Chapter 3

New and Emerging Metadata Standards

This section will discuss new and emerging metadata standards that have appeared or were not discussed in the 2002 issue. Many of them are industry-specific and non-library related, but they should be on the radar of libraries and information organizations.

The format to describe these standards will be the same as the 2002 report (*LTR* 38:5). Each standard will begin with its name and a URL to the official Web site, along with a short description. A number of headings under each will follow: Community of Use, Purpose and Goals, Description, Potential for Information Organizations (if any), and Key Projects.

Cataloguing Cultural Objects (CCO)

A project of the Visual Resource Association (VRA), accessible at www.vraweb.org/CCOweb (which is also responsible for the VRA Core 4.0 data structure or schema standard), CCO is a new content standard for the visual and cultural resources community (the way that AACR pairs up with MARC).

Community of Use
Visual and cultural communities (both physical and digital objects), museum community

Purpose and Goals
To provide a more standardized and international approach to cataloging both physical and digital visual and cultural objects

Description
The visual resources community is only now beginning to think seriously about cooperative cataloging and the impact of descriptive standards on interoperability. These efforts are still in the early stages, but community members are using descriptive principles from the traditional cataloging world in their own unique environments. The two initiatives (VRA Core 4.0 and CCO), however, are not quite as coordinated as they could be, because the current draft of CCO suggests some data elements not supported by VRA Core and vice versa. These issues will more than likely be addressed eventually.

CCO will also assist in bringing together issues between two major data structure standards developed separately thus far: VRA Core and Categories for the Description of Works of Art (CDWA). CDWA has just issued CDWA Lite, an XML schema that works with CCO and the OAI harvesting protocol. More information on CDWA and CDWA Lite are available at www.getty.edu/research/conducting_research/standards/cdwa and www.getty.edu/research/conducting_research/standards/cdwa/cdwalite/index.html.

Potential for Information Organizations
CCO, as a broadly accepted content standard, not only will assist the visual and cultural communities with cooperative cataloging standards and interoperability, but it will also provide the traditional cataloging environment with standards for visual and cultural digital objects that don't quite fit in or play well in the MARC/AACR world.

Key Projects
There are no key projects currently available, but there is a lot of information about how CCO will work with VRA Core 4.0 and CDWA. An excellent overview of current CCO developments was presented at the VRA 2004 conference in Portland and is available via a pulldown menu located in the upper right-hand corner of the Web page located at www.vraweb.org/ccoweb/

index.html. There was also an ALCTS (Association for Library Collections and Tech Services) program on CCO at the 2005 ALA Annual Conference in Chicago, and presentations and papers from that venue are available at www.ala.org/ala/alcts/alctsconted/alctsceevents/alctsannual/catculturalprog.htm.

In this ALA/ALCTS program, Elisa Lanzi, past president of VRA, explains the methodology, influencing factors, and community involvement in building CCO as a collaborative standard. Ann Whiteside, VP of ARLIS/NA, provides a walk-through of CCO using illustrations and examples from the CCO manual. Maria Oldal, head of cataloging and database management at The Pierpont Morgan Library, provides a comparison between MARC and CCO. Jonathan Furner, assistant editor of the Dewey Decimal Classification for OCLC, reviews challenges and opportunities regarding subject access to cultural objects.

CCO Resources

VRA CCO Project
www.vraweb.org/ccoweb

CDWA
www.getty.edu/research/conducting_research/standards/cdwa

CDWA Lite
www.getty.edu/research/conducting_research/standards/cdwa/cdwalite

ALCTS Annual Conference Program 2005
http://www.ala.org/ala/alcts/alctsconted/alctsceevents/alctsannual/catculturalprog.htm

Semantic Interoperability of Metadata in unLike Environments (SIMILE)

SIMILE, accessible at http://simile.mit.edu, leverages and extends DSpace and enhances its support of metadata and arbitrary schemata through the application of RDF and other Semantic Web techniques.

Community of Use
Open source community, DSpace users, RDF and Semantic Web developers, librarians

Purpose and Goals
To develop tools to assist metadata specialists in defining ontologies, converting existing XML-based metadata into RDF, and creating RDF

Description
SIMILE has developed a suite of Web applications and tools that perform RDF browsing via standard Web browsers. The project is meant to help DSpace expand beyond relatively small Dublin Core schema and to be able to find, manage, and preserve digital content in other metadata schemas. SIMILE was developed and is maintained by the Massachusetts Institute of Technology (MIT), where DSpace is also maintained.

Potential for Information Organizations
SIMILE offers another group of tools for interoperability and management of different metadata schemes as well as tools for RDF and Semantic Web techniques.

