolvable critical problems, the transfer is rejected and returned to the Submitter. If it might be possible for the Submitter to correct problems that the Preserver could not resolve, the Rejected Transfer includes a request for corrective action and resubmission.

A2.3.1, Map Records and Digital Components within Transferred Materials

In accordance with an institution's Accessioning Policy and the applicable Preservation Strategy, using the Technological Infrastructure in place, determine how the records, their

digital components, and the information about them included in a Conforming Transfer are identified, and where they are located in the digital files and other materials received. Identify any records or components that should be in the transfer but are not found and determine if there are any records or components in the transfer that should not have been transferred. If critical deficiencies are found, terminate processing and output the Rejected Transfers. If no critical problems are encountered, output the Mapped Records and Digital Components, along with related information.

A2.3.2, Verify that the Records in the Transfer Can Be Preserved and Reproduced

Ensure that transferred records can be preserved and reproduced in accordance with the applicable preservation strategy. Determine all the records that should be in the transfer can be reconstituted and presented; if all digital components of these have been received and are in the formats stipulated in the terms and conditions of transfer; if archival aggregates established by the records creator can be re-established; if the archival bonds among records can be expressed or instantiated, and also what basis exists for asserting the authenticity of the records as transferred. Records that can be preserved and reproduced are output as Preservable Records. In the case of a record that cannot be preserved in accordance with the preservation strategy, identify the digital component(s) that prevent or impede implementation of the strategy and forward them for actions that will enable preservation of the record. Digital components modified as a result of such actions are returned for verification of the success of the modification. If it was necessary to modify the applicable preservation strategy to enable preservation of the records, the secondary verification will be on the basis of the revised strategy. The verification process will take into account any cases where digital components were not successfully modified, along with other problems discovered with the transfer, to determine whether, under the institution's accessioning policy, the preservable records—including records deemed to have only minor problems—should be accessioned or the transfer should be rejected.

A2.3.3, Take Action Needed to Preserve the Record

When it has been determined that a record in a transfer cannot be preserved in accordance with the applicable preservation strategy, take the steps indicated in the relevant preservation action plan with respect to any digital component of the record that needs to be modified to conform with the strategy. Effect such modifications by invoking process A3.3, "Update Digital Components." After the update, output the Conforming Digital Components. If the action plan cannot be implemented, or if it will not produce the desired result, refer the action to the "Manage Preservation" process as a request for a strategy decision. This request should trigger a revision in either the preservation strategy or action plan. When a revised strategy and/or plan is received, effect the necessary modification(s) as indicated above. If the result of a request for a strategy decision is not to modify either the strategy or plan, output the problem components as Non-Conforming Digital Components.

A2.4, Accession Electronic Records

Acting in accordance with the institution's Accessioning Policy, formally accept responsibility for preserving a transferred body of records that have been determined to be preservable. Create a Record of the Accession and forward the Accessioned Electronic Records to the "Maintain" process. The decision to accession records takes into consideration the basis for presuming that the records, as received from the records creator, are authentic. This information uses Retrieved Information about the Presumption of Authenticity developed in determining the preservation requirements for the body of records to which they belong. The Retrieved Information is supplemented and, if appropriate, updated by any additional information either received with the transfer of the records or developed in examining the transferred records. Other elements of Accessioning Policy that should be taken into account in the decision whether to accession the records include resource constraints, where it might be determined that the

institution cannot afford to preserve the records, or anticipated demands for retrieval or restrictions on access that the institution cannot satisfy.

A3, Maintain Electronic Records

Following direction established in the preservation strategy for a given body of records selected for preservation, apply preservation method(s) targeted to that body of records to implement the preservation action plan for those records by maintaining the digital components of accessioned electronic records, along with related information necessary to reproduce the records, certify their authenticity, and enable correct interpretation of the records. This maintenance activity enables the output, in response to a retrieval request, of the digital components of a record, along with information about that record, or, if the request is only for information, the requested information. The “Maintain” process also produces management information which is used to evaluate execution of the ingest function. The process is carried out by persons responsible for preservation, using infrastructure technology.

