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PTAB
ISO 16363

Standards based
Audit and Certification
of
Trusted Digital Repositories

John Garrett

Primary Trusted Digital Repository (TDR) Authorisation Body (PTAB)

Consultative Committee for Space Data Systems (CCSDS)

Why Audit?

- Legal or Contractual requirements
- Assure higher management that
    - Their valuable information is safe
    - The funding they provide is well spent
- Justify resources needed
- Identify improvements

- Certified Repository could leverage that to attract more donors, producers, consumers, resources, good will, management support, …
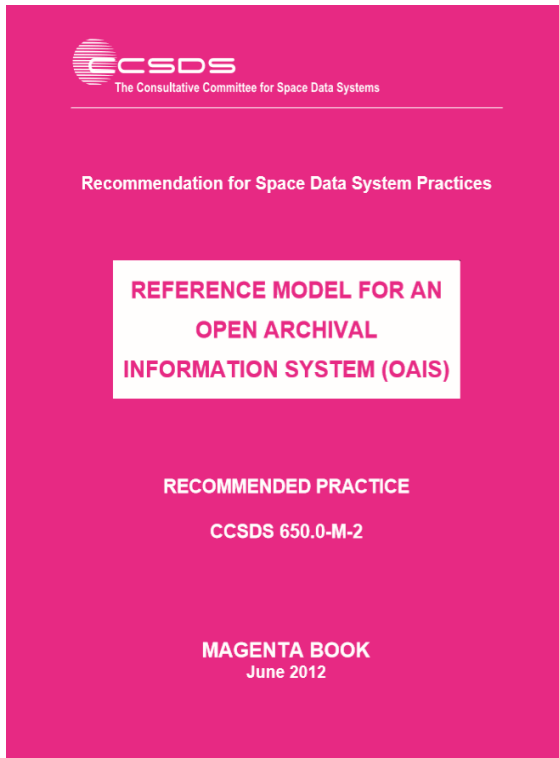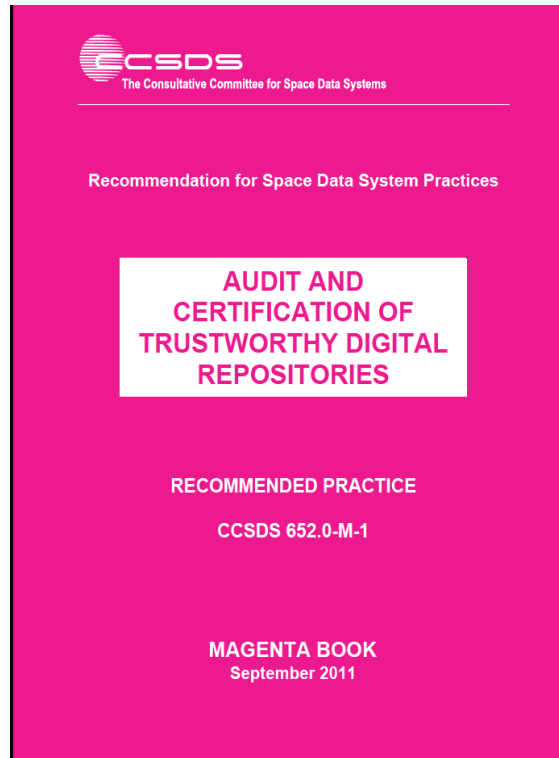
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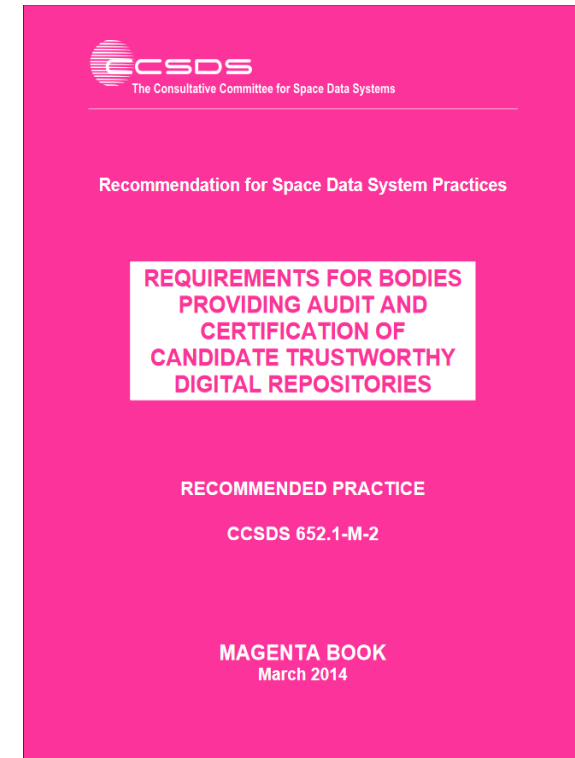FEDERAL DEPOSITORY
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The Standards
(OAIS Reference Model, ISO 16363 and ISO 16919)

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Recommendation for Space Data System Practices

