InterPARES 2 Project

International Research on Permanent Authentic Records in Electronic Systems

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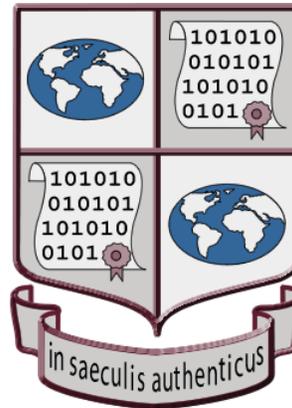
Manage Chain of Preservation Model

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Outline

- Introduction to IDEF0 modeling process

- MCP Model summary

  - Statement of purpose

  - Viewpoint

  - Representation

  - Validation

  - Current status

  - Acknowledgements

- MCP Model "walkthrough"

Integrated Definition Modeling
(IDEFØ)

- "IDEFØ is a modeling technique based on combined graphics and text that are presented in an organized and systematic way to gain understanding, support analysis, provide logic for potential changes, specify requirements, or support systems level design and integration activities."

Source: US Secretary of Commerce. *Draft Federal Information Processing Standards Publication 183*, 21 Dec 1993.

General Characteristics

- IDEFØ modeling process creates a "functions" model composed of a hierarchical series of diagrams that gradually display increasing levels of detail describing functions/activities and their interfaces within the context of a system.

- Models the decisions, actions and activities of a system or an organisation.

- Provides a type of "blueprint" of activities and their interfaces.

- Reflects how system activities interrelate and operate just as the blueprint of a product reflects how the different pieces of a product fit together.

IDEFØ Modeling Process

- "Top-down" modeling approach

- Most important features come first in the hierarchy, as the whole top-level activity is decomposed into sub-activities that compose it, and those sub-activities, in turn, are further decomposed until all of the relevant detail of the model's whole viewpoint is adequately exposed or described.

- Representation of activities is non-temporal.

IDEFØ Strengths

- Useful for establishing the overall scope on an analysis.

- Provides a graphic, structured representation of the activities in a system, supplemented with textual description.

- Provides a comprehensive and expressive analysis to any level of detail required.

- Helps isolate and describe what activities are performed and what is needed to perform them.

IDEFØ Weaknesses

- IDEFØ models are often so concise that they are understandable only if the reader is a domain expert or has participated in the model development.

- Because of the box & arrow interface, activity sequencing can, without intent, be imbedded into the model.

- Tendency of IDEFØ models to be interpreted temporally as representing a sequence of activities.

Top-Level Context Diagram

- Each IDEFØ model has a top-level context diagram (A-0), on which the subject of the model is represented by a single box with its bounding arrows (i.e., inputs, controls, outputs, and mechanisms = ICOMS).

- The arrows on the A-0 diagram interface with activities outside the subject area to establish the model's focus.

Top-Level Context Diagram

- A-0 diagram establishes the overall context for the model's viewpoint and purpose, which in turn helps to guide and constrain the creation of the model.

- The <u>viewpoint</u> determines what can be "seen" within the model context, and from what perspective.

- The <u>statement of purpose</u> expresses the reason why the model is created and actually determines the structure of the model.

Key Definitions

- **Activity**: A function, process, or transformation identified by a verb or verb phrase that describes what must be accomplished.

- **Box**: A rectangle, containing a name and number, used to represent an activity.

- **Parent diagram**: A diagram that contains 3-5 parent boxes.

