CanCore

Canadian Core Learning Object Metadata Application Profile

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www.cancore.ca

Overview

- the E-Learning Space
- What is CanCore?
- Why CanCore?
- CanCore's metadata guidelines
- Other CanCore/AU aids for implementers

What are Learning Objects?

- Any digital resource that can be reused for the purposes of teaching and learning.

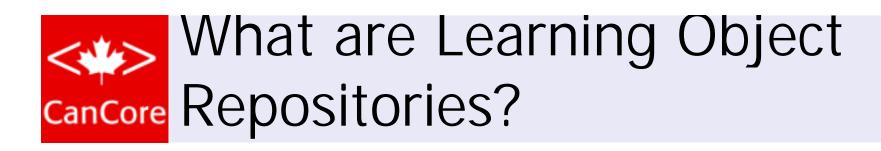- Why learning objects?

    "stand-alone applications are incompatible with typical production, distribution, and usage patterns for educational software."

    J. Roschelle, et.al.

What are Learning Objects?

- Reusable
- Modular
- Free and at cost
- Flexible
- Portable
- Interoperable
- Annotation, adding value

What are Learning Object Repositories?

A collection of digital assets and/or meta-data accessible without prior knowledge of the repository's structure through a interoperable functions via a network.

- Adapted from IMS Digital Repositories Interoperability Specification

- Assets and metadata can be separate
- To prevent "silos" or "stovepipes"

What is CanCore?

- Based on and fully compatible with the first e-learning standard: IEEE 1484.21.1, LOM 1.0, IMS Meta-data

- "multi-part Standard to facilitate search, evaluation, acquisition, and use of learning objects..."

- "also facilitates the sharing and exchange of learning objects, by enabling the development of catalogs and inventories while taking into account the diversity of cultural and lingual contexts in which the learning objects and their metadata are reused."

What is CanCore?

- **Application profile**: "customization of a standard to meet the needs particular communities of implementers with common applications requirements."

- **Subset of LOM elements**: 76 down to 56; 39 are active

- **Guidelines document**: best practice recommendations, 175 pp.

Rationale: Simplicity

- LOM: leading educational metadata specification

- LOM Data Model too complicated for effective implementation:

> *"Many vendors [have] expressed little or no interest in developing products that [are] required to support a set of meta-data with over 80 elements"*
>
> *Best Practices and Implementation Guide, IMS, 2000*

Rationale: Simplicity

- **LOM Element 5.4 Semantic Density:** "The degree of conciseness of a learning object."
  - omitted in CanCore

- **LOM Element 1.2 Title** "Name given to this learning object."
  - Word order, subtitles, multilingual titles, series/episode titles

- **LOM Classification Element Group** "Describes where this learning object falls within a particular classification system."

Rationale

- **Solution**: core set of LOM elements most important for exchangeable resource descriptions

- Mid-way between **structuralist** (LOM) and **minimalist** (Dublin Core) approaches to metadata

Rationale: Semantics

- E-learning specifications & standards communities are largely concerned with syntax and technical interoperation

- Effective metadata requires semantic specification and consensus

- Incorporate best practice from library and heritage communities

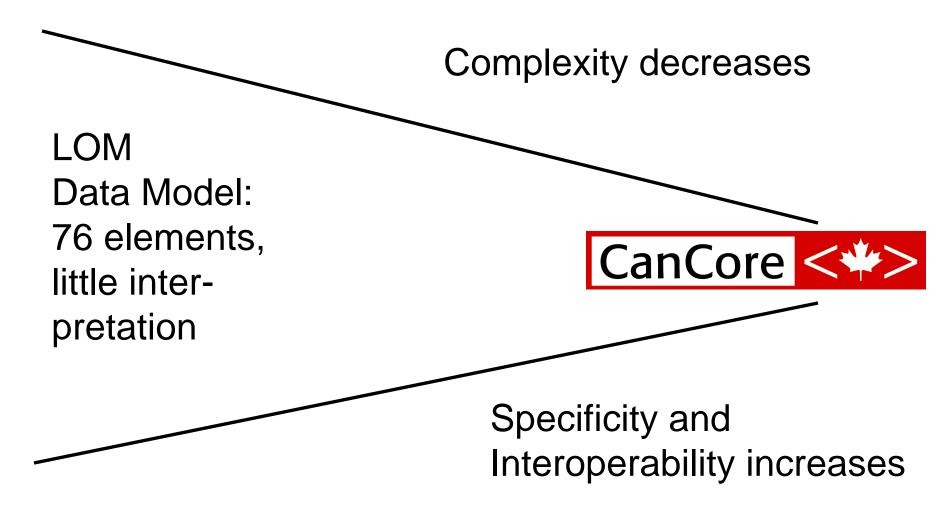- No other body is doing this across e-learning projects

Rationale: Specificity

- Effective implementation requires a consistent interpretation of each element's purpose and use

- Realize economy of scale by coordinating the implementation and interpretation of metadata for a number of learning object repository projects

