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SI 655
Management of Electronic Records

Week 05

February 16, 2009

Standards & Best Practices

Outine

- Where are We?
- Standards and Best Practices

Where are We?

- PART 1 – Contexts
  - RKR (law, policy, practice)
  - Trust
  - Evidence (discovery, admissibility),
- PART 2 – Promoting Accountability
  - Standards & Best Practices
  - Tools and Technology
  - Compliance and Audit
  - Social Demands/Incentives
- PART 3: Issues & Environments
  - Contradictions
    - FOIA, Privacy, Secrecy
  - Records and Accountability Environments
    - Government, International Organizations, HR
    - Corporate
    - Healthcare
- Part 4: Wrap up

Standards

- A rule, principle, or measure established as a model or example by authority, custom, or general consent.

- In the computer industry, standards are rules that encourage open systems and provide the basis for portability, interoperability, and manageability.

(Rockley, Kostur, and Manning, *Managing Enterprise Content: A Unified Content Strategy*, 2002)

Best Practices

- Statements from laws, regulations, administrative rules, and established practice within different domains that define desirable model behavior

- Processes, practices, and systems identified in organizations that performed exceptionally well and are recognized as models for behavior

Standards & Best Practices

- Provide guidance for programs, functions, systems
- Promote interchange, interoperability, longevity
- Provide a basis for monitoring and compliance auditing

SEE:

- ARMA International Standards Development
  http://www.arma.org/standards/development/index.cfm
- ISO TC 46 – Information and Documentation
  http://www.iso.org/iso/standards_development/
  technical_committees/list_of_iso_technical_committees/
  iso_technical_committee.htm?commid=48750

Types of Standards

- Formal vs. De facto
- Open vs. Proprietary
- International, National, Industry, Professional
- Scope: Global process to minute parts
- Abstraction: Model to detailed specification
- Compliance: Mandatory to Voluntary

Standards Making Processes

- Formal standards bodies (ISO, NISO, IEEE)

- Voluntary standards bodies (IETF, professional associations)

- Consortia and membership bodies (W3C)

- Industry and Trade Associations

Standards Development Process

Problem or Need

Working Group(s)

Draft 1

Comments

Draft 2-n

Comments

Formal Review & Approval

Adoption

Time Frame: 2 – 10+ Years

Adoption / Compliance

- Applicable date and retroactivity
- Integration into products and services
- Certification
- Network effects
- Compliance Monitoring
- Exceptions/Sanctions