Key Projects
The homepage (http://simile.mit.edu) provides links to a number of software tools, ontologies, data, services, and statistics on SIMILE. A very good article that describes and discusses many of SIMILE's tools, "SIMILE: Practical Metadata for the Semantic Web," can be accessed at www.xml.com/pub/a/2005/01/26/simile.html.

SIMILE Resources

SIMILE Homepage
http://simile.mit.edu

"SIMILE: Practical Metadata for the Semantic Web"
www.xml.com/pub/a/2005/01/26/simile.html

Stefano Mazzocchi, Stephen Garland, and Ryan Lee, "SIMILE: Practical Metadata for the Semantic Web," XML.com (January 26, 2005), www.xml.com/pub/a/2005/01/26/simile.html (accessed September 28, 2005).

Metadata Objectives and Principles, Domains, and Architectural Layout (MODAL)

At the time of writing, there was not a Web page available on MODAL.

Community of Use
Anyone involved in metadata

Purpose and Goals
To assist in understanding metadata schemes, their different constituencies, and their varied functional emphases

Description
Detailed by Jane Greenberg in her article "Understanding Metadata and Metadata Schemes," the MODAL framework provides a way to examine the population of metadata schemes, their history and development, and their functions and communities of use.[1] Page 26 in Greenberg's piece has a figure that shows how the MODAL framework looks. Built on a three-tiered structure (Objectives and Principles, Domains, and Architectural Layout), this system is supposed to help categorize and organize metadata schemes. Greenberg details three application domains for studying metadata schemes under "Domains." These are: "Environmental Domain" (the discipline or community the scheme serves), the "Object Class Domain" (the assembly or grouping of similar objects by "type"), and the "Object Format Domain" (the object's composition, i.e. what it is made of).

In the absence of any major metadata registry, MODAL may be a solution to the organization and categorization of metadata schemes, but it is still too early to tell. The idea that frameworks are useful for understanding complex topics is balanced by the fact they are artificial constructs and may not work to categorize some metadata schemes.

Potential for Information Organizations
MODAL may help in the organization and understanding of the creation and development of metadata schemes, and it may be useful for future categorization and classification of metadata.

Key Projects
There were no key MODAL projects at the time of writing (summer/fall 2005).

International Press Telecommunications Council (IPTC) News Metadata Framework Requirements Specification (NMDFR)

The IPTC Standards Development homepage is accessible at www.iptc.org/dev/index.php#new20050706.

Community of Use
Those involved in the exchange of news and broadcast information

Purpose and Goals
To move the news industry toward the use of the Semantic Web and to allow individual news-providing organizations to move in this direction at their own speeds

Description
This schema is attempting to set up metadata for news exchange and transmission focused on the Semantic Web. The approach the developers are using allows providers to place as little or as much supplementary information within the news story as they want; to use an abstract model and syntax compatible with the Semantic Web; and to use the Gleaning Resource Descriptions from Dialects of Languages or GRDDL (available at www.w3.org/TR/grddl) as the binding between NMDFR and RDF. This standard is being driven by market factors, including the need for compactness of metadata, the need for speed of delivery, and the need for flexibility among providers and recipients. Metadata elements are divided into three categories: free-form metadata, formal metadata, and semantic inline markup.

There are currently four documents involved with this standard: The News Metadata Framework Requirements Document (on Draft 34); the News Metadata Framework Technical Specification (on Draft 6); the News Structure Model Document (on Draft 14); and the Common Components Library Specification (on Draft 2). There are also specific news exchange standards being developed; they are titled: NewsML, SportsML, EventsML, and NITF. It appears that IPTC is working closely with the World Wide Web Consortium to get this standard accepted.

Potential for Information Organizations
For those involved in providing up-to-date and current news information to their patrons, this standard will be of great importance.

IPTC NMDFR Homepage
www.iptc.org/dev/index.php#new20050706

Key Projects
There were no key projects at the time of writing. To keep current on this standard and key implementations, the IPTC Standards Development homepage (www.iptc.org/dev/index.php#new20050706) is the best source of information. Two presentations on this standard are available from this Web page as well.

Simple Knowledge Organization System (SKOS)

SKOS is a model for expressing knowledge organization systems in a machine-understandable way. Information about SKOS is available at www.w3.org/2004/02/skos.

Community of Use
Anyone wishing to work with the structure and content of concept schemes (thesauri, classification schemes, subject heading lists, taxonomies, terminologies, glossaries, or other types of controlled vocabulary) on the Semantic Web

Purpose and Goals
The SKOS Core is the World Wide Web Consortium's model for a simple, flexible, and extensible language for integrating concept schemes into its futuristic goal of incorporating RDF-type structures into the Semantic Web.