A3.1, Manage Information about Records

The “Manage Information about Records” process collects and maintains information necessary to carry out the Preservation Strategy for a body of electronic records being preserved, including information about their digital components, the archival aggregates they comprise, their authenticity, their interpretation, and the preservation activities performed on them. Carrying out actions specified in the Preservation Action Plan, information about Accessioned Electronic Records is collected when they are accessioned. It is combined with Storage Information identifying the files, locations, and other relevant data about the digital components of the Accessioned Electronic Records when they are placed in storage and subsequently when storage parameters are changed. When a Preservation Action Plan entails any modifications to digital components, Information about those Digital Components is provided to ensure that all affected components are updated appropriately and, after the modification, Information about the Updated Digital Components is also updated. In response to a Retrieval Request for information, Retrieved Information about a Preserved Record is provided. In response to a Retrieval Request for a record, information identifying the digital components of the record and their storage location(s) is retrieved to produce a Request for Digital Components, which is used to retrieve those components from storage; Information about those Digital Components and Retrieved Information about the Preserved Record is output to support reproduction of the record and, if needed, certification of its authenticity.

A3.1.1, Maintain Information about Records

As dictated by the Preservation Strategy, Information about Accessioned Records and information providing the basis for asserting the authenticity of the records as transferred is collected and maintained over time. This information is kept up to date, by the input of Updated Storage Information, to reflect changes in the storage of the digital components of the records, e.g., when storage media are replaced or defective files are recovered. Similarly, when changes in the applicable Preservation Strategy lead to updating of any digital components, the related information is updated through input of Information about the Updated Digital Components. This activity outputs Maintained Information about a Record and Maintained Information about Digital Components.

A3.1.2, Retrieve Information about Records

Following the applicable Preservation Strategy, receive Maintained Information about Records and respond to any Retrieval Request for information about a record by outputting Retrieved Information About a Preserved Record. When the Retrieval Request is for the digital components of a record, output Information Identifying the Digital Components of a Record. Output the same information when a Preservation Strategy requires updating of the digital components of a record. A special type of retrieval request occurs when a transfer of electronic records has been determined as authorized. That determination generates a Request for Information about Authenticity of the Records. In

response to this type of request, the activity outputs Retrieved Information about the Presumption of Authenticity of the records as maintained by their creator. This information will be taken into account in the decision whether to accession the records.

A3.1.3, Retrieve Information about Digital Components

In accordance with the applicable Preservation Strategy, upon receipt of Information Identifying the Digital Components of a Requested Record, retrieve Maintained Information about Digital Components and output the requested Information about Digital Components along with a Request for Digital Components to be retrieved from storage. Follow the same procedure when triggered by a Plan for Updating Digital Components.

A3.2, Manage Storage of Digital Components of Records

In accordance with the Preservation Strategy established for a body of records, and applying the Storage Method selected to implement that strategy, place the digital components of Accessioned Electronic Records into storage, taking the specific steps defined in the Preservation Action Plan for these records, and maintain them. In response to a Request for Digital Components, retrieve the requested components and output them. When digital components are output for updating in accordance with a Preservation Action Plan, place the Updated Digital Components in storage and, as provided by the Action Plan, either maintain or delete the older versions of these components. Provide to the "Manage Information" process Updated Storage Information about the identities, locations and other relevant parameters of stored digital components whenever components are updated or other changes, such as media refreshment, are made in storage.

A3.2.1, Place Record Components in Storage

When electronic records are accessioned, place the Digital Components of the Accessioned Electronic Records into one or more Stored Digital Files in the storage system prescribed by the preserver's Storage Method, and provide Updated Storage Information about those components. When any of the stored components are updated in response to a Preservation Action Plan, place the Updated Digital Components into storage and either replace or retain prior versions of those components, as dictated by the applicable Preservation Strategy (tunnelled to this diagram). Provide Updated Storage Information about the updated components and about any stored components that have been deleted or superseded. When a Stored Digital File is copied to new storage media, place the Refreshed File into storage, delete the older copy of the file, and provide Updated Storage Information about the current location of the digital components stored in that file. When a problem discovered in a Stored Digital File is corrected, place the resultant Recovered File in Storage, delete the problem file, and provide Updated Storage Information about the current location of the digital components stored in the file and about any data loss or other residual problems with any of those components.