REFERENCE MODEL FOR AN OPEN ARCHIVAL INFORMATION SYSTEM (OAIS)

RECOMMENDED PRACTICE

CCSDS 650.0-M-2

MAGENTA BOOK
June 2012

CCSDS
The Consultative Committee for Space Data Systems

Recommendation for Space Data System Practices

AUDIT AND CERTIFICATION OF TRUSTWORTHY DIGITAL REPOSITORIES

RECOMMENDED PRACTICE

CCSDS 652.0-M-1

MAGENTA BOOK
September 2011

CCSDS
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Recommendation for Space Data System Practices

REQUIREMENTS FOR BODIES PROVIDING AUDIT AND CERTIFICATION OF CANDIDATE TRUSTWORTHY DIGITAL REPOSITORIES

RECOMMENDED PRACTICE

CCSDS 652.1-M-2

MAGENTA BOOK
March 2014

ISO 14721:2012   ISO 16363:2012   ISO 16919:2014
CCSDS version of standard available at: http://publicccsds.org/

OAIS Conformance Requirements

- Information model
  - *A conforming OAIS Archive implementation shall support the model of information described in 2.2. The OAIS Reference Model does not define or require any particular method of implementation of these concepts.*

- Mandatory responsibilities
  - *A conforming OAIS Archive shall fulfil the responsibilities listed in 3.1. Subsection 3.2 provides examples of the mechanisms that may be used to discharge the responsibilities identified in 3.1. These mechanisms are not required for conformance. A separate standard, as noted in 1.5, has been produced on which accreditation and certification processes can be built.*
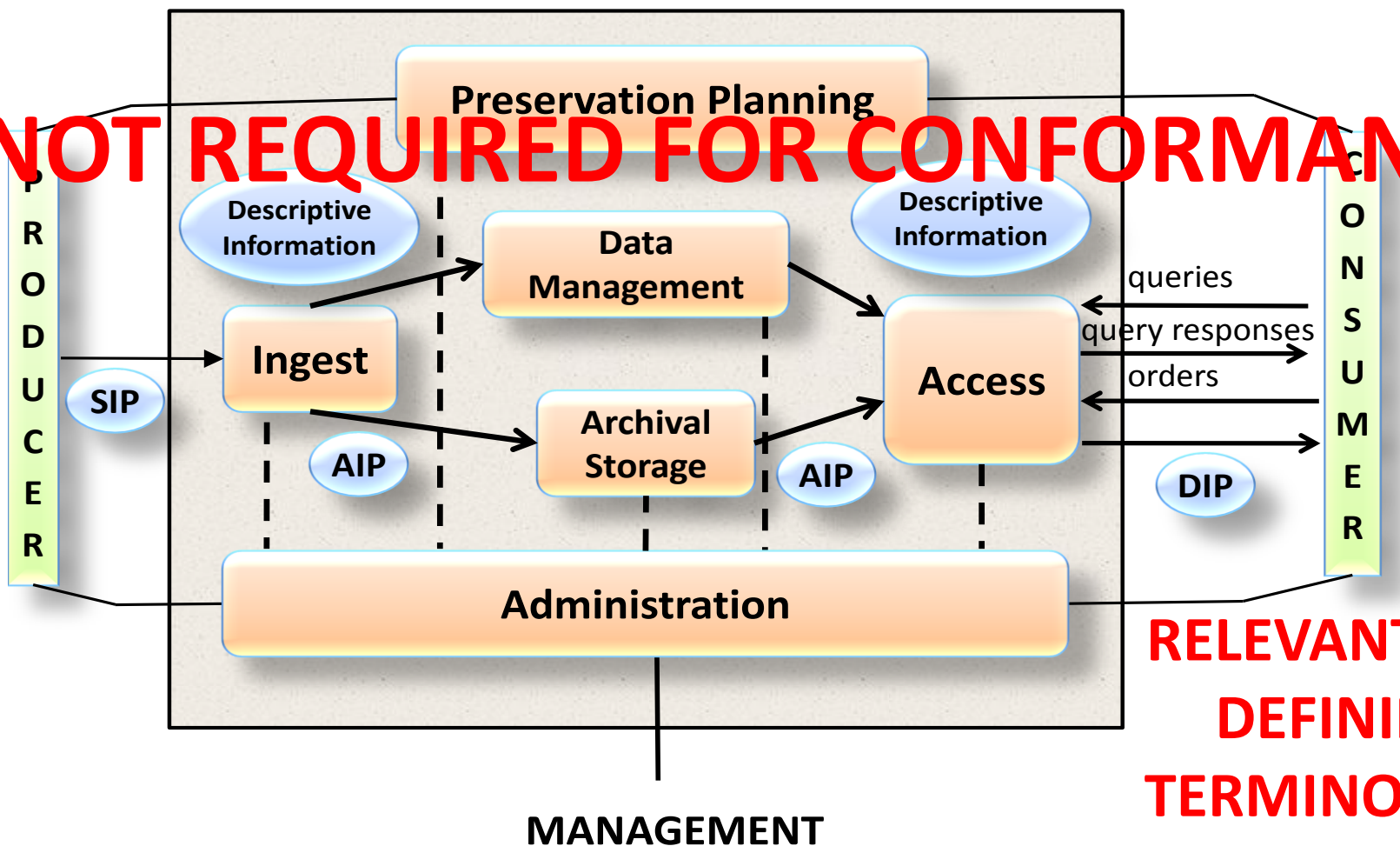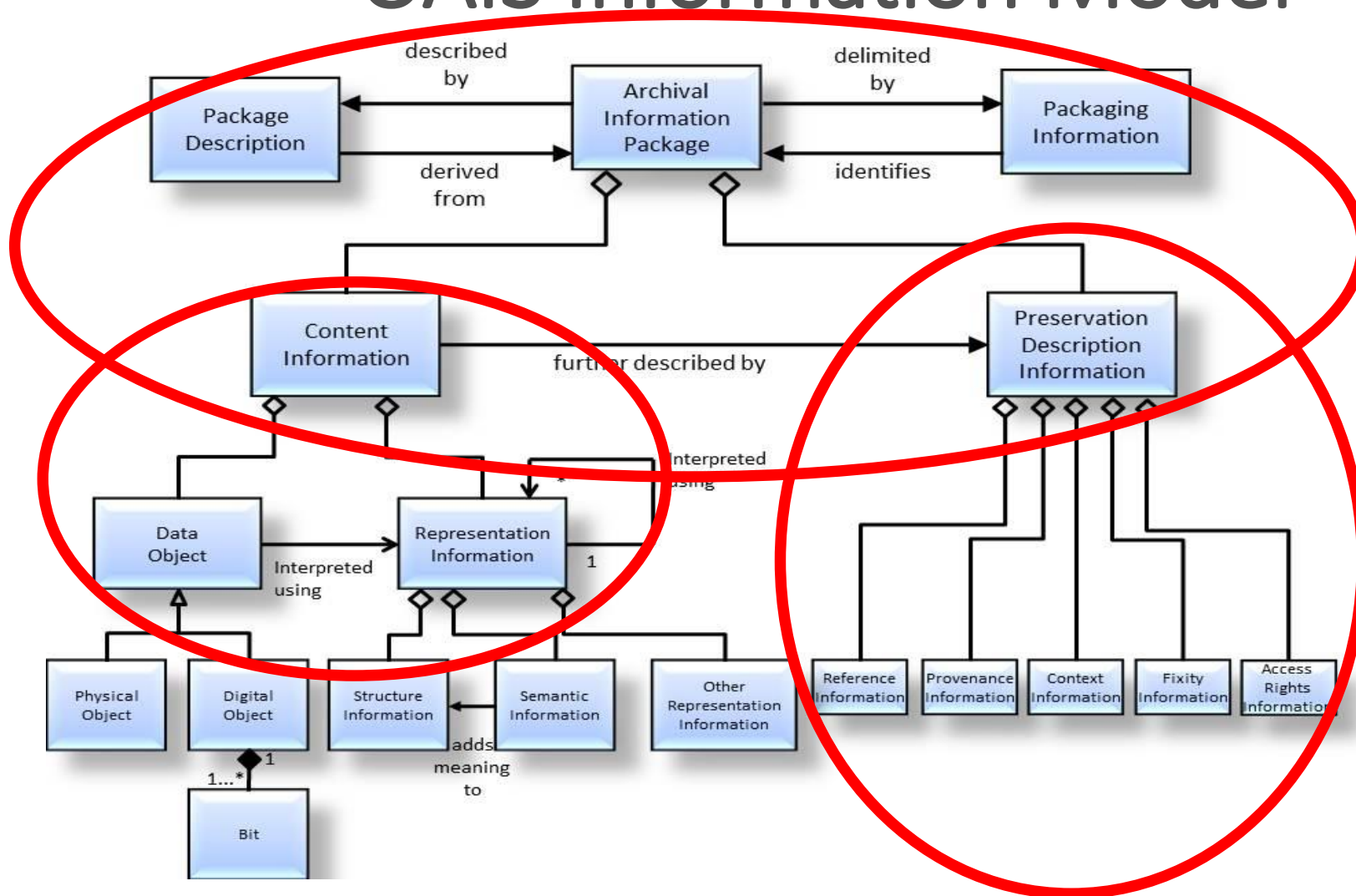
CCSDS
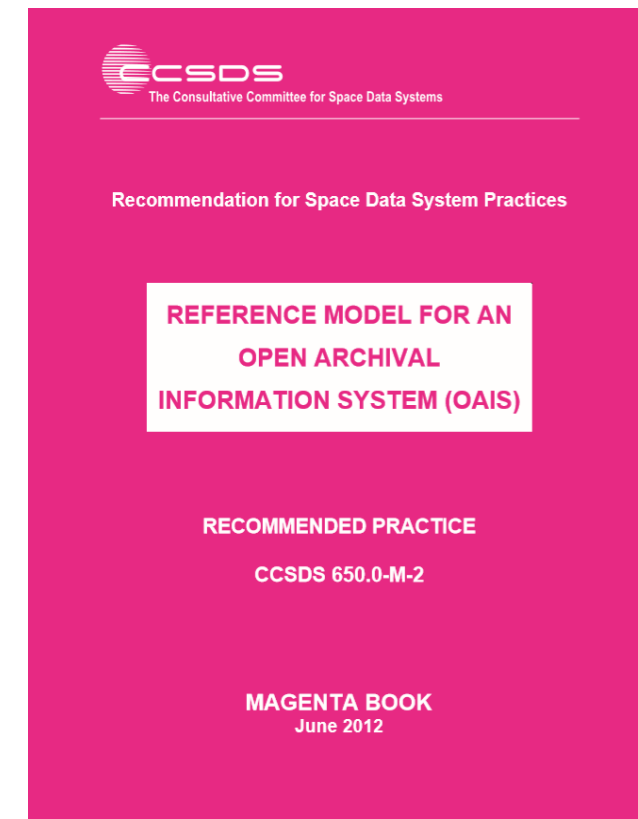The Consultative Committee for Space Data Systems