- **Child diagram**: A diagram with 3-5 child boxes that provide additional detail about a parent box. Every parent diagram (except A-0) is also a child diagram, since by definition each details a parent box. Hence, the primary hierarchical relationship is between a parent box and the child diagram that details it.
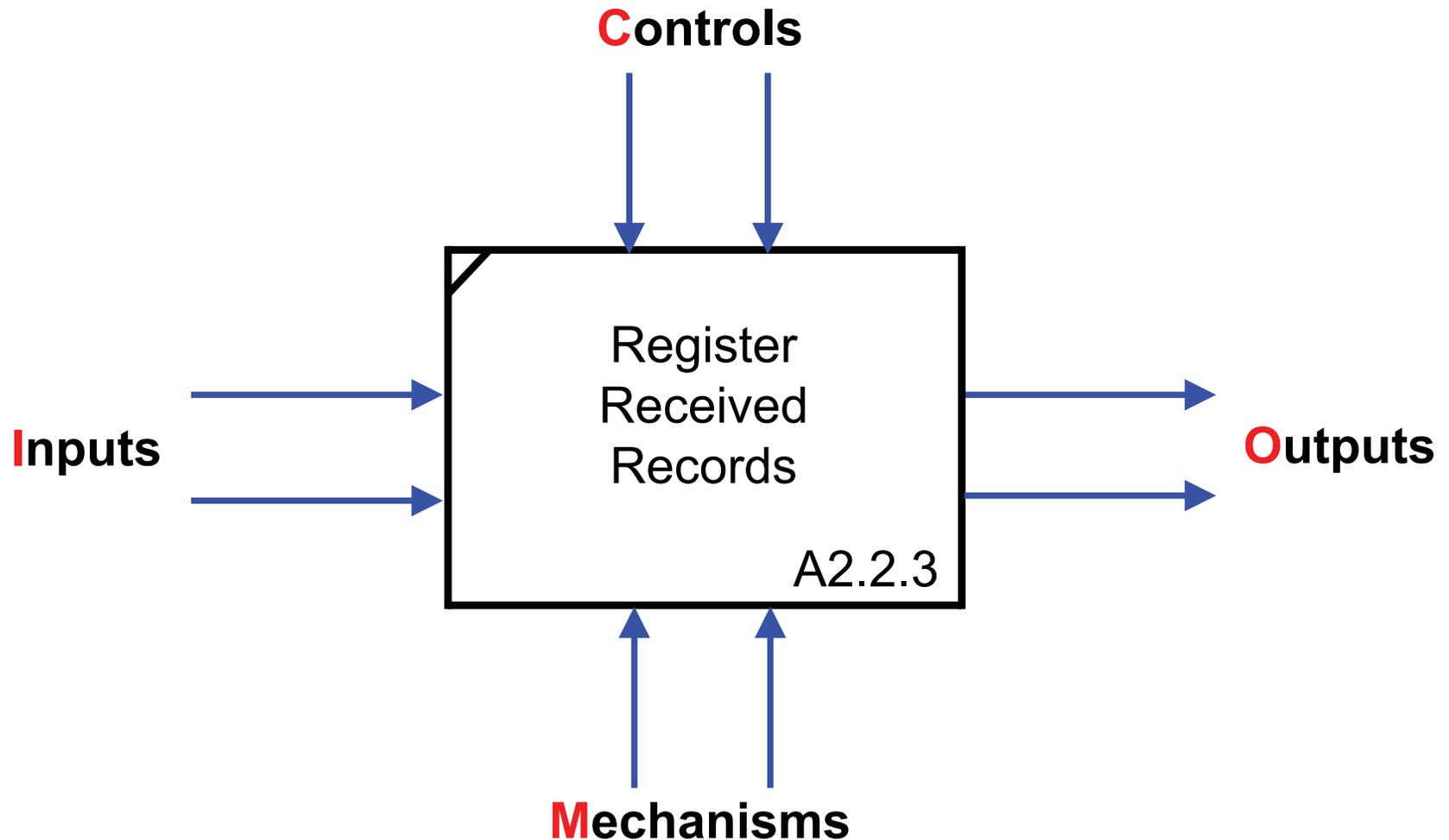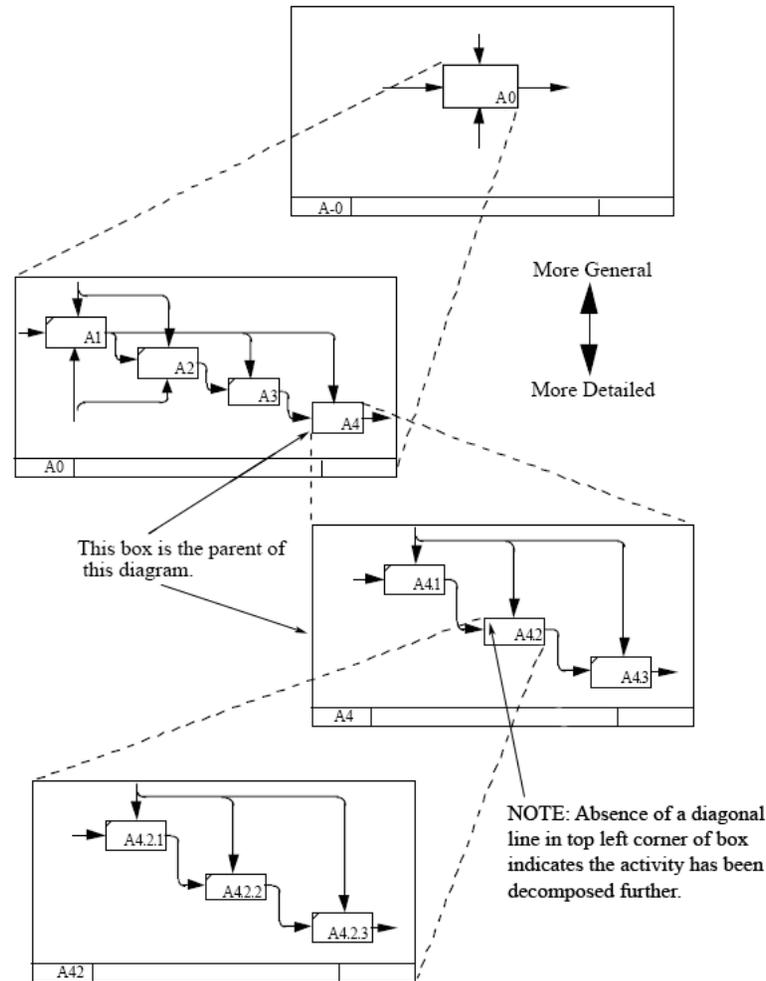
Key Definitions

