



Trusted Digital Repositories:

A New Audit Standard
A Follow-on to the OAIS

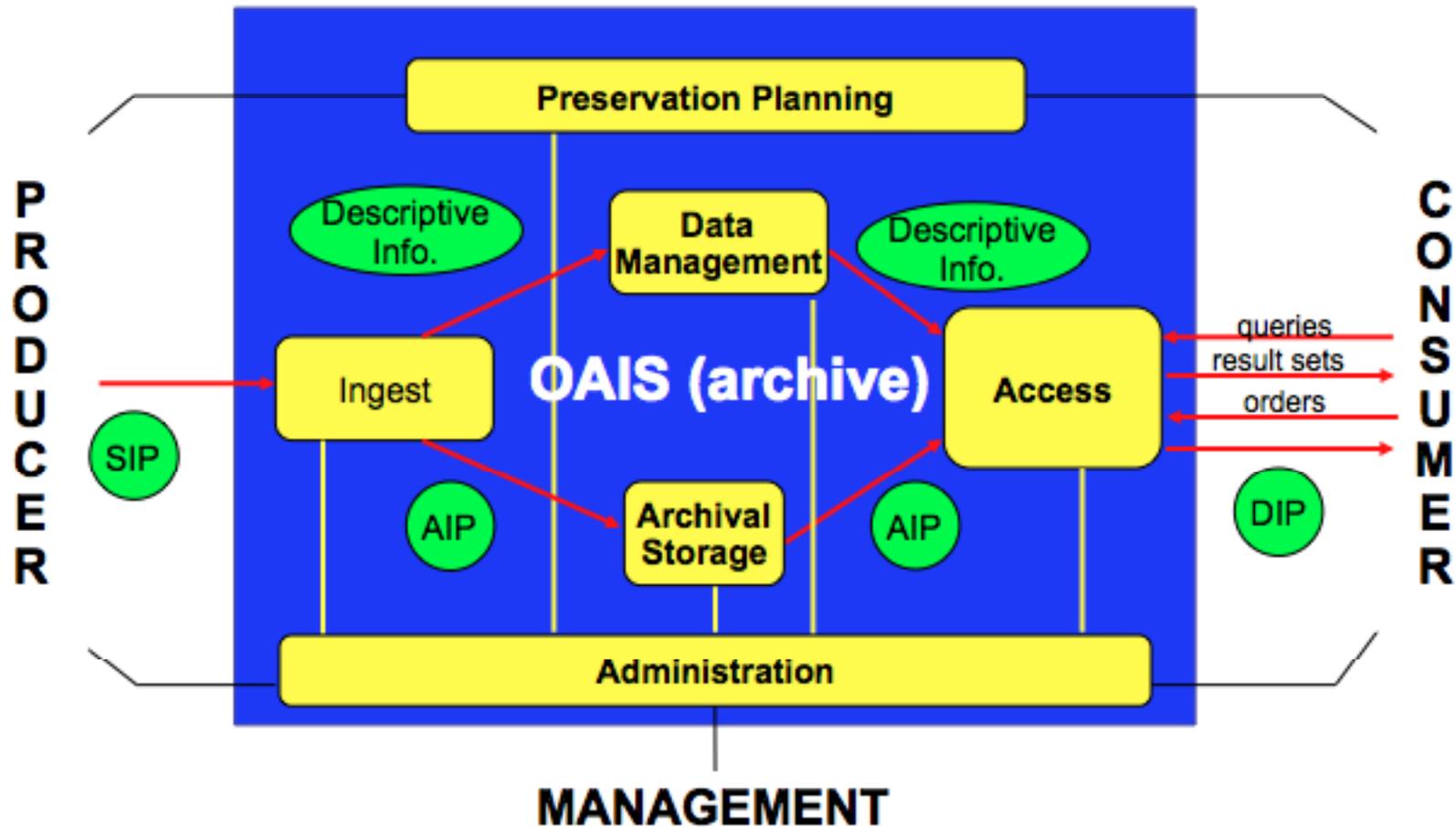


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[Digital Preservation and Nuclear Disaster: An Animation](#)