Description
Announced in June 2005, SKOS Core has a number of public working drafts available to the public. The "SKOS Core Vocabulary" provides a reference-style overview of the model's core vocabulary, policies for ownership, naming, and persistence issues. The "SKOS Core Guide" is to introduce the SKOS Core vocabulary, and it is for readers who have a basic understanding of RDF concepts. "The Quick Guide to Publishing a Thesaurus on the Semantic Web" describes how to express the content and structure of a thesaurus and metadata about a thesaurus in RDF and provides some practical guidance for publishing RDF data.

Potential for Information Organizations
If the concept of the Semantic Web ever becomes a reality, then SKOS will become an important contributor to its success. The focus on controlled vocabularies (in relation to metadata standards) has become more important in recent years, so keeping track of Semantic Web developments by the World Wide Web Consortium should be the practice of those working in information organizations.

SKOS Resources

www.w3.org/2004/02/skos

www.w3.org/TR/2005/WD-swbp-skos-core-guide-20050510

www.w3.org/TR/2005/WD-swbp-skos-core-spec-20050510

www.w3.org/TR/2005/WD-swbp-thesaurus-pubguide-20050517

Key Projects
SKOS is just a technical specification so far, but see Peter Mikhalenko's XML.com article "Introducing SKOS" for more information (www.xml.com/pub/a/2005/06/22/skos.html).[2]

Publishers and Library/Learning Solutions (PALS) Metadata Interoperability Group

PALS is a metadata working group assembled to work out issues regarding electronic publication in the United Kingdom. Information is available at www.palsgroup.org.uk.

Community of Use
United Kingdom publishers (the Association of Learned and Professional Society Publishers [ALPSP] and the Publishers Association), United Kingdom higher education (Joint Information Systems Committee [JISC])

Purpose and Goals
Set up after a 1993 report detailing issues of interest among libraries, publishers, and others involved with electronic content and publication, PALS works to determine appropriate metadata requirements for U.K. publishers and libraries in order to foster interoperability and harvesting.

PALS Resources

www.palsgroup.org.uk
www.jisc.ac.uk/index.cfm?name=programme_pals
www.jisc.ac.uk/index.cfm?name=project_oairepositry
www.jisc.ac.uk/index.cfm?name=project_tso
www.jisc.ac.uk/index.cfm?name=project_engineeringrss
www.jisc.ac.uk/index.cfm?name=project_rosa
www.jisc.ac.uk/index.cfm?name=project_surf

Description
PALS is mainly a United Kingdom initiative and is currently focused on the interoperability and use of publishers' metadata, both between publishers and among libraries. Four standards or protocols are currently most relevant to PALS members: OpenURL, OAI-PMH, Z39.50, and RSS.

Potential for Information Organizations
For libraries in the United Kingdom, there's great potential for harvesting and sharing metadata directly from publishers, which could help reduce redundancy and make cataloging operations more efficient.

Key Projects
Currently, six projects have been funded to explore the development of metadata standards, interoperability, and aggregator pilots. General information about these projects is available at www.jisc.ac.uk/index.cfm?name=programme_pals. These projects are titled:

- An OAI-Compliant Metadata Repository for a Specialist Publisher of E-Journals (information available at www.jisc.ac.uk/index.cfm?name=project_oairepositry).
- Digital Object Identifiers for Publishers and the E-Learning Community (information available at www.jisc.ac.uk/index.cfm?name=project_tso).

- Engineering Trade Information Metadata in RSS (information available at www.jisc.ac.uk/index.cfm?name=project_engineeringrss).
- Interoperation of COSE VLE with E-Resources (information available at www.jisc.ac.uk/index.cfm?name=project_cosevle).
- ROSA: An Open Source, Customizable RSS Aggregator and Filter (information available at www.jisc.ac.uk/index.cfm?name=project_rosa).
- Surf Metadata Publisher Project (information available at www.jisc.ac.uk/index.cfm?name=project_surf).

SPECTRUM

Spectrum is the United Kingdom standard for documentation in museums; information about the standard is available at www.mda.org.uk/stand.htm.

Community of Use
United Kingdom museum professionals

SPECTRUM Resources
www.mda.org.uk/stand.htm

Purpose and Goals
Sponsored by the Museum Documentation Association (MDA), SPECTRUM is the United Kingdom's standard for managing knowledge and information in U.K. museums. It is also used internationally by other museums.

Description
First published in 1994 (and at the time of writing in its third revised edition), SPECTRUM consists of two main sections. The first section is a listing of best practice procedures in twenty-one different activities, including risk management, cataloging, rights management, use of collections, and a number of other procedures. The second section of Spectrum is comprised of information requirements to assist museums in the documenting of information at various stages of acquisition. These information requirements are broken down into "Units of Information," which can then be brought together into "Information Groups." SPECTRUM incorporates the Museum Accreditation Scheme, which is the national minimum U.K. standard scheme for museums. More information is available at www.mda.org.uk/stand.htm.

