RFID in U.S. Libraries: Recommendations from the NISO Working Group

This article is an extract from a NISO Recommended Practice, RFID in U.S. Libraries (NISO RP-6-200x), to be published on the NISO website in early 2008.

The key goal of this document is to promote interoperability where RFID systems or products work with other RFID systems or products without special effort or intervention on the part of the customer across the supply chain. This will create institutional and supply chain efficiencies, reduce component cost, and improve return on investment in RFID technologies.

Today we are far from an interoperable environment. Most RFID systems available are proprietary in some manner. Customers currently often purchase tags, readers, self check-out stations, and any other components from the same vendor. The proprietary nature of these systems increases costs, makes changing vendors expensive, results in hesitancy to purchase RFID technologies, and limits the real potential of RFID as a cross-institution platform for identification.

The charge of the NISO RFID Working Group was limited to item identification—that is, the implementation of RFID for books and other materials—and specifically excludes its use with regard to the identification of people. Thus, this report does not touch on the subject of smart cards and other uses of RFID for the identification of individual persons. The NISO RFID Working Group specifically recommends that data relating to individual persons never be recorded on item tags.

Early and current RFID implementers are at considerable risk because of the lack of interoperability of proprietary vendor systems. While some movement toward interoperability is occurring, true interoperability that allows libraries to procure the tags, hardware, and software from independent providers and book jobbers to use with all tags is still a long way from reality.

An RFID standard with an agreed upon data model is an essential first step. While a data model cannot fully resolve the interoperability issue, it offers a giant initial step by defining fields that are either mandatory or optional and either locked or unlocked for library applications. This model is a key precursor to a world in which a library can procure tags from different vendors, merge collections containing tags from different vendors, and, for the purposes of interlibrary loan, read the tags on items belonging to other libraries.
Use of RFID in Libraries

Libraries use RFID tags on books and other items to provide identification during check-out, check-in, inventory, and for theft deterrence. Benefits of adoption may include:

- reduction of staff manual processes and errors;
- reduction of staff and patron time spent in finding items;
- increased customer satisfaction and access to more items as the fast RFID check-in process quickly clears their accounts; and
- enhanced customer experience through fast and private self check-outs.

Early implementers of RFID technology have been obliged to apply and program their own tags to library items, e.g., books, periodicals, media, kits, and other assets. Now libraries may choose to have their book jobbers apply and program tags prior to shipment. While this is an increasing trend for new items, in-library application is still required for retrospective conversions of existing items and new books, media, periodicals, donated materials, and other items not procured through the book jobber. Retrospective conversions can be processed wherever there is a PC with barcode scanner, programming software, and an RFID reader.

Self check-out stations utilizing RFID have been tremendously successful and, while untagged items or patron circumstances—e.g., excessive fines, expired cards, address checks, and other blocks on cards—may still require a staff check-out, some libraries are seeing self check-out rates range from 30–99% of total transactions.

Manual check-ins are made significantly easier, faster, and more ergonomically friendly with RFID, because fewer fine motor movements are required to place an item on a reader than to read the barcode with a scanner. For those using multi-item processing, more books can be checked in at one time. Conveyor and sorting systems are becoming more prevalent in libraries with the advent of RFID technology.

RFID technology also makes such mundane tasks as shelf reading, inventory control, and item location considerably faster.

While RFID is not necessary for ILL, it could be a powerful force for efficiency. A key requirement for interlibrary use is compliance with a national or internationally accepted data model.

RFID Standards

There are two International Organization for Standards (ISO) standards pertinent to library RFID tags and readers: ISO/IEC 15693, Identification cards – Contactless integrated circuit cards – Vicinity cards (in three parts) and ISO/IEC 18000-3 Mode 1, Information technology – Radio frequency identification for item management – Part 3: Parameters for an air interface communications at 13,56 MHz. These two standards define the wireless interface and communication protocols between RFID tags and readers. The two standards, though related, are not equivalent. ISO 18000-3 Mode 1 has additional features and some of the features that are optional now are likely to be upgraded to requirements.

Two additional relevant standards are ISO/IEC 15961 and 15962. ISO/IEC 15961, Information technology – Radio frequency identification (RFID) for item management – Data protocol: Application interface, deals with the commands and responses between the application and encoder. ISO/IEC 15962, Information technology – Radio frequency identification (RFID) for item management – Data protocol: Data encoding rules and logical memory functions, deals with the process of converting printable characters or those that appear on a screen into a compacted form for encoding on the RFID tag.

NISO RFID Data Model

The main goal of the model is to provide interoperability for libraries so that libraries can invest in RFID with confidence that they will be able to read tags on items from many other libraries, and so that they will have choices in purchasing RFID equipment and tags in the future.

The goal of interoperability is achieved by following standards and by making sure that the data on the tag is in a standardized format and is used consistently by all users. The specification contained in the data model provides flexibility for some feature differentiation among the vendors by allowing for optional data, and by not specifying controls on how the data can be used. It also provides a minimum set of the data objects, which must be provided to perform the most basic of library functions using RFID equipment. The ultimate intention is that RFID tags programmed by one vendor in compliance with the data model will be usable by another RFID vendor without any reprogramming.

There are several data models in use in different parts of the world, including those created by groups in the Netherlands, Denmark, United Kingdom, and Australia. Most countries have adopted models similar to the Danish model (see http://www.en.ds.dk/3196) with some important variations. The NISO RFID Working Group felt that the Australian model (see http://www.sybis.com.au/Sybis/4n597-599%20proposal%20document.pdf) came closest to meeting its needs and used it as a starting point.

When discussing the possibilities for recording data on RFID tags, it is important to consider that, while the variety of data that might be written on a tag is virtually unlimited, the amount of data is rather restricted. First,
there is the capacity of the tag itself, which is not under the control of the library but rather is determined by the silicon and tag manufacturers. Second, there is the utility of the information on the tag—that is, how the data will be used and what value will it bring to the application. Third, it is important to keep the read time of the tag as small as possible. In some cases, more than one read may be required to retrieve all the necessary data from the tag. All of these in some way limit the amount of data that should be stored on the tag.

As a general rule, then, there are three categories of data that may be stored on the tag:

1) The minimum amount of data to support the RFID system. In the data model below, this category is in the mandatory set of data.

2) Data on the tag that enhance the operation—for example, data from suppliers that can assist with receiving functions, or data that the item is part of a set and that other items are necessary to complete the transaction.

3) Back-up data that allows the RFID system to function independently of the ILS.

All three categories are considered in the recommended model below.