A3.2.2, Refresh Storage

When triggered by a Plan for Updating Storage, use the prescribed Storage Update Method to copy a Stored Digital File to new storage media. When indicated by the plan, replace one or more components of the storage subsystem, ensuring that any Stored Digital File involved in, or affected by, such replacement is carried forward without any inappropriate alteration. Document the process as part of the preservation history of all records whose digital components are contained in these digital files. Send any Refreshed File to be placed in storage and provide Updated Storage Information about any digital components affected by the process.

A3.2.3, Monitor Storage

In accordance with the Preservation Strategy (tunnelled to this diagram) for the storage system, apply the prescribed Monitoring Method to monitor the operation of the storage system, the media on which Stored Digital Files are recorded, the files themselves, and

the facilities where the system and files are located. Provide Updated Storage Information about the problems identified and the stored digital components they affect.

A3.2.4, Correct Storage Problems

Upon notification of a Storage Problem, apply the Problem Correction Method prescribed by the Preservation Strategy (tunnelled to this diagram) to take the actions indicated by the Plan for Problem Handling to eliminate the problem. If the Storage Problem affects any Stored Digital File, take action to copy the data stored in that file to a Recovered File and generate Updated Storage Information on each digital component affected by the process, including the identity of the Recovered File where the component is written, the success of the copy process, and any data loss or residual, uncorrected problem.

A3.2.5, Retrieve Components from Storage

In response to a Request for Digital Components, apply the Retrieval Method specified in the Preservation Strategy (tunnelled to this diagram) to retrieve the Stored Digital File(s) in which the requested components are written from storage and output copies of the Retrieved Digital Components. If the Preservation Strategy applicable to a given record or archival aggregate is modified, and the modification requires updating of the digital components, the new strategy triggers retrieval of the components that need to be updated.

A3.3, Update Digital Components

As indicated by the Preservation Strategy established for a given body of electronic records (tunnelled to this diagram), take the steps indicated in the applicable Preservation Action Plan, applying the Method(s) for Updating Components prescribed by the strategy to update Digital Components of a Record that Cannot Be Preserved because of technological obsolescence, changes in Preservation Strategy, or similar factors. Examples of processes for update include migration, standardization, and transformation to persistent form. Return the Updated Digital Components to Storage, providing Information about the Updated Digital Components to the "Manage Information" process. If the Updated Digital Components belong to a record that is the subject of a Retrieval Request, also send the components, along with related information, to the Output Electronic Record process. However, if the updating was done only to satisfy conditions of a Retrieval Request and was not required to conform to Preservation Strategy, the Updated Digital Components are sent, along with related information, to the Output Electronic Record process, but they are not sent to Storage. This process may be invoked directly when records in a transfer are being examined and it is determined that there is a need to take action to preserve a record, before the components are sent to storage.

A4, Output Electronic Record

Following direction established in the preservation strategy for a given body of records selected for preservation, apply preservation method (s) targeted to that body of records to implement the Preservation Action Plan for producing an authentic copy of a records in response to a request for it. If specified in the request for a copy of the record, produce a certificate attesting to the authenticity of the copy. Alternatively, if requested, produce a reproducible electronic record; i.e., the digital component(s) of the record along with instructions for producing an authentic copy of the record and information necessary to interpret the record. In the case of a request only for Information about a record, deliver the response. To produce all of these outputs, translates an external request for a record or for information about a record into a Retrieval Request to the "Maintain" function. Also produce management information which is used to evaluate execution of the "Output" function. The process is carried out by persons responsible for preservation, using infrastructure technology. The Output Electronic Record process may also be invoked when records in a transfer are being examined in order to verify that the records in the Transfer can be preserved and reproduced.

A4.1, Manage the Request

Following provisions in the applicable Preservation Strategy, register an incoming Request for a Record and/or Information about a Record. Translate the request into terms that can be executed in the preservation system, and send the Retrieval Request to the Maintain Records process. Define Request Controls to ensure that the request is fulfilled and accounted for. These controls govern the process of responding to a request. If any problem is encountered in fulfilling the request, a Report of Problem with Retrieval Response is sent as feedback to this process. If the request cannot be satisfied, produce an Accounting for Unsatisfied Request and send it to the requester.

