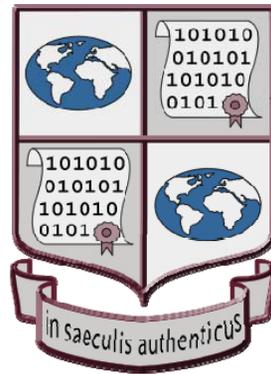# InterPARES 2 Project

International Research on Permanent Authentic Records in Electronic Systems

Description Cross Domain - Metadata Schema Registry

Presentation to ISO 23081 Working Group

Sydney, 2 November 2004

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Outline

- InterPARES 2

- Description Cross Domain

- Metadata Schema Registry

  - Status of prototype

  - Descriptive elements

  - Analysis process

  - Work plan

- Discussion

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InterPARES 2

- Collaborative international research initiative investigating issues of authenticity, reliability and accuracy of records created in digital environments resulting from artistic, scientific and government activities.

  http://www.interpares.org/ip2/ip2_index.cfm

DOMAIN 1 Records Creation & Maintenance	DOMAIN 2 Authenticity, Accuracy & Reliability	DOMAIN 3 Methods of Appraisal & Preservation
FOCUS 1 Artistic Activities		
FOCUS 2 Scientific Activities		
FOCUS 3 Government Activities		
TERMINOLOGY		
POLICY		
DESCRIPTION		
MODELING		

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Description Cross Domain

- Investigating issues relating to the creation, capture, management and preservation of metadata for authentic, accurate and reliable records

- Major Research Activities:-
  - Development of a metadata schema registry
  - Development of a metadata specification model
  - Development of a literary warrant database

- Co-chairs:-
  - Sue McKemmish, Monash University
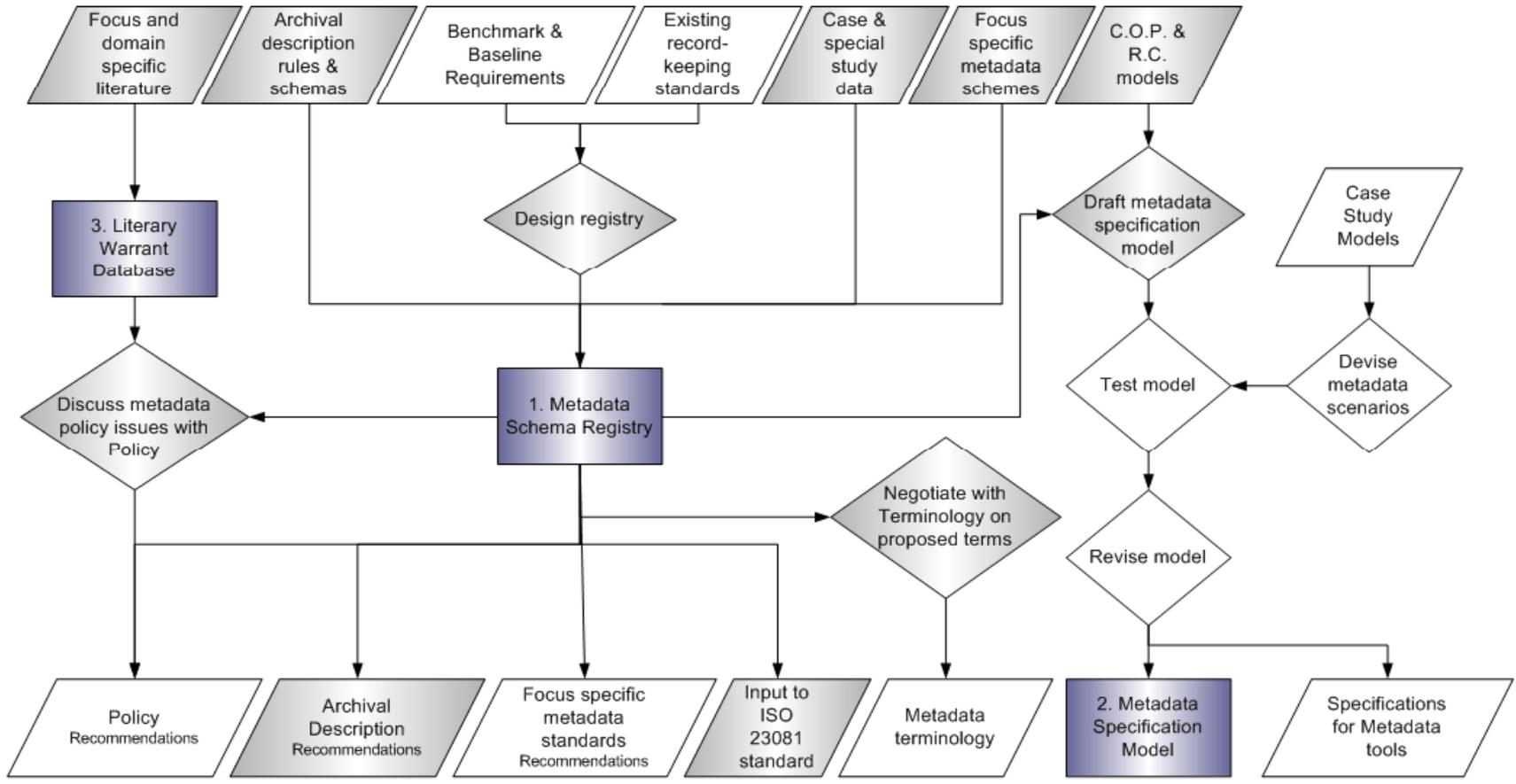 - Anne Gilliland-Swetland, UCLA