The model specifies a total of 18 data objects. [For complete information on the elements, including a more detailed description, element length, purpose, locked status, and relative OID, see Section 2.5 of the Recommended Practice document.] The model data objects are:

- Primary Item ID (mandatory)
- Tag Content Key (mandatory)
- Owner Library/Institution (optional)
- Set Info or Multi-Part Indicator (optional)
- Media Format (optional)
- Type of Usage (optional)
- Shelf Location (optional)
- ILL Borrowing Institution (optional)
- ILL Transaction ID (optional)
- GS1-13—including ISBN (optional)
- Title (optional)
- Supply Chain Stage (optional)
- Supplier Item ID or Alternate Item ID (optional)
- Local Data –1 (optional)
- Local Data –2 (optional)
- Order Number (optional)
- Invoice Number (optional)
- Supplier Identification Data (optional)

Discussions of data models naturally turn to encoding fairly quickly. ISO/IEC 15962 allows encoding of numeric, alphanumeric, ASCII, and UTF-8, which should cover most all encoding requirements for U.S. libraries. The important part of this is that it allows different libraries to correctly interpret tag data that is efficiently encoded without applying a rigid standard on exactly how the encoding is to be done.

Security

There are three methods of security for library items using RFID.

AFI – Application Family Identifier (AFI) is a hardware feature designed into the silicon chip on ISO/IEC 18000-3 Mode 1 RFID tags. The purpose of AFI is to prevent tags from different industry applications from interfering with each other in the open environment.

EAS – Traditional electronic article surveillance (EAS) architectures, as seen in many retail applications, are based on radio frequency (RF) tags rather than RFID tags. These systems employ a tag that resonates when excited by an exit gate. The resonance can then be sensed by the gate, which in turn generates an alarm. The EAS concept has been introduced to some RFID tags, however, rather than a single resonance, the tag responds with a short burst signal or short data transmission. This kind of EAS technology is built into some, but not all, ISO/IEC 18000-3 Mode 1 compliant tag designs as a proprietary add-on feature.

Virtual Deactivation – The virtual deactivation, or database look-up, method consists of reading an ISO tag’s unique identifier and looking up the security status of that item in a database table. Essentially, database look-up systems maintain a database of the identifiers of items that are checked in or out of the library. These systems then generate an alarm when they determine that an item that is not checked out has passed through the detection system.

AFI would appear to be the best choice for implementing a standard security solution for the library family of applications for the following reasons.

- It is already a mandatory part of the ISO standards—all ISO/IEC 18000-3 Mode 1 compliant tags and readers must support this command.
- It allows libraries to purchase systems from different vendors, still permitting them to share materials through interlibrary loan and providing security for the item in the borrowing library.
- It allows a library to purchase tags from different ISO-compliant tag suppliers.
- It provides an efficient process for security.
- It can be implemented and still allow for other security methods.
RFID in the Supply Chain

By 2006, libraries were adopting RFID at a rapid pace, tagging books and other media. Publishers and retailers on the other hand, had all but ceased to be interested. However, the release of the new EPCglobal C1G2 tag (ISO/IEC 18000-6 Type C) and trade press reports of a successful implementation of item-level RFID tagging of books by a retail book distributor and a retail bookstore in the Netherlands has resulted in renewed interest among publishers and retailers. This renewed attention from retailers and publishers will also be of interest to printers and book manufacturers. Were the book publishing industry to adopt item-level RFID technology, the publishers assume it will be their responsibility to insert RFID tags in individual books at the point of manufacture.

As libraries have been adopting RFID for theft deterrence, circulation, and inventory management, some have requested that their book jobbers apply and program tags for the new books. The state of today’s proprietary RFID systems is a maze of different procedures, conversion stations, software, and tags, which make it difficult for jobbers to cost effectively apply and program RFID. The use of a standardized data model and the installation of the RFID chip at manufacture time will simplify the programming process and enable the jobber to easily program the RFID chips independently of the RFID vendor.

The jobber represents only one step above the library in the supply chain. It is the hope of the NISO RFID Working Group that over time the book industry will see its way to have these tags (or similar standards-based tags) applied sooner in the supply chain, perhaps at the manufacturing level.

Privacy

Spurred by consumer groups like the Electronic Freedom Foundation (EFF), the press initially focused on the more drastic potential for violation of individual privacy with the implementation of RFID. As public experience with RFID technology has grown over the past several years—thanks to use for automated highway toll payments, building access, and small transaction credit cards—media coverage has also begun to focus on consumer benefits and functionality.

The American Library Association/Book Industry Study Group (ALA/BISG) adopted an RFID privacy policy in 2004 with five tenets, among them: “Ensure that no personal information is recorded on RFID tags which, however, may contain a variety of transactional data.”

Two points are important to understand about today’s RFID technology in the library environment:

RFID tags in libraries are powerless – The tags that are presently used in libraries are 13.56 MHz (megahertz) tags with no embedded power source. Thus, any exposure to privacy issues can only happen in the presence of an antenna (or reader) that is within a very close range of the tag.

RFID tags used in libraries have a very short read range – Most library desktop applications of RFID utilize reader antenna designs which will produce read ranges of 8–12 inches. Library applications that require more range—such as security gates that must read tags within the corridor while maintaining a 36-inch aisle for comfort and to meet ADA guidelines—are typically designed to produce ~20 inches of read range.

Vandalism

RFID systems, like all technology, are vulnerable to electronic vandalism. A sufficiently sophisticated vandal has a number of attacks available, which fall into two basic categories: modification of security data and modification of tag contents.

The most widely available and low-technology method of vandalizing an RFID implementation on a library item is simply to remove or mutilate the RFID tag itself. To date, this has been recognized as a fairly minor issue in library implementations, but it does exist, just as such attacks have existed for barcodes and other item labels.

Another low-tech method of defeating the security function is simply to shield or detune the tag, by means of tin foil or a commercially produced tool marketed to provide privacy for consumers.

The NISO RFID Working Group feels strongly that the benefits of the technology far outweigh these potential limitations.

Summary of Recommendations

In summary, the NISO RFID Working Group makes the following recommendations regarding RFID in libraries:

1) RFID tags should comply with the ALA/BISG Resolution on Radio Frequency Identification (RFID) Technology and Privacy Principles, in particular, ensuring that data relating to individual persons should never be recorded on item tags.

2) In libraries, 13.56 MHz High Frequency (HF) tags should be used.

3) RFID tags for library use should be “passive” (as opposed to “active”).
HighWire Press hosts an online web-based repository of electronic journal content with over five million articles from more than 1,000 peer-reviewed journals, including 71 of the 200 most frequently cited journals. The first to put journals online in 1995, HighWire started with life science journals, but now has equally as many journals in the social sciences and humanities and as many from European publishers as from the U.S.