Potential for Information Organizations
This standard is free for non-commercial use. It is a software program that must be downloaded. For those information organizations that are more museum-based and looking for a freely available solution to implementing standards in their collections, SPECTRUM may be an option to consider.

Key Projects
At the time of writing, the SPECTRUM Web site did not indicate any information about any organization or museum that currently implements this software/standard.

Public Broadcasting Metadata Dictionary Project (PBCore)

PBCore is a metadata standard for the public broadcasting community. Information about PBCore is available at www.utah.edu/cpbmetadata.

Community of Use
Public broadcasting community and related communities

Purpose and Goals
To provide television, radio, and Web content producers and directors a standard way of describing and using media (i.e., audio, text, images, interactive learning objects, and video)

PBCore Resources
www.utah.edu/cpbmetadata
www.utah.edu/cpbmetadata/resources

Description
In a March 2004 "Request for Comments" to a number of public broadcasters, ninety-six percent of the respondents indicated that public broadcasting needed a core metadata dictionary. PBCore was thus developed, and in May 2004 was tested with a number of public radio and television stations. It is comprised of forty-eight metadata elements. It is based on the Dublin Core and is available for free in version 1.0 to public broadcasting stations, distributors, vendors, and partners. Funded by the Corporation for Public Broadcasting, PBCore offers a number of tools (available for use in the "User Guide"). In addition, a number of papers and presentations are available at www.utah.edu/cpbmetadata..

Potential for Information Organizations
Anyone who broadcasts public television or radio programs (or buys them in order to add them to collections) will have to know something about this standard. Because it is based on Dublin Core, it shouldn't be too difficult for most information organizations to handle.

Key Projects
At the time of writing, there were no key projects underway, although there are some interesting presentations and papers at www.utah.edu/cpbmetadata/resources.

Safeguarding European Photographic Images for Access (SEPIA) Data Element Set (SEPIADES)

SEPIADES is a set of elements to catalog photographic collections; information about SEPIADES is available at www.knaw.nl/ecpa/sepia/workinggroups/wp5/cataloguing.html.

Community of Use
European museums, libraries, archives, and government organizations

Purpose and Goals
A model that can be used to describe photographic collections, SEPIADES is a guide and tool for those who need a separate, independent standard for implementation, or for those who want a more detailed photographic standard to partner with existing descriptive models.

Description
Mainly created as an open source software tool, SEPIADES allows users to create multilevel descriptions, has flexible and easy customizing features, runs on cross platforms, stores records in XML format, exports to Dublin Core, has a search and retrieval function based on Jakarta Lucene, allows for OAI-PMH harvesting, is programmed in Java, has an open source license, and is UTF-8 compliant. It is currently available in version 1.1.

Potential for Information Organizations
For European cultural heritage organizations, SEPIADES assists with preservation and descriptive cataloging of photographic images, be they physical or digital. Whether or not this standard and software are (or will be) implemented outside of the European community remains to be seen.

Key Projects
Current partners are listed at www.knaw.nl/ecpa/sepia/workinggroups/wp5/cataloguing.html.

Publishing Requirements for Industry Standard Metadata (PRISM)

PRISM is an XML metadata vocabulary for the publishing industry. Information about PRISM is available at www.prismstandard.org.

SEPIADES Resources
www.knaw.nl/ecpa/sepia/workinggroups/wp5/cataloguing.html

PRISM Resources
www.prismstandard.org

Community of Use
Publishers, news agencies

Purpose and Goals
To define an XML metadata vocabulary for aggregating, managing, post-processing, and multipurposing catalog, book, news, magazine, and mainstream journal content

Description
PRISM consists of two specifications: the PRISM Specification, which provides definition for the overall framework; and the PRISM Aggregator DTD, a new format for publishers to deliver XML metadata content to Web sites, syndicators, and aggregators. PRISM works with many existing metadata standards, including Dublin Core, RDF, and other industry schemes such as NewsML, News Industry Text Format (NITF), and Information and Content Exchange (ICE). The benefits of PRISM are that it allows the publisher to repurpose information as well as harvest other publishers' content; it also allows the aggregator to be more efficient and timely in presenting news to patrons. Developed by IDEAlliance Working Group, PRISM is currently in version 1.3.

Potential for Information Organizations
PRISM will assist in getting current news to patrons quickly. For information organizations that publish information, PRISM may be a metadata standard that could be incorporated for this purpose.