- **Arrow**: A directed line, composed of one or more segments, that models a conduit conveying data or objects from source (no arrowhead) to use (with arrowhead). There are 4 arrow classes: Inputs, Controls, Outputs, and Mechanisms.

- **Inputs**: The data or objects that are transformed by the activity into output.

- **Controls**: The conditions required to produce correct output.

- **Outputs**: The data/objects produced by an activity.

- **Mechanisms**: The means used to perform an activity.
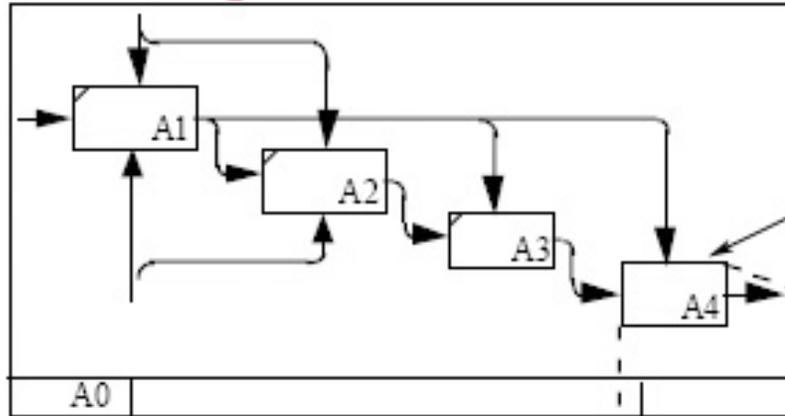
ICOM Arrow Positions and Roles
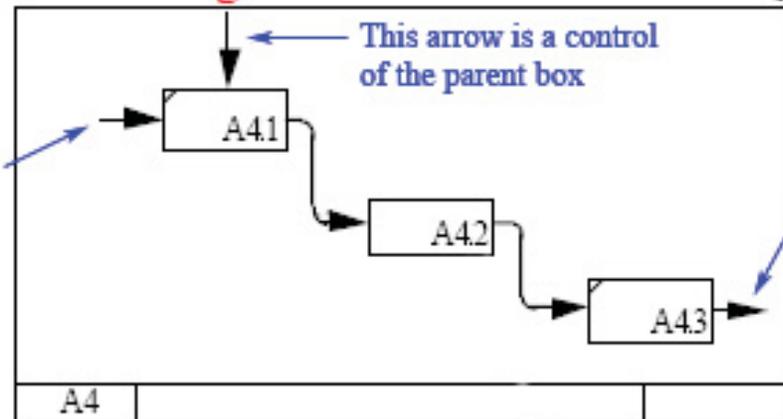
Decomposition Structure

More General

More Detailed

This box is the parent of this diagram.

NOTE: Absence of a diagonal line in top left corner of box indicates the activity has been decomposed further.

Boundary Arrow Correspondence

Parent Diagram

A1
A2
A3
A4

Parent Box

A0

Child Diagram

This arrow is a control of the parent box

A4.1

This arrow is an input of the parent box

A4.2

This arrow is an output of the parent box

A4.3

A4

Manage Chain of Preservation

InterPARES 2 Project
Randy Preston
MCP Model – CLAID Team Workshop, 09 Nov 2005
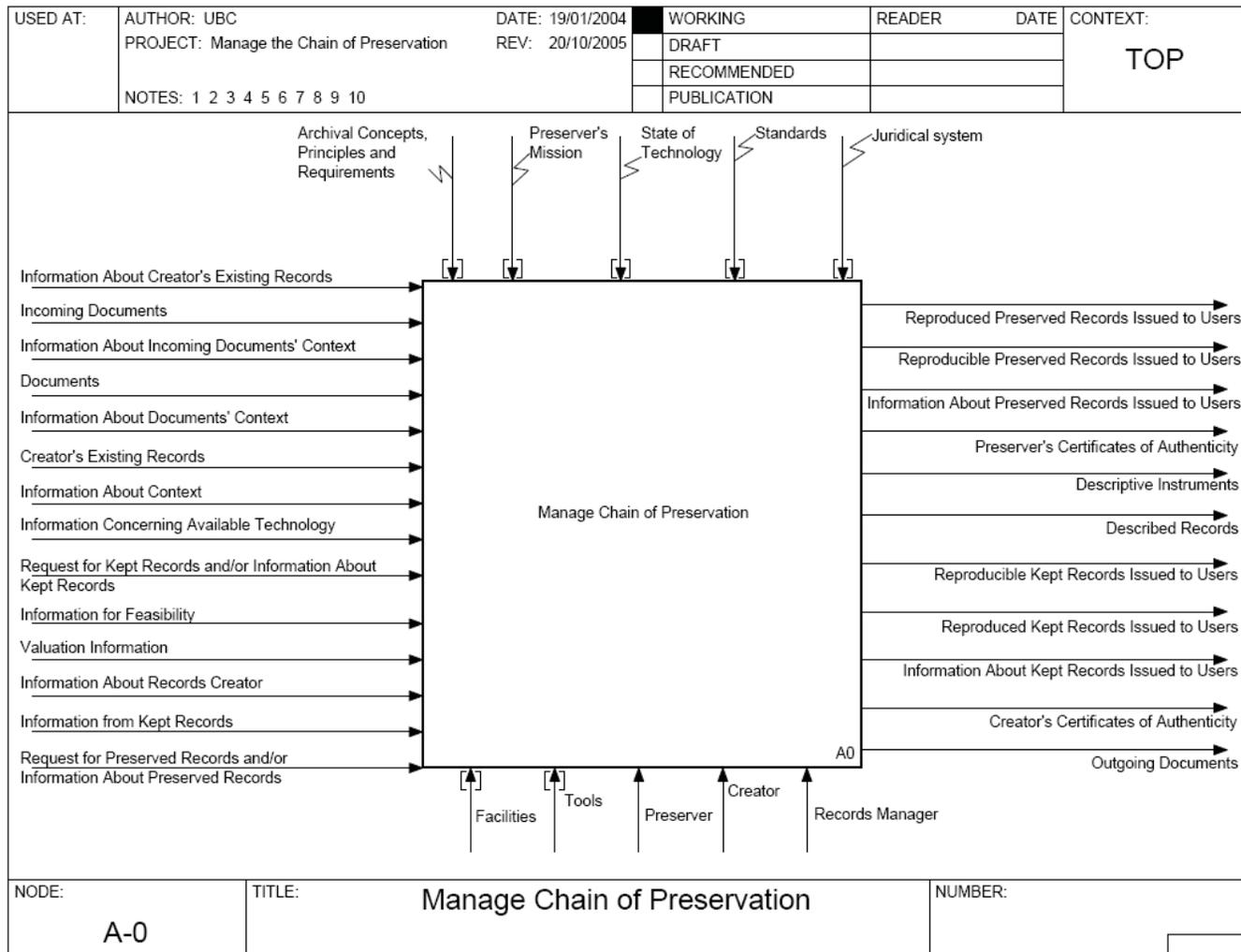
Statement of Purpose

- To develop an integrated life-cycle model of creating, managing and preserving digital records.

- The model is a template for analysis; a point of reference for analysis of the life cycle of records.

- Used to analyse activities of real world creators and preservers.

- Will serve as a research tool to help develop advice about records creation, management and preservation activities.

Viewpoint

- MCP Model incorporates two viewpoints:
  - Creator's viewpoint
  - Preserver's viewpoint

Representation

- MCP Model is an integration of:
  - Appraisal Task Force model (IP1)
  - Preservation Task Force model (IP1)
  - Preservation of the Integrity of Electronic Records model (UBC Project)
  - Information coming out of IP2 case studies

Validation Process

- MCP Model to be validated via:
    - Walkthroughs with data from select IP2 case studies, and
    - General comparisons with IP2 case studies data.

Current Status

- Data model is "complete"

- Narrative in progress (1st draft ca. Jan 2006)

- Mapping of metadata to activities and processes in progress (as of Oct 2005)

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  - Terry Eastwood

- ## Project Assistants (past and present)
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  - Bart Ballaux
  - Randy Preston

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MCP Model Walkthrough