As a division of the Stanford University Libraries, located in Palo Alto, California, HighWire is uniquely positioned to understand and interact with the library and scholarly community. And with their location in the Silicon Valley, they have access to the leading technology companies. All of this – publisher and library partnerships, interaction with scholars, and state-of-the-art technology – is brought together by HighWire to provide feature-rich and standards-based access to a wealth of electronic content for their customers. More enhancements are underway: HighWire will be unveiling its new platform, HighWire 2.0 — called H2O — in 2008. HighWire believes that H2O, not yet officially announced, will put publishers at the forefront of online publishing, both with a highly flexible platform and a new set of tools for publishers, librarians, and end users.

In addition to providing a robust search engine across all the journal content, HighWire works with publishers to develop custom websites for their journals that can include features such as RSS feeds, taxonomic browsing, interactive e-letters, social bookmarking and tagging, and blogs. “When we first started working with publishers to put their content online, the online journal was meant to mimic print, with the journal’s homepage as the primary portal for users to access their content,” states John Sack, HighWire Director. “Now, with our search and linking features and with external search engines like Google Scholar, the article is in essence the homepage—the main point of entry to the content. This has led to a different direction in developing scholarly publishing sites.”

One of the features that distinguishes HighWire from other electronic content platforms is their community of publishers. HighWire encourages their publishers to communicate and share experiences about producing and providing electronic content. Formal meetings are held twice a year where all HighWire’s publishers meet and exchange information in a noncompetitive learning environment where new innovations are freely shared. For example, it was at such a meeting that the British Medical Journal described its policy and procedural approaches for using HighWire technology for electronic letters to the editor that provide a truly interactive communication environment. At a similar meeting, the Journal of Biological Chemistry first showed how it was publishing peer-reviewed author manuscripts directly online just an hour after acceptance in their manuscript system and weeks before a redacted, formatted version would be available in an issue. The experimentation and innovation continues, as publishers describe their plans for taking some journals out of print, the results of their open access experiments, and similar advances.
Publishers are not HighWire’s only focus; they have to consider three different communities: the publishers who provide the content and set the business and editorial policies, the libraries and institutions who subscribe to the content, and the scholars who author and use the content. “We understand that the customer is different from the end user and that our customer is mainly the libraries and institutions who purchase and promote the electronic content,” Sack explains. “Quite a few of our system features were designed with librarians in mind. For example, we provided usage statistics before COUNTER existed and we are now COUNTER Release 2 compliant.” HighWire also recognized that libraries were looking for opportunities to eliminate print subscriptions, so they made sure that journals were available cover-to-cover in the electronic version, including advertisements and all secondary material. HighWire is also investing into putting back content online and archiving it. HighWire’s goal is to get complete electronic back-runs of all the journals they host and they are well on their way to achieving the goal, with some 70% of the titles now available back to volume one.

Kristin Fisher Ratan, Products Manager, cites horizontal navigation, from article to article, as the trend in end user behavior online. “We provide linking from article citations to the referenced item across our journals. When the referenced article is also hosted by HighWire, the user can access that article for free. This both serves the scholar by not interrupting the workflow and increases usage across all the sites on HighWire. We also include OpenURL links to enable users to easily access their library’s licensed content. And links aren’t just for content,” Ratan points out. “We also provide links to easily obtain permission through CCC for anything beyond fair use. If payments are involved, they can be made online. There’s no waiting for weeks for permissions through snail mail.” Another feature for the end user is the electronic availability of some of the original data referenced in journal articles. Recognizing the value of such data sets, HighWire worked with publishers early on to put this data online and link it to the related articles. Publishers and authors are increasingly showing greater willingness and interest in providing such data, including such multimedia as a video of a real-time experiment.

With over 1,000 journals and over 140 publishers providing content, standards are not just important, they are critical for HighWire to effectively process and manage all that information. XML standards are particularly essential—not just DTDs to import information in a standard format, but in all parts of the system. Even the underlying database is in native XML rather than the traditional relational database. Underlying all that XML is a web services architecture utilizing World Wide Web Consortium (W3C) standards. HighWire also uses a number of NISO standards. Their search engine supports SRU, an XML-focused search protocol built on the NISO Z39.50 standard. HighWire provides usage statistics in COUNTER format and they were an early implementer of the field trial version of NISO’s Standardized Usage Statistics Harvesting Initiative (SUSHI), which automates the retrieval of COUNTER statistics in XML format. They are now updating their SUSHI service to full compliance with the final standard that was issued in October 2007. HighWire also strongly recommends the use of DOIs (Digital Object Identifiers) for journal articles and will even register the DOIs with CrossRef for the publishers.

HighWire Press was one of the founding sponsors of the Journal Supply Chain Efficiency Improvement project to create a common institutional identifier for use throughout the journal subscription supply chain. Building on this project, a new NISO initiative is planned for 2008 to develop a standard for institutional identifiers and HighWire intends to be involved in the standard’s development.

HighWire recognizes the fast-changing nature of the Web, the related technology, and the users’ expectations. They are completing development of the new H2O platform, rebuilding from the inside out. H2O has been designed for permeability and flexibility so that both users and content providers can build on the platform as the Web evolves into often unpredictable areas. “With Web 2.0 we may well see the reemergence of the journal as a conversation among authors and readers, but now that conversation will be online rather than in print,” says Sack. H2O will include tools to integrate more directly into the user’s workflow. In addition to current features such as the ability to automatically create PowerPoint slides from an article’s content, H2O will allow the use of widgets and the creation of mash-ups. “Our goal is to bring to the user’s attention valuable content they didn’t even know was there,” John Sack stresses. “For example, the recommendation services for scholars will allow them to find new relationships between content items and discover totally unknown knowledge in areas where they wouldn’t think to look. This is different from the type of recommendation service that just shows you where everyone has already looked.” There will also be new features for publishers, including interactive marketing and dynamic content collections. The first sneak peek of the new H2O system will be offered by invitation only at the Professional Scholarly Publishing annual conference, to be held February 6-8, 2008 in Washington, D.C. Interested parties can contact Bonnie Zavon at bzavon@stanford.edu for more information.

For more information on HighWire Press, visit their webpage: http://highwire.stanford.edu/

HighWire Press joined NISO as a Voting Member in September 2007.
Microsoft Corporation has chosen NISO’s Specifications for the Digital Talking Book (ANSI/NISO Z39.86) as the centerpiece for a free, downloadable plug-in to provide feature-rich, structured information to persons who are blind or print disabled, as well as to assist in the creation of e-books.

