No Longer Under Our Control: The Nature and Role of Standards in the 21st Century Library

by Dr. William E. Moen

This article is a condensation of a presentation given by the author for the Library of Congress Luminary Lecture series on December 3, 2003. The entire transcript of the lecture can be downloaded at: <http://www.loc.gov/rr/program/lectures/moenscript.doc>.

One of the ideas I’ll be examining today is the role of a community in developing standards for its use, and the implications when a community appears to lose control over key standards that provide the foundation for its technology and services. The title of this paper tries to capture a set of feelings that have resulted, I think, from the massive technology changes libraries have confronted in the past decade. There is a feeling that libraries — their technologies in particular — are no longer under the control of librarians.

Why the Feeling of Losing Control?

I think there are several aspects to this feeling of losing control.

First, the nature of the standards we must accommodate. I characterize many of the key standards of importance to libraries as “evolutionary.” The complexity of the technologies usually means that we define the problems we understand, only to have new problems surface once the solution to the original problem is solved. So, yes, almost by their nature, information technology and related standards will not stand still, but will evolve and be modified as we better understand the problems, the requirements, and the options available.

The second area where it’s likely that librarians feel a loss of control relates to the new levels of collaboration that the networked information environment requires. Another way of framing this is in terms of the tension between the autonomy of individual libraries versus the increasing need to collaborate with more and different groups to deliver better services to our users. A new balance needs to be found between decisions related to serving the primary user groups of a library and the need to make local systems work well with the systems and information of other libraries and organizations.

The third area that I want to call attention to relates to where technical standards are created. From one perspective, librarians have been masters of the key standards that underpin the technologies and business of libraries. MARC is an excellent example. And the resulting solution, a standard record structure,
was used almost exclusively by libraries. The Web infrastructure standards are not under the control of librarians and application-oriented standards of importance to libraries are developed outside of the library community. Librarians may feel that they inherit tools, technologies, and standards created by others. This has the potential of those standards not addressing problems as defined by librarians.

Another factor that may lead librarians to feel a loss of control is the range and number of standards and agreements that need to be accommodated. Standards are the glue that holds the networked environment together and provide a foundation for the interoperability required. It is my contention that the more we rely on machine processing to support information organization, access, and use, the more we need more standards and agreements to ensure the applications work reliably and interoperate.

Standards as Community Agreements

What is a standard? I’ve reduced the definition of a standard to simply:

A standard represents an agreement by a community to do things in a specified way to address a common problem.

In other words, standards are community agreements. As mentioned earlier, many of our community agreements have been in response to problems faced by librarians — problems that may or may not be relevant to other communities. But in the networked environment, our community has similar problems faced by other information communities.

Thinking of standards as community agreements can help all of us recognize that we have a stake in the outcome. Further, we need to recognize that libraries may have to adopt or work with agreements and standards developed outside of our community. Those agreements may or may not be informed by the needs of libraries and librarians. The library of the 21st century, in my opinion, is not going to be isolated from these other communities and their agreements. Instead, the library operating in the networked information environment is going to need to accommodate and embrace standards and specifications over which we may have little control.

The 21st Century Library

The library of the 21st century integrates a variety of technologies to provide new levels and types of services to its users. The emerging library reflects, I think, a mature understanding that the convergence of communications and computing technologies offers an opportunity for extending the reach and range of the traditional library and its users. Whether we refer to this library as a digital library, a virtual library, a hybrid library, the vision for this library acknowledges that the Internet, the Web, the networked information environment, and digital collections of information provide a context to offer broader and more instantaneous access to information.

For the past several years, I have been presenting ideas for a service-based architecture for the emerging library. A service-based architecture allows us to consider the technological infrastructure without having the technology as the starting point — namely, reclaiming our services, not technology, as the driver for what we do. A service-based architecture can highlight the roles, responsibilities, and interactions of the various people and organizations that will be involved in collaborative efforts to provide the services. Standards, technology, and resources can be seen as enablers for the provision of library to library and library to user services.

What are the standards implications? And what about local control? My sense is that a new balance needs to be struck between local decisions and the acceptance and use of broader community agreements to enable collaborative services. For example, a local library may need to implement Z39.50 and the Open Archives Initiative Protocol for Metadata Harvesting to make its local resources visible in the networked environment — not something that it does for its local users, but to support collaborative services such as resource discovery and virtual reference.

What technologies will be needed to support the types and levels of services users require? How do we achieve the necessary interoperability of systems to support the services? And what is the role of standards and community agreements in achieving interoperability?

Since the services are likely to have a collaborative basis, the networked library increases the requirements for inter-organizational cooperation and collaboration. As cross-organizational interaction and collaboration increase, new policy issues will emerge, in part because of new levels of technical interoperability now available. The fact that systems can interoperate does not mean organizations want their systems and the information residing on those systems to be accessible to everyone in the same way.

Standards for the Networked Library

Is there something different about the standards we’ll need and use in the networked library? I think there may be. But as I think back to the premier technical standard for libraries, the MARC record, maybe these new standards are not going to be so foreign to us. Remember, the formal MARC standard defines an abstract record syntax. It provides the structural components that can be used to encode bibliographic data for machine processing. But the standard did not provide semantics — Z39.3 and ISO 2709 [Information Interchange Format] did not state what the 245 tag meant, but only defined the structure of the tag as a component of the record. We have other supporting specifications such as the MARC 21 Format for
Bibliographic Data that lays out the semantics and use of nearly 2,000 fields and subfields. These specifications reflect evolving community agreements.

More recently, we had the Z39.50 protocol standard which defined abstractly the protocol for information retrieval. Many interoperability problems surfaced in the early implementations of Z39.50 because of the options available in the standard. We needed to define application profiles such as the Bath Profile, and more recently, the U.S. National Z39.50 Profile for Library Applications that provided more detailed specification for using Z39.50 in particular applications to realize the interoperability promised by the protocol. These profiles are good examples of community agreements.

Other standards are also providing what we might call frameworks documents, which rely on profiles to more specifically direct the use of the standard for real-world applications. The NISO Circulation Interchange Protocol (NCIP) was structured from the outset as providing an abstract or framework standard that would necessitate the development of profiles to define how the protocol would be implemented for specific applications.