Electronic Records and Records Management Standards

- System standards
- Software standards
- Metadata Standards
- Process Standards

Some notable (E)RM standards

- OAIS Reference Model
- ISO Records Management Standard
- Various Metadata Standards
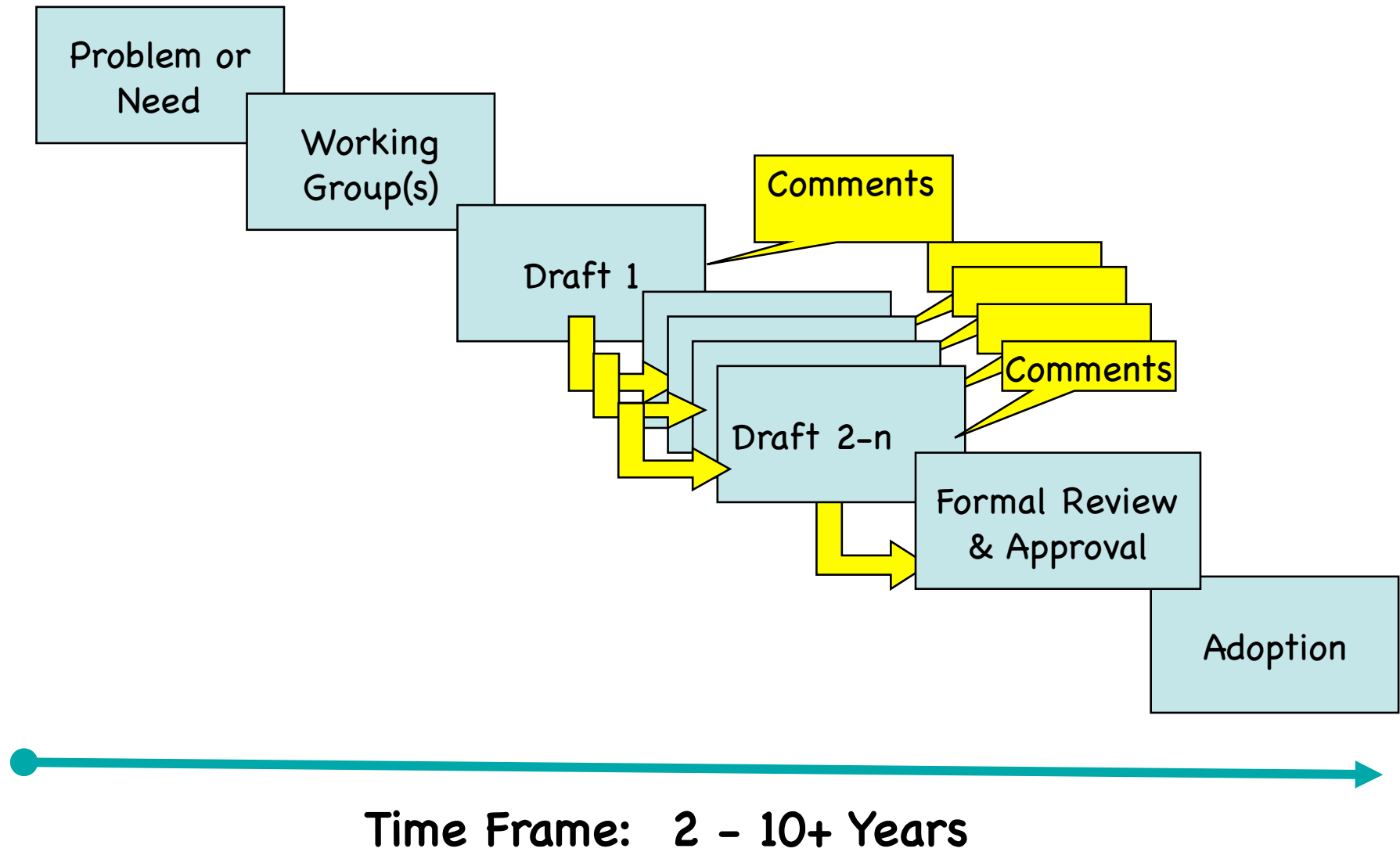- Best ("Good") Practices

OAIS Reference Model

- **<u>Formal</u>** vs. De facto
- **<u>Open</u>** vs. Proprietary
- **<u>International</u>**, National, Industry, Professional
- Scope: Global process to minute parts
- Abstraction: **<u>Model</u>** to detailed specification
- Compliance: Mandatory to **<u>Voluntary</u>**

OAIS Background

- Records management and archiving are becoming a ubiquitous problem
- 1982 -- CCSDS finds no consensus on digital archiving terminology or standards
- 1980s/1990s -- Many expensive, risky, and not always successful migration and rescue efforts for space data
- 1995- CCSDS sponsors numerous data archiving workshops resulting in the OAIS recommendation to ISO
- 2002 -- OAIS approved as ISO 14721

OAIS -- Open Archival Information System Reference Model

- High level model for digital archives developed by the space data community

- Specifies three aspects of archiving
  - Environment for preservation
  - Types of Information "Packages"
  - Functions of archival information systems

OAIS Environment

- Producers
  - people and/or client systems
- Management
  - sets overall policy
- Consumers (Users)
  - people and/or client systems that use the preserved information

Types of Information Packages

- Submission Information Package -- SIP
  - supplied by producers

- Archival Information Package -- AIP
  - transformation of SIP for long-term management