Key Projects
A few of the publishers that have instituted or are members of the PRISM Working Group include: Adobe Systems, Inc.; CMP Media; Hearst Magazines; LexisNexis; The McGraw-Hill Companies, Inc.; and ProQuest Information and Learning.

Linguistics Metadata Efforts

There are two major efforts (that I know of) to provide metadata for digital language archives and computational linguistics.

1. Computational Linguistics for Metadata Building (**CLiMB**) (**CLiMB-1 and -2)**
2. Open Language Archives Community (**OLAC**)

Community of Use
Digital collections and archives in various languages, computational linguistics experts

Purpose and Goals
The goal of the CLiMB project is to automatically extract potential subject descriptors for text written about images. The goal of OLAC is to aggregate, standardize, and provide harvesting and retrieval mechanisms for the consortium of linguistic data archives.

Resources on Linguistics Metadata Efforts

CLiMB-1
www.columbia.edu/cu/libraries/inside/projects/climb

CLiMB-2
www.umiacs.umd.edu/~climb

Open Language Archives Community (OLAC)
www.language-archives.org
www.language-archives.org/OLAC/metadata.html

Description
The CLiMB project (CLiMB-1, 2002–2004), also known as "Squeezing Metadata out of Scholarly Texts," began as a Mellon-funded project at Columbia University's Center for Research on Information Access (CRIA) within the Columbia Libraries. Phase 1 focused on establishing criteria for potential collections, building an initial toolkit prototype, extracting information from sample test collections, and performing evaluations of the toolkit for catalogers. The toolkit and reports are available at the CLiMB-1 Web site (www.columbia.edu/cu/libraries/inside/projects/climb).

CLiMB-2 is based at the University of Maryland, College of Information Studies (CLIS). This second phase will extend the CLiMB toolkit, build a cataloger's workbench, and test the techniques in a more robust way. Several user groups will be tested, and full incorporation and integration of a number of related thesauri will be available by the end of phase 2. Partnerships and collaborations in image cataloging and collections, metadata schema creation, computational linguistics, user studies, and/or complex image access issues will be developed. Papers and presentations on CLiMB-2 are available at www.umiacs.umd.edu/~climb.

The efforts of the Open Language Archive Community (OLAC) in the development of its metadata scheme relate directly to a number of objectives—namely, the ability to use the OAI-PMH harvesting protocol to catalog, organize, harvest, search, and retrieve information from its consortium of linguistic data archives of approximately 31 archives and a catalog of more than 28,000 objects. OLAC's metadata set is based on Dublin Core, and those involved have proposed a number of DC extensions for describing language resources, including codes for discourse types, language identification, linguistic field, linguistic data types, and participant roles. More information is available at www.language-archives.org.

Potential for Information Organizations
Anyone that has physical or digital materials or collections in different languages will benefit from these linguistic metadata efforts.

Key Projects
More information on CLiMB endeavors is available from the two Web sites indicated previously (www.columbia.edu/cu/libraries/inside/projects/climb and www.umiacs.umd.edu/~climb).

OLAC has developed a number of tools related to its metadata efforts. These include documents related to free-standing OLAC metadata as well as OLAC's Dublin Core-related efforts. Those involved also maintain an OLAC Metadata listserv. More information can be found at www.language-archives.org/tools.html.

OLAC is actively working on the user side of search and retrieval precision and recall related to its metadata. A recent article on OLAC's work is by Baden Hughes and Amol Kamat: "A Metadata Search Engine for Digital Language Archives," *D-Lib Magazine*, v. 11, no. 2 (February 2005), www.dlib.org/dlib/february05/hughes/02hughes.html (accessed October 5, 2005).

XML Topic Maps (XTM)

XTM is an XML extension written to assist in the creation, maintenance, and management of topic maps. Information about XTM is available at www.topicmaps.org/xtm/1.0.

Community of Use
World Wide Web users, topic map creators

Purpose and Goals
To assist in the creation and maintenance of topic maps

Description
The topic maps paradigm dates back to 1993 and is similar to RDF (in that it uses graphs rather than hierarchies to organize information). It was formalized as a standard in 2000 as ISO/IEC 13250:2000. The organization

topicmaps.org was formed soon afterward to manage the standard. Although topic maps were the rage for a while, they are currently not being fully utilized or developed.

Potential for Information Organizations
Depending on the popularity and widespread use of topic maps, this standard may become more important in the future.

Key Projects
XTM is already in use in several organizations, and many knowledge-management companies incorporate it in their products. Companies like the Norway-based Ontopia and the France-based Mondeca are some examples. In 2003, Mondeca won the European IST Award. There appears to be a strong user base in Europe, although the Society of Biblical Literature, based in Atlanta, GA, USA, is actively working to incorporate XTM for use in religious publishing.