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OAIS Functional Model

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OAIS Information Model

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Mandatory Responsibilities (1/2)

- Negotiate for and accept appropriate information from information Producers.

- Obtain sufficient control of the information provided to the level needed to ensure Long Term Preservation.

- Determine, either by itself or in conjunction with other parties, which communities should become the Designated Community and, therefore, should be able to understand the information provided, thereby defining its Knowledge Base.

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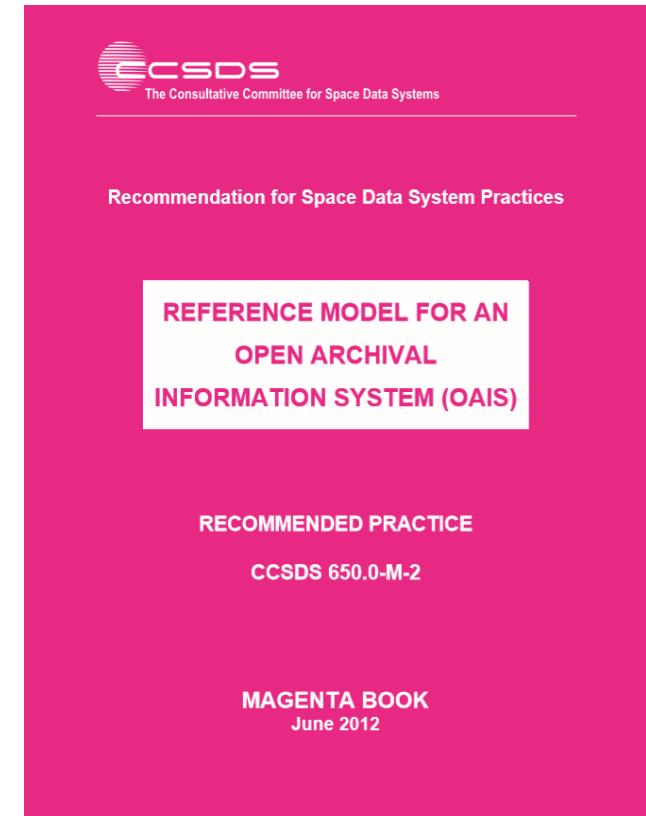MAGENTA BOOK
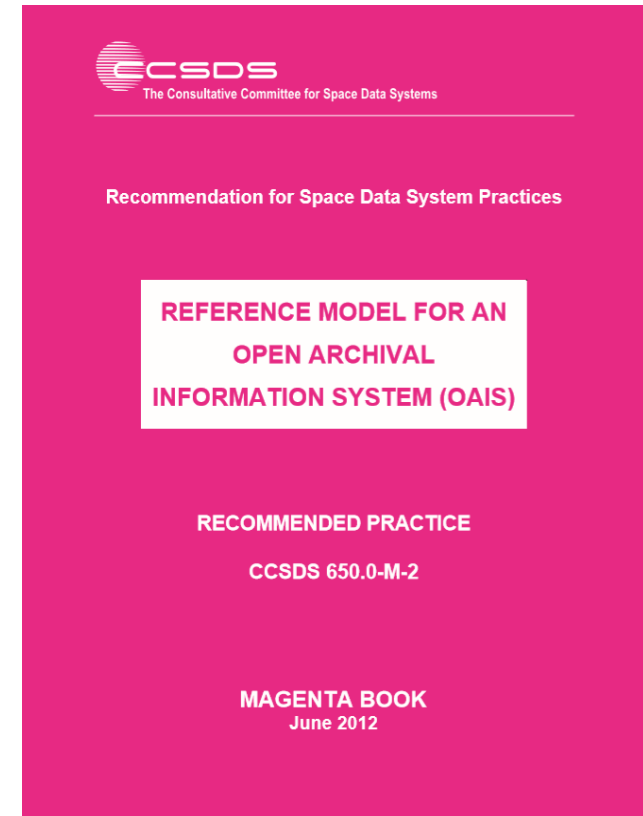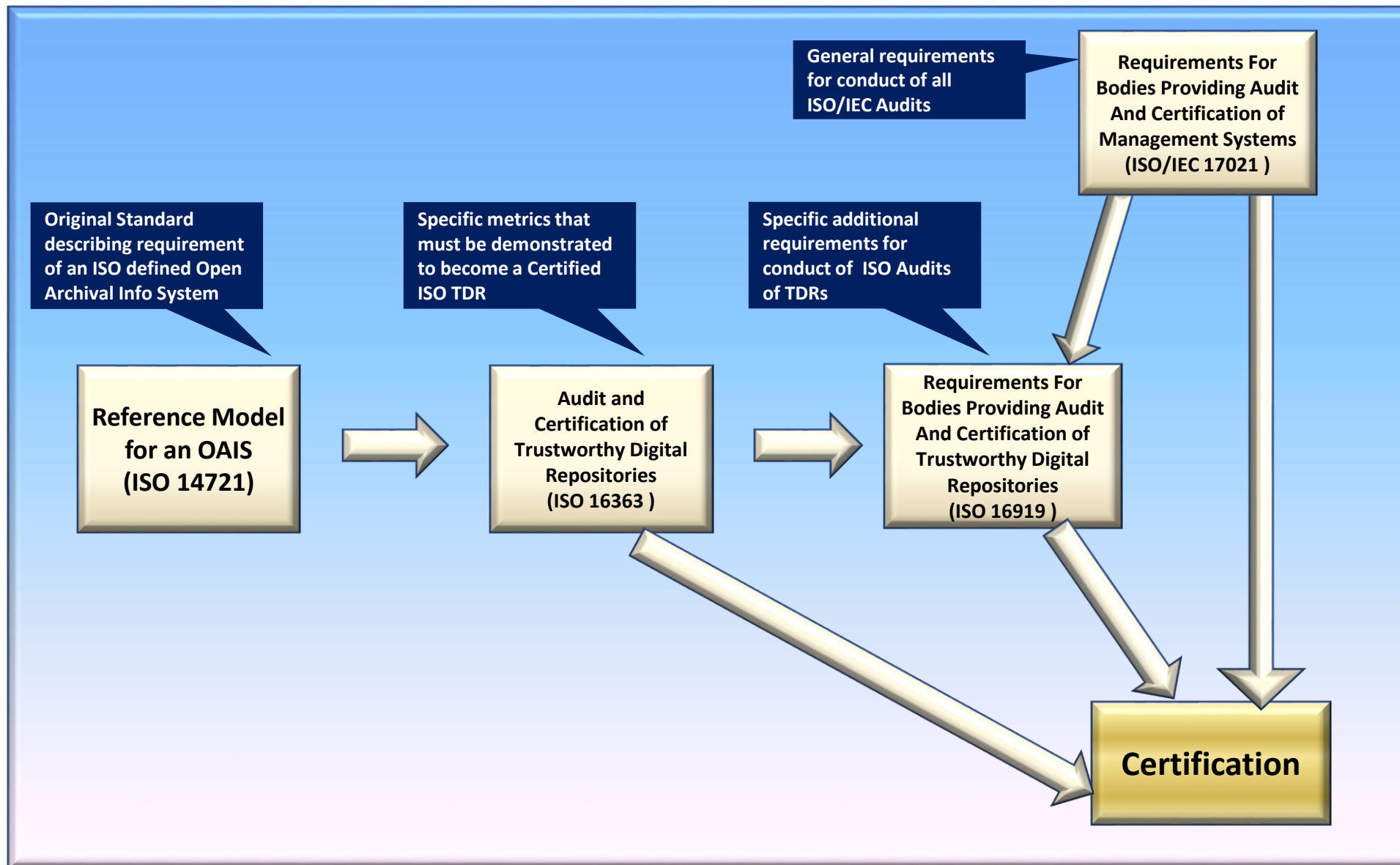June 2012

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Mandatory Responsibilities (2/2)

- Ensure that the information to be preserved is Independently Understandable to the Designated Community. In particular, the Designated Community should be able to understand the information without needing special resources such as the assistance of the experts who produced the information.

- Follow documented policies and procedures which ensure that the information is preserved against all reasonable contingencies, including the demise of the Archive, ensuring that it is never deleted unless allowed as part of an approved strategy. There should be no ad-hoc deletions.

- Make the preserved information available to the Designated Community and enable the information to be disseminated as copies of, or as traceable to, the original submitted Data Objects with evidence supporting its Authenticity.