- Dissemination Information Package -- DIP
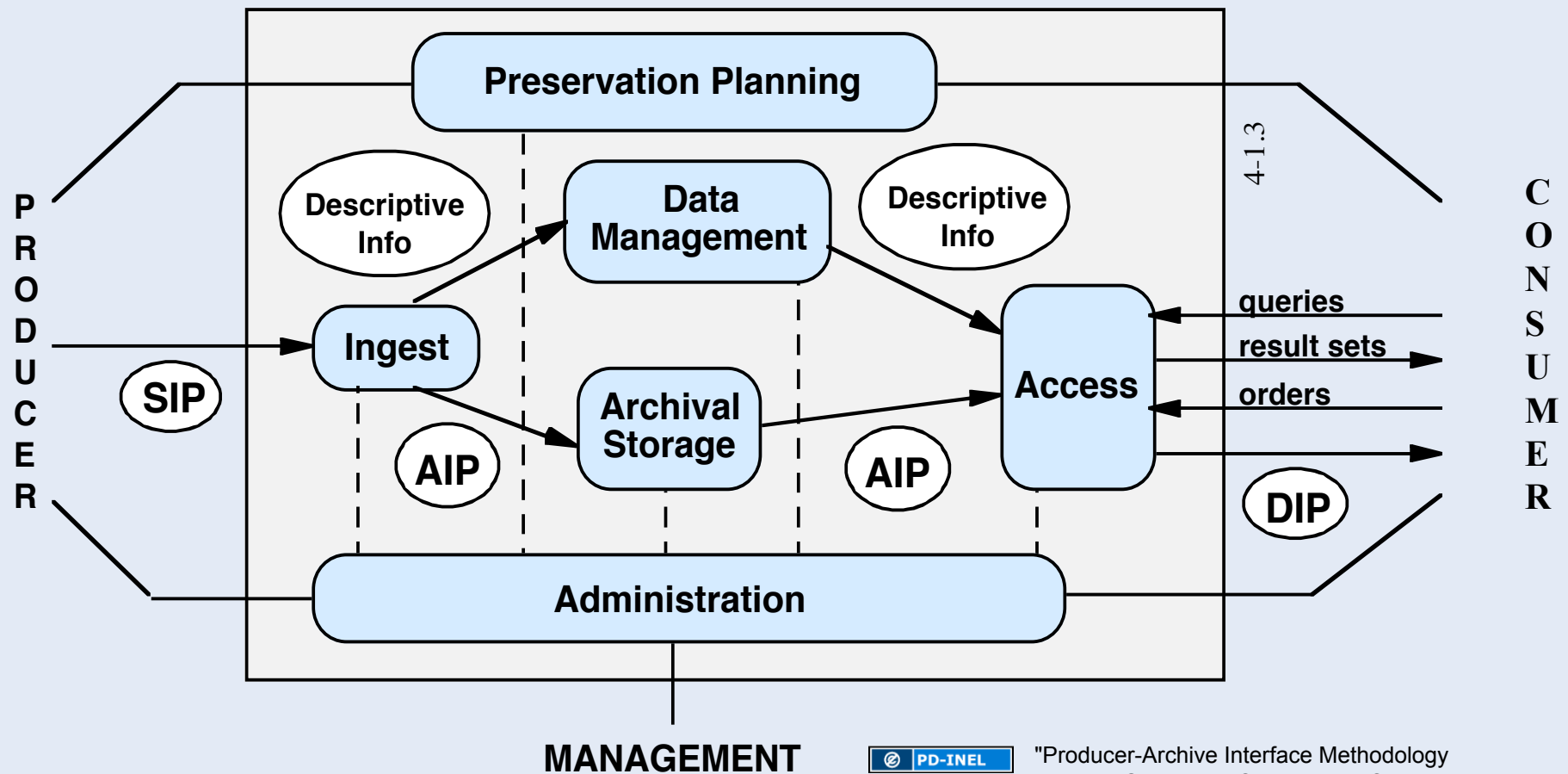 - package delivered to consumers upon request

Functions

- Ingest
- Archival Storage
- Data Management
- Administration
- Access
- Preservation Planning

