Metadata – its contribution to e-learning

Tertiary IT Conference
9 September 2005
Introduction

Purpose of presentation
Information

The world is awash with data and information
How is it:

- Managed
- Located
- Exchanged
The Hidden Sleuth - Metadata

“data about data”
- identifies, describes, locates, maintains, displays
- Dublin Core Metadata Element Set – 15 descriptive data elements
Types of metadata

- Resource discovery/descriptive
- Administrative/Technical
- Structural
- Preservation
Resource Description Framework

- RDF document expressed in XML
Selection of mark-up languages

Constantly evolving developments

- SGML
- HTML
- XML
- XHTML
- SVG

and, finally, DTDs
ISO Catalogue

• Search under entry “metadata”
Dublin Core Element Sets

- Dublin Core Metadata Element Set, Version 1.1: Reference Description
## DC Information Categories

<table>
<thead>
<tr>
<th>Content</th>
<th>Intellectual Property</th>
<th>Instantiation</th>
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<tbody>
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<td>Date</td>
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<td>Description</td>
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<td>Source</td>
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<td>Language</td>
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<tr>
<td>Relation</td>
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<tr>
<td>Coverage</td>
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</tbody>
</table>

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DC Education Application Profile

DCMI Education Metadata Set

- DCMI Application Profile
IEEE P1484 Learning Technology Standards Committee

- IEEE P1484.12 Learning Objects And Metadata Study Group
- Scope: learning object metadata, including multimedia content, instructional content, learning objectives, instructional software/tools, persons, organizations, events. Also pedagogical attributes such as teaching/interaction style, grade level, mastery level, prerequisites.
- Purpose: (a) enable learners or instructors to search, evaluate, acquire, and utilize learning objects, (b) sharing and exchange of learning objects, (c) decomposability of learning objects, (d) automated composition of personalized lessons, (e) to complement distributed object computing standards, (f) to capture milestone completion, (g) to support a learning object economy, (h) to enable expression of educational content and performance standards in a standardized format, (i) to support collection and sharing of applicability/effectiveness data, (j) simplicity and extensibility, (k) security and authentication for distribution and use.
IEEE LOM Categories

General
Lifecycle
Meta-metadata
Technical
Educational
Rights
Relation
Annotation
Classification
Metadata schemes and educational resources

- The GEM (Gateway to Educational Material) Element Set
- IMS (Instructional Management Systems) Metadata Specification
- IEEE Learning Technology Standards Committee (LTSC) Learning Object Metadata (LOM)
- EUN European School Net metadata scheme
- EdNA (Education Network Australia) metadata scheme
Use of LOM

- CanCore [http://www.cancore.ca/](http://www.cancore.ca/)
- CETIS Metadata and Digital Repositories SIG [http://metadata.cetis.ac.uk/](http://metadata.cetis.ac.uk/)
- UK LOM Core [http://www.cetis.ac.uk/profiles/uklomcore](http://www.cetis.ac.uk/profiles/uklomcore)
Getting along with each other

- Application profiles
- Crosswalks
- SCORM
- Interoperability
Crosswalks

• Mapping of the elements, semantics and syntax from one metadata scheme to those of another

• [http://www.ukoln.ac.uk/metadata/interoperability/](http://www.ukoln.ac.uk/metadata/interoperability/)
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Point to a MARC element to view its definition.

LDR  ****cam a22***** a 4500
001
005  20050715091159.0
008  030711s2003 enka b 001 0 eng
020  †a0714842230 (hbk.)
010  †o8488130
025  †aAAA-6037
099  †a770.92 GOL
100  1 †aGoldin, Nan, †d1953-
245  1 4 †aThe devil’s playground.
260  †aLondon ; †aNew York : †bPhaidon, †c2003.
300  †a503 p. : †bcol. ill. ; †c31 cm.
504  †aincludes bibliographical references (p. [500]) and index.
600  1 0 †aGoldin, Nan, †d1953-
650  0 †aPhotography, Artistic.
650  0 †aPortrait photography.
650  0 †aPhotography of the nude.
650  0 †aPhotography, Erotic.
700  1 †aJenkinson, John.
Digital Libraries Initiative Programme

- The six funded institutions with their primary focus were:
  - The University of Michigan for research on agent technology and mechanisms for improving secondary education;
  - Stanford University for the investigation of interoperability among heterogeneous digital libraries and the exploration of distributed object technology;
  - The University of California-Berkeley for imaging technologies, government environmental information resources, and database technologies;
  - The University of California-Santa Barbara for the Alexandria Project to develop GIS (Geographical Information Systems) and earth modeling distributed libraries;
  - Carnegie Mellon University for the study of integrated speech, image, video, and language understanding software under its Informedia system; and
  - The University of Illinois at Urbana-Champaign for the development of document representation, processing, indexing, search and discovery, and delivery and rendering protocols for full-text physics, computer science, and engineering journals.
The Digital Strategy – creating our digital future

- Final version released May 2005

- [http://www.digitalstrategy.govt.nz](http://www.digitalstrategy.govt.nz)
Mataphihi database

• Image database containing some 50,000 images of New Zealand places, events and people

E-Learning Framework

7 action areas

• Developing a ‘community of practice
• e-Learning research
• Professional development
• Adopting common technical and design standards
• Electronic rights management
• Developing frameworks for recognizing flexible learning
• Improving access to e-learning for marginalized learners
eCDF funded projects

- Projects funded in 2003 round
Metadata Standards Framework - principles

- Electronic Access
- Integrated Access
- Interoperability
- Development
- Gaps in Standards
- Permitted Standards
- Preservation
- Language
Te Kete Ipurangi

The repository


The metadata record

Metadata Standards Framework

- **Syntax**: XML, RDF
- **Discovery**: Global, Regional
- **Delivery**: Local Implementation
  - **Library Sector**: DC-Lib, ESMS
  - **Education Sector**: DC-Ed, 
  - **Archival Sector**: DC-Gov, NZGLS
  - **Government Sector**: MARC, MODS, METS, LOM, IMS, EAD, ISAD(G), PREMIS, GILS, RMS

- **Application Profiles**: Dublin Core

www.natlib.govt.nz

Te Puna Mātauranga o Aotearoa

NATIONAL LIBRARY
OF NEW ZEALAND
Using Metadata

- Learning Object Repositories
- OSLOR Project
- Reload
- Moodle
OSLOR
Regional Course Delivery System
Central Course Delivery System

External Learning Object Repositories

Learning Management System

Learning Object Repository

BELTS

TKI

Learning Media

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• http://www.reload.ac.uk/index.html