OAIS Framework

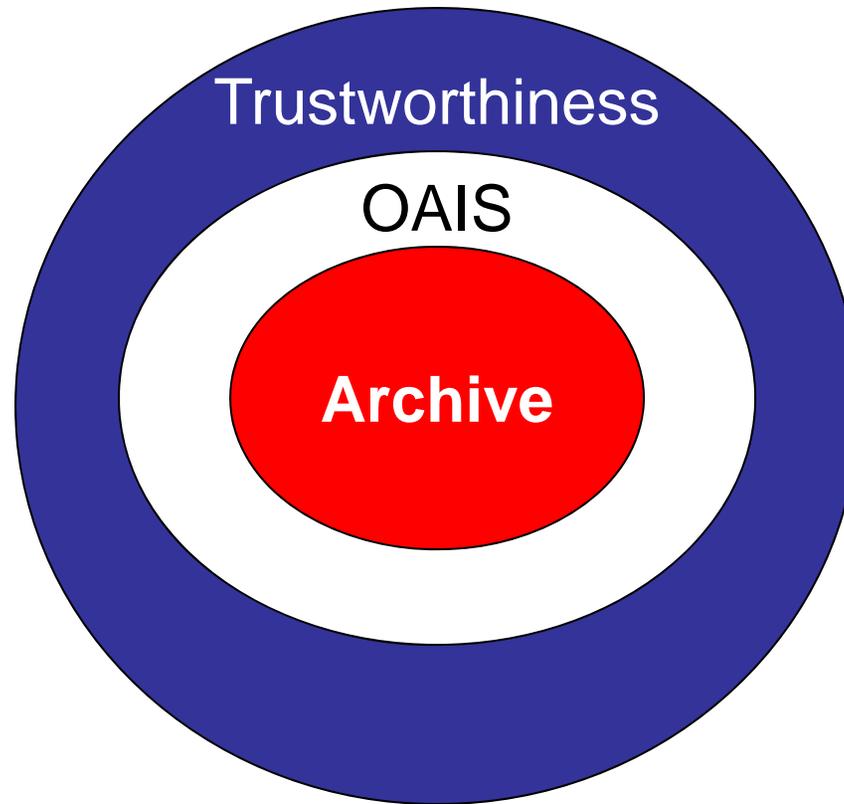


SIP = Submission Information Package
AIP = Archival Information Package
DIP = Dissemination Information Package



Why an Audit?

Providers



Users

Other Stakeholders



TDR: ISO-16363



www.iso16363.org/

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> what would you do if the people to whom you entrust your digital capital let you down

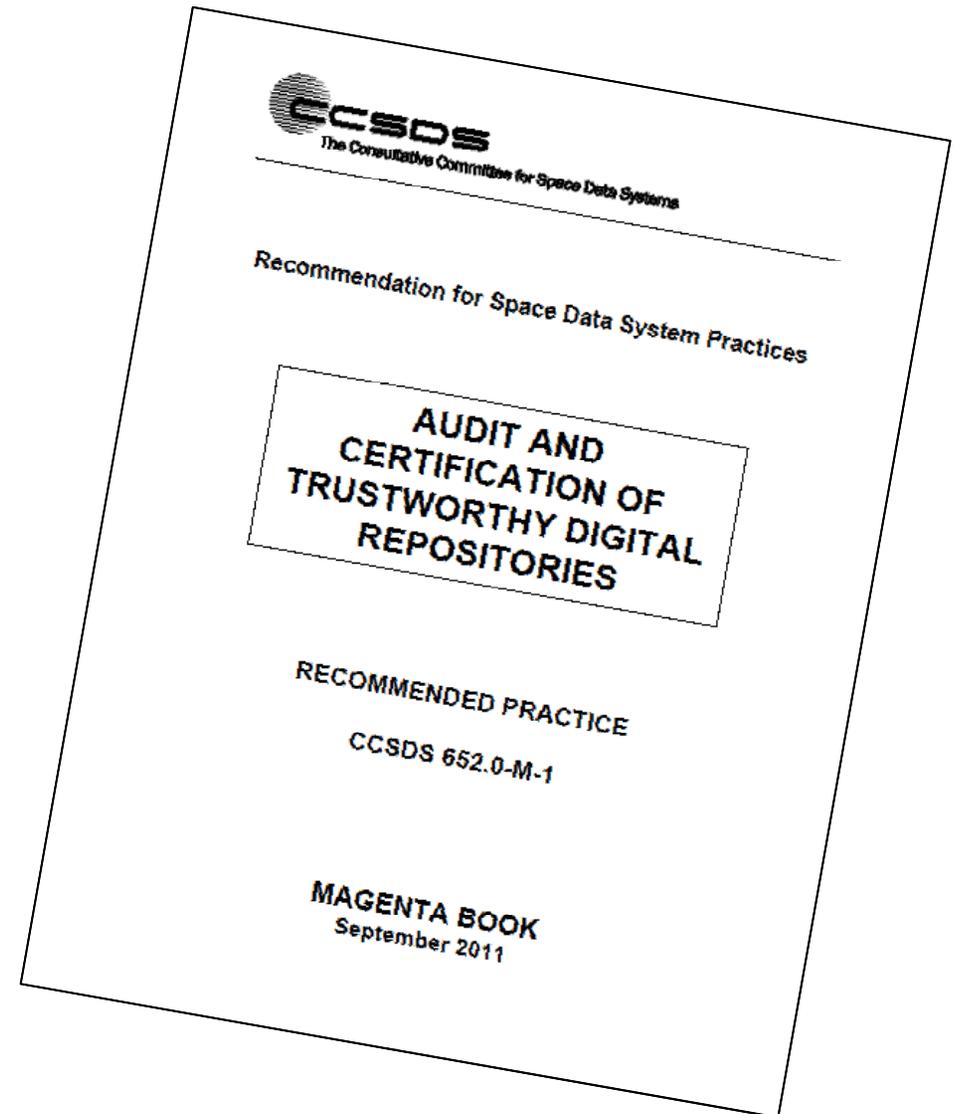
The Primary Trustworthy Digital Repository Authorisation Body (ISO-PTAB) is the anchor for the provision of ISO audit and certification of digital repositories and plays a major role in training and accrediting auditors. This web site is a central source of information about ISO-PTAB, auditors and audits.