SEE: OCLC Digital Archive
- http://www.oclc.org/digitalarchive/
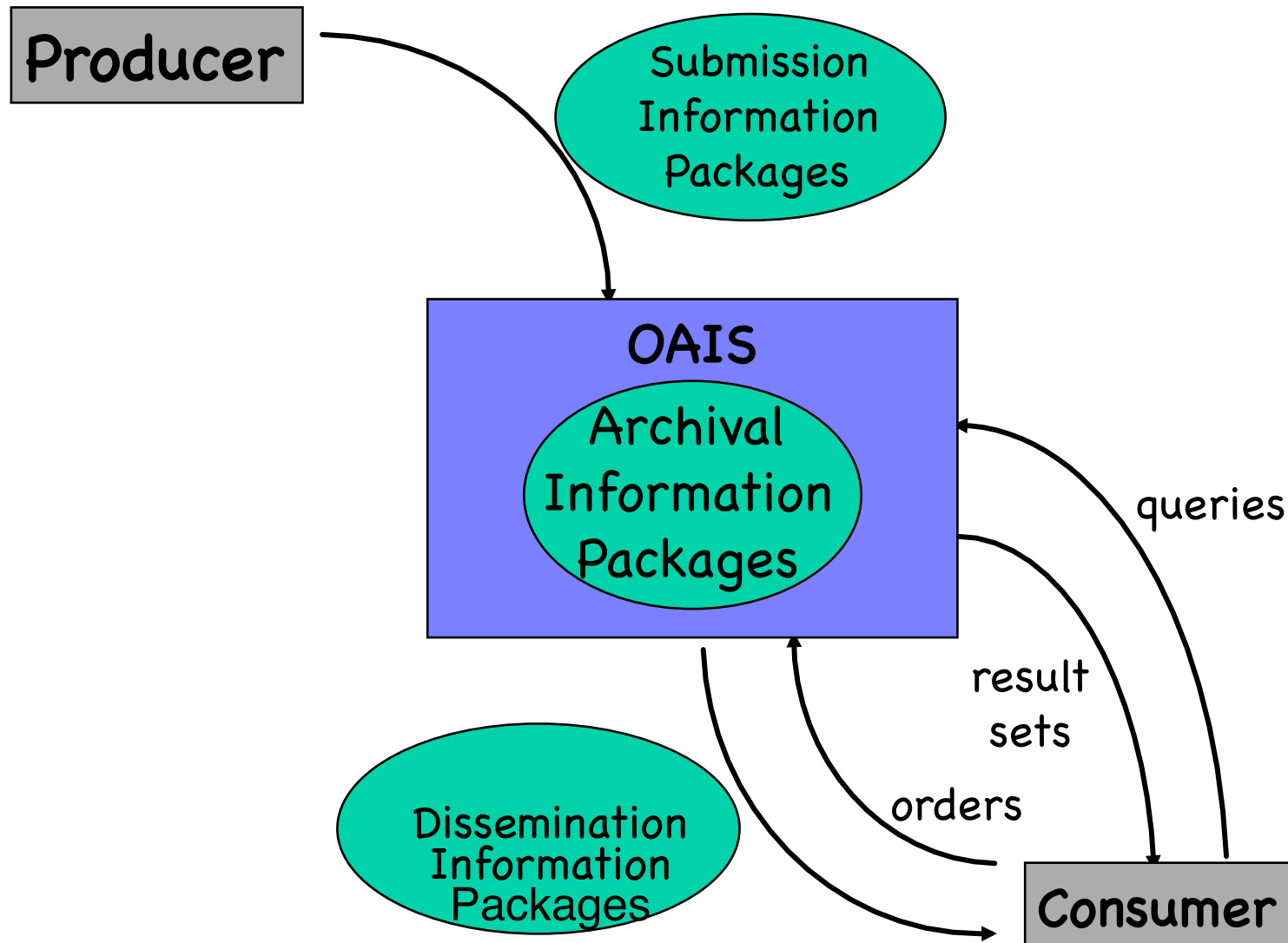
OAIS Functional Entities

Preservation Planning

4-1.3

P R O D U C E R

Descriptive Info

Data Management

Descriptive Info

Ingest

Access

queries

result sets

orders

SIP

AIP

Archival Storage

AIP

DIP

Administration

C O N S U M E R

MANAGEMENT

PD-INEL

"Producer-Archive Interface Methodology Abstract Standard," Consultative Committee for Space Data Systems, May 2004, p. A-8 (PDF p. 70; available at http://public.ccsds.org/publications/archive/651x0b1.pdf)