The same thing is happening with the Dublin Core Metadata Initiative. Originally, there were the 15 core elements, but as people realized that different information communities would use these elements in different ways, and sometimes have different semantics for the elements, there was a recognition that application profiles were needed to specify the use of the DC elements and extensions for a specific application or information community. So, we now have a DC Libraries Profile, among others.

Think about XML for a minute. It provides a framework and general specifications for the structural elements of XML documents. It provides a “language” for marking up documents, but its power is that it allows information communities to define document type definitions (DTDs) or schemas that provide the semantics and other rules for different types of XML documents. In this way, it seems very much like the MARC syntax, which relies on additional specifications to utilize the syntax for different types of bibliographic and related data.

This means that librarians are going to need to understand in more sophisticated ways a complex set of standards, agreements, and specifications. It has long been clear that simply specifying in a RFP that a system must support the Z39.50 standard is not sufficient to realize the desired interoperability. Instead, the RFP must be written more precisely to state not only which standard must be supported, but indicate which application profiles, levels of conformance, and other specifications need to be addressed. Just as it’s not sufficient to say that an integrated library system must support Z39.2 or ISO 2709; the RFP writer must specify support for MARC 21 bibliographic format, holdings format, etc.

The Changing Community of Standards Development

As a community, librarians have worked together over the years to define and solve problems in a collaborative manner that resulted in community agreements and formal standards. In many cases, our tools and technologies were developed expressly to solve the problems as we defined them. My assertion is that this level of autonomy and control is changing. One of the main catalysts for this change is the emergence of the networked information environment in which and through which we carry out our work and deliver our services.

The networked environment that is the current context for information organization, access, retrieval, and sharing is founded on technical standards developed both within and outside of the library community. It is clear that many of the key infrastructure standards and technologies will be developed outside of the library community—in venues such as the W3C, the Internet Society, and elsewhere.

On the other hand, some of our new community agreements are integrating technologies and standards developed by other communities. We are also providing tools and standards of use to others beyond the library community. The NCIP protocol, for example, adopted XML as the encoding mechanism for its protocol. A new effort within the Z39.50 community called Search and Retrieve for the Web uses the concept of Web services and the associated W3C standards such as XML and SOAP, as well as the NISO standard for the Dublin Core.

Certainly, some of us enjoy the challenges involved in developing standards. We want to develop standards that are useful and provide a specific functionality. Examples of useful standards to be sure include Z39.50, the ILL protocol, and the Circulation Interchange Protocol. But in some ways these were developed as stovepipes—addressing a particular problem, and developed by different groups within our community. Yet think of the possibility for services that can be created using these three standards—discovering resources via Z39.50, checking patron permissions and availability via the Circulation Interchange Protocol, and getting the item via the ILL protocol. But at the time of their development, there was not a clear sense of how these would work together, and in some cases, there are areas in which the three protocols overlap in the functions provided (e.g., one can actually order an item via Z39.50 instead of using the ILL protocol).

As an example of how we can look at new approaches for standardization, the NISO metasearch initiative may point the way forward. Metasearch is not just about searching, but rather involves several things:
• Access Management – authorization and authentication
• Resource Identification – how to describe resources to make them visible and to help users find them
• Search and Retrieval – how to express searches, manage search sessions, and present results from distributed resources in usable ways for users
• Statistics – how to provide meaningful usage reports for decision support to evaluate and compare services, etc.

By defining the problems to be addressed by the standards within the context of a specific service, we have a better starting point to avoid the stovepiping of standards. This approach has as a starting point the service to be offered (a metasearch or resource discovery service), identifies relevant aspects, and recommends areas for standardization that can support the service. Further, the metasearch approach will identify potentially useful standards that are available or emerging from other communities to address some of these problems.

Conclusions
The world of the networked library may be discomforting, yet it offers exciting opportunities to develop services never before possible. To conclude:

• The networked library will require the use of more and different kinds of standards, only some of which are developed by our information community. While we will continue to develop community agreements and standards appropriate for the problems we define, we will have to rely on, adapt to, and integrate standards developed by other information communities. Accommodating standards from other communities may seem disruptive, yet if they help us to build the services of the 21st century library, we all will benefit, especially our users
• Libraries are one information community among many in the networked information environment. We are part of a complex, distributed information landscape, and we have the responsibility to provide premier services to our users that help them make sense of this landscape and connect them with information wherever it is located and whatever format it is in.
• Standards are community agreements. If you can think of standards as community agreements, you can feel more ownership in them. They will feel less like impositions from without and more as supporting devices you need to provide services to your users and carry out your work. We have a long tradition of working together for the benefit of the community and our users. We can build on that collaborative spirit as we move to realize the opportunities of the networked library. This includes owning the responsibility for supporting the development of standards and adopting them.

• The standards developing organizations need your support. We are very fortunate to have NISO, a venue for coordinating the development and use of standards within our community. Standards development is not cheap. Standards committees consist of volunteers, and organizations must allocate resources to ensure participation on the committees. Development is only one aspect of the standards process – NISO is involved in publication, education, and outreach, and it provides logistical support for standards development. It does all of this with a staff that is likely too small for these critical responsibilities. If NISO were to disappear, our community would suffer. And likely we would need to set up a similar structure to ensure that the need for our community’s standards is met.

• A single institution is not likely to emerge to be the advocate or enforce standards. The Library of Congress has long played a critical role in supporting standards by its adoption of those standards. Would MARC have succeeded in the way it did without the leadership of Henriette Avram and the Library of Congress? But it’s not clear that single institutions can have the same influence in the networked environment. Therefore, it is incumbent on the community to embrace the standards.

• Envision the services and develop, adopt, and integrate standards to support those services. Services are what libraries offer. What standards do we need to enable these services? Which of those will be developed by our community and which will we inherit and integrate from others? We need to move from functional requirements to service requirements when thinking about, identifying, and selecting appropriate standards.

• The networked library implies a new balance between local needs and community-wide and network-wide responsibilities. In the 20th century, few libraries were islands unto themselves. Whether they were recipients of catalog cards from the Library of Congress, participants in shared online cataloging cooperatives, or borrowers or lenders in interlibrary loan transactions, the U.S. library community has worked together. The networked environment doesn’t call these arrangements into question, but I do think it will require a new equilibrium between serving local needs and participating in collaborative services. Individual libraries have much to gain – whether as a
Protocol (SOAP) for legacy systems, and SQL for relational access standards such as the Simple Object Access Profile, Z39.89—are utilized along with other search and extensions and profiles—including the U.S. National Runtime Environment. The Z39.50 search protocol and its dependent,” Noerr explains. Their code is written in Java system interconnections. “We’re highly standards oriented,” Noerr states. “It comes down to whether the right information is delivered.”

System interoperability at the access and search level is only part of the solution. MuseSearch integrates results sets from all source targets, applying duplicate removal, filtering, sorting, and relevance ranking prior to delivery. According to Kate Noerr, Chief Executive Officer, MuseGlobal uses proprietary analytics, such as clustering, to go deeper into manipulating the content. “The search results are what counts,” Noerr states. “It comes down to whether the right information is delivered.”

Standards play a critical role in enabling all the needed system interconnections. “We’re highly standards dependent,” Noerr explains. Their code is written in Java and runs on any operating system that supports a Java Runtime Environment. The Z39.50 search protocol and its extensions and profiles — including the U.S. National Profile, Z39.89 — are utilized along with other search and access standards such as the Simple Object Access Protocol (SOAP) for legacy systems, and SQL for relational database access. All retrieved records are reformatted internally for further results management, using such standards as Dublin Core and XML to support internal record structures. Linking technologies, utilizing standards such as OpenURL, have been applied to take a user from a citation result directly to the electronic content. The NISO Circulation Interchange Protocol (Z39.83) is being implemented to obtain resource availability information and allow users to request circulating items. MuseGlobal has also automated their own administrative processes, allowing them to do all installation, configuration, maintenance, and troubleshooting remotely, and making them highly dependent on Internet infrastructure and communication standards.

“We can be evangelistic about the use of standards,” Kate Noerr admits. “More standards compliance would simplify adding new content providers to metasearches.” MuseGlobal believes in taking an active role in standards development and joined NISO within six months of the company’s formation. “Wherever standards are important and where we can contribute, we want to be involved,” Noerr says. They participated as a testbed for OpenURL and joined the planning team for NISO’s new Metasearch Initiative. As a pioneer in metasearch technology, MuseGlobal is well aware of where metasearch standards are lacking. “Each implementation we do,” Noerr explains, “is configured to a specific library’s environment — their firewall, their content licenses, etc. Authentication is one of the biggest challenges we tackle and is an area where more standards are badly needed.”

MuseGlobal’s product line is not limited to library environments. Their new MuseSeek™ product is directed to more generalized Internet metasearching. Consistent with their partnership strategy, MuseSeek™ will primarily be sold through software partners. Expect in the future to find MuseGlobal metasearching on Web portals or in corporate Intranets. As an end user, you may not be aware you’re using MuseSeek™, but you will certainly appreciate the results.

Dr. William E. Moen is an Associate Professor in the School of Library and Information Sciences at the University of North Texas. He is the chair of NISO’s Standards Committee AV that developed the recently issued standard ANSI/NISO Z39.89, The U.S. National Z39.50 Profile for Library Applications. Email: wemoen@unt.edu

MEMBER SPOTLIGHT

Museglobal: Metasearching Where the Results are What Counts

by Cynthia Hodgson, ISQ Editor

Many end users of MuseGlobal’s metasearch products are unaware of the company’s existence. That’s because MuseGlobal sells exclusively through other vendors, who frequently bundle the MuseSearch product with their own offering. MuseGlobal has over 15 partnerships with information management software providers of integrated library systems (ILS), library Internet portals, and electronic content. Working with so many disparate systems is no problem for MuseGlobal. Their flagship MuseSearch software was created to enable the discovery, integration, and delivery of information in a metasearch, multiple source environment. The underlying MuseBridge™ software translates a user’s search into the native search language of each target system, ensuring that all the available search capabilities of each system can be utilized.

System interoperability at the access and search level is only part of the solution. MuseSearch integrates results sets from all source targets, applying duplicate removal, filtering, sorting, and relevance ranking prior to delivery. According to Kate Noerr, Chief Executive Officer, MuseGlobal uses proprietary analytics, such as clustering, to go deeper into manipulating the content. “The search results are what counts,” Noerr states. “It comes down to whether the right information is delivered.”

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NISO NEWS AND NOTES

NISO Holds ISBN Briefing at ALA Midwinter

The new 13-digit ISBN that becomes effective on January 1, 2007 was the subject of a NISO-sponsored panel presentation on January 12 at the ALA Midwinter meeting in San Diego.

Michael Healy (Neilsen BookData Ltd.), chair of the ISO Working Group (WG) that is revising the ISBN standard, provided background on the reasons for the standard revision, highlighted the key changes, and reviewed the projected publication schedule. In addition to concerns about running out of capacity with the current 10-digit number, the WG wanted to address concerns that the standard developed in 1972 and last revised in 1992 was out of touch with current identifier and technology developments. The latest revision of ISO 2108 will expand the ISBN to 13 digits, ensure conformity with the EAN UCC barcode, require different ISBNs for separately traded versions and parts, include a corresponding recommended metadata set, and provide for a new international governing agency owned and funded by the national ISBN agencies.

The impact of the ISBN change on the book supply chain was discussed by Laurie Stark (Random House), Doug Cheney (Barnes & Noble), and Jim Stewart (Ingram), who gave, respectively, the publisher, book seller, and book distributor perspectives. The book supply chain is faced with another change whose sunrise date is January 1, 2005, a full two years before the 13-digit ISBN goes into effect. At that time, the UPC 12-digit barcode, which is prevalent in North America, will be merged into the EAN 13-digit barcode that is currently in use in much of the rest of the world. The EAN barcode applies to a wide range of retail products beyond books, including such items as music CDs and movie DVDs. Long before the new ISBN is required, the book industry will be changing their internal systems and processes to handle a 13-digit numbering system. Integration between the systems used by all the different players in the book acquisition cycle, including integrated library system vendors, will require much cooperation, effort, and advance testing.

Ted Koppel (The Library Corporation) and Ted Fons (Innovative Interfaces, Inc.) reviewed issues for library system vendors. The ISBN is used in many different modules of an integrated library system. It is often the primary identifier used during the acquisitions cycle and is frequently the most effective way to find shared cataloging records. Most systems allow users to search and retrieve records by ISBN and the number is also used as a linking mechanism to enhanced bibliographic information such as Table of Contents and jacket blurbs. Many other standards accommodate (or even require) the ISBN number including MARC 21, ISO 10160 (the ILL protocol), Z39.50, NCIP, DOI, and OpenURL. Vendors will have to ensure that every field in their systems that could contain an ISBN will support the longer length. Most ILS vendors currently have ISBN matching and validation algorithms which will have to be re-programmed. The Bisac book ordering format, currently in wide use, will be a particular problem because it uses both a fixed length and fixed position for the ISBN. The BISAC committee is recommending a new XML replacement format and most ILS vendors expect to phase out the BISAC format.

NISO will be holding another ISBN Briefing on June 26 at the annual American Libraries Association (ALA) meeting in Orlando, FL. The briefing is open to all conference attendees. For information on the current status of the ISBN standard, see the ISQ article on page 10.

Framework for Good Digital Collections Updated

A new version of the Framework of Guidance for Building Good Digital Collections is available on the NISO website. The Institute of Museum and Library Services (IMLS) transferred maintenance of the Framework to NISO in September 2003; the update is the first product of NISO’s advisory group formed to contribute to the document’s further development.

The Framework provides a set of high-level principles for identifying, organizing, and applying existing knowledge and resources to collections of digital resources. For each category of Collections, Objects, Metadata, and Projects, the Framework defines general principles relating to quality and provides a list of supporting resources such as standards, guidelines, best practices, explanations, discussions, clearinghouses, and case studies. Originally prepared in 2001 under the auspices of the IMLS, the Framework has earned wide recognition in the library and museum communities and the endorsement of the Chief Officers of State Library Associations as well as the Digital Library Federation.

NISO’s advisory group that developed the update is composed of experts from the digital resources community: Priscilla Caplan, chair (Florida Center for Library Automation), Grace Agnew (Rutgers University), Liz Bishoff (OCLC, Inc.), Rebecca Guenther (Library of Congress), Ingrid Hsieh-Yee (Catholic University), and Leonard Steinbach (Cleveland Museum of Art). The Advisory Group will continue to aggressively reexamine the Framework. Readers are invited to send their comments and suggestions on how to improve and expand the Framework.

Read the Framework on NISO’s website at: http://www.niso.org/framework/
Networked Reference Services Q/A Protocol in Trial Use

The draft Question/Answer Transaction Protocol for the Networked Reference Services standard, NISO Z39.90, has been released for a one-year trial use period: April 5, 2004 - April 5, 2005. This protocol defines a method and structure for data exchange between digital reference service domains. Digital reference services constitute a new and rapidly growing extension of the traditional reference offered to library patrons. While the service may be delivered via real-time chat or asynchronous e-mail, the essential characteristic of the service is the ability of the patron to submit questions and to receive answers via electronic means.

“There was strong interest in enabling localized network reference service domains to be interconnected with other collaborative reference services so questions that could not be answered in the “local” domain could be passed to another – and this needed to be done in a totally automated, cost effective manner” noted Sally McCallum, Chief of the Network Development Office at the Library of Congress. “The networked reference protocol addresses this need. It specifies communications between domains for conveying questions, obtaining clarifications, returning answers, and other interactions related to this basic sequence.”

“Four main categories of people have been keenly interested in developing this standard,” noted Pat Harris, Executive Director of NISO. “They are the developers of digital reference services or software; the community trying to incorporate digital reference services into existing systems such as e-learning systems; groups assessing, acquiring, and specifying digital reference systems, such as government purchasing agencies; and librarians.”

Z39.90 was developed by NISO Standards Committee AZ: Sally McCallum, Chair (Library of Congress); Ray Denenberg (Library of Congress); Donna Dinberg (Library and Archives Canada); Cary Gordon (The Cherry Hill Company); David Lankes (Syracuse University); Michael McClennen (Internet Public Library); Alison Morin (Library of Congress); Mary Parker (MINITEX); Jeff Penka (OCLC); Joan Stahl (University of Maryland); Michael Teets (OCLC); and Rebecca Guenther, NISO SDC Liaison.

Download the draft and review related information at: http://www.loc.gov/standards/netref/

New NISO Members – Ithaka/JSTOR/ARTstor, KINS, and Checkpoint Systems

NISO welcomed two new members, Ithaka/JSTOR/ARTstor and KINS, and returning member Checkpoint Systems, Inc.

Ithaka/JSTOR/ARTstor was formed from two electronic repository projects sponsored by the Andrew W. Mellon Foundation. JSTOR, located in New York and Ann Arbor, Michigan, has created an electronic archive of back issues of scholarly journal literature. Journals were scanned and both a searchable text file and an image of the original pages were created. The collection now numbers over 14 million pages from some 400 journal titles. The ARTstor project, located in New York, is building on the technology learnings from JSTOR to create a collection of digital art, architecture, and archeology images; accompanying descriptive information; and software tools to enable active use of the collections. The collection contains over 300,000 images and is still growing. David Yakimishak is the NISO voting representative for Ithaka/JSTOR/ARTstor and Bruce Heterick is the alternate.

Knowledge Info-Net Services, Inc. (KINS), located in Seoul, Korea, is a document delivery supplier and provider of electronic databases to Korean libraries. Their Knowledge Database (KDB) Digital Library and Linking System products offer access to bibliographic databases and linkage to full-text documents. KINS’ voting representative to NISO is Myung-Jong Ki; Young-Jun Choi is the alternate.

CheckPoint Systems, Inc., headquartered in Thorofare, New Jersey, is a multinational manufacturer and marketer of security devices for retail stores, supermarkets, warehouses, manufacturing facilities, and libraries. Their library applications include RFID and electromagnetic anti-theft systems, CCTV and access control technologies, reusable security packaging products, and turnkey barcode systems. Their RFID based Intelligent Library System® lets patrons check books in and out by themselves. Douglas Karp is Checkpoint Systems voting representative to NISO and Frank Palazzo is the alternate.

NISO Finds Its Own Road was the feature article in the April 2004 issue of the Consortium Standards Bulletin. Author Andrew Updegrove describes how NISO’s role in standards development has evolved with the onset of the Internet, World Wide Web, and digital information resources. Read the entire article at: http://www.consortiuminfo.org/bulletins/apr04.php
Serials Exchange JWP Initiates Serial Release Notification Project

The NISO/EDITEUR Joint Working Party (JWP) on the Exchange of Serials has launched a new project: an ONIX for Serials transaction format called the Serial Release Notification (SRN). The SRN, which will be based on the ONIX Serial Item Record format, will communicate notification that one or more serial issues and/or articles have been published. Envisioned uses include applications from library check-in systems to current awareness services. Interested participants, particularly library systems vendors, are being sought for the SRN subgroup that will be responsible for specifying the SRN format, developing use cases, and organizing pilot use of the SRN.

The JWP is a group of librarians, publishers, vendors, subscription agents and other parties involved in using or communicating information about serial products and holdings. Last year the JWP developed and piloted XML transaction formats based on ONIX for Serials for communicating lists of serial products, subscriptions, and holdings for use in publishers management systems, link resolvers, and library systems. Richard Gedye of Oxford University Press and Priscilla Caplan of the Florida Center for Library Automation co-chair the group.

Serials Exchange JWP website: http://www.fcla.edu/~pcaplan/jwp/

Information Services Metrics and Statistics Standard Released for Ballot

Z39.7, Information Services and Use: Metrics and statistics for libraries and information providers – Data Dictionary, was released to NISO voting members for ballot on March 8, 2004. This fourth revision of the standard defines a common vocabulary for data collection for libraries and information providers to use in measuring services and determining the level of use. New features include:

- metrics for electronic resources (emetrics),
- an online interactive data dictionary, and
- appendices of measurement best practices.

Metrics and Statistics for Libraries is the product of NISO Standards Committee AY, whose members include: Denise Davis, Chair (State Library of Oregon), Brian Auger (Howard County Public Library), John Carlo Bertot (Florida St. University, Information Use Management and Policy Institute), Dianne Carty (Massachusetts Board of Library Commissioners), Oliver Pesch (EBSCO Publishing), Sue Phillips (University of Texas at Austin), Sherrie Schmidt (Arizona State University Libraries), J. D. Waggoner (West Virginia Library Commission), Ann Carlson Weeks (University of Maryland College of Information Studies), Peter R. Young (National Agricultural Library), and Patricia Stevens, NISO SDC Liaison.

NCIP Website Launched

The Colorado State Library, the maintenance agency for the NISO Circulation Interchange Protocol (NCIP) standard, Z39.83, has launched an official website for the standard, NCIP Forum.

The Maintenance portion of the website will post application profiles, known defects, DTDs and XML schemas, and proposed and approved amendments to the standard. The Implementation portion of the website contains documentation of the activities of the NCIP Implementation Group including meeting agendas and minutes, toolkits, test beds, implementation guidelines, and informative presentations about the NCIP standard.

Visit NCIP Forum, the official maintenance agency website: http://www.cde.state.co.us/NCIP/

OpenURL Test Suite Available

Openly Informatics has made available a suite of test links for the OpenURL 1.0 Standard, NISO Z39.89, which was recently submitted for ballot to the NISO membership. Testers can enter the baseURL of a link server and test its interoperability with multiple profiles and content objects as defined in the Standard.

The test suite was developed by Eric Hellman—President of Openly Informatics and a member of the NISO standards committee that developed Z39.89—to improve interoperability among link servers and promote implementation of the NISO OpenURL Standard.

The test suite is available at: http://isi.1cate.com/t/test/niso-suite-10.html
SRW/U and CQL
Specifications Released

The Z39.50 International Next Generation (ZING) implementors group has released version 1.1 of the Search/Retrieve Web Service (SRW), Search and Retrieve by URL (SRU), and the Common Query Language (CQL). Version 1.1 has been in development for more than a year and is the first official version, superseding an earlier experimental release.

SRW is an XML-based protocol for searching databases containing metadata and objects, both text and non-text. It incorporates standard Web technologies with Z39.50 features, most notably, the Search, Present, Sort, and Scan Services, allowing a common search of Web search services and gateways to Z39.50 systems. SRU is a form of the SRW service that encodes the query request within a URL, instead of using XML.

CQL is a formal language for representing queries to information retrieval systems such as Web indexes, bibliographic catalogs, and museum collection information. CQL’s goal is to combine the user friendliness and simplicity of a Web search engine like Google with the power of expressing complex concepts found in high-level query languages such as SQL. CQL is the language in which queries are expressed for both SRW and SRU, however its use is not limited to SRW/SRU.

The SRW/SRU and CQL version 1.1 specifications are being submitted for official NISO Registration.

RLG Study Examines Technical Metadata for Still Images

The RLG has released a study report, Automatic Exposure: Capturing Technical Metadata for Digital Still Images, as the first step in their initiative to “minimize the cost of technical metadata acquisition and maximize the cultural heritage community’s capability of ensuring long-term access to digital assets.” The initiative utilizes the data elements in NISO Z39.87, Technical Metadata for Digital Still Images. (This NISO standard recently completed its trial use period and is being readied for ballot.)

The study report identifies problems and opportunities, reviews the NISO standard, and evaluates the current state of capture devices and cultural community-related metadata harvesting projects.

The Automatic Exposure working group will be focusing its efforts on three areas:

- Engaging manufacturers of high-end scanners and digital cameras about technical metadata needs and current product capabilities.
- Examining how to leverage existing initiatives to support the NISO Z39.87 metadata set.
- Identifying and evaluating tools for harvesting technical metadata.

A key issue to resolve is what format the metadata gets captured in and how it gets packaged for transport. The report states a preference for encoding the Z39.87 metadata in MIX XML, a schema developed by the Library of Congress’ Network Development and MARC Standards Office and NISO Standards Committee AU that was responsible for Z39.87.

The RLG Automatic Exposure initiative is supported by the Consortium for Interchange of Museum Information (CIMI), the Digital Library Federation (DLF), and the Museum Computer Network (MCN).

SAA to Conduct Archivist Needs Survey

The Society of American Archivists (SAA) is conducting a comprehensive nationwide census of the archival profession. The goal of the Archival Census and Education Needs Survey in the U.S. (A*CENSUS) is to “define the universe of archivists currently in the workforce, determine the knowledge and skills they need to do their jobs now and in the future, and provide graduate and continuing education programs with data to support recruitment and training of new archivists.” The survey is funded by the Institute for Museum and Library Services. Some 65 U.S.-based archival organizations will be participating by distributing the survey to their members in the spring of 2004. Organizations in related fields with members who have significant responsibility for historical documents will also be contacted. Individuals working in archival professions who would like more information about participating in the survey can send an email to: acensus@archivists.org.

A final report of findings will be issued in the spring of 2005. Some preliminary results may be available for sharing at the SAA annual meeting in Boston in August.
INTERNATIONAL UPDATE

ISBN Goes to Ballot


Two additional resources have been made available to aid in understanding and implementing the new standard: The International ISBN Agency has issued *Guidelines for the Implementation of 13-Digit ISBNS* that identify what must be done by January 1, 2007 and provide guidance on how to address a number of potential issues. The ISO Working Group that developed the revision (TC46/SC9/WG5) has published *Frequently Asked Questions about changes to the ISBN* on their website, answering a number of questions about the new ISBN.

A team of dedicated standards professionals from the book and library community have worked together since early-2002 to revise, expand, and refine the ISBN to DIS stage in only two years.

The draft requirements can be reviewed at: http://www.search.gov/interop/requirements.html

W3C Issues RDF and OWL Recommendations

The World Wide Web Consortium (W3C) announced in February 2004 its final approval of the *Web Ontology Language* (OWL) and the revised *Resource Description Framework* (RDF). RDF and OWL are critical standards for the Semantic Web, a common framework that allows data to be shared and reused across application, enterprise, and community boundaries.

RDF is an XML extension used to describe Web resources and provide interoperability by supporting the inclusion of multiple metadata schemas and namespaces in a single RDF description.

OWL is a language that can describe the meaning of terminology in Web-based information. It is designed to allow applications to process information content for purposes other than just presenting the information to humans, and used to create and share sets of terms called ontologies, which will support such technologies as advanced searching, intelligent agents, and knowledge management.

W3C approved Recommendations are accepted by industry and the Internet community as official standards. The final approval of the RDF and OWL Recommendations will encourage their use in commercial applications and production deployment projects.

The Guidelines and FAQ are available on the WG’s website: http://www.collectionscanada.ca/iso/tc46sc9/isbn.htm
ISSN Revision Scenarios

The ISO working group tasked to consider possible changes to the ISSN (International Standard Serial Numbering, ISO 3279) held its first meeting in Paris on January 26-27, 2004. Included in the group are NISO-appointed experts: Yvette Diven (R. R. Bowker), Ed Pentz (CrossRef), and Regina Reynolds (Library of Congress).

The working group has decided to add an informational appendix to the revised standard that will specify “best practices” for the use of ISSN in DOIs, relate the ISSN to the OpenURL standard, and give examples of the uses of the ISSN in OpenURLs.

A second outcome of the meeting was the development of scenarios for allowing the ISSN to function as both a “work” and “product” identifier. Currently a different ISSN may be assigned to different “products,” e.g. print, online, CD-ROM, of the same serial “work.” This practice helps the publishers and distributors to differentiate the version that is sold or licensed. However, it can make resource sharing and linking technologies more difficult to implement. The group is conducting telephone surveys to get feedback on four possible approaches to this situation:

- **Scenario A**: ISSNs are assigned to each different medium (e.g. print vs. electronic; online vs. offline; CD vs. DVD) but not to each different format (e.g. HTML vs. PDF; SGML vs. XML). This is the current situation, although not all publishers follow it.

- **Scenario B**: ISSNs are assigned to a serial publication at the title level, to cover all versions. This is essentially making the ISSN a “work” identifier.

- **Scenario C**: A “base ISSN” is assigned to a serial publication at the title level (i.e. as for Scenario B), but standardized suffixes are used to identify each media version (e.g. ISSN 1234-5678.dvd) and possibly each format (e.g. ISSN 1234-5678.htm).

- **Scenario D**: A “master ISSN” is assigned to a serial publication at the title level and separate “secondary ISSNs” are assigned to different media and/or format versions (e.g. ISSN 1234-5678 is assigned to title, 2345-6789 to the CD version, 3456-7891 to the online version, 4567-8912 to the print version, etc.). Each ISSN would be “dumb” so a database will be needed to link secondary ISSNs to master ISSNs.


ILL Protocol Standards Merged and Revised

The ISO Interlibrary Loan Protocol standards, ISO 10160 and ISO 10161-1 have been merged into 10161-1, Interlibrary loan application – Part 1: Service definition and protocol specification. ISO 10161-2, Protocol implementation conformance statement (PICS) proforma will continue to be a separate part of the standard. The ISO Standards Committee responsible for the ILL Protocol (TC 46 / SC 4) elected to take the revised two-part standard directly to ballot as a Draft International Standard (DIS), shaving at least 5 months off the approval process. The ballot period runs from April 27-September 27, 2004.

DOI White Papers and Fact Sheets Added to Website

The International DOI Foundation has added new sections for White Papers and Fact Sheets to the Digital Object Identifier (DOI) website. The White Papers webpage provides links to third-party reports and papers that discuss the use of the DOI.

The FactSheets are concise summaries on DOI features with an implementation focus and are particularly helpful in understanding how the DOI compares to or complements other standards. FactSheets currently available are:

- **DOI and Handle** – Describes the difference between DOI and the underlying Handle technology with emphasis on DOI value-added features.

- **DOI and Standard Numbering Schemes** – Discusses how the DOI complements existing standard identifiers such as ISBN, ISTC, SICI, etc.

- **DOI and Data Dictionaries** – Explains what a data dictionary is, how DOI uses the <indecs> Data Dictionary, and the relationship to the MPEG-21 Rights Data Dictionary.

- **DOI Applications** – Summarizes how a DOI works and can be used.
Succeeding as a Standards Professional
Part 5: Your Future as a Standards Professional *

by Laura Hitchcock

Laura Hitchcock is Senior Standards Specialist, External Standards Management with The Boeing Company, Seattle, Washington. She has over 20 years of diversified experience in standards, standards administration, and management. Hitchcock is a member of the ASTM Board of Directors.

