Designing for interoperability
Experiences arising from the Clever Recordkeeping Metadata Project
Clever Recordkeeping Metadata Project

ARC Linkage Project mid 2003-2006

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- Partner Investigators Professor Anne Gilliland-Swatland, UCLA, and Mr Adrian Cunningham, National Archives of Australia

Industry Partners and Collaborators

Project Links

- InterPARES - the MADRAS Metadata Registry
- ISO23081 and IT21/7 – Recordkeeping Metadata Standards
- NAA Redevelopment of Commonwealth Recordkeeping Metadata Standard

http://www.infotech.monash.edu.au/research/groups/rcrg/crkm
Traditional recordkeeping architecture

- Web Management System
  - Email
  - Desktop Applications
  - Business Systems
  - Records Management Application
  - Archival Management Application
    - Archival Gateways
    - Subject Portals
    - Community Archives
Recordkeeping metadata brokering

- Records Management Application
- Web Management Systems
- Archival Management Application
- Business Information Systems
- Archival Management Application
- Email and Desktop Applications
- Archival Gateways
- Subject Portals
- Community Archives
- Metadata Broker
Web services and service oriented architectures

• Constructing IT systems from re-usable components (‘services’) for greater flexibility, adaptability and interoperability
• Build enterprise systems from process rather than application-centric perspective
• Extend beyond the boundaries of the enterprise as necessary – shared services
• Becoming a practical reality through **web services** – lightweight communication and exchange protocols based around internet protocols
• Open systems, open standards, open communication protocols
CRKM Metadata Broker

Validation service

Translation service

Crosswalk compilation service

Registry services

Registry
Authoritative information on metadata schemas, metadata elements and crosswalks in human readable and machine processable forms

Repository
Machine processable representations of metadata schemas and crosswalks

Source metadata
Request for Schema
Registration

Target metadata
Schema information
Designing for interoperability

- Interoperability to permeate design and development processes
- Overcome siloed attitudes that optimise parts at the expense of the whole
  - Exemplified in challenges 1 and 2 with multiple client data collection systems and multiple quality assurance frameworks
- Address through challenge 4 and the development of a shared vision for interoperability

‘… the rationale for interoperability is to permit greater service system integration and reduce the compliance burden in order to facilitate higher quality delivery of community services that are more responsive to existing and emerging community needs.’ (p. 6)
Designing for interoperability

• **Understanding distinctions between:**
  – Standards for compliance and standards for interoperability
  – Paper standards and digital standards
  – Current best practice standards versus standards for next generation models
Abstract

Conceptual Model

Recordkeeping
Metadata Standards

Metadata/Data Standard
Version 1
Encoding 1
Version 2
Encoding 2
Version n

Representation
(e.g. XML Schema, RDF Schema, etc.)

Metadata/Data Standard

Version 1
Encoding 1
Version 2
Encoding 2
Version n

Transport and Exchange
(e.g. HTTP Get, OAI-PMH, SOAP, etc.)

Registry Objects
Sharing infrastructure

- CRKM Registry
- ebXML Registry
- Schemas
- Crosswalks
- Metadata Broker
Sharing infrastructure (cont.)

- CRKM Registry
  - ebXML Registry
  - Querying for schema and crosswalk objects

- UDDI Registry
  - WSDL service descriptions
  - External links to entries for versions of standards

- MADRAS Registry
Abstract

Conceptual Model

Metadata/Data Standard

Version 1

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CRKM Registry Objects

Transport and Exchange

(e.g. HTTP Get, OAI-PMH, SOAP, etc.)

MADRAS Objects

Metadata/Data Standard

Version 1

Encoding 1

Version 1

Encoding 1

Version 2

Encoding 2

Version 2

Encoding 2

Version n

Encoding n

CRKM Registry Objects

Representation

(e.g. XML Schema, RDF Schema, etc.)
Sharing infrastructure (cont.)

CRKM Registry

ebXML Registry

WSDL service descriptions

UDDI Registry

External links to entries for versions of standards

MADRAS Registry

Querying for schema and crosswalk objects
Pathways to interoperability

- Iterative, agile, reflective research and development projects
- Design processes in which appropriate opportunities for the voices of direct and indirect stakeholders to be heard
- Learn from failures as well as successes
• http://www.infotech.monash.edu.au/research/groups/rcrg/crkm/