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

External Data Flow View

Producer

Submission Information Packages

OAIS

Archival Information Packages

Dissemination Information Packages

Consumer

queries

result sets

orders

"Producer-Archive Interface Methodology Abstract Standard," Consultative Committee for Space Data Systems, May 2004, p. A-5 (PDF p. 67; available at http://public.ccsds.org/publications/archive/651x0b1.pdf)
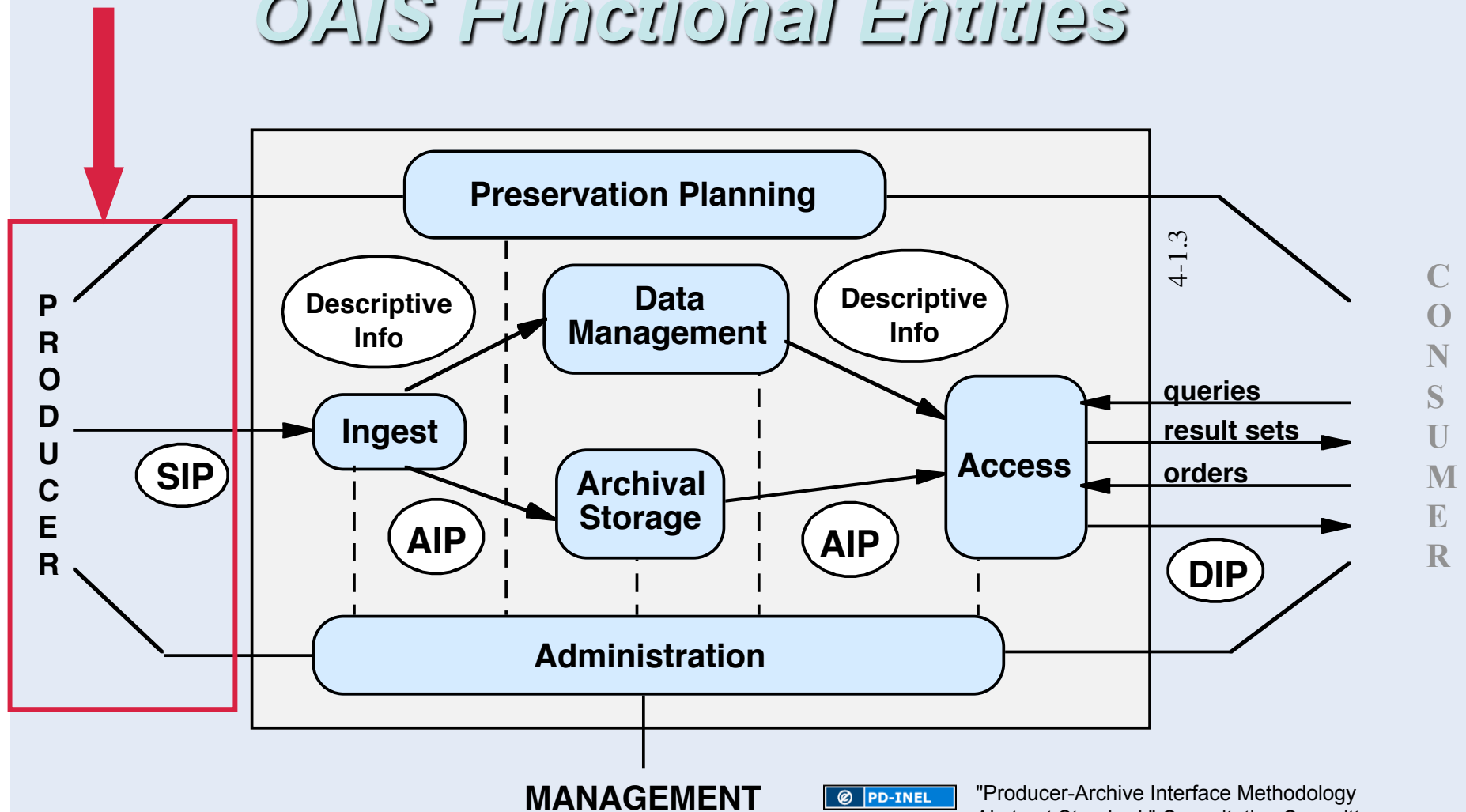
Applications of OAIS