Microsoft is working in collaboration with the DAISY Consortium, maintenance agency for the DAISY/NISO standard. The result of this joint, standards-based, open-source development project will be “Save As DAISY,” a plug-in for Microsoft Word that will convert Open XML-based word processing documents into DAISY XML, also known as DTBook.

“The Open XML to DAISY XML ‘Save as DAISY’ translator for Microsoft Office Word underscores Microsoft’s long-term commitment to providing the best possible experience for users with print disabilities around the world,” said Jean Paoli, General Manager, Interoperability and XML Architecture at Microsoft. “Through collaborative, standards-based development with the DAISY Consortium, we are confident that we are building the necessary tools to offer accessible technology that our customers have been asking for.”

“Microsoft is demonstrating true leadership in developing ‘Save as DAISY XML’ from Open XML,” said George Kerscher, Chairperson of the NISO Advisory Committee for the maintenance of the DAISY/NISO Standard and Daisy Consortium Secretary General. “We in the DAISY Consortium are asking all developers of publishing systems to create a similar feature. This functionality brings the world significantly closer to the time when all published information will be available in a highly functional, feature rich format that all people can use, especially persons who are blind and print disabled.”

DAISY Digital Talking Books (DTBs) go far beyond the limits imposed by analog audio books or commercial digital audio books. In a DAISY book, the audio is synchronized with the textual content and images, providing an accessible and enriched multimedia reading and learning experience. A DAISY book also supports multiple outputs, such as Braille and large print.

“This is a wonderful development for information exchange. The ‘Save as DAISY’ Microsoft plug-in brings the ANSI/NISO Z39.86 standard to a new level, broadening its reach to a diverse range of uses and users,” said Todd Carpenter, Managing Director of NISO. “DAISY Digital Talking Books provide the foundation for equitable and enhanced access to information, from education to leisure reading, emergency preparedness, and health care, for everyone.”

NISO held its Annual Meeting in Dallas on Friday November 2, 2007 during the NISO educational forum, Understanding the Data Around Us: Gathering and Analyzing Usage Data. Todd Carpenter, NISO’s Managing Director, presented information to the attendees on a range of the organization’s activities, including an overall status update, financial information, the passage of NISO’s revised Bylaws and Procedures, progress on the Mellon Foundation grant-funded technological tools implementation, plans for the redesign of Information Standards Quarterly, and an update on incubation and training activities.

2007 has been an extremely successful year for NISO, with tremendous progress on several key strategic fronts. The organization has added six new members this year, although mergers had an attrition affect. Overall, membership is flat from 2006, with representation split roughly at: 25% libraries and library organizations, 35% publishers, and 40% systems vendors and other intermediaries. Continuing the work on the recommendations of the 2005 Blue Ribbon panel, NISO has reorganized internally by adding staff and replaced the oversight structure of the organization with three Topic Committees led by an Architecture Committee. Although NISO will continue to develop formal de jure standards, it will expand its focus on developing a broader range of formats, such as recommended practices. NISO is also positioning itself to speed the development process from a multi-year project to one in which standards are developed in an average of 30 months.

Financially, NISO is headed toward a solid year in revenues. The organization received two grants in 2007 totaling $220,000. Membership and education program revenues are both higher than in 2006. Building on 2006’s success, in which NISO generated an $85,444 surplus, NISO is well positioned to succeed financially in 2007 and beyond.
During the September Board of Directors meeting, the Board approved changes to the NISO Bylaws and Operating Procedures, which had been widely discussed throughout the spring. Two ad hoc committees of the Board reviewed separately these two documents and presented to the membership recommended changes for comment. The Board considered and revised the documents based on the suggestions and comments received. A summary of the changes was distributed to the membership in May and the current documents are publicly available on the NISO website.

Work is currently underway on upgrading the NISO website and a demonstration of the development site was shown to the meeting attendees. The site redesign is the visible manifestation of a set of management tools that function as the back-end of the site. With implementation funded by a generous grant from The Andrew W. Mellon Foundation, these tools will provide a platform for easier management of membership information, improved control over the voting process, the coordination of committees work, and version and comment tracking of documents in development. The site will also include wiki and blog technology to improve communication and interaction with the community and NISO’s constituency.

NISO is actively working to improve its engagement in the incubation and training activities related to standards. The incubation work will begin with a round of Thought Leader meetings beginning in spring of 2008, also funded by the Mellon Foundation grant. The goal of these meetings is to brainstorm new ideas and projects where NISO’s community can play a role in providing solutions. The first four meetings will focus on: institutional repositories, e-learning systems, digital library systems, and research data.

Educational programs have been a very active area for NISO in 2007. An Education Committee tasked with organizing forums and training events was organized in January and they moved aggressively to put together five successful events held throughout the year. These forums brought together more than 400 people, covering a broad range of NISO’s standards work and emerging issue in licensing, e-resource management systems, usage data, and institutional repositories. Plans are underway for an even more active educational program in 2008.

NISO is also planning to relaunch its long-time publication, *Information Standards Quarterly* (ISQ), with a new look and style in early 2008. The restructuring will increase the variety and scope of content and provide a true magazine format. Jay Datema has been retained as Editor-in-Chief and is in the process of recruiting an editorial board for the publication.

There were no motions from the membership brought forward during the meeting and no concerns were raised about the directions and activities of the organization. A copy of the presentation made during the meeting is available on the NISO website. Members interested in more detail on any of the items outlined here or any other NISO activities are encouraged to contact the NISO headquarters.

**NISO Education in 2008**

NISO has undergone a number of changes this past year. One key focus for the organization has been a dedicated effort to increase outreach and education on the importance, development, and application of standards—including identifying areas where standards may provide answers to common problems and looking ahead to how the information community can work together to help create standards solutions.

In 2007, NISO held five major educational forums to help in these discussions. This could not have been done without the creation of a new Education Committee and the expertise and insight that the members of that committee have dedicated to identify forum topics, speakers, and goals for these extraordinarily successful community events. With that grounding behind us, NISO is planning on an even broader program for 2008. We will be holding seven in-person forums and three webinars to provide learning and engagement opportunities for the information community as a whole. We hope that these will give timely focus to emerging areas that impact our community, and bring together a diverse range of speakers to help in those conversations.