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Research Design Flow chart

Metadata Schema Registry

- Research tool of Description Cross Domain

- Purposes:-
  - To describe relevant metadata schema and their features in a standardized way
  - To provide an overview of existing and emerging schemas
  - To describe the scope and purpose of the schemas
  - To specify what type of metadata they cover
  - To identify related encoding schemes
  - To provide an overview of the applicability of the schemas to recordkeeping and archival functions

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Prototype

- Establishing:-
  - requirements for the metadata about metadata schemas and related entities to be documented in the registry
  - interface, system and technological requirements
  - analysis process to assess the recordkeeping and archival capabilities of metadata sets
- Prototype consists of:-
  - Microsoft Access database for capturing and controlling descriptive metadata about metadata standards and related entities in this initial phase – allows testing of elements, their structures and sources of values.
  - Draft XML DTD – instantiated through programmed output from the Access database
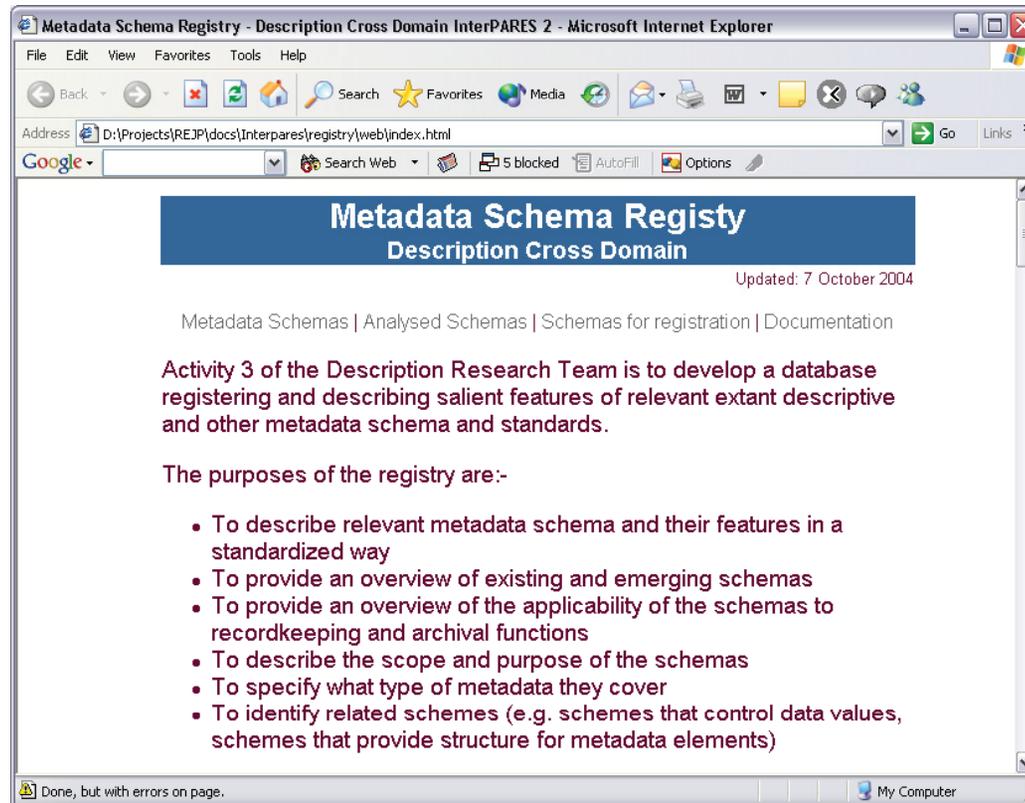 - Analysis process - guidelines, worksheet, summary document
  - Web pages