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REFERENCE MODEL FOR AN
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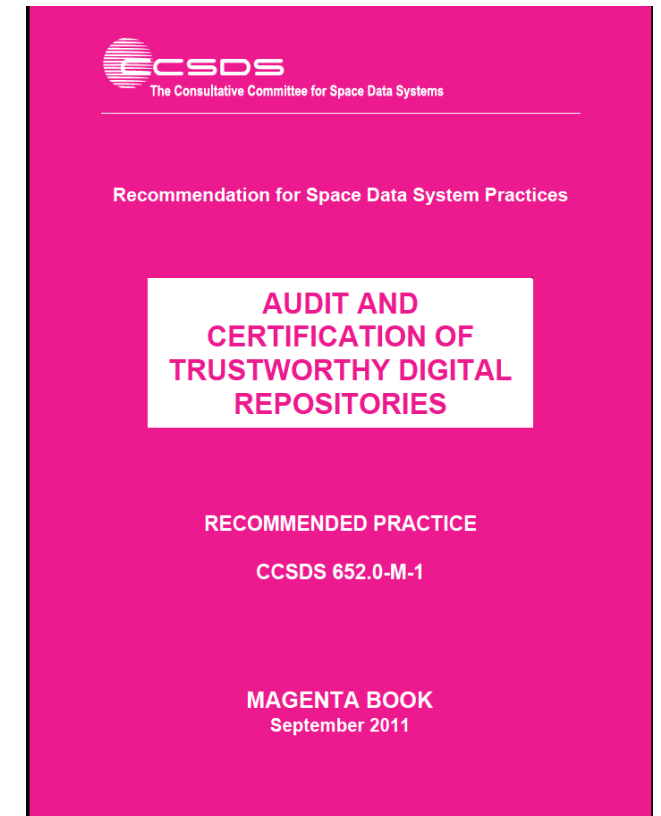CCSDS 650.0-M-2

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ISO 16363

ISO 16363

Audit and Certification of Trusted Digital Repositories

- Overall Structure:
  - **Section A: Organisational Infrastructure**
  - **Section B: Digital Object Management**
  - **Section C: Infrastructure and Security Risk Management**
- Metrics and their structure:
  - Statement of requirement
  - Supporting text
  - Examples of Ways the Repository can Demonstrate it is Meeting this Requirement
  - Discussion

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ISO 16363 Metrics Checklist

	Metric
	Metric
4.2.1	**THE REPOSITORY SHALL HAVE FOR EACH AIP OR CLASS OF AIPS PRESERVED BY THE REPOSITORY AN ASSOCIATED DEFINITION THAT IS ADEQUATE FOR PARSING THE AIP AND FIT FOR LONG-TERM PRESERVATION NEEDS.**
4.2.1.1	*The repository shall be able to identify which definition applies to which AIP.*
4.2.1.2	*The repository shall have a definition of each AIP that is adequate for long term preservation, enabling the identification and parsing of all the required components within that AIP.*
4.2.2	**THE REPOSITORY SHALL HAVE A DESCRIPTION OF HOW AIPS ARE CONSTRUCTED FROM SIPS.**
4.2.3	**THE REPOSITORY SHALL DOCUMENT THE FINAL DISPOSITION OF ALL SIPS**
4.2.3.1	*The repository shall follow documented procedures if a SIP is not incorporated into an AIP or discarded and shall indicate why the SIP was not incorporated or discarded.*
4.2.4	**THE REPOSITORY SHALL HAVE AND USE A CONVENTION THAT GENERATES PERSISTENT, UNIQUE IDENTIFIERS FOR ALL AIPS**
	Note: In particular the following aspects must be checked:
4.2.4.1	*The repository shall uniquely identify each AIP within the repository.*
4.2.4.1.1	*The repository shall have unique identifiers.*
4.2.4.1.2	*The repository shall assign and maintain persistent identifiers of the AIP and its components so as to be unique within the context of the repository.*
4.2.4.1.3	*Documentation shall describe any processes used for changes to such identifiers.*
4.2.4.1.4	*The repository shall be able to provide a complete list of all such identifiers and do spot checks for duplications.*
4.2.4.1.5	*The system of identifiers shall be adequate to fit the repository's current and foreseeable future requirements such as numbers of objects.*
4.2.4.2	*The repository shall have a system of reliable linking/resolution services in order to find the uniquely identified object, regardless of its physical location.*

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ISO 16363 Metric Subsection

4.2.2   The repository shall have a description of how AIPs are constructed from SIPs.
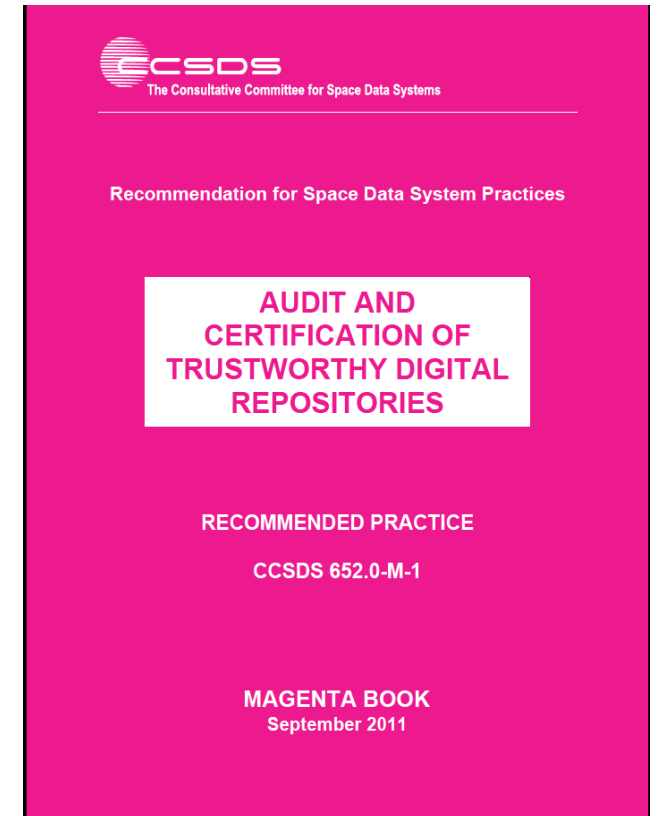
Supporting Text