The first of our in-person events will be held March 14, in Washington, DC, on digital preservation. With the increasing number of digital objects—both those born digital and those that have been converted to digital formats to enhance access, delivery, and creative use of library collections—the need to focus on how these digital objects themselves will be preserved is paramount. Digital preservation has a lot to do with good collection management, and interoperability with the future. Good business practices require attention to interoperability with various systems and platforms, a focus on accessibility, and use of and attention to formats that will be allow for extensibility and flexibility. By creating well-formed content at the outset and paying attention to digital preservation issues as part of the collection management plan, we can better ensure the longevity of these collections. The forum will provide insight into these issues and allow for further discussion.

NISO’s next event, to be held March 27-28, will focus on discovery tools. During this forum we will be looking at some of the new discovery tools that are being applied.
and look ahead at a vision of what the next generation of tools might look like. Further, attendees will learn about some of the current standards that are being used and have the opportunity to help identify what might be needed in the near future in order to keep pace with upcoming developments.

More details on these events will be coming soon, but please mark your calendar now. We are currently planning out future topics, and hope to also take advantage of the webinar format to address emerging and new topics as they arise this next year. The full schedule for NISO’s 2008 education program is listed below, but if you have any questions about these or ideas for future forum topics, please feel free to contact Karen Wetzel, Standards Program Manager and chair of the Education Committee, or any of the committee members. The full roster and contact information can be found at www.niso.org/committees/education/.

JANUARY 2008
NISO at ALA Midwinter
See more information at www.niso.org/news/events_workshops/alamid08/
- Friday, January 11
  NISO AVIAC Meeting
  3-4 p.m., Crowne Plaza, Independence Room
- Sunday, January 13
  NISO License Expression Working Group — Update and Open Discussion
  8-10 a.m., Pennsylvania Convention Center, Room 109B
  NISO Update
  1:30-3:30 p.m., Pennsylvania Convention Center, Room 109B
- Monday, January 14
  NISO Z39.7 Standing Committee Meeting
  9 a.m.-12 noon, Pennsylvania Convention Center, Room 203A

MARCH 2008
- March 4/5/6: NISO Webinar (day/time to be confirmed)
- March 14: NISO Forum: Digital Preservation
  Washington, D.C.
- March 27-28: NISO Forum: Discovery Tools

MAY 2008
- May 5-6: NISO Two-Day Forum

JUNE 2008
- June 5: NISO One-Day Forum
- June 27: NISO/BISG Forum
- June 27-30: NISO at ALA Annual
  Anaheim, CA

SEPTEMBER 2008
- September 9/10/11: NISO Webinar (day/time to be confirmed)

OCTOBER 2008
- October 6-7: NISO Forum: Resource Sharing
- October 28/29/30: NISO Webinar (day/time to be confirmed)

NOVEMBER 2008
- November 14: NISO One-Day Forum

Please note that not all above dates and times are yet confirmed.

SUSHI Standard Approved and Published


The SUSHI standard defines an automated request and response model for the harvesting of electronic resource usage data utilizing a Web services framework that can replace the user-mediated collection of usage data reports. Designed to work with COUNTER reports, the protocol is also extensible to other types of usage reports. The SUSHI protocol underwent a trial use from September 20, 2006 through May 20, 2007. During the trial period, dozens of implementations of both the client or server sides of the protocol were successfully conducted. Minor revisions to the schemas were made to address issues identified during the trial. The current standard reflects those changes.

The accompanying schemas for the standard, currently at version 1.5, and additional information about the protocol, including background information, developers’ toolkits, presentations, journal articles, and a draft FAQ are available from the SUSHI website (see box).

NISO is in the process of establishing a SUSHI Standing Committee to take on the maintenance responsibilities that are defined in Appendix E of the standard. If anyone is interested in participating on this committee, please contact Karen Wetzel (kwetzel@niso.org), NISO Standards Program Manager.

SUSHI Standard Approved and Published


The SUSHI standard defines an automated request and response model for the harvesting of electronic resource usage data utilizing a Web services framework that can replace the user-mediated collection of usage data reports. Designed to work with COUNTER reports, the protocol is also extensible to other types of usage reports. The SUSHI protocol underwent a trial use from September 20, 2006 through May 20, 2007. During the trial period, dozens of implementations of both the client or server sides of the protocol were successfully conducted. Minor revisions to the schemas were made to address issues identified during the trial. The current standard reflects those changes.

The accompanying schemas for the standard, currently at version 1.5, and additional information about the protocol, including background information, developers’ toolkits, presentations, journal articles, and a draft FAQ are available from the SUSHI website (see box).

NISO is in the process of establishing a SUSHI Standing Committee to take on the maintenance responsibilities that are defined in Appendix E of the standard. If anyone is interested in participating on this committee, please contact Karen Wetzel (kwetzel@niso.org), NISO Standards Program Manager.

To download the standard or access accompanying schemas and documentation, visit the SUSHI website: http://www.niso.org/committees/SUSHI/
Forum Report: Understanding the Data Around Us

by Jamene Brooks-Kieffer

There are as many ways to analyze data as there are data available to count—it is just a matter of being creative in the approach you take to the data before you. In order to select the best approach, however, you need to determine which usage data is important, how it is important, and what you want to know by looking at that data. These are just some of the questions that were raised at the forum cosponsored by NISO and Amigos Library Services, Understanding the Data Around Us: Gathering and Analyzing Usage Data, held on November 1-2, in Dallas, Texas. Bringing together more than 100 practitioners and specialists, the program covered a variety of topics related to usage data and ended with a call for the development of a usage data “decision framework.”

Beginning with a high-level theoretical discussion of issues surrounding data gathering, formatting, and analysis by Johan Bollen (Los Alamos National Laboratory), forum speakers then addressed a broad range of issues—from print usage and de-acquisition projects to standards developments and the future of performance measures and other matrices. On the topic of structure and functionality, updates of the COUNTER Code of Practice and the Standardized Usage Statistics Harvesting Initiative (SUSHI) were provided in detail by Oliver Pesch (EBSCO) and touched upon by Ted Fons (Innovatie Interfaces, Inc.) in his discussion of how usage data interacts with ERM systems.

The oft-implied but seldom-spoken theme uniting the talks was creating a culture of assessment based on usage data. Multiple speakers pointed out the need for usage data consumers to look beyond numbers, translate data into user behaviors, and base decisions on users’ demonstrated needs. The methods proposed for arriving at a culture of assessment require intervention on both machine and human levels.