XML Topic Maps (XTM) Resources
www.topicmaps.org/xtm/1.0

Victoria Electronic Recordkeeping System (VERS)

VERS is the National Archives of Australia standard for electronic record keeping. More information is available at the Web sites: www.prov.vic.gov.au/vers/standard and www.naa.gov.au/recordkeeping/control/rkms/summary.htm.

Community of Use
All Australian government agencies

Purpose and Goals
To provide a reference tool for Australian government agencies, corporate managers, information technology personnel, and software vendors involved in the design, selection, and implementation of electronic record keeping and related information-management systems

Description
Between 1996 and 2002, VERS was first developed by the State of Victoria in Australia to provide standardization for governmental record keeping. The Australian government has since accepted the standard for all governmental record keeping. The standard is a set of twenty metadata elements, eight of which constitute a core set of mandatory metadata, and sixty-five sub-elements. The VERS approach is to fix records at (or close to) the time of creation using digital signatures. This has many advantages over migration, but one significant disadvantage is that metadata that changes or accretes over time is not well supported. Layering of metadata is possible, but it is not efficient for elements that are continually modified.

VERS Resources
www.prov.vic.gov.au/vers/standard
www.naa.gov.au/recordkeeping/control/rkms/summary.htm
www.prov.vic.gov.au/vers/vers
www.prov.vic.gov.au/vers/projects

Potential for Information Organizations
Australia (like the Scandinavian countries) has always been well above the curve when it comes to implementing metadata. The VERS standard is an example of this. Whether or not there will be implementations of VERS outside of Australia and the Australian government has yet to be determined.

Key Projects
Most information on VERS can be found at www.prov.vic.gov.au/vers/vers. Here, there are sections on the standard itself, history, toolkit, training, and publications. Current projects and implementations of VERS can be found at www.prov.vic.gov.au/vers/projects.

Metadata for Weblogs (Blogs)

A number of metadata schemes work well or have been developed to structure and organize weblogs, which are more commonly referred to as "blogs." More information is available at the LISWiki Metadata entry, which is accessible at www.liswiki.com/wiki/Metadata.

Community of Use
Bloggers

Purpose and Goals
To assist Web developers and weblog organizers and users in structuring content

Description
There are a number of metadata standards unique to weblog organization and maintenance. Most of them are detailed in the LISWiki.com article (www.liswiki.com/wiki/Metadata). Here, there's a good explanation of the difference between bibliographic metadata and Web site metadata. (Various Web site metadata standards covered in the LISWiki.com article, that have not yet been

mentioned yet in this report, include the Platform for Internet Content Selection [PICS] at www.w3.org/PICS; A-Core; Geo-Tags; and Creative Commons. Information about each of these standards is available at www.liswiki.com/wiki/Metadata).

Metadata specific to blogs can be divided into two types: metadata specific to the whole blog, and the metadata specific to individual postings. The difference is similar to a bibliographic description and a back-of-the-book index. Metadata standards for blogs as an entity include Really Simple Syndication (RSS); Outline Processor Markup Language, or OPML (information about OPML is available at www.opml.org); Open Content Syndication Directory Format or OCS (http://internetalchemy.org/ocs/directory/0.5 and http://xml.coverpages.org/ocs.html); Friend of a Friend, or FOAF (www.foaf-project.org and http://rdfweb.org); and Blogchalk. A current metadata standard for individual posts is Easy News Topics, or ENT (information about ENT is available at http://matt.blogs.it/specs/ENT/1.0).

Potential for Information Organizations

Blogging has become the new wave of communication and current news on the Internet. Whether just monitoring blog developments or setting up internal blogs for staff members, information organizations need to be informed about these standards. Additionally, information organizations could be providing Internet access for bloggers (i.e., a public access terminal at a library, where a blogger may come to update his or her individual blog), which is another reason to at least be informed of the standards. If an organization is innovative enough to set up a blog in order to communicate and disseminate information about the organization, the more the organization knows about the metadata standards commonly followed in the "Blogosphere" the better.

Key Projects

In addition to the article on LISWiki (www.liswiki.com/wiki/Metadata), see the hyperlinked Web sites listed previously for current implementations of these standards.

Miscellaneous Items of Interest

The ***Descriptive Metadata Guidelines for RLG Cultural Materials*** assists RLG users and content providers when submitting collections to the RLG Cultural Materials database. Metadata standards supported by the RLG Cultural Materials database include: CDWA, Dublin Core, EAD, MARC21 or UNIMARC, METS, MODS, SPECTRUM, TEI, and VRA. The *Descriptive Metadata Guidelines for RLG Cultural Materials* is available at www.rlg.org/en/pdfs/RLG_desc_metadata.pdf (accessed October 5, 2005).