This is necessary in order to ensure that the AIP(s) adequately represents the information in the SIP(s).
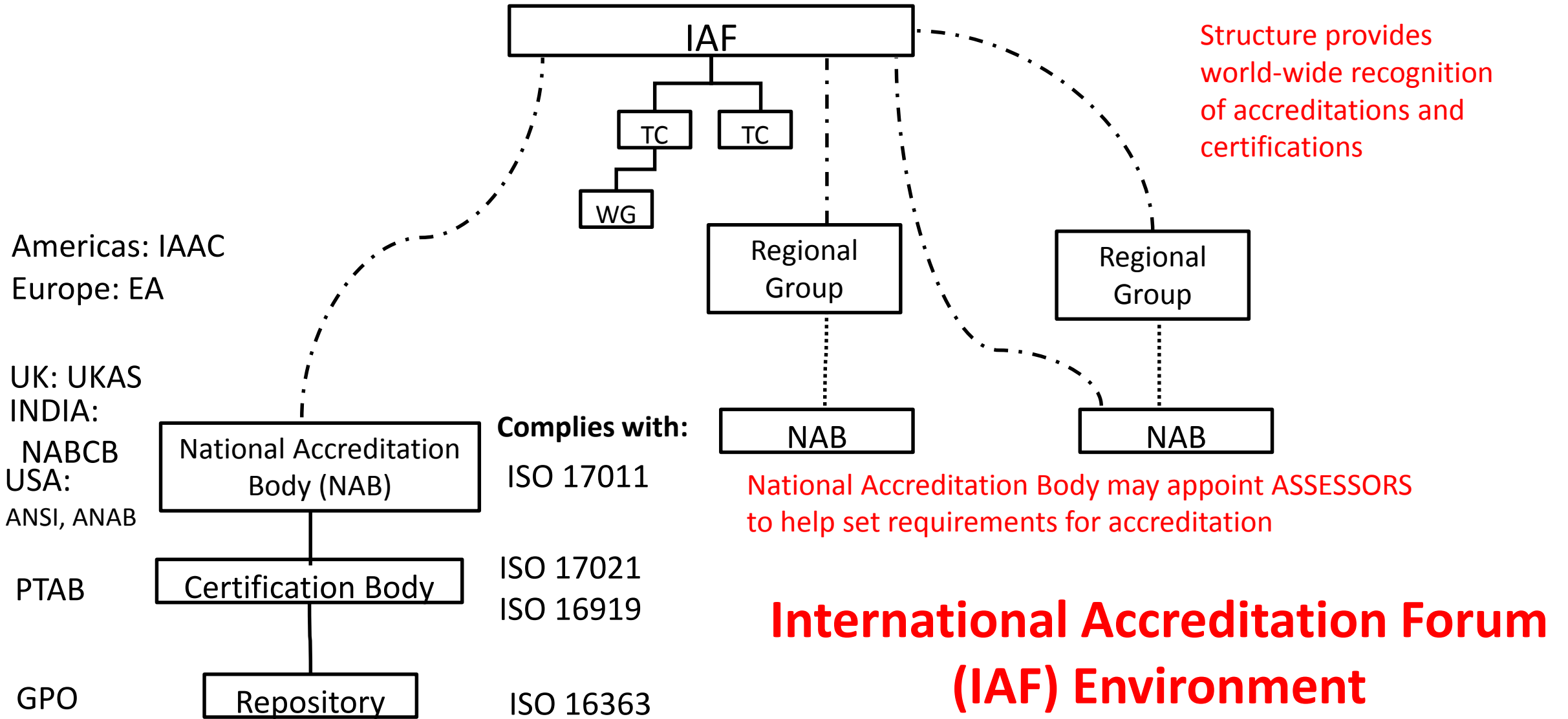
Examples of Ways the Repository Can Demonstrate It Is Meeting This Requirement

Process description documents; documentation of the SIP-AIP relationship; clear documentation of how AIPs are derived from SIPs.

