Digital Collection Management Software Employed by Libraries and Museums: Examination of Metadata Semantic Mapping Functionality

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introduction

A growing number of organizations are building digital collections using both commercial digital collection management software such as CONTENTdm, Encompass, etc., and open source software such as Greenstone and D-Space [see Table 1]. This rapidly growing number of distributed digital collections has brought to the fore the critical issues of resource discovery and sharing across these collections.

The goal of this project is to examine the functionality of metadata creation and mapping and the configuration of digital collection management software. This goal relates to the issue of semantic interoperability of concept representation across digital collections. For this, this project aims at examining how digital collection management software provides a mechanism for semantic mapping either between different metadata schemes such as Dublin Core (DC) and MARC or between cataloger-defined field names and a given metadata scheme such as DC. As a first step, we will examine features related to metadata semantic mapping of CONTENTdm software, which provides a feature that allows for catalogers to map cataloger-defined field names onto DC metadata elements [see Table 2].

research questions

How are cataloger-defined field names mapped onto DC metadata elements?

Which field names produce the most frequent incorrect mappings and null mappings?

What factors produce the most frequent incorrect mappings?

To what extent do ambiguities of concept in relation to the specific object and the general collection described by the field name engender incorrect semantic mapping?

What mediation mechanism can be devised to address and mitigate inconsistencies of semantic mapping?

methodology

Qualitative research design by comparing and analyzing 20 digital image metadata templates and 659 metadata records collected from the digital image collections built on CONTENTdm software configuration [see Table 3].

By conducting survey and phone interviews with catalogers. A sample of proposed questions follows:

- What procedures/steps did you follow in creating field names and mapping them onto DC metadata elements?
- How did you map the field names onto DC?
- What is your concept of the role played by the semantic mapping process?
- Which field names were most difficult in mapping onto DC and why?
- What support mechanism geared toward the mapping task would you like to have from both digital collection management software developers and LIS educators?

preliminary results

Strongly suggest the critical need for a mediation mechanism such as metadata mapping guidelines and a mediation model (e.g., concept maps) that catalogers can refer to during the process of mapping cataloger-defined field names onto DC metadata elements in order to increase semantic mapping consistency and enhance semantic interoperability across digital collections.

The analysis of 659 metadata records [see Table 4] evinces frequent incorrect and null mappings. Null mapping field names:

contact information, ordering information, full text, note, digital collection, scan date, copy right, full resolution, acquisition, image modification, record last updated, category.

Incorrect mapping field names: physical description, format, type, source, relation.

future studies

- Consulting with catalogers through survey and interviews in order to elicit factors that engender null and incorrect mapping.
- Metadata creation and mapping configuration of other digital collection management software.
- Development of metadata semantic mapping guidelines.

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	6	DigiTool	ExLibris
150	7	ENCompass	Endeavor
	8	Greenstone	Free Softwan Foundation, In
	9	Insight	LUNA
	10	KE Emu	KE Software
Drexel	11	MetaLib	ExLibris
DICACI	12	MIMSY Software Series	Willoughby
UNIVERSITY	13	GeoExpress with	LizardTech

1	Archive	Olive Software	Management Software	170
2	ADL/B Library & Museum	ADLIB Information Systems	Library & Museum Collection Management Software	600
3	CONTENTám	OCLC/DeMiMa, Inc.	Library Collection Management Software	200
4	DB/Text	Inmagic	Digital Collection Management Software	42
5	Dienst	Comell Digital Library Research Group	Library Collection Management Software	N/A
6	DigiTool	ExLibris	Museum/Library Collection Mgt Software	20
7	ENCompass	Endeavor	Library Collection Management Software	138
8	Greenstone	Free Software Foundation, Inc.	Library Collection Management Software	N/A
9	Insight	LUNA	Museum/Library Collection Mgt Software	92
10	KE Emu	KE Software	Museum Collection Management Software	290
11	MetaLib	ExLibris	Library Collection Management Software	553
12	MIMSY Software Series	Wiiloughby	Museum Collection Management Software	900
13	GeoExpress with MrSID	LizardTech	Digital Collection Management Software	N/A
14	Museum Systems	Gallery Systems	Museum Collection Management Software	170
15	PastPerfect Museum Software Packages	Pastime Software	Museum Collection management Software	3750
16	STAR/Archives MARC & Museum	Cuadra Associates, Inc.	Digital Collection & Museum Management Software	N/A
17	Visual Re:discovery	Re:discovery Software	Museum Collection Management Software	95

Table 1. Digital Collection Management Software Survey (Based on Licensed User Group as of November 2004)

Title	DCTitle
Description	DCDescription
Subject	DCSubject
Topic	DCSubject
Keywords	DCSubject
Neighborhood	DCCoverage- Spatial
Date	DCDate
Alternative Dates	DCCoverage- Temporal
Photographer/Author/Interviewee	DCCreator
Donor & Others	DCCentributors
Media	Format- Medium
Media Measurement	Format Extent
Type	DCType
Format	DCFormat
Identifier	DCIdentifier
Language	DCLanguage
Repository Name	Source
Collection	DCRelation
Repository Number	Source
Call Number	Identifier
Finding Aid	DCRelation
Rights	DCRights
Project Name	Contributors
Date Digitized	DCDate-Issued
Publisher	DCPublisher
Detailed View	Relation
Langer Version	Relation

Table 2. San Fernando Valley History Digital Library

Cataloger-Defined Field Name	Dublin Corr Mapping
Subject	
Topic	* Salger
Keywords	
Neighborhood	Coverage-Spatial
Planksgraphes Author/Interviewee	Creator
Dogor & Others	Continue
Project Name	CHERRIN
Media Meana rusus	
Media	French
Format	
Repository Name	- torus
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Table 3. Metadata Record: Oviatt Library Collections Item View (California State University, Northridge 200

DC Metadata Usage in Digital Image Collections					
Total Collection	203	215	241	659	Percentage
Element Name	# of Elements in SFV Collection	# of Elements in DL of Applalachia	# of Elements in Wabash VV&V	Total # of DC Elements	(Total DC Elements + Total Documents)*100
Title	203	217	241	661	100.3%
Creator	196	148	30	374	56.8%
Subject	580	416	448	1444	219.1%
Description	203	210	263	676	102.6%
Publisher	203	231	0	434	65.9%
Contributor	289	100	19	408	61.9%
Date	201	113	236	550	83.5%
Type	0	150	235	385	58.4%
Format	384	139	417	940	142.6%
Identifier	265	107	7	379	57.5%
Source	362	0	0	362	54.9%
Language	63	0	5	68	10.3%
Relation	121	98	4	223	33.8%
Coverage	203	281	241	725	110.0%
Rights	203	215	241	659	100.0%
Non-Mapping	0	296	219	515	78.1%

Table 4.DC Metadata Usage in Digital Image Collections