A4.2, Review Retrieved Components and Information

Under the control of the applicable Preservation Strategy and Request Control, receive Retrieved Digital Components and/or Retrieved Information about a Preserved Record and determine whether all components and information necessary to satisfy the request for records have been received and can be processed for output. If the request entails producing a copy of a record, send the Requested Digital Components forward to Reconstitute and Present the Record. If a request for a record does not require reproduction of the record within the preservation system, send the Requested Digital Components forward to be packaged with related Information and delivered to the requester. If the request is only for information, output the Requested Information about a Preserved Record. If the request cannot be satisfied in accordance with the Request Control, produce a Report of Problem with Retrieval Response.

A4.3, Reconstitute Record

Under the control of the applicable Preservation Strategy and Request Control, apply the appropriate Targeted Preservation Method to Retrieved Digital Components to link or assemble the components as necessary to reproduce the record and output the Requested Reconstituted Record. If the record cannot be reconstituted, produce a Report of Problem with Retrieval Response.

A4.4, Present Record

Under the control of the applicable Preservation Strategy and Request Control, apply the appropriate Targeted Preservation Method to Retrieved Digital Components to the Requested Reconstituted Record to present the record with the appropriate extrinsic form. If requested, produce a Certificate of Authenticity for the Reproduced Electronic Record. If the process of reproducing the record is unsuccessful, produce a Report of Problem with Retrieval Response.

A4.5, Package Output

Under the control of the applicable Preservation Strategy and Request Control, apply the appropriate Targeted Preservation Method to Retrieved Digital Components to combine Requested Digital Components with Information, including instructions on how to reproduce the record, into a package suitable for reproducing the record on an external system designated by the Requester. If the Request for a Record entailed reconstituting the record within the preservation system, package the Requested Reconstituted Record suitably for presenting the record on an external system designated by the requester. If the process is unsuccessful, produce a Report of Problem with Retrieval Response.

iv) Arrow Definitions

Accessioned Electronic Records

A body of electronic records selected for preservation, transferred to the preserver and accepted by the preserver for preservation.

Accessioning Policy

The policy of the institution or person responsible for preservation with respect to accepting responsibility for records transferred for preservation. Includes standards and specifications for acceptable and unacceptable deviations from standards, such as when records that should be in a transfer are missing or when information that should accompany the transfer is missing, inappropriate, or unclear.

Accounting for Unsatisfied Request

An explanation of why a Request for a Record and/or Information about a Record could not be satisfied in whole or in part.

Archival Aggregate Requirements

Stipulations as to how the original order of records is to be respected in the physical or logical structuring of sets or archival aggregates of records, and how they are to be presented for use.

Archival Requirements

Requirements derived from archival science, diplomatics, best practices, and prevalent standards within the archival community.

Basis of Authenticity of Records

Information that indicates whether records can be considered as authentic on the basis of how the records creator addressed the Benchmark Requirements for Authenticity up through the time when the records were transferred to the preserver or, alternatively, whether their authenticity needs to be verified through corroborating evidence.

Certificate of Authenticity

An attestation by the person responsible for preservation that one or more records are authentic.

Classes of Records

A class of records is a set of records with common attributes and methods determined on the basis of their documentary form.

Conforming Digital Components

A conforming digital component is a digital component that can be processed using current preservation methods in order to preserve and reproduce an electronic record.

Conforming Transfer

A transfer of electronic records where information accompanying the transfer indicates that it satisfies the terms and conditions stipulated for the transfer.

Determination that Records Cannot Be Preserved

A judgement that, for technical and/or resource reasons, a body of records deemed to have archival value cannot be preserved in electronic form, either with any preservation methods currently in use or with any available technological options.

Digital Components of a Record that Cannot Be Preserved

A Digital Component of a Record that Cannot Be Preserved is a digital component of an electronic record that cannot be reconstituted or presented, or whose archival bonds

cannot be expressed, or whose arrangement in archival aggregates cannot be re-established using the Preservation Methods specified in the applicable Preservation Strategy.

Digital Components of Accessioned Electronic Records

The digital components of the electronic records included in a transfer and accepted by the preserver for preservation.

Digital Components that Need Updating

A Digital Component of a Record that cannot be reconstituted or presented in accordance with current Preservation Strategy applicable to that record, or a Digital Component of a Record belonging to an archival aggregate that cannot be re-established, reconstituted, or presented using the Preservation Methods specified in the applicable Preservation Strategy.