- Evaluation criteria for digital archiving systems

- Framework for dividing preservation responsibilities among producers, organizations with preservation responsibilities, and consumers

- Framework for additional standards development

- Aggregate demand for technology vendors

OAIS Functional Entities

Preservation Planning

Descriptive Info

Data Management

Descriptive Info

4-1.3

Ingest

Archival Storage

Access

queries

result sets

orders

SIP

AIP

AIP

DIP

Administration

P R O D U C E R

C O N S U M E R

MANAGEMENT

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SIP = Submission Information Package
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Producer-Archive Interface

- Phases
  - Preliminary
  - Formal Definition
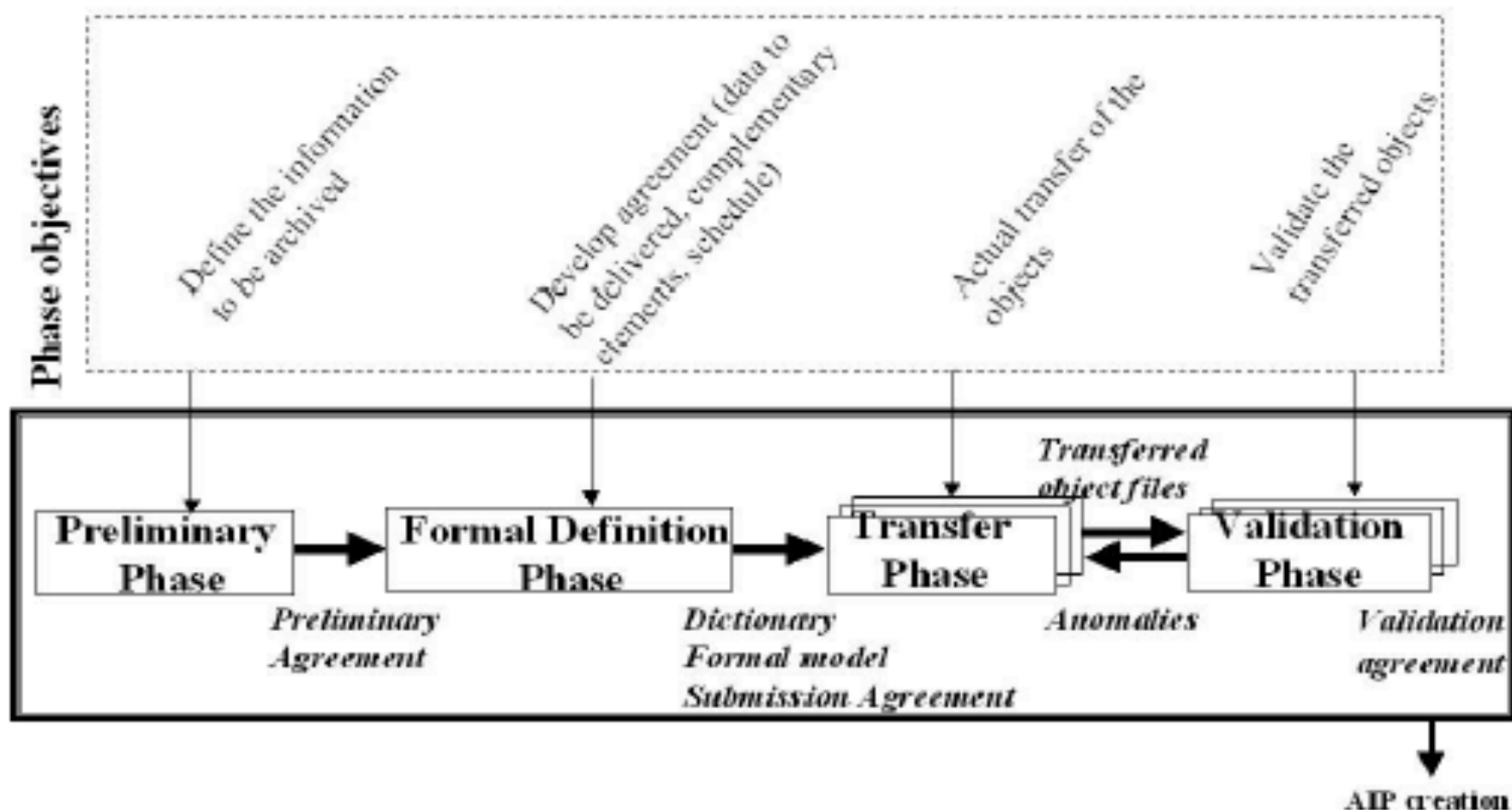 - Actual Transfer
  - Validation