An article by Jia Liu, "**Metadata Development in China**," in the December 2004 issue of *D-Lib Magazine (*available at www.dlib.org/dlib/december04/liu/12liu.html), describes current metadata activities in China, including the development of national or domain-specific metadata standards and specifications, such as the Standard for the Metadata of Information Sharing for Sustainable Development of China; the Specification for Learning Object Metadata (CELTS-3); the Standard for the National Fundamental Geographic Information System (NFGIS) Metadata; and the metadata specifications for the Establishment of Standards and Specifications for the Chinese Digital Library (ESSCDL).[3]

Metadata for Weblogs Resources

LISWiki
www.liswiki.com/wiki/Metadata

Outline Processor Markup Language
www.opml.org

Open Content Syndication (OCS) Directory Format
http://internetalchemy.org/ocs/directory/0.5
http://xml.coverpages.org/ocs.html

Friend of a Friend (FOAF)
www.foaf-project.org
http://rdfweb.org

Easy News Topics (ENT)
http://matt.blogs.it/specs/ENT/1.0

mSpace is software, currently available as a Classical Music Browser, that creates an iTunes-like browser around any kind of information domain. mSpace allows the user to explore that information any way that s/he likes. The mSpace Web site, available at http://mspace.fm, states: "mSpace is an interaction model to help explore relationships in information." In order to view the demos, various plug-ins must be installed, but it is an interesting exploration of information visualization.

A technical report about mSpace by Craig Harris, Alisdair Owens, Alistair Russel, and Daniel Alexander Smith, "**mSpace: Exploring the Semantic Web**," is available at http://eprints.ecs.soton.ac.uk/10359.[4] Another paper on mSpace, "**The Evolving mSpace Platform: Leverage the Semantic Web on the Trail of the Memex**," is available at http://eprints.ecs.soton.ac.uk/10710.[5]

In the article "**The Power of Partnering: The Cooperative Creation of Digital Collections**" (available

Resources for Miscellaneous Items of Interest

Descriptive Metadata Guidelines for RLG Cultural Materials
www.rlg.org/en/pdfs/RLG_desc_metadata.pdf

"Metadata Development in China," by Jia Liu
www.dlib.org/dlib/december04/liu/12liu.html

"mSpace: Exploring the Semantic Web," by Craig Harris et al.
http://eprints.ecs.soton.ac.uk/10359

"The Evolving mSpace Platform Leverage the Semantic Web on the Trail of the Memex," by M.C. Schraefel et al.
http://eprints.ecs.soton.ac.uk/10710

"The Power of Partnering: The Cooperative Creation of Digital Collections," by Kathleen Foulke et al.
http://jodi.tamu.edu/Articles/v05/i03/Foulke

"A Repository of Metadata Crosswalks," by Carol Jean Godby et al.
www.dlib.org/dlib/december04/godby/12godby.html

"Toward a Metadata Generation Framework: A Case Study at Johns Hopkins University," by Mark Patton et al.
www.dlib.org/dlib/november04/choudhury/11choudhury.html

"Metadata: Practice and Practice," by Lorcan Dempsey
www.oclc.org/research/presentations/dempsey/clirmetadata.ppt

"Making Data Work Harder," by Lorcan Dempsey
www.oclc.org/research/memberscouncil/2005-05/dempsey.ppt

Lorcan Dempsey's weblog on libraries, services, and networks
http://orweblog.oclc.org

"Border Crossings: Reflections on a Decade of Metadata Consensus Building," by Stuart Weibel
www.dlib.org/dlib/july05/weibel/07weibel.html

AHDS Guides to Good Practice
"Creating and Using Virtual Reality: A Guide for the Arts and Humanities"
http://vads.ahds.ac.uk/guides/vr_guide

at http://jodi.tamu.edu/Articles/v05/i03/Foulke), the authors discuss the Connecticut History Online (CHO) consortia.[6] The challenges of working out cataloging and metadata standards in consortia and collaborative partnerships is detailed at length in this article. In addition, it covers software decisions, digitization costs, new technology, project sustainability, and rights management.

In "**A Repository of Metadata Crosswalks**" (available at www.dlib.org/dlib/december04/godby/12godby.html), the authors propose a model for metadata crosswalks consisting of three major pieces: the crosswalk itself, the source metadata standard, and the target metadata standard.[7] The authors suggest that these crosswalks be encoded as METS records. Issues that remain to be solved include the scope of the crosswalk object, the crosswalk as an XSLT stylesheet, and the status of the crosswalk as a standard.