Evaluation of Execution

The result of evaluating management information about the execution of preservation process to determine whether requirements were satisfied, preservation strategies are effective, and action plans meet objectives and performance targets.

Facilities

Locations where digital preservation technologies are installed and operate, and locations where electronic records components are stored.

Information about Accessioned Records

Information identifying records that have been accessioned, their digital components, and the preservation strategies that will be applied to them.

Information about Digital Components

Metadata or other information retrieved in response to a request for a record or for information about a record, or in response to a plan for updating the digital components and used to satisfy the request or to carry out the plan.

Information about Digital Components of an Electronic Record

Technical information concerning a digital component or a class of digital components of electronic records necessary to store and retrieve the digital components of an electronic record and to reconstitute the record from the components and to present it in authentic form, properly ordered with respect to related records.

Information about Electronic Records Selected for Preservation

Information output from the appraisal process identifying and characterizing records that are to be preserved, including what information about the records should accompany the transfer, the basis for asserting the authenticity of the records as maintained by their creator, and the terms and conditions of transfer.

Information about Preservation

Reports on, data about, or accounting for the exercise of the preservation function, the preserved records, and the authenticity of copies of those records. The coverage of such information may range from the preservation function as a whole, to one or more processes within the function.

Information about Presumption of Authenticity of Appraised Records

Information indicating the extent to which the creator of the records that have been appraised satisfied the criteria set out in the Benchmark Requirements for Authenticity.

Information about Presumption of Authenticity of Transferred Records

Information indicating the extent to which the records creator satisfied the criteria set out in the Benchmark Requirements for Authenticity through the point where the records were transferred to the preserver.

Information about Transferred and Accessioned Records

Information about electronic records, their arrangement, and their digital components, which accompanies the transfer of electronic records and which is developed in the process of bringing them under the preserver's control.

Information about Updated Digital Components

Information about changes that have been made to a digital component of an electronic record in the process of updating it, about any problems that occurred in the process, and about the identity and location of the component on storage media and in a storage system or facility.

Information and Communications Technology

Digital hardware, software, and storage and communications media.

Information and Communications Technology Infrastructure

Hardware and general-purpose software, such as operating systems, file systems, communications utilities, device drivers, and database management systems.

Information Identifying Digital Components of a Requested Record

Information that specifies all the digital components necessary to reproduce a record, and their unique identifiers.

Institutional Requirements

External legal, regulatory, societal, and cultural constraints imposed on the institution responsible for preserving records, together with the preserver's internal standards, policies, procedures, goals, objectives, and criteria applicable to records in general or of electronic records specifically. An external legal, regulatory, societal, and/or cultural constraint imposed on the institution responsible for preserving records, and/or an internal policy, procedure, goal, or objective, applicable to the preservation of records in general or of electronic records specifically.

Maintained Information about Digital Components

Information identifying a stored digital component, and the record(s) that comprise that component, and information enabling the reproduction of the record(s).

Maintained Information about Records

Information about records, archival aggregates, and the authenticity of records maintained by the preserver to support preservation and reproduction of authentic copies of the records.

Management Information about Preservation

Information about an electronic record that is transferred for preservation and about the processes of bringing in, maintaining, and reproducing the record. This information enables management to evaluate those activities and the preservation strategies and plans they implement, and to determine what changes may be needed in requirements or strategies.

Mapped Records and Digital Components

A mapping of information about electronic records reportedly transferred for preservation to the digital file(s) that were transferred, identifying and locating the digital components included in the file(s), linking them to the records that they constitute, and determining whether the information about the records and the digital components in the transfer is appropriate and sufficient for preservation and reproduction of the records.

Method for Updating Components

A Targeted Preservation Method used to migrate, transform, or otherwise modify digital components of electronic records in accordance with the preservation strategy applicable to those records.

Monitoring Method

A preservation method for determining whether a storage system is properly maintained and functioning or whether storage media are intact and free from problems that would interfere with reading the data written on the media.

Non-Conforming Digital Components

A non-conforming digital component is a digital component on an electronic record in a format that prevents or impedes the reproduction of the record in accordance with the applicable preservation strategy.