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Prototype – Web output

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Analysis

- Assess existing metadata sets to identify what recordkeeping metadata is captured and what is not

- Assess against 'best practice' instruments:-
  - ISO 23081 Records management processes – Metadata for records
  - InterPARES Benchmark and Baseline requirements
  - Classification of Recordkeeping Metadata Purposes (Kate Cumming)

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Analysis - Degree

- Importance of assessing degree to which a schema meets a metadata requirement
- How to make such a judgment? How to validate judgments?

Scale	Determination
None	No support for the required metadata
Minimal	Some support for the required metadata - naming
Adequate	Support for the required metadata – naming and describing
Comprehensive	Support for the required metadata - name, describe and capture relationships

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Analysis - Process

- Familiarity with best practice instruments
- Examine documentation to gain familiarity with structure and semantics of elements and the conceptual basis of a schema
- Complete analysis worksheet:–
    - 1. General, 2. Recordkeeping General, 3. Assessment against ISO 23081, 4. Assessment against InterPARES Benchmark Requirements, 5. Assessment against InterPARES Baseline Requirements, 6. Classification of Recordkeeping Metadata Purpose, 7. General Comments
- Extract results into summary document and add links to analysis worksheet and summary document in documentation section of the registry

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Analysis – 1. General

1.1 What types of (conceptual) entities does the metadata schema describe?

1.2 What types of (physical) objects does the metadata schema describe (if specified in the schema documentation)?

1.3 Does the metadata schema encapsulate the object which it is describing?

1.4 What is the intended method of metadata creation?

1.5 What is the expected nature of the metadata?

1.6 What categories of metadata does the schema cover?

1.7 What is the conceptual data model on which the schema is based?

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Analysis – 2. Recordkeeping

2.1 a) What recordkeeping entities could/does the metadata schema describe?

- Section 10 of *ISO 23081* identifies the entities and *The Australian Recordkeeping Metadata Schema* provides scheme for the layers of aggregation

Record Object
· Record Object
· Record Aggregation
· Recordkeeping System or Corporate Archive
· Collective Archives

Business rules, policies or mandates

Agent
· Person/actor
· Org Unit/Work Group
· Organisation/Corporate Body
· Social Institution

Business Activities or Processes
· Business Transaction
· Business Activity
· Business Function
· Ambient Function

Records management/Recordkeeping business processes
· RK Business Transaction
· RK Business Activity
· RK Business Function
· RK Ambient Function

Metadata about the metadata record itself

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Analysis – 2. Recordkeeping

2.1 b) What recordkeeping relationships could/does the metadata schema describe?

2.2 Aggregation - How are levels of aggregation dealt with?

2.3 What is the recordkeeping scope?

Relationships of Record entities to:-
· Record Entities
· Agent Entities
· Business Entities
· RK Business Entities
· Mandates
Relationships of Agent entities to:-
· Record Entities
· Agent Entities
· Business Entities
· RK Business Entities
· Mandates
Relationships of Business entities to:-
· Record Entities
· Agent Entities
· Business Entities
· RK Business Entities
· Mandates
Relationships of RK business to:-
· Record Entities
· Agent Entities
· Business Entities
· RK Business Entities
· Mandates
Relationships of mandates:-
· Record Entities
· Agent Entities
· Business Entities
· RK Business Entities

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Analysis – 3. ISO 23081

3.1 Metadata about records - If the schema could be used to describe record entities then how and to what extent does it meet the requirements of Section 10.2?