Rationale: Overview

Complexity decreases

LOM
Data Model:
76 elements,
little inter-
pretation

CanCore <>

Specificity and
Interoperability increases

CanCore Guidelines

- explication and interpretation of element definitions and descriptions

- recommendations based on best practice

- recommendations for vocabulary (or "value space") values and definitions

- multilingual plain language examples

- XML-binding examples
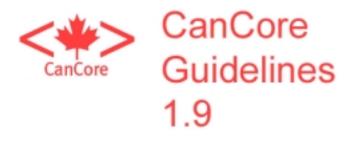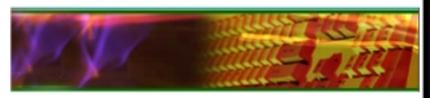
- technical implementation notes

CanCore's Community: input

- Academic Technologies for Learning of the University of Alberta
- Alberta Learning
- Athabasca University
- British Columbia Open University
- Centre recherché LICEF
- CETIS UK
- Department of National Defense, Canada
- Eisenhower National Clearinghouse
- The Electronic Text Centre of the University of New Brunswick

- European Knowledge Network
- Galbraith Media
- Katholieke Universiteit Leuven
- Learning and Teaching Scotland
- Library and Archives of Canada
- Manitoba Education and Youth
- Memorial University
- Ontario Ministry of Education
- The Open Learning Agency of British Columbia
- Stem-Net NFLD-Lab.
- TeleEducation New Brunswick
- University of Calgary

![CanCore] Guidelines

CanCore Guidelines 1.9

Norm Friesen (ed.)
Athabasca University

Explanation	Size	Order	Value Space	Datatype	Used in element subsets
The name or designator of the identification or cataloging scheme for this entry. A namespace scheme.	1	unspecified	Repertoire of ISO/IEC 10646-1:2000	CharacterString (smallest permitted maximum: 1000 char)	CanCore – Yes SCORM – Mandatory Curriculum Online – Not Applicable The Learning Federation – Mandatory SingCore - Yes

...he standard name for the identification scheme that is used to reference the resource.

Clarification

...dentifier for the object, use "URN" (Uniform Resource Name) when the address ...ent to persistence and availability.

- Most catalogues are known by a standard abbreviation. Use this abbreviation rather than spelling out the name of the catalogue (e.g. use "DOI" rather than "Digital Object Identifier").
- This element may be used in conjunction with 7.2.1:Relation.Resource.Identifier (and its child elements) to indicate relations between learning objects. For example, when URN values are associated with objects in a collection, they can be linked together by including the URNs of related objects in any one metadata record.

Vocabulary Recommendations

CanCore recommends that the vocabulary values for this element include, but not be limited to "URI", "URL", "URN", "PURL", "DOI", "ISBN", "ISSN". (Recommendations for the formulation of globally unique, location-independent, persistent identifiers are available from CanCore at: http://www.cancore.ca/documents/Resourceids.doc.)

URI Uniform Resource Identifier
http://www.w3.org/Addressing/
A URI is any short string of referring to an abstract or physical resource (e.g. http://www.careo.org, urn:path:/C/mydocs/document.doc, mailto:norm.friesen@ualberta.ca). The document "RFC2396" defines the generic syntax of URI, and provides guidelines for their use (see: http://www.ietf.org/rfc/rfc2396.txt). Because of its generality, CanCore discourages its use as a value for 1.1.1:Catalog.

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Survey of use

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Vocabulary Definitions

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Best Practice Recommendations

Technical Implementation Notes

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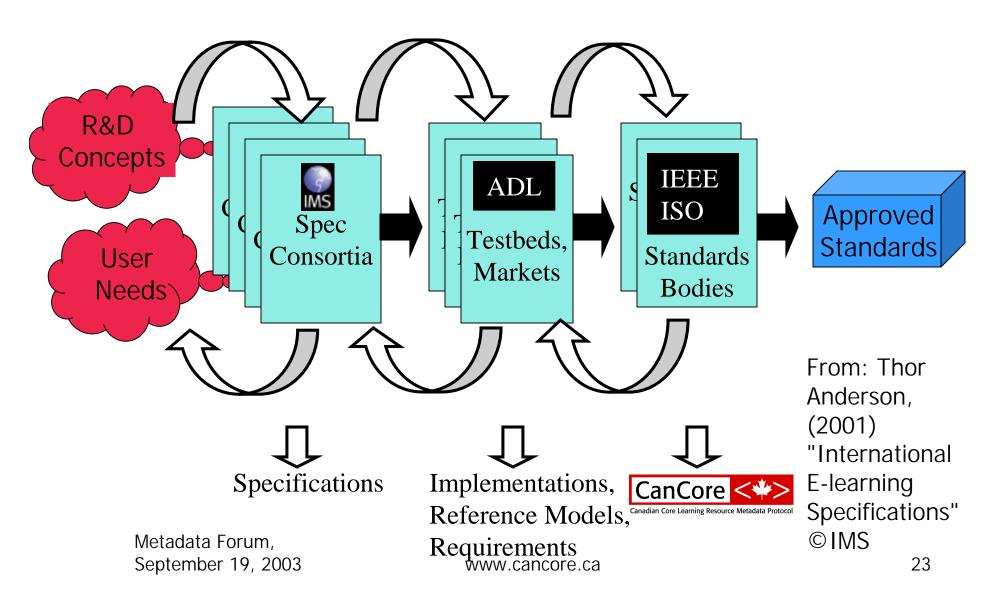
Vocabulary Definitions