"**Toward a Metadata Generation Framework: A Case Study at Johns Hopkins University**" (available at www.dlib.org/dlib/november04/choudhury/11choudhury.html) is an article that focuses on the potential impact of simple algorithms combined with human intelligence for library reference services.[8] The authors discuss the impact of an automated name authority control (ANAC) tool, as well as how automating reference services and automated digital libraries will become more important in the future. Metadata issues are examined as well.

Lorcan Dempsey is a well-known library blogger and research scientist. He is VP and chief strategist of research at OCLC. Two PowerPoint presentations, "**Metadata: Practice and Practice**" (available at www.oclc.org/research/presentations/dempsey/clirmetadata.ppt) and "**Making Data Work Harder**" (available at www.oclc.org/research/memberscouncil/2005-05/dempsey.ppt), focus on issues related to metadata from Dempsey's perspective.[9] Dempsey also authors his own weblog on libraries, services, and networks, http://orweblog.oclc.org, which contains his opinions and provides access to many of his other presentations. It also features links to important metadata initiatives.

Stuart Weibel was one of the movers and shakers in 1995 at OCLC that helped to create the Dublin Core metadata standard, now known as the Dublin Core Metadata Initiative (DCMI). In his article "**Border Crossings: Reflections on a Decade of Metadata Consensus Building**" (available at www.dlib.org/dlib/july05/weibel/07weibel.html), Weibel reflects on the ten years since Dublin Core was created, how consensus was accomplished, and the current directions that metadata is

moving toward.[10] He provides some interesting comments on major challenges yet unsolved in the metadata community as well.

Virtual reality, and the associated 2D and 3D information visualization field, will be the new areas of exploration within information organizations in the next ten years. A guide for creating virtual reality projects and exhibits, "**Creating and Using Virtual Reality: A Guide for the Arts and Humanities**" (available at http://vads.ahds.ac.uk/guides/vr_guide), includes some guidelines on virtual reality and metadata (at http://vads.ahds.ac.uk/guides/vr_guide/sect72.html) with examples from current projects.[11]

Notes

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2. Peter Mikhalenko, "Introducing SKOS," XML.com, June 22, 2005, www.xml.com/pub/a/2005/06/22/skos.html (accessed October 4, 2005).
3. Jia Liu, "Metadata Development in China," *D-Lib Magazine* 10, no. 12 (December 2004), www.dlib.org/dlib/december04/liu/12liu.html (accessed October 5, 2005).
4. Craid Harris, Alisdair Owens, Alistair Russel, and Daniel Alexander Smith, "mSpace: Exploring the Semantic Web. A Technical Report in Support of the mSpace Software Framework," Electronics and Computer Science Dept., University of Southampton, Southampton, U.K. (deposited on February 11, 2005), http://eprints.ecs.soton.ac.uk/10359 (accessed October 5, 2005).
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6. Kathleen Foulke, Nancy Milnor, Melissa Watterworth, and Thomas Wilsted, "The Power of Partnering: The Cooperative Creation of Digital Collections," *Journal of Digital Information* 5, no. 3 (article no. 304, 2004-09-09), http://jodi.tamu.edu/Articles/v05/i03/Foulke (accessed October 5, 2005).
7. Carol Jean Godby, Jeffrey A. Young, and Eric Childress, "A Repository of Metadata Crosswalks," *D-Lib Magazine*, v. 10, no. 12 (December 2004), www.dlib.org/dlib/december04/godby/12godby.html (accessed October 5, 2005).
8. Mark Patton, David Reynolds, G. Sayeed Choudhury, and Tim DiLauro, "Toward a Metadata Generation Framework: A Case Study at Johns Hopkins University," *D-Lib Magazine*, v. 10, no. 11 (November 2004), www.dlib.org/dlib/november04/choudhury/11choudhury.html (accessed October 5, 2005).
9. Lorcan Dempsey, "Metadata: Practice and Practice," PowerPoint presentation, CLIR/DLF, Managing Digital Assets: A Primer for Library and Information Technology Administrators, Charleston, SC (February 4–6, 2005), www.oclc.org/research/presentations/dempsey/clirmetadata.ppt (accessed October 5, 2005); Ibid., "Making Data Work Harder," PowerPoint presentation, OCLC Members Council (May 17, 2005), www.oclc.org/research/memberscouncil/2005–05/dempsey.ppt (accessed October 5, 2005).
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11. Kate Fernie and Julian D. Richards, eds., "Creating and Using Virtual Reality: A Guide for the Arts and Humanities," *AHDS Guides to Good Practice* (2002), http://vads.ahds.ac.uk/guides/vr_guide (accessed October 5, 2005).