10.2.1 Structural and storage metadata at point of capture
a) Date and time of record creation
b) Agents involved in record creation
c) Record structure
d) Record form
e) Chemical and physical properties
f) Technical characteristics and dependencies
g) Relationships between data or format elements comprising the record
h) Requirements for making available, reproducing or rendering the record
I) Relationships between record and business transaction or activity that generated it
m) Links between records, or between an individual record and the broader record aggregate of which it is a part
10.2.2 Process metadata after capture
Changes to metadata regarding logical and physical structure and technical attributes of the record
Changes to relationships with other records and aggregates
10.2.3.1 Accessibility Metadata at point of capture
a) Identity of records or aggregations
b) Identify and document the aggregation
c) Record location information – logical and physical, multiples (e.g. home and current)
d) Identify and document links between records agents and processes
e) Descriptive information to facilitate use and understanding – subject classification, title, keyword indexing, etc.
10.2.3.2 Accessibility process metadata after capture
Changes in accessibility metadata
Additional descriptive metadata to explain explicitly the business context of the records
10.2.4.1 Metadata supporting the security of records at point of capture
a) Identify access rights and restrictions
b) Document time limitations for access rights and restrictions
10.2.4.2 Metadata supporting the security of records after record capture
Changes to access rights/restrictions arising from administrative or personnel changes

Worksheet

3.1 Metadata about records

	Structural/Storage	Accessibility	Security
Point of capture:	Adequate	Comprehensive	Adequate
Process:	Adequate	Comprehensive	Adequate

The metadata schema meets most of the requirements for metadata about records in section 10.2. It allows for metadata at point of creation and the accumulation of process metadata with the Event History element providing an audit trail of records management and other processes carried out on the record. The Relation element allows for the capture of relationships to agent and function elements through time.

Summary document e.g. NSW RKMS

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Analysis – 3. ISO 23081

3.2 Metadata about business rules, policies and mandates

- Does the schema support the capture of metadata about business rules, policies and mandates? If so, how and to what extent does it meet the requirements of Section 10.3?

10.3.1 Metadata about business rules/policies and mandates at point of capture

a) Identify the specific metadata schema/scheme used in organisational business systems

b) Business rules or other system controls that regulate records creation and management

c) Business rules or other system controls that regulate metadata creation and management

d) Business rules or other system controls that regulate records management operations

e) Business rules or other system controls that regulate access to, and rights of records

f) Mandate or other regulatory requirement for record creation and management

g) Mandate or other regulatory requirement for record retention, security or destruction

h) Relationships between mandate information and the records and/or records management processes

10.3.2 Metadata about business rules/policies after point of capture

Changes to business rules, mandates or regulatory requirements

Changes to relationships between mandates, records and record management processes

Worksheet

3.2 Metadata about business rules, policies and mandates

Point of capture:	Adequate
Process:	Adequate

All entities have a mandate element. Record entity has Business Rules component to Preservation, Retrieval, Disposal, Control, Access, Use and Event History elements. Function entity has Business Rules element.

Summary document e.g. NSW RKMS

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Analysis – 3. ISO 23081

3.3 Metadata about agents - If the schema could be used to describe agent entities then how and to what extent does it meet the requirements of ISO 23081 Section 10.4?

10.4.1 Agent Metadata at point of capture
a) Agents (persons, workgroups, organisations) involved in records creation (identity, position, relationship to other agents)
b) Agents involved in records management processes or authorisation, e.g. identities and position of agents making decisions relating to records disposition
c) Identify agents authorised to access records (security metadata)

10.4.2 Agent Metadata after point of capture
Agents associated with use and management of records over time
Changes in roles and authorisations for accessing records and performing records management operations

Worksheet

3.3 Agent Metadata	
Point of capture:	Comprehensive (except for security)
Process:	Comprehensive (except for security)

Agents associated with record and function entities can be identified and described and relationships between agents, functions and records captured through time. However the ability to capture security metadata relating to agents is lacking.

Summary document e.g. NSW RKMS

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Analysis – 3. ISO 23081

3.4 Business process metadata - If schema describes business entities then how and to what extent does it meet the requirements of Section 10.5?

10.5.1 Business Process Metadata at point of capture

a) Business functions, activities and transactions documented by the records

b) Relationships between records, agents and the business functions, activities and transactions

c) Agents or participants in transactions

d) Security and access rules for business processes and transactions

f) Classification of business functions, activities and transactions

h) Date and time of transaction

10.5.2 Business Process Metadata after point of capture

Business functions, activities and transactions associated with the use and management of records over time

Worksheet

3.4 Business process metadata

Point of capture:	Comprehensive (except for security)
Process:	Comprehensive (except for security)

The function entity can be used to identify and describe business processes associated with agent and record entities and relationships between agents, functions and records captured through time. However the ability to capture security metadata for function entities is lacking.