If you asked most standards professionals how they got where they are today, the answers would be as varied as the individuals. Chances are they followed no set course or career path. Most of them have carved out a good portion of their current positions themselves and accept the fact that they are probably the ones to orchestrate any future personal career growth. And that’s the basis for this article, which reviews many of the ideas in the previous four. If you are committed to being a standards professional and to having a career managing, developing, or strategically employing standards, then it’s up to you to define your future. What follows are six strategies you can employ to build a career as a recognized and valued standards professional.

Disseminate Standards Information
To be widely recognized as a standards expert, you need to become the center of standards information. Establish yourself as the standards “infomediary” — the central switchboard and clearing house for standards information. Never miss an opportunity to pass standards data on to others. Like the movie slogan for Ghostbusters, the answer throughout your company to “Who you gonna call about standards?” should be your name.

Of course to disseminate information, you must first gather it. One of the easiest ways is to “cruise the news.” Define the core of information resources you need and the people and places that can help keep you current. These can include:

• Newsletters of standards developing organizations;
• SDO Web sites;
• Internal news;
• Industry associations;
• Competitors’ Web sites;
• Regular conversations with others involved in standards;
• Trip reports from committee participants.

Once you’ve gathered standards information, you need to share it. Develop regular reports and briefings for those in your organization who manage the budgets, may be impacted by or interested in the information, or are just ready to listen. Disseminate this information via newsletters and Web pages. Incorporate your findings wherever appropriate: employee educational materials, organizational displays, yearly reports, budget proposals, etc. The more you’re seen as the focal point for standards information, the better position you’re in to promote yourself as a corporate resource.

Educate Others
The standards corollary to the academic watchwords of “publish or perish” would have to be “educate or perish.” With today’s business environment in a constant state of flux, there’s no guarantee that the champions and supporters of your standards work will be there tomorrow. In addition to being ready at a moment’s notice to provide information on the use and value of standards to your company’s products and processes, you must actively seek venues for promoting standards education.

Build a library of pitches to cover common educational opportunities such as:

• New management: Be prepared to brief them.
• The budget review: Be prepared to justify the value of standards work.
• New product development: Show how your services can benefit a new product development team.

Develop and promote training for all levels. Don’t just focus on the levels above you. Put together training for your company on how to access and use standards. Develop training and resources for those participating in standards development committees. Ask yourself what information a new committee member would need to participate effectively and efficiently in the development of value-added standards for your industry.

Education is a never ending process. And it’s one of your most important functions as a standards professional.

Facilitate the Business of Standards
There is a business side to standards. Technical information doesn’t just spring forth and implement itself. Develop and promote training for all levels. Don’t just focus on the levels above you. Put together training for your company on how to access and use standards. Develop training and resources for those participating in standards development committees. Ask yourself what information a new committee member would need to participate effectively and efficiently in the development of value-added standards for your industry.

Education is a never ending process. And it’s one of your most important functions as a standards professional.
facilitation of the business of standards. Successful standards development or management demands a focus on processes. Every step in the business of standards should add value. Take a look at the process improvement and quality management tools used by your organization. These same tools can be applied to the business elements of standards. Processes for standards development, coordination, distribution, etc. (and the tools used to perform those processes) should be nimble, flexible, and change along with the changing business environment. Use these tools to facilitate improvements to your standards processes.

In dealing with the business end of standards, new skills are emerging for the standards professional.

**Project Management**

Approaching the development or revision of a standard as a project, with schedules, milestones, and deliverables, will keep work moving along and ensure timely results. Becoming more disciplined regarding standards processes and building in metrics, will allow you to be more knowledgeable about the bottlenecks and potential areas for improvements.

**Systems Analysis**

This is use of systems analysis in the original meaning of the term: being able to look at the big picture and understand information flows, task dependencies, and fundamental requirements, being able to delve down to the true reasons for why something “is,” and separating out legacy issues (“because we’ve always done it that way”) from true requirements.

**Team Building and Facilitation**

Let’s face it, the basic tenet behind standardization is coming to an agreement on a process, method, term, product, etc. A good standards professional should be skilled in the tools required to bring a group of stakeholders together, focus the activity, and produce a product. Just locking the door and refusing to let anyone out until there’s consensus is not a winning strategy (tempting though it may be). If your company provides courses on team building, take advantage of them. The true value of a standard lies in the agreement process. Standards development has historically been the domain of engineering. However, users or primary beneficiaries are often found in other areas: procurement, customer support, after-market services, etc. Reach out to these other groups to facilitate the building of the bigger picture of how standards are used and where they add value.

And lastly, when it comes to facilitating the business of standards, don’t forget to work with other industry members. Often your competitors can become your strongest allies in working toward standardization.

**Integrate Standards into Your Business Streams**

To really leverage the value of standards and standardization, you must integrate standards into all parts of your business. The quality community realized that to manage quality successfully, it had to become a part of the corporate culture. Like quality, standards and standardization are not something that should only be considered after the fact and engineered as an add-on. Standards need to be integrated right from the start during every phase of the design/build/support processes. And the business of standards needs to be managed along with all the other business activities.

The most direct way of integrating standards is to elevate the management of the business of standards up to the same level as the management of quality, safety and environment. Define the organization responsible for standards management and standards strategy and then hold them accountable on a regular basis. World-class companies have explicit programs to manage quality, product safety, and the environment — they must also have a program to manage standards and standards development. There’s a standards component to everything your company does. Find it, highlight it, leverage it.

**Network**

It’s not what you know, but who you know — and who knows you. Being able to facilitate the business of standards and to integrate standards into the key business process in your company means working with people. To do this effectively and efficiently means managing these relationships as one of your most valuable assets.

**Know the Players at All Levels**

Don’t just focus on the people above you in the food chain. Get to know key people above, below and lateral to you. Make sure you have a few good contacts in every business unit or corporate center. You never know who will emerge to champion a standards issue for you. The broader your network of contacts, the more quickly you can get important information to the right parties.

**Your Rolodex Is Your Best Friend**

Business cards are your links to people outside your company who can help you. Mark on the back of the card where you met someone and any important information about them, their position, or what you talked about. Periodically cull through your collection of business cards to make sure they’re current.