Various perspectives on usage data were brought to the event—from how publishers and content providers work with usage data to the different levels of use in libraries. Karen Coombs (University of Houston) and John McDonald (Claremont Colleges) shared how usage data is applied to improve services at their institutions. Integrating usage data into planning and organizational structures was discussed by Virginia Steel (UC Santa Cruz) and Joe Zucca (University of Pennsylvania). Colleen Cook (Texas A&M) emphasized the important role of planning in this process of fostering a culture of assessment. Finally, key questions about how usage data can be used to improve the overall assessment of scholarship was covered by Patricia Brennan (Thomson Scientific) and Johan Bollen in their discussions of performance measures: from the long-established Impact Factor to the proposed Usage Factor and the more detailed analysis methods of the MESUR project underway at the Los Alamos National Laboratory.

Participants agreed on the current woes of usage data: varying formats and sources of data make comparisons difficult; untimely data hinders decisive action; and current standards such as COUNTER and SUSHI are helpful but insufficient in accounting for user behaviors and data-gathering methodologies.

Speakers and attendees discussed modifying machine behaviors to improve tracking of item-level uses; permit massive aggregation of usage data from multiple stakeholders and synthesize multi-sourced data under a single search interface. Participants generally agreed that collaborating on new data standards and continuing to refine existing standards was the best means of accomplishing these goals. Some participants expressed a desire for cooperation on open-source tools designed to achieve the third goal of data synthesis.

Participants wishing to intervene in current human practices may depend on emerging tools from improved machine behaviors. Speakers interested in these practices, however, did not allow a lack of tools as an excuse for ignoring the goal of assessment. These speakers described using already-available local data from sources such as SFX, EZproxy logs, web server logs, and federated search tools to understand their users’ actions in light of changes implemented at the library. Such changes can include adding obscure databases to a federated search tool or demonstrating a resource during a library instruction session.

Participants agreed that the universe of usage data is incredibly broad. If the community of data consumers acts on the suggestions made during this forum, the universe of usage will become broader still. Data consumers who embed their practices in a culture of assessment will demand better and more reliable outputs, and the standards community seems poised to anticipate such demands. Despite efforts to bring some order to the messy world of defining “use” and developments in machine-to-machine methods for gathering data, this important area is one that will continue to see spirited discussion and follow-up. The event’s concluding speaker, Caryn Anderson of Simmons College, has created a wiki to host these further discussions in hopes of moving the community forward.

Jamene Brooks-Kieffer is Resource Linking Librarian at K-State Libraries, Kansas State University, and a member of the NISO Education Committee.
Forum Report: Getting the Most Out of Your Institutional Repository

The final NISO forum in 2007, *Getting the Most out of Your Institutional Repository: Gathering Content and Building Use*, saw vendors, librarians, and consultants meet at the National Agricultural Library in Beltsville, MD, to discuss institutional repositories almost seven years after they were first developed for use to promote open access, reroute scholarly publishing, and to preserve institutional output.

Throughout the day, themes emerged and speakers’ presentations buffeted what others had brought to the event. One common thread was the need to improve functionality, streamline deposits, and integrate the repository work into existing work patterns and with complementary tools—including other repositories. Only with some attention to these needs will we see the full, effective, and beneficial use of repositories come to bear.

The Opening Plenary by Greg Zick (OCLC) provided a history and current status of institutional repositories (IRs) including highlights of the findings from the ARL 2006 survey and the CLIR MIRACLE project survey. He then reviewed the current and planned future features of OCLC’s cooperative Digital Repository.

Peter Murray (OhioLINK) described the third wave of library information stewardship: selecting, publishing, and curating locally-produced digital content (institutional repositories, pre-print archives, and other locally unique collections) and the skills necessary for success in this environment.

The future direction for DSpace, one of the more heavily used IR software products, was summarized by John Erickson (HP Labs) as making it personal and social—personal by adding features that will motivate users to spend more time there and contribute their content and social by integrating DSpace with other scholarly networks and workflows.

Trisha Davis (The Ohio State University Libraries) reviewed the issues of copyright ownership of repository content, particularly when the authors providing the content are not well versed in intellectual property law and principles. One of the roles of the IR management team is to educate and work with the content providers to ensure the institution has the rights to store and provide access to the materials.

The interoperability effort Object Re-Use & Exchange (ORE), to be publicly released in early 2008, was presented by Herbert Van de Sompel (Los Alamos National Laboratory). This effort from the Open Archives Initiative aims to unite the disparate elements contained in scholarly articles into one unit. This draft standard is obviously a step in the right direction: when shown how OAI-ORE allows the automatic generation of citation information into a wiki simply by adding a link to the resource, the audience burst into applause.

Dorothea Salo (University of Wisconsin at Madison) gave an intentionally controversial presentation on the realities of implementing an IR: faculty resistance to providing content, software that doesn’t provide the needed capabilities, insufficient funding and staffing to manage the IR, and overall failure of the current repository service model.

Faculty and librarian attitudes to IRs were further discussed by Roger Schonfeld (Ithaka) who summarized the results of a survey of some 1400 institutions. Not surprisingly, librarians viewed the repository as more important than current availability would indicate. A majority of the faculty respondents were not even aware of whether their institution had a repository and those who knew of a repository at their institution, less than half felt it was very important to replace the existing system of publishers with a repository framework.

Terry Owen (University of Maryland) closed out the forum with a review of his institution’s efforts to create a digital repository of electronic theses and dissertations, which make up almost half of the total content of their IR. To address concerns regarding journal or book publication, patent issues, and potential plagiarism, the dissertations are embargoed for 1-6 years, depending on the need. Their software offers several options for doing embargos including open vs. closed access to materials and at UM only citations and abstracts are available for restricted materials, which account for less than 1/3 of the submitted dissertations.

A key issue noted by both speakers and attendees was the need for institutional and broader community support for repositories. Often there is little staff or IT support provided for repository development, with dedicated staff being even more rare. And costs for developing and maintaining a repository are rarely fully supported by institutional budgets—instead, the repository funding needs are frequently the outcome of one-time budget allowances or from grant revenue.

NISO will be holding a Thought Leader meeting on institutional repositories in early 2008 to look more closely at the issues and to identify how NISO may possibly play a role in providing some solutions in this arena.

Speaker presentation slides are available on the forum agenda webpage: [http://www.niso.org/news/events_workshops/ir07/agenda.html](http://www.niso.org/news/events_workshops/ir07/agenda.html)
Data Elements Mapping Completed for ONIX and ERMI Licensing Terms

EDItEUR has produced a mapping of the licensing data elements in the Digital Library Federation’s Electronic Resource Management Initiative (ERMI) and the ONIX for Publication Licenses (ONIX-PL). A subset of the NISO License Expression Working Group met in Boston in December 2006 and the mapping documents are the subsequent outcome of those discussions. The LEWG is a cooperative initiative of NISO, the Digital Library Federation (DLF), EDItEUR, and Publishers Licensing Society (PLS).