CanCore Guidelines

CanCore and Standards Evolution

R&D Concepts

User Needs

Spec Consortia

IMS

ADL

Testbeds, Markets

IEEE ISO

Standards Bodies

Approved Standards

Specifications

Implementations, Reference Models, Requirements

CanCore
Canadian Core Learning Resource Metadata Protocol

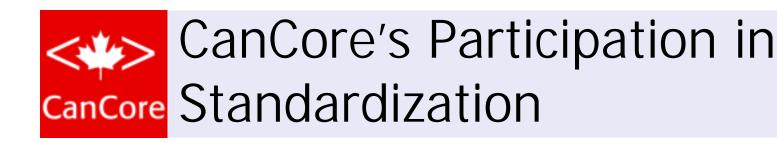From: Thor Anderson, (2001) "International E-learning Specifications" ©IMS
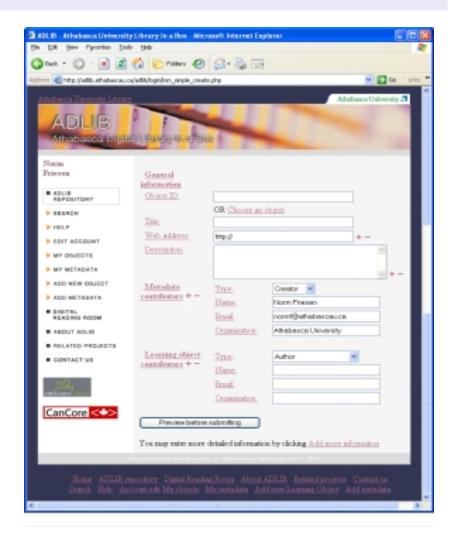
CanCore's Participation in Standardization

- IMS: Next steps re: maintenance

- IEEE LTSC:

- ISO Subcommittee on "Information Technology for Learning Education and Training

- Survey, proposal for new approach to the LOM standard.

Other CanCore/AU aids for implementers

- http://adlib.athabascau.ca

- Upload or link to resources

- Simplified interface based on CanCore best practice recommendations

- **Create XML record, submit to a database, submit to AD LIB**

Athabasca University

CanCore <🍁>
Canadian Core Learning Resource Metadata Protocol

CanCore Metadata Generator CAREO

General information:

Title: [   ]

Web address: [http://   ] ⊞ ⊟

Description: [   ] ⊞ ⊟

Keywords: [   ] ⊞ ⊟

Language:
| English |
French
American English
British English

Author and other contributors: ⊞ ⊟

Type of contributor: [Author ▾]

Name: [   ]

Email: [   ]

Organization: [   ]

Other CanCore/AU aids for implementers

- Web-based; no software to download/install

- Portable, self-contained, linked

- Create, store and search metadata

- Open Source

- Open protocols for sharing records

- Browser-independent
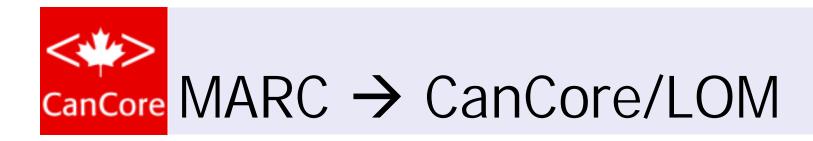
Other CanCore/AU aids for implementers

- ## LOM Java Binding:
  - Interface or API providing functions for working with LOM data in software systems
  - Implementation neutral Java interfaces for exposing data objects corresponding to those of the LOM
  - can be used by Java programmers for representation of LOM data objects within their own software
  - as an interoperable way to communicate LOM data objects with external third party software components

LDAP LOR

- LDAP: *A network protocol designed to work on TCP/IP stacks to extract information from a hierarchical directory; a tool to comb through data to find a particular piece of information.*

- Builds a LOM record out of LDAP results

- distributed service for resolving globally unique identifiers into their locations

LDAP LOR

- **Based on functions outlined in the IMS Learning Object Repository Interoperability Specification (www.imsglobal.org):**

  - Harvest, Request, Search, Submit, list Results

  - Developed for LOM data model

MARC → CanCore/LOM

- Abstract datamodel-crosswalk developed with CanCore and MARC experts

- Automatic conversion of MARC records to XML-formatted CanCore/LOM records

- http://edusource.athabascau.ca/

Supporters

- CANARIE

- Multimedia Learning Group, Industry Can.

- Alberta Learning

- Athabasca University

- University of New Brunswick

- Office of Learning Technologies

- TeleEducation NB New Brunswick

- NETERA

CanCore

Find out more about

CanCore at:

www.cancore.ca