TDR Definition



At the very basic level, the definition of a trustworthy digital repository must start with 'a mission to provide reliable, long-term access to managed digital resources to its Designated Community, now and into the future.'





Audit Structure

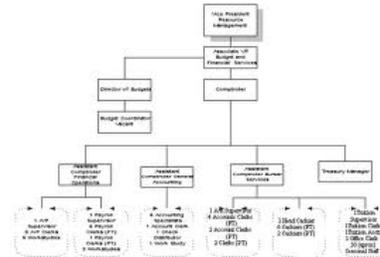


- Organizational Infrastructure
- Digital Object Management
- Infrastructure and Security Risk Management.





Organizational Infrastructure



- Governance & Organizational Viability
- Organizational Structure & Staffing
- Procedural Accountability & Preservation Policy Framework.
- Financial Sustainability
- Contracts, Licenses & Liabilities.

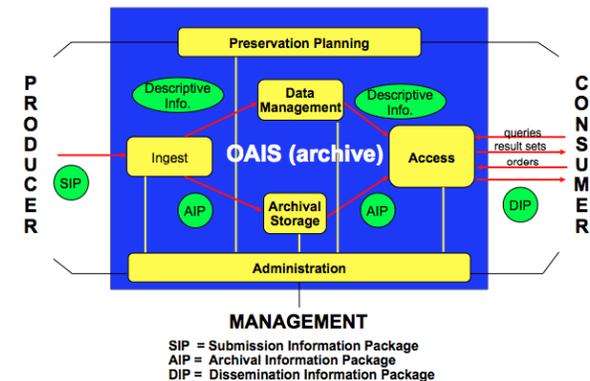




Digital Object Management



- Ingest: Acquisition of Content
- Ingest: Creation of the AIP
- Preservation Planning
- AIP Preservation
- Information Management
- Access Management





Risk Management



- Technical Infrastructure Risk Management.
- Security Risk Management.





Discussions with Data Managers



- Reviewed examples of TDR criteria.
- Internal vs. External audit.
- Surface vs. Deep Dive.
- TDR Checklist Eval. for the DOM.





TDR Checklist Eval.



- Do the DM's understand the criteria?
 - 45 DOM criteria / 37 for DMs.
 - Discussed some in depth at DM Mtg.
 - One confirmed reading support doc.
 - One 1-on-1 session with DM.
 - 3 weeks given to review criteria – flag those they don't understand.



Results of TDR Eval

- 6 DMs responded
- Most tried to evaluate their data sets.
- What don't you understand?
 - No indication by two DMs. They only made it through half the questions.
 - 1 to 11 questions flagged.
- 1 DM did not submit spreadsheet results:
 - “evaluation criteria not particularly clear”
 - “It appears that the DOM portion of TDR Certification is very narrowly directed at the OAIS...and not necessarily applicable to the broad and varied world of data management systems at NGDC.”



