

ISO ARCHIVE STANDARDS: STATUS REPORT

**Donald M Sawyer
Code 633
NASA/Goddard Space Flight Center
Greenbelt, MD 20771
Phone: +1 301 286 2748 Fax: +1 301 286 1771
E-mail: donald.sawyer@gsfc.nasa.gov**

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Presentation Outline

- **Archival problem**
- **Approach to solution**
- **Efforts to date**
- **Reference Model for Open Archival Information Systems (OAIS)**
 - **OAIS Concepts**
 - **OAIS Data Model**
 - **OAIS Functional Model**
- **Schedule**
- **Participation Invitation**

Archival Problem

- **Permanent, or indefinite long-term, digital information preservation is an unsolved problem**
 - Data bits+representation metadata (i.e., information) must be migrated across new media, operating systems, and management systems
 - Field representations and formats may need to evolve with technologies and supported standards
 - What constitutes adequate metadata is not widely understood or standardized
 - Information must be readily transportable from archive to archive
- **Many organization now need to operate an information preserving archive**
- **No consistent terminology and framework**
- **No widely recognized standards addressing the problem**

(see Task Force final report “Preserving Digital Information” at <http://www.rlg.org/ArchTF/> , May 1, 1996.)

Approach to Problem Solution

- **Leverage the growing, widely distributed, expertise and interest in preserving digital information**
 - Government, Industry, Academia
- **Focus on achieving a useful, near-term (1998), reference model**
 - Common concepts and vocabulary
 - Information Model and Archival Function Model
 - Classes of archives
- **At appropriate point, begin additional efforts**
 - Identify relevant existing standards
 - Identify and develop any missing standards
- **Promulgate resulting standards broadly**
 - ISO TC20/SC 13 approval process
 - Web access to view and critique developing work

Effort to Date

- Version 1 Ref. Model - 1st US Workshop - Oct. 11-122 '95
- Version 1 Ref. Model - 1st Int'l Workshop - Oct. 26-27 '95
- Version 2 Ref. Model - 2nd US Workshop - Dec. 19-20 '95
- Version 3 Ref. Model - 3rd US Workshop - Mar. 19-20 '96
- Version 4 Ref. Model - 2nd Int'l Workshop - Apr. 29-30 '96
- Version 5 Ref. Model - 4th US Workshop - Jul. 10-11 ' 96
- Version 6 Ref. Model - 5th US Workshop - Oct.2-3 '96

**Presentations, minutes, Reference Model drafts, at
<http://bolero.gsfc.nasa.gov/nost/isoas/overview.html>**

Outline of Version 7.0 OAIS Document

1. Introduction

- Purpose and Scope, Applicability, Definitions, etc

2. OAIS Concepts

- 2.1 OAIS Function
- 2.2 OAIS Information
- 2.3 OAIS Environment
- 2.4 OAIS Responsibilities

3. Detailed Models

- 3.1 Functional Model
- 3.2 Data Model

4. Illustrative Scenario

5. OAIS Classification and Metrics

A.1 Scenarios Involving Existing Archives

A.2 Migration Scenarios

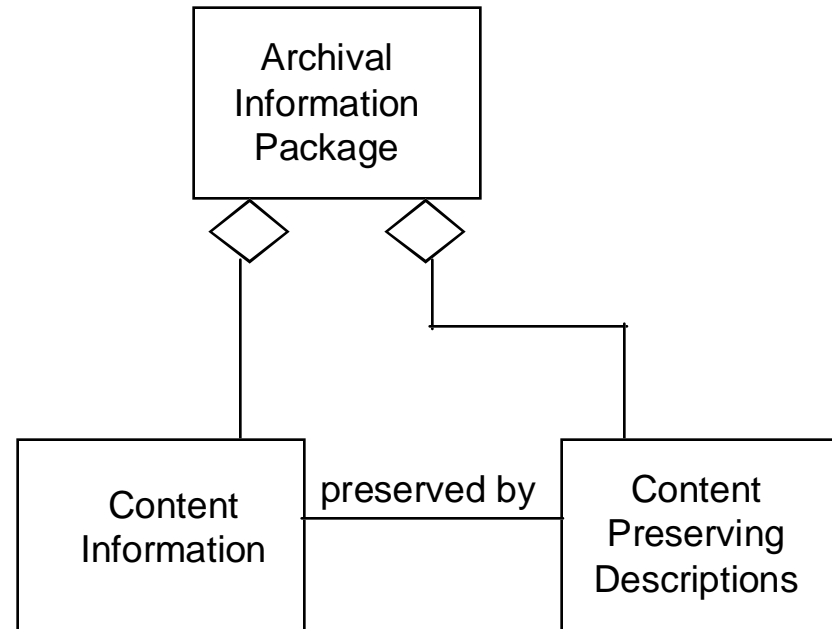
OAIS Purpose

- **Defines minimum set of responsibilities for an OAIS archive**
- **Framework for understanding long-term information preservation**
 - Detail focuses` on digital information, but non-digital (e.g., physical sample) information is also accommodated
- **Facilitates description and comparison of existing and future archives**
- **Provides basis for development of OAIS standards**

OAIS Scope

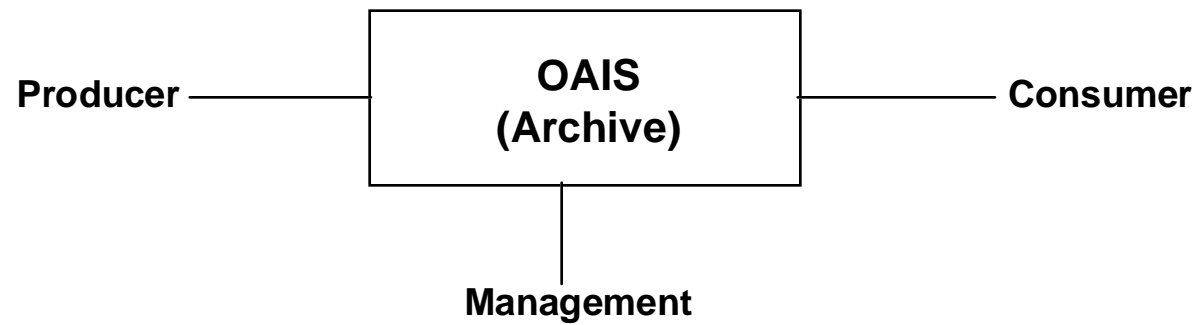
- **Addresses full range of archival functions, including ingest, storage, access, dissemination**
- **Addresses migration to new media and forms**
- **Addresses data models use to represent information**
- **Identifies external and internal interfaces and high-level services**
- **Identifies attributes by which OAIS archives may be characterized**

OAIS Archival Information Package



OMT Object Diagram of an Archival Information Package (AIP)

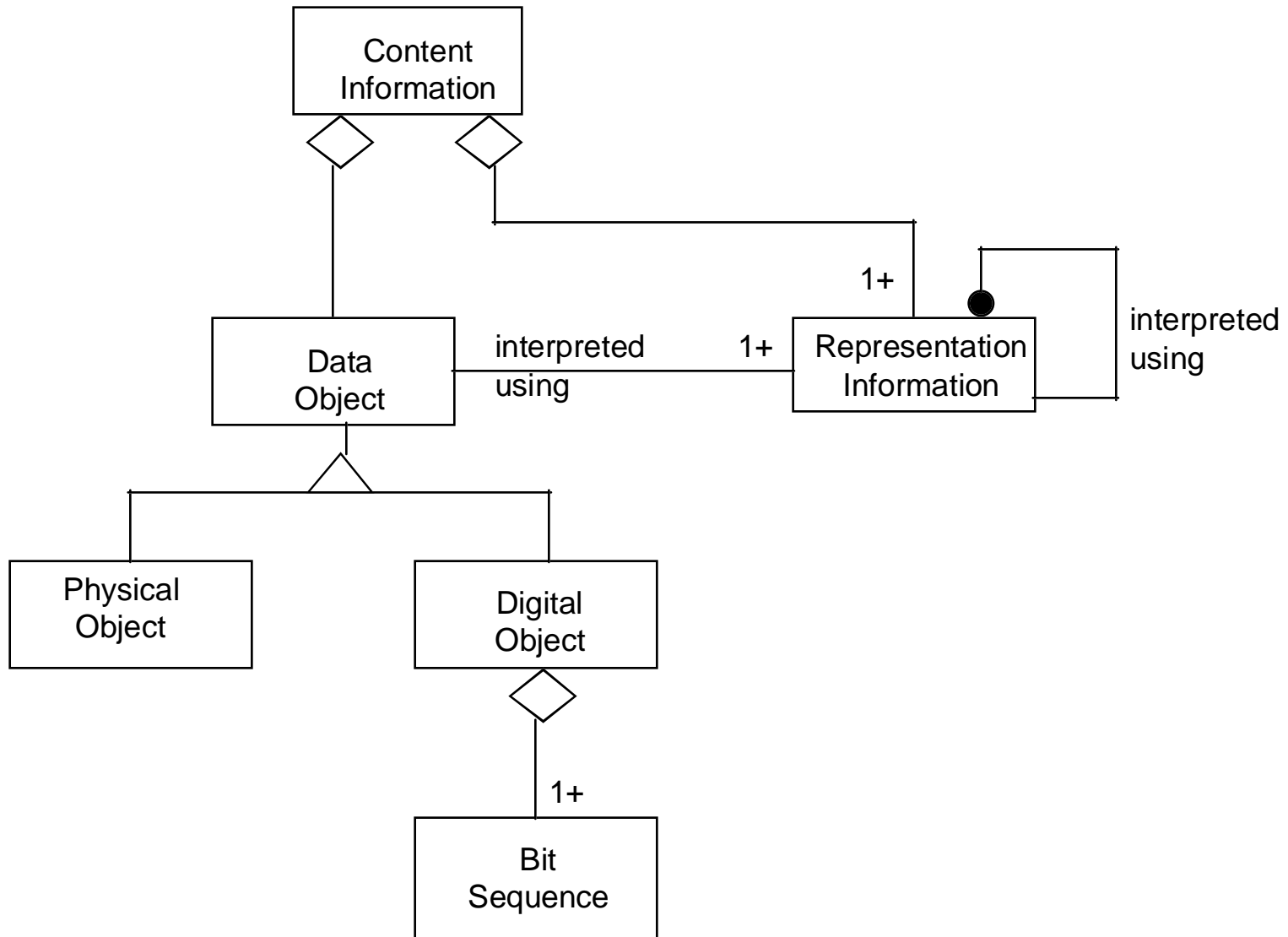
Environment Model of OAIS



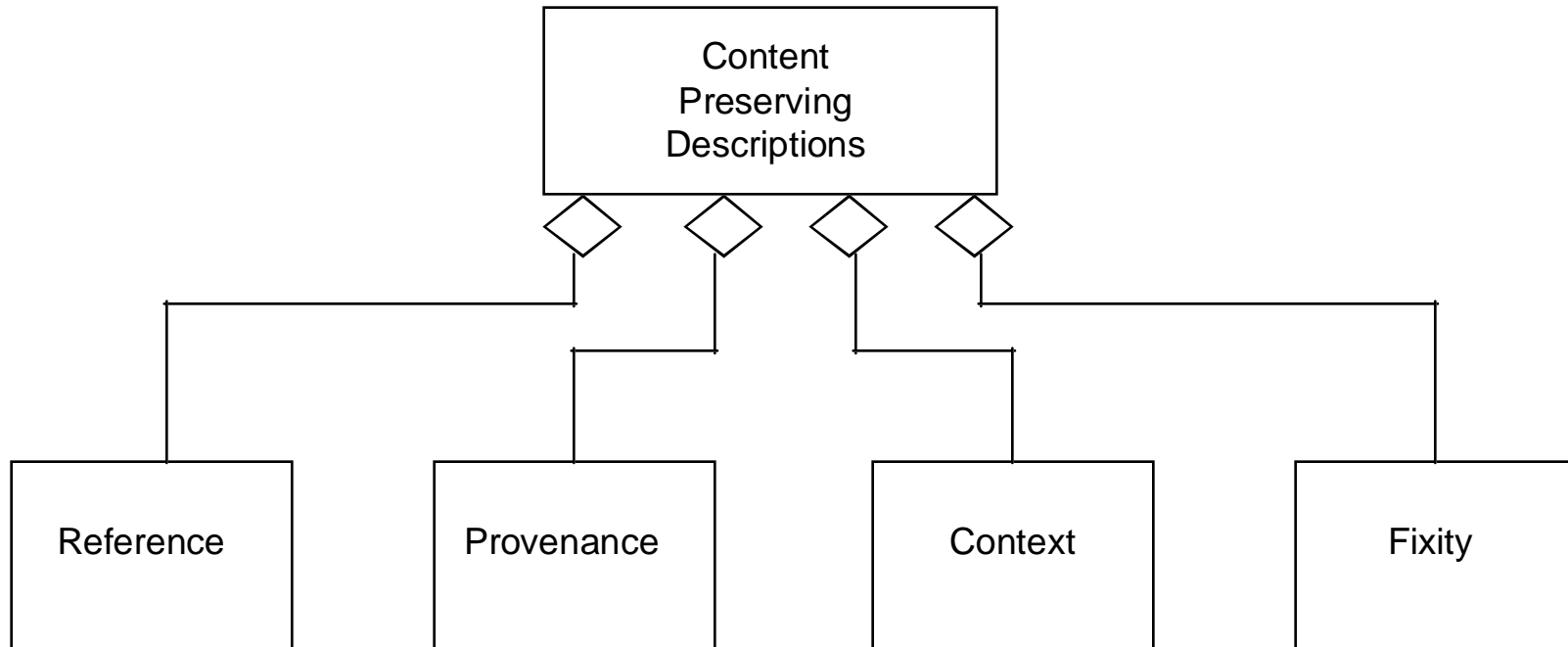
OAIS Responsibilities

- **Accepts AIPs from information providers**
- **Determines which communities need to be able to understand it.**
- **Ensures the information, to be preserved, is independently understandable to the designated communities.**
- **Assumes sufficient control to ensure permanent or indefinite long-term preservation.**
- **Follows established policies and procedures which ensure the information is preserved against all reasonable contingencies.**
- **Makes the preserved information available to the designated communities in forms understandable to those communities.**

Content Information (CI)



Content Preserving Descriptions(CPD)



OMT Object Diagram of Content Preserving Descriptions

CPD Definitions

Reference

- **Contains one or more CI identification-system value sets**
(e.g., URL, ISBN, title/author/publisher)

Provenance

- **Documents history, chain of custody, of CI**

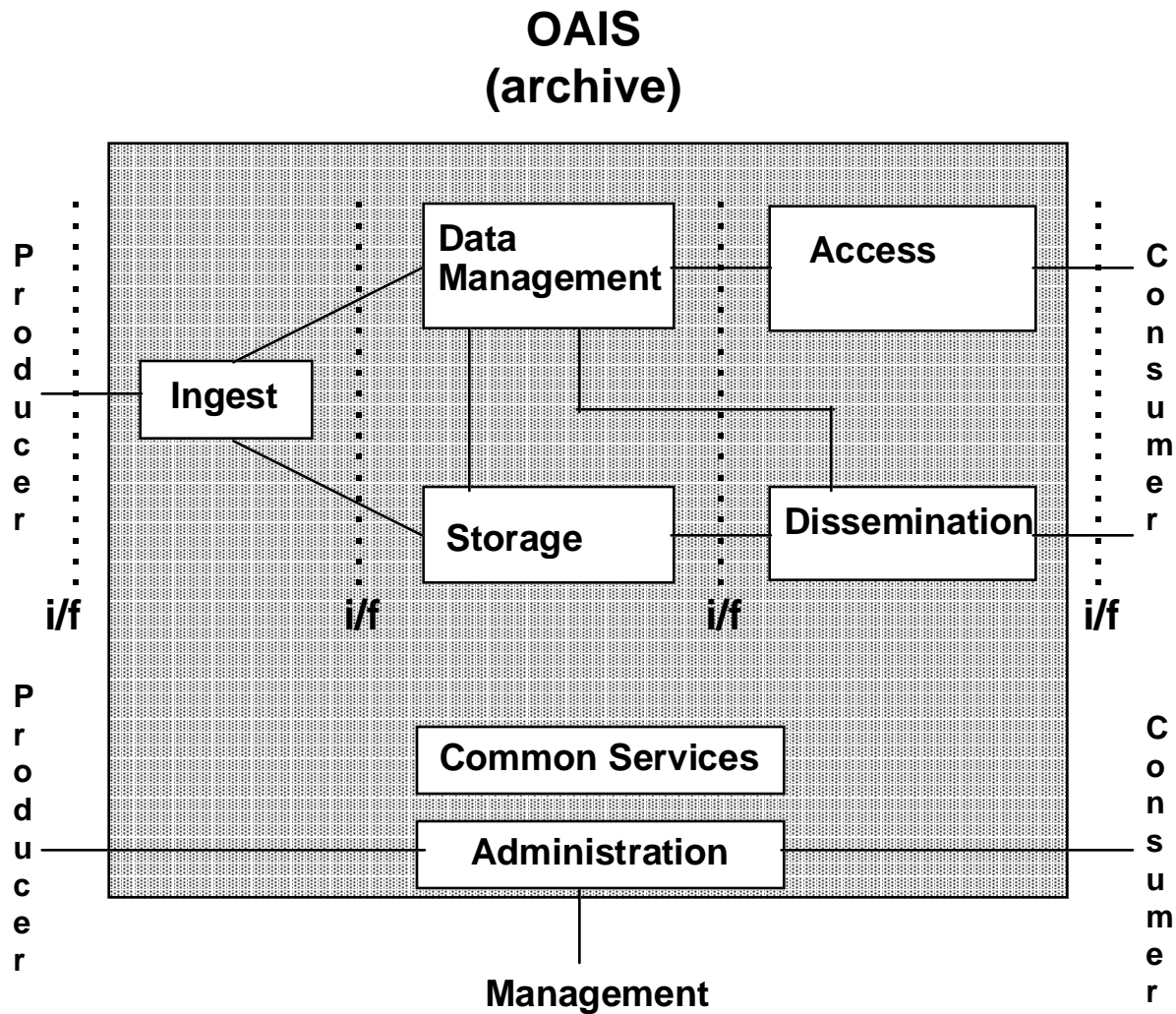
Context

- **Documents relationships of CI to environment**
 - Technical (e.g., mapping to physical media)
 - Social (e.g., why it was created)

Fixity

- **Describes mechanisms (authentication) used to ensure CI has not been altered in an undocumented manner**
 - Encryption, digital signature, physical security, time stamping, etc.

OAIS Functional Entities



Original Schedule and Comments

- **Second international workshop - May, 1996 in Pasadena, CA, USA**
 - ISO working draft
(Equivalent expected at November 1996 international workshop)
- **Begin to relate Reference Model interfaces to existing standards - October, 1996**
 - Break into discipline subgroups as needed
(Will begin addressing this at November 1996 international workshop)
- **Fourth international workshop - May, 1997**
 - ISO committee draft
(May achieve this, but expect to recommend the document be a report, not a standard)
- **Sixth international workshop - May, 1998**
 - ISO Draft International Standard
(Still expect to complete the Reference Model by this date)

Participation Invitation

- **Foreign residents should contact their CCSDS/ISO TC 20 representatives**
- **US residents may participate in two primary ways**
 - Attend US workshops held at National Archives and Records Administration (NARA) facility in College Park, MD
(<http://bolero.gsfc.nasa.gov/nost/isoas/us/overview.html>
or contact Don Sawyer at donald.sawyer@gsfc.nasa.gov)
 - Track papers and meeting minutes from Web, and provide comments
- **Participation is open to all**

Acronyms

AIP	Archival Information Package
CCSDS	Consultative Committee for Space Data Systems
CI	Content Information
CPD	Content Preserving Descriptions
ISO	International Organization for Standardization
NASA	National Aeronautics and Space Administration
OAIS	Open Archival Information System
OMT	Object Modeling Technique