Discussion

In some cases, the AIP and SIP will be almost identical apart from packaging and location, and the repository need only state this. In other cases, complex transformations (e.g., data normalization) may be applied to objects during the ingest process, and a precise description …

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IAF

TC   TC

WG

Regional Group

Regional Group

NAB

NAB

Americas: IAAC
Europe: EA

UK: UKAS
INDIA:
 NABCB
USA:
ANSI, ANAB

PTAB

GPO

National Accreditation Body (NAB)

Certification Body

Repository

Complies with:

ISO 17011

ISO 17021
ISO 16919

ISO 16363

Structure provides world-wide recognition of accreditations and certifications

National Accreditation Body may appoint ASSESSORS to help set requirements for accreditation

International Accreditation Forum (IAF) Environment

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Primary Trusted Digital Repository (TDR) Authorisation Body (PTAB)

Once standards were completed, there was still a need to develop the infrastructure

- PTAB was incorporated by the same experienced international group of digital preservation experts who developed ISO standards ISO 14721, ISO 16363 and ISO 16919
- PTAB contracted with auditors have decades of experience in digital preservation related occupations and who exhibit characteristics of auditors as defined in ISO 17021 and who have been trained in ISO 16363 and ISO 16919

Resulting in

- PTAB became the first organization in the World to be accredited to perform ISO 16363 Audit and Certification
    - **Using an accredited ISO 16363 auditing body ensures that your certification will be recognized internationally**
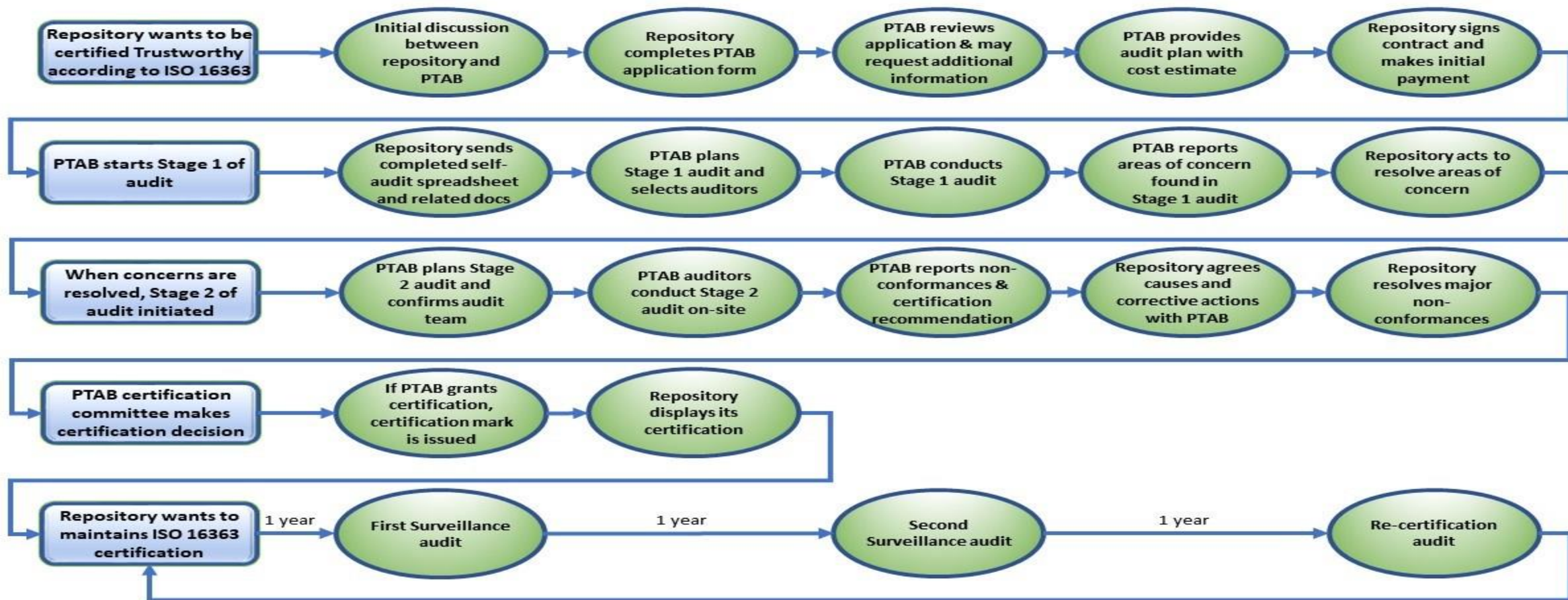
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PTAB Audit Process

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Certification – Next Steps

- Train your staff around principles and concepts of OAIS and ISO 16363
  - PTAB and other bodies or auditors that perform ISO 16363 certification for you cannot provide specific guidance on your organizations issues, but they are allowed to give generic classes and training regarding ISO 16363 metrics

- Perform a self-assessment for your organization using ISO 16363
  - Can suggest improvements for your organization's preservation environment
  - Will raise awareness of preservation issues in self-assessment participants
  - Great preparation for a third-party inspection
  - Required to prepare for certification

- When ready contact an accredited organization to perform the audit
  - At this time, that would be PTAB