          AIP

Figure 2-1: Main Phase Objectives and Outputs

Preliminary Phase

- Identify information the archive will preserve
- Preliminary definition of data objects that the producer will transmit to the archive
- Analyze feasibility
- Decide on feasibility from both Producer and Archive perspective
- Estimate resources needed
- Summary Document/Preliminary Agreement

Preliminary Stage -- Issues

- Establish contacts on both sides
- Exchange of general information about content to be delivered and archive capabilities
- Development and testing of archive methodology
- Feasibility test on both sides (technical, legal, financial)

Preliminary Agreement

- SIP Content (Content Information, Preservation Description Information, Descriptive Information)
- First submission timetable
- Access restrictions
- Validation Procedures
- Revision and renegotiation clauses

Formal Definition Phase

- Goals -- Precise and Formal Definition of:
  - Data to be delivered by the Producer to the Archive
  - Contractual and legal aspects
  - Complementary elements required to the transfer and validation process
  - Schedule

Issues addressed in Formal Definition phase

- Precise specifications of data (e.g. quantity, data types, data definitions, documentation, etc.)
- Transfer medium
- Transfer methods and tools
- Security requirements
- Validation plan
- Change/Revisions to plan

Current Status of OAIS

- Main use is in analyzing, designing, building and certifying digital repositories for long-term storage

- SEE: Digital Repository Certification

http://www.crl.edu/content.asp?l1=13&l2=58&l3=162&l4=91

Records Management Standards

- International Records Management Standard ISO 15489
  - **Formal** vs. De facto
  - **Open** vs. Proprietary
  - **International**, National, Industry, Professional
  - Scope: **program and process**
  - Compliance: Mandatory to **Voluntary**

ISO 15489 Content

- Scope of the Standard
- Benefits of Records Management
- Regulatory Environment (specific to each organization
- Policies and Procedures (of an RM Program
- Requirements
- Design and Implementation
- Processes & Controls
- Monitoring & Auditing

Requirements

- Determining records needed for each business process
- Formatting and media selection
- Establishing metadata and links
- Managing records retrieval and distribution
- Managing risks (business continuity)
- Managing preservation of records
- Managing security of records
- Managing retention of records

Processes and Controls

- Determining which records are captured
- Determining retention
- Capturing records
- Registration
- Classification
- Storage
- Access
- Tracking
- Disposition
- Documentation

Implementation / Adoption

- What issues / problems might impede adoption of this standard?
  - Expensive
  - Time Consuming
  - Ignored
  - Limit Innovation
  - Difficult to Change

Best Practices

- Shift from "Best" to "Good"
- Tension between best practices for ERM and best practices for specific business processes
- Reasonableness

SEE: Trusted Digital Repositories: Attributes and Responsibilities (Rlg, May 2002) http://www.oclc.org/programs/ourwork/past/trustedrep/repositories.pdf

Sedona Guidelines

- Develop sound and defensible processes to manage ER via law, IT and RM lenses
- Voluntary
- Best Practices
- General
- Scope
  - Creation/Capture
  - Content
  - Quality
  - Structure/Organization
  - Retention/Disposition*
  - Disclosure/Accessibility/Protection*