Summary document e.g. NSW RKMS

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Analysis – 3. ISO 23081

3.5 Metadata about records management processes - If schema describes recordkeeping business entities then how and to what extent does it meet the requirements of Section 10.6?

10.6.1 Metadata about Records Management Processes at point of capture
- b) Disposition metadata applied to records
- c) Identify and document agent authorisations or permissions for records management activities
- d) Time limitations for user authorisations or permissions
- e) Document the security and access metadata applied to records
- f) Classification of business functions
- h) links between records and their aggregations and between records

10.6.1 Metadata about Records Management Processes after point of capture
- Ongoing records management processes

Worksheet

3.5 Metadata about records management processes

Point of capture:	Minimal
Process:	Minimal

The schema adopts a record centric view of documentation for records management processes with metadata captured as elements of record entities. In particular this approach does not allow for agent authorisations or permissions to be captured within the schema.

Summary document e.g. NSW RKMS

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Analysis – 3. ISO 23081

3.6 Metadata about the metadata record - How and to what extent does the schema allow for metadata about the metadata record to be captured? (Scheme derived from Section 9)

Metadata about creating/altering metadata
Date/time of metadata creation/alteration
Agent (9.3.9.2)
Activity (9.3.9.2)
Metadata about security and access restrictions for metadata (9.3.8)
Metadata about metadata
Rules and policies (9.3.1, 9.3.9.2, 9.3.5, 9.3.7)
Structures (9.3.3, 9.3.7, 9.4)

Worksheet

3.6 Metadata about the metadata record	
Point of capture:	Minimal
Process:	Minimal

The metadata schema only has an element to capture metadata about the process by which metadata is attributed to record entities.

Summary document e.g. NSW RKMS

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Analysis – 3. ISO 23081

3.7 Views of records management metadata – From Section
6.1 Purposes of records management metadata, what views does
the metadata schema support and to what degree?

3.7 Views of records management metadata

a) the business view, where records management metadata support business processes

b) the records management view, where metadata capture the characteristics of records and their business context, and support their management over time, and

c) the use view within or outside the records' creating business context, where metadata enable the retrieval, understanding and interpretation of records.

Worksheet

3.7 Views of records management metadata		
a) Business view	Comprehensive	Function entity and function element for all entities allows for the capture and documentation of business transactions and activities. Relation element for all entities allows for the capture of extensive network of relationships between function, agent and record entities.
b) Records management view	Adequate	Elements of the record entity allow the description of records, their aggregates and the records management processes they undergo. Relation to agent and function entities capture business context through time.
c) Use view	Comprehensive	Subject and Control elements for record entities support retrieval, along with Preservation, Access, Retrieval elements. Relation to function and agent entities facilitate the understanding of record entities by allowing for the documentation of multiple contexts.

Summary document e.g. NSW RKMS

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Analysis – 3. ISO 23081

3.8 Perspectives of records management metadata – From Section 6.3 Does the schema capture metadata relating to the initial context, content, structure and appearance? Does it allow for the capture of context, content, structure and appearance metadata through time?

3.8 Perspectives of records management metadata

	Point of capture	Through time (within organisation)	Through time and space
Content	Adequate	Adequate	
Structure	Adequate	Adequate	
Context	Comprehensive (except for security metadata)	Comprehensive (except for security metadata)	Although structurally possible, the metadata schema does not have values for category type to represent ambient entities
Appearance			

Summary document e.g. NSW RKMS

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Work plan

- Development of production version of registry
  - web interface for distributed data entry and access
  - UCLA

- Refinement of analysis process
  - October – December 2004
  - Monash, UBC, UCLA

- Joint modeling/description exercise
  - February 2005

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Discussion

- Role of metadata schema registry in part 3 of ISO 23081
    - Does description and analysis framework meet your needs?
    - Identification of metadata sets/standards to be analyzed
    - Collaborative evaluation of metadata sets
    - Sustainability, copyrights and availability
    - Identification of work to be done and timeline

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