Notification of Receipt

A record sent to the submitter acknowledging that the preserver has received the transfer and, if needed, asking the submitter to address any problems identified in registering the transfer.

Packaging Method

A Targeted Preservation Method used to wrap or encapsulate either the Digital Components of an electronic record or a Reconstituted Electronic Record in a form that will enable reproduction of the record on a designated target system, and to combine the resultant digital object with instructions for reproducing the record on the target system.

Persons Responsible for Preservation

Persons authorized and charged with carrying out the preservation function or processes within that function.

Presentation Method

A Targeted Preservation Method used to present an electronic record in appropriate documentary form.

Preservable Records

An electronic record comprised of digital components that all conform to the applicable preservation strategy.

Preservation Strategy

A coherent and comprehensive approach for preserving a body of records selected for preservation, derived from archival and institutional requirements, taking into account Evaluation of Execution of current and prior Preservation Strategies and reflecting the State of the Art of Information Technology. A Preservation Strategy includes objectives for maintaining components of electronic records and related metadata and information over time, and for reproducing the records in authentic form, in the order imposed by the records creator, and criteria for evaluating execution of the Preservation Strategy. The strategy includes specifications for handling exceptions to its standards, and identifies the targeted preservation methods to be used. Each Preservation Strategy has a specified scope which may range from all records transferred for preservation through a specific body of records selected for preservation to an individual transfer. The Preservation Strategy also includes one or more preservation action plans. A preservation action plan specifies preservation actions to be taken for the classes of digital objects covered by the Preservation Strategy, and indicates the time or conditions when such actions should be taken. Preservation actions should be planned for the transfer of records to the archives, in accessioning, during maintenance, and even in output.

Preservation Technology Specifications

Information about a Targeted Preservation Method.

Problem Correction Method

The method stipulated in a preservation strategy for correcting problems of a specified type.

Record of Accession

A record documenting the preserver's acceptance of responsibility for preserving a set of electronic records.

Record Preservation Requirements

Specifications for reconstituting a record from its digital components and for presenting the reconstituted record for use.

Record Reconstitution Method

A Targeted Preservation Method used to assemble or link the Digital Components of an electronic record to enable its presentation in appropriate documentary form.

Recovered File

A physical or logical file that has been successfully read, or reconstituted, and placed back into appropriate storage after one or more storage problems affecting the file were found.

Refreshed File

A physical or logical file that has been copied from an older storage medium or system to a newer when the older medium or system has been replaced or updated.

Registered Transfer

A transfer is determined as authorized if and only if it comprises a record that has been selected for preservation and the record has been submitted either by the record's creator or an agent for the creator.

Registration Procedure

The procedures and recordation required by the preserver to identify and track a transfer of electronic records.

Rejected Accession

A set of electronic records selected for preservation and transferred to the person responsible for preservation, but not accepted for preservation by the preserver.

Rejected Transfer

A transfer of electronic records which does not satisfy requirements for being accessioned or preserved.

Report of Problem with Retrieval Response

Information describing why a request for a record or for information about the record cannot be satisfied in whole or in part.

Report on Authenticity of Records

An account of preservation activities related to a given record or aggregate of records to support the assertion or certification that reproductions of the record(s) are authentic.

Reproduced Electronic Record

An authentic representation or other version of a record reconstituted from its digital components, along with information supporting the interpretation of the record.

Reproducible Electronic Record

Digital components of an electronic record, the technical information necessary to reproduce the record from the digital components, information about the authenticity of the record, criteria for certifying the authenticity of the reproduced record, and information that supports interpretation of the record.

Request Control

A specification of the deliverable(s) to be produced in response to a request for a record or for information about a record, and the criteria to determine whether the request has been satisfied.

Request for Digital Components

An instruction to retrieve the digital components of a record.

Request for Information about Authenticity

A request for information already maintained by the preserver concerning the authenticity of a record or a body of records for use in examining records being brought into the

preservation system. This information includes data produced in the appraisal of the records and data developed in examining any prior transfers of records from the same body of records.

Request for Record and/or Information about Record

A request to output a preserved record, or to provide information about a record that cannot be found in or derived from archival description or finding aids, but requires either retrieval and processing of the preserved record or of information that is created or specifically maintained in the preservation system.