Next Steps



- Clarify Criteria Further.
- Remove some of the Criterion? What don't apply?
- Expectations for assessment feedback.
- Implementation plan for the audit.
 - Pick a few data sets.
 - Include in the data migration to CLASS.
- Answer the first question: Is TDR certification in NGDC's best interest?



Org. Infrastructure Example.



1. The repository shall have a mission statement that reflects a commitment to the preservation of, long term retention of, management of, and access to digital information.
2. The repository shall have a Preservation Strategic Plan that defines the approach the repository will take in the long-term support of its mission.
3. The repository shall have a Collection Policy or other document that specifies the type of information it will preserve, retain, manage and provide access to.



Org. Infrastructure Metric Ex.:



3.3.1.1 The repository shall have identified and established the duties that it needs to perform.

Supporting Text

This is necessary in order to ensure that the repository can complete all tasks associated with the long-term preservation and management of the data objects.

Examples of Ways the Repository Can Demonstrate It Is Meeting This Requirement

A staffing plan; competency definitions; job descriptions; staff professional development plans; certificates of training and accreditation; plus evidence that the repository reviews and maintains these documents as requirements evolve.

Discussion

Preservation depends upon a range of activities from maintaining hardware and software to migrating content and storage media to negotiating intellectual property rights agreements. In order to ensure long-term sustainability, a repository must be aware of all required activities and demonstrate that it can successfully complete them. The repository can achieve these aims by, for example, identifying the competencies and skill sets required to carry out its activities over time—e.g., archival training, technical skills, and legal expertise.



Org. Infrastructure Metric Ex. 2:



3.3.6. The repository shall commit to a regular schedule of self-assessment and external certification.

SUPPORTING TEXT

This is necessary in order to ensure the repository continues to be trustworthy and there is no threat to its content.

EXAMPLES OF WAYS THE REPOSITORY CAN DEMONSTRATE IT IS MEETING THIS REQUIREMENT

Completed, dated checklists from self-assessments and/or third-party audits; certificates awarded for compliance with relevant ISO standards; timetables and evidence of adequate budget allocations for future certification.

Discussion

A one-time check on trustworthiness is not adequate because many things will change over time.



Digital Object Element Ex.:



4.1.6 The repository shall obtain sufficient control over the Digital Objects to preserve them.

Supporting Text

This is necessary in order to ensure that the most basic type of preservation, namely bit preservation, is assured.

Examples of Ways the Repository Can Demonstrate It Is Meeting This Requirement

Documents showing the level of physical control the repository actually has. A separate database/metadata catalog listing all of the digital objects in the repository and metadata sufficient to validate the integrity of those objects (file size, checksum, hash, location, number of copies, etc.)

Discussion

The repository must obtain complete control of the bits of the digital objects conveyed with each SIP. For example, in cases where SIPs only reference digital objects, the repository must also reference the digital objects or preserve them if the current repository is not committed to such preservation.



TDR characteristics



- 108 audit metrics.
- TDR Board Approves, Audit Teams has to have certifiable credentials.
- “Bi-directional” connections emphasized.
- PDI Representation Info Emphasized.



TDR Audit Eval. Form



Aspect	Criterion	Explanation	Occurs (Y/N)	Evidence
B.5 Information Management	B5.2 Repository captures or creates minimum descriptive metadata and ensures that it is associated with the archived object (i.e., AIP).	Does the Archive receive its required metadata from the Data Provider or does it supply some metadata itself during ingest?	Y	Archive usually creates its own metadata. Some exceptions occur where the originator supplies metadata.
B.2 Ingest: creation of the archivable package	B2.7. Repository demonstrates that it has access to necessary tools and resources to establish authoritative semantic or technical context of the digital objects it contains (i.e., access to appropriate international Representation Information and format registries).	Do your file formats subscribe to well known standards that are referenced in a technical repository that defines the format and the tools to access them?	Y/N	That depends on the dataset. Data in the Index to Marine and Lacustrine Geological Samples, the "073" grainsize database, and the DSDP/ODP/IODP datasets all conform to well established, well documented standards.

https://www.ngdc.noaa.gov/wiki/images/a/ac/Tdr_checklist.xlsx.zip



References

- Center for Research Libraries – TDR
 - Audit Checklist
 - ISO 16919, entitled, *Requirements for Bodies providing Audit and Certification*
- Primary Trustworthy Digital Repository
- *Download the ISO 16363 Standard*