**Facilitate Standardization By Bringing the Involved Parties Together**

We talked above about facilitation being one of the key elements of a standards professional’s job. Critical to facilitation is knowing the right people in the right places that need to be brought together to address a specific standards issue. Your network of contacts should break down easily into sub-networks based on standards subjects: quality, safety and health, environment, electrical, composites, fasteners, etc.
Energize Everyone Around You

You’ve heard the old saying, “Hire for attitude, train for the job”? Well, in standards, as in life, attitude is everything. Working in standards means dealing with people, struggling to reach consensus or helping people to understand. You’re not going to be successful all the time. But more than whether you succeeded or not, people will remember your attitude and how you approached a challenge or dealt with a setback. Being a standards professional means bringing together people who don’t work for you and over whom you have no power, and inspiring them to want to work together on a standards issue.

Be the catalyst for change. You have the choice of whether to initiate change in a proactive manner or just waiting until you have to react. By being the catalyst you can help shape the future and ensure that standards and standardization are an integral part of that future. And finally, the most important part of being a professional is mentoring the next generation. Throughout this series of articles we have focused on ways the individual can grow and be recognized as a leader in standards. But the single, most important thing a professional can do is to pass on their knowledge and skills. There’s a tendency to guard job skills, contacts, lessons learned, etc. as a form of job security. And while that may ensure that you’re the only one who knows what to do, it also ensures that you can never move on or take on any new tasks because you’re stuck doing the same old things you’ve done for years. Think back on all the people, both inside and outside of your company who’ve helped you in your standards career. Now ask yourself: If I won the lottery, who could step into my shoes?

The true test of whether the work you’ve done and the processes you’ve put into place are well and truly integrated into the corporate culture, is if they survive after you’ve moved on. If processes are dependent on the personality of a single individual, they are not robust. Pass the excitement on to others.

Previous articles in this series:

Be a Standards Catalyst Through Involvement with NISO

Your knowledge about standards developments and your participation in standards development organizations are important ways to distinguish yourself within your organization and professionally. NISO offers you many different ways to help you build your standards skill-set and expertise:

- **Voting Membership**: As a voting representative to NISO you will be on the front lines of supporting the standards infrastructure and demonstrate that your organization is a leader in the community! You will have the inside track on standards directions and be in a position to influence that direction.

- **Serve on a NISO standards committee**: Let us know your areas of expertise and the skills you can bring to the standards development table. NISO is always scouting for new talent.

- **Standards Alliance**: Libraries are invited to join NISO’s Standards Alliance to demonstrate their support for standards and their commitment to standards-based solutions.

- **Attend NISO’s programs and workshops** and network with your colleagues that are also tracking standards.

- **Subscribe to NISO-L**, our email list, and get regular updates on standards progress and events on your desktop.

- **Read ISQ** and get the facts on standards development.

Notice to ISQ Subscribers:

ISQ is now available as a downloadable PDF with activated bookmarks and hyperlinks. To get the electronic version, contact the NISO office and request this new service!
STANDARDS STATUS: APRIL 1, 2004

This is a capsule report on each active NISO standard in development. The list does not include current, approved standards that are not in revision. To learn more about each activity, go to http://www.niso.org/standard.html

Note: DSFTU stands for Draft Standard for Trial Use.

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CALENDAR

May 2004

May 12-14 NISO Board of Directors Meeting Berkeley, CA
May 20 NISO Metadata Workshop Washington, DC

June 2004

NISO sessions at the ALA Conference in Orlando, FL
June 25 NISO AVIAC Meeting (4:30 – 5:30 p.m.) Ritz-Carlton Orlando Resort, Genoa II
June 26 NISO/EDITEUR Joint Working Party (8:30 – 11:00 a.m.) members only Renaissance Orlando Resort at Seaworld, Walu Room
June 26 The Changing ISBN: Will you be ready? (4:30 – 5:30 p.m.) Renaissance Orlando Resort at Seaworld, Crystal Ballroom D

June 27 NISO Standards Update (4:00 – 6:00 p.m.) Convention Center, Room 314b
June 28 NISO Metasearch Initiative Forum (9:30 – 11:00 a.m.) JW Marriott Grande Lakes Resort, Palazzo G

July 2004

July 29-30 NISO Standards Development Committee meeting Washington, DC

September 2004

Sept 9-10 NISO Board of Directors meeting Washington, DC
LINKS FOR LEARNING

NISO Finds Its Own Road
Describes how NISO’s role in standards development has evolved with the onset of the Internet, World Wide Web, and digital information resources.
http://www.consortiuminfo.org/bulletins/apr04.php

A Dozen Primers on Standards
One-page primers on a dozen of today’s most important standards: ARK, DOI, METS, MODS, NCIP, OAI-PMH, ONIX, OpenURL, RDF, RSS, Shibboleth, and SRW-SRU. Includes for each: acronym, what it stands for, purpose & description, groups behind it, stage of development, and pros & cons.
http://www.infotoday.com/cilmag/feb04/primers.shtml

Using MPEG-21 DIP and NISO OpenURL for the dynamic dissemination of complex digital objects in the Los Alamos National Laboratory Digital Library
Describes a digital library repository project that utilizes technologies based on the MPEG-21 Digital Item Declaration Language, the Open Archives Initiative Protocol for Metadata Harvesting, and the OpenURL specifications.
http://www.dlib.org/dlib/february04/bekaert/02bekaert.html

Identifiers and Identification Systems: An Informational Look at Policies and Roles from a Library Perspective
Reviews document and object identifier standards and their repositioning for use in a networking environment.
http://www.dlib.org/dlib/january04/vitiello/01vitiello.html

Metadata Debate: Two Perspectives on Dublin Core
by Wendy M. Duff and Andrew Wilson, DigiCULT.Info, 6, pp. 31-34, December 2003.
Duff questions whether the Dublin Core is sufficiently robust and in use for archivists to adopt. Wilson makes a case for the significance of the Dublin Core and its contribution to metadata interoperability.

PDF/A: developing a file format for long-term preservation
Describes the need for a preservation file format and the reasoning behind the decision to develop a standard on the Portable Document Format (PDF).
http://www.rlg.org/preserv/diginews/v7_n6_feature1.html

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