Request for Strategy Decision

A request for a management decision formulated when it is determined that an electronic record cannot be preserved in accordance with the applicable preservation strategy because one or more digital components of the electronic record do not conform with the specifications of that strategy. The request asks for a determination of whether the preservation strategy should be changed or, alternatively, the component(s) should simply be determined to be non-conforming digital components.

Requested Digital Components

All of the digital components necessary to satisfy a request for a record.

Requested Information about a Preserved Record

The information provided in response to a request for information about a preserved record.

Requested Reconstituted Record

The digital components of a requested electronic record linked or reassembled to enable reproduction of the record.

Requirements for Physical and Logical Files

Requirements for physical files include standards and specifications of what media are to be used for what purpose, how individual volumes are to be labelled, and how physical files are to be inscribed on the media. Requirements for digital files include, at a minimum, how both physical and logical files are to be identified, how logical files are mapped to physical files, and how integrity of a file is ensured.

Retrieval Method

The preservation method to be used to retrieve the digital components of an electronic record from storage.

Retrieval Request

A request for retrieval of a record and/or information about the record.

Retrieved Digital Components

The digital components of an electronic record retrieved from storage in response to a request.

Retrieved Information about a Preserved Record

Information retrieved from storage in response to a retrieval request.

Retrieved Information about Presumption of Authenticity

Information about the presumption of authenticity of a body of records transferred to the archives used in deciding whether to accession the records.

State of the Art of Information Technology

The state of the art of the technology with respect to its ability to satisfy archival preservation requirements, the state of the underlying computer science with respect to its ability to develop relevant capabilities not within the state of the technology, and the existence and prevalence of applicable standards.

Storage Method

A Targeted Preservation Method used to place and maintain digital components in storage, to retrieve them from storage, or to remove them from storage.

Storage Problem

A problem with storage media, storage formats, a storage system or facility that could impact on the continued preservation of records.

Storage Update Method

A method used to ensure that stored digital components are completely and correctly brought forward when any component of a storage subsystem is changed or when digital files are moved or migrated to newer storage media.

Stored Digital File

A digital file placed in a storage system on digital media.

Synthesized Requirements for Preservation

A coherent set of requirements for preserving electronic records. Each set of requirements applies to a specified domain of digital objects or records. The digital object domains include the storage media to be used for transfer and maintenance of digital files, and the digital files themselves. Requirements for media include standards and specifications of what media are to be used for what purpose, how individual volumes are to be labelled, and how physical files are to be inscribed on the media. Requirements for digital files include, at a minimum, how both physical and logical files are to be identified, how logical files are mapped to physical files, and how the integrity of a file is ensured. A record domain is either a body of records selected for preservation, one or more archival aggregates within that body, or the records included in a transfer from the selected body of records.

Targeted Preservation Method

Software used to implement a preservation strategy or strategies. A preservation method is targeted by specifying the bodies of records, types of electronic records, and/or classes of digital components to which it will apply, along with conditions for its application to each target group.

Technological Infrastructure

Hardware and common services software—such as operating systems, communications software, database management systems, electronic mail applications—necessary for the implementation of preservation methods and the execution of the preservation processes defined in the “Preserve Electronic Records” model.

Terms and Conditions of Transfer

The specifications governing the transfer of a body of electronic records selected for preservation to the preserver. These specifications include, at a minimum, when the records should be transferred, whether the entire body of records should be transferred at one time or incrementally, the types of records or selection criteria for including records in a transfer, what information should accompany the transfer, label and format standards for transfer files, and what physical medium or telecommunications channel should be used to effect the transfer.

Transfer of Electronic Records Selected for Preservation

The digital components, the accompanying information related to preservation and reproduction of the related record, and transmittal information.

Types of Record Aggregates

A type of archival aggregate expresses the general logical or physical method for ordering of members of an archival aggregate of records, from aggregates of individual records through series to the entire archival fonds.

Updated Digital Components

An updated digital component is a component that has been modified under a preservation action plan.

Updated Storage Information

Information indicating a change in the location of a digital component in storage, the occurrence of a storage problem, the action taken to correct a storage problem, the results of such action, or the copying of digital files from older to new storage media.