Mapping ONIX-PL to ERMI is used to load license details from an ONIX-PL license expression into an ERMI system that is built around the ERMI data model and license terms vocabulary. In this case, the ONIX-PL message carries a full expression of the license, from which those portions that can be encoded as ERMI terms must be extracted and mapped.

ONIX-PL ERMI Encoding Format is a two-way mapping, of a rather different form, used if an ERMI encoding of a license is to be communicated from one system to another as a special form of ONIX-PL message. In this case, the entire ERMI encoding will be transferred into the ONIX message, but the result will not constitute a full expression of the original license. Some elements from the license will inevitably be omitted, and there will be elements of ERMI encoding that represent the licensee’s interpretation of the license rather than a direct expression of the original wording.

The ONIX-PL vocabulary is still developing, and does not yet represent a definitive Version 1. The terms listed in the mapping documents are a snapshot of those that were being used in August 2007. However, once a stable Version 1 has been published — expected in the spring of 2008 — the same principles will apply as with controlled values in other ONIX formats: terms will not be deleted, and their meanings will not be changed. Definitions may be clarified, new terms may be added, and existing terms may occasionally be marked as “deprecated” in favor of others that have been added.

The mapping documents can be downloaded from:
http://www.niso.org/committees/License_Expression/LicenseEx_comm.html

3rd Edition Published of Framework of Guidance for Building Good Digital Collections

The NISO Framework Working Group, with support from the Institute of Museum and Library Services (IMLS), has completed the 3rd edition of the Framework of Guidance for Building Good Digital Collections.

The Framework is intended for two audiences: cultural heritage organizations planning and implementing initiatives to create digital collections; and funding organizations that want to encourage the development of good digital collections. It has three purposes:

1) To provide an overview of some of the major components and activities involved in creating good digital collections.
2) To identify existing resources that support the development of sound local practices for creating and managing good digital collections.
3) To encourage community participation in the ongoing development of best practices for digital collection building.

The Framework of Guidance provides criteria for goodness organized around four core types of entities:

- Collections (organized groups of objects)
- Objects (digital materials)
- Metadata (information about objects and collections)
- Initiatives (programs or projects to create and manage collections)

Edition three of the Framework acknowledges that digital collections increasingly contain born-digital objects, as opposed to digital objects that were derived through the digitization of analogue source materials. It also acknowledges that digital collection development has moved from being an ad hoc “extra” activity to a core service in many cultural heritage institutions.

In the spirit of the social Web 2.0, NISO will shortly be developing an online community version of the Framework for ongoing contributions from librarians, archivists, curators, and other information professionals, allowing them to submit their own ideas and experiences, suggest resources, and evaluate those that have been suggested.

Access the Framework at:
http://www.niso.org/framework/
ISSN Standard Revision Published

The fourth edition of ISO 3297, Information and documentation - International standard serial number (ISSN), has been published and is available for sale from ISO and most standards distributors.

The first three editions of the ISSN standard were applicable only to serials. The scope of the new edition has been expanded to address a new category of resources, continuing resources, which encompasses such resources as updating databases, as well as traditional serials.

The fourth edition also “clarifies and confirms that different media versions of a continuing resource are assigned different ISSN. In recognition of the increasing need in the digital environment to collocate as well as differentiate media versions, this edition of this International Standard introduces a functionality, the “linking ISSN” (ISSN-L), for the purpose of supporting services that offer search and delivery functionality across all media versions.”

ISO 3297 was prepared by ISO Technical Committee 46, Information and documentation, Subcommittee 9, Identification and description. NISO is the U.S. Technical Advisory Group for ISO TC46. The NISO Topic Committee for Content and Collection Management will be reviewing the related U.S. national standard, ANSI/NISO Z39.9-1992 (R2001), International Standard Serial Numbering (ISSN), to determine the need to revise or withdraw it in light of the new ISO standard.

ACAP Protocol Combines Intellectual Property Protection with Web Search

The new, non-proprietary, open standard, ACAP (Automated Content Access Protocol), developed to protect the intellectual property of anyone wishing to make content available on the Web, was unveiled and showcased for the first time on November 29 in New York after an intense and highly collaborative 12-month pilot project between publishers and search engines.

ACAP has been developed at the initiative of the World Association of Newspapers, the International Publishers Association and the European Publishers Council in close collaboration with search engines. Version 1 of the ACAP protocol will allow any other publisher of content on the network to express their individual access and use policies in a language that search engine robots and similar automated tools can read and understand.

ACAP Project Manager Mark Bide of Rightscom Ltd said: “Unprecedented industry support and commitment to the ACAP pilot must now be followed by a huge effort to roll ACAP out to the widest possible audience in the shortest possible time so that the digital publishing sector can reap the benefits of all the hard work to date.”

The ACAP members aim for universal adoption of the protocol by the end of 2008. Further use cases for different business models, including for the audiovisual sector will be considered during the next phase of ACAP’s development.

.epub Digital Book Standard Supersedes OEBPS

The International Digital Publishing Forum has published .epub, a standard for digital content creation, distribution and use. “.epub” is the file extension of an XML format for reflowable digital books and publications and is composed of three open standards, the Open Publication Structure (OPS), Open Packaging Format (OPF) and Open Container Format (OCF). These new formats are the successors to (and are largely backward-compatible with) the Open eBook Publication Structure (OEBPS).

OPS 2.0, the Open Publication Structure, defines the markup of e content. OPF 2.0, the Open Packaging Format, specifies how to relate the components of the digital publication and the provision of metadata. OCF 1.0, the Open Container Format, provides a mechanism for “containerizing” the files that make up the complete publication.

A number of trade and academic publishers and hardware and software vendors, including Adobe and Sony (for their Sony Reader) have already committed to use of the standard.

The Library of Congress issued the much anticipated report from their Working Group on the Future of Bibliographic Control. Issued as a draft for comments through December 15, 2007, the report’s findings and recommendations are structured around five central themes:

1) Increase the efficiency of bibliographic production for all libraries through increased cooperation and increased sharing of bibliographic records, and by maximizing the use of data produced throughout the entire “supply chain” for information resources.

2) Transfer effort into higher-value activity. In particular, expand the possibilities for knowledge creation by “exposing” rare and unique materials held by libraries that are currently hidden from view and, thus, underused.

3) Position our technology for the future by recognizing that the World Wide Web is both our technology platform and the appropriate platform for the delivery of our standards. Recognize that people are not the only users of the data we produce in the name of bibliographic control, but so too are machine applications that interact with those data over the network in a variety of ways.

4) Position our community for the future by facilitating the incorporation of evaluative and other user-supplied information into our resource descriptions. Work to realize the potential of the FRBR framework for revealing and capitalizing on the various relationships that exist among information resources.

5) Strengthen the library profession through education and the development of metrics that will inform decision-making now and in the future.

Some standards-related recommendations of note are:

- Develop a more flexible, extensible metadata carrier that is compatible with web technology and standards.
- Integrate library standards into the web environment.
- Extend use of standard identifiers.
- Suspend work on RDA (Resource Description and Access) until further large-scale testing of the FRBR (Functional Requirements for Bibliographic Records) initiative has been completed.

- Develop standards with a focus on return on investment.
- Incorporate lessons from use into standards development.
- Develop test plan for FRBR.

Sun Microsystems Forms Preservation and Archiving Special Interest Group

Sun PASIG, a Preservation and Archiving Special Interest Group, has been created by Sun Microsystems to bring together global leaders in government, broadcasting, education, and library services to share best practices for digital archiving.

Addressing the need for better collaboration on best practices around global standards in large data set and metadata preservation, the Sun PASIG will help provide support for organizations challenged with preserving and archiving important research and cultural heritage materials. Founding members of the Sun PASIG include The Alberta Library, The British Library, Johns Hopkins University, University of Oxford, Stanford University, and The Texas Digital Library.

“We are trying to meet the needs of the evolving ‘cybrarian’ community that is grappling with storage and data management, workflow, and high-level architecture trends in the area of preservation and archiving,” said Art Pasquinelli, Education Market Strategist, Global Education and Research, Sun Microsystems.

At globally located semiannual meetings, group members will share knowledge of storage technology trends, services-oriented architecture and software code, and discuss best practices of both commercial and community-developed solutions. Working groups will hold discussions on architectures, use cases and business drivers, storage, access and security, and operating policies, with the goal of providing common case studies and solutions for digital archiving. The Sun PASIG will focus on both collaborating with leading institutions in the EPrints, Fedora, and DSpace communities to create replicable solutions and exchanging expertise on global developments around the Open Archival Information System (OAIS) architecture model.

At their November 14-16 meeting in Paris, working groups began discussions on use cases and business drivers, architecture, storage, access and security, and operations.
## In Development

Listed below are the NISO working groups that are currently developing new or revised standards, recommended practices, or reports. Refer to the NISO website, *Newsline*, and *Information Standards Quarterly* for updates on the working group activities. (Note: DSFTU stands for Draft Standard for Trial Use.)

### Working Groups

<table>
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<tr>
<th>Group Name</th>
<th>Status</th>
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<td><strong>Exchange of Serial Subscription Information</strong>&lt;br&gt;Joint Working Project with EDItEUR&lt;br&gt;Co-Chairs: Priscilla Caplan, Richard Gedye</td>
<td>Field testing: Serial Release Notification (SRN), v. 0.91&lt;br&gt;Serials Products and Subscriptions (SPS), v. 0.91</td>
</tr>
<tr>
<td><strong>Institutional Identifiers</strong>&lt;br&gt;Chair: TBD</td>
<td>Working group being formed.</td>
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<tr>
<td><strong>Knowledge Base Supply Chain</strong>&lt;br&gt;Joint project with UKSG&lt;br&gt;Chair: TBD</td>
<td>Working group being formed.</td>
</tr>
<tr>
<td><strong>License Expression</strong>&lt;br&gt;Joint project with DLF, EDItEUR, and PLS&lt;br&gt;Co-Chairs: Nathan Robertson, Alicia Wise</td>
<td>Mapping ONIX-PL to ERMI and ONIX-PL ERMI Encoding Format issued. Work with DLF ERMI and ONIX for Licensing Terms groups continues.</td>
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<tr>
<td><strong>NCIP Implementers Group</strong>&lt;br&gt;Chair: Candy Zemon</td>
<td>Z39.83, NISO Circulation Interchange Protocol (NCIP)&lt;br&gt;Being revised.</td>
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<td><strong>RFID for Library Applications</strong>&lt;br&gt;Chair: Vinod Chachra</td>
<td>NISO RP-6-200X, RFID in U.S. Libraries&lt;br&gt;In approval stage.</td>
</tr>
<tr>
<td><strong>Simplified E-Resources Understanding (SERU)</strong>&lt;br&gt;Co-Chairs: Karla Hahn, Judy Luther</td>
<td>NISO RP-7-200X, SERU: A Shared Electronic Resource Understanding&lt;br&gt;In approval stage.</td>
</tr>
<tr>
<td><strong>Versions of Journal Articles</strong>&lt;br&gt;Joint project with ALPSP&lt;br&gt;Chair: Cliff Morgan</td>
<td>In development.</td>
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**Learning Links**

**Functional Requirements for Bibliographic Records (Special Section)**
*Bulletin of the American Society for Information Science and Technology, 33 (6), August/September 2007*

Six authors look at various aspects of the IFLA Functional Requirements for Bibliographic Records, a framework for bibliographic data.


**Interoperability for the Discovery, Use, and Re-Use of Units of Scholarly Communication**
*by Herbert Van de Sompel and Carl Lagoze. CTWatch Quarterly, 3 (3), August 2007.*

Describes the work of the Object Re-Use and Exchange (ORE) project of the Open Archives Initiative (OAI) to develop standards to facilitate discovery, use, and re-use of new types of compound scholarly communication units by networked services and applications.


**Metadata Use in OAI-Compliant Institutional Repositories**

Institutional repository collections were analyzed for their use of Dublin Core metadata to expose their resources to the Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH).


**Open Access Resources**
*by Anna K. Hood SPEC Kit 300, Association of Research Libraries, September 2007.*

Survey data on whether and how ARL member libraries are promoting the use of open access research literature for their patrons by using established library resources such as online catalogs and link resolvers.


Describes the NISO Shared Electronic Resource Understanding (SERU) project that offers a mechanism that can be used as an alternative to a license agreement for e-resources.

[http://www.dlib.org/dlib/november07/hahn/11hahn.html](http://www.dlib.org/dlib/november07/hahn/11hahn.html)

**The Survey of Library Database Licensing Practices**
*Primary Research Group, December 2007.*

Presents data from 90 libraries – corporate, legal, college, public, state, and non-profit libraries - about their database licensing practices.


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**Calendar**

**January 2008**

**NISO sessions at ALA Midwinter in Philadelphia, PA**

**January 11**

NISO AVIAC Meeting 3:00 - 4:00 p.m.
Crowne Plaza, Independence Room

**January 13**

License Expression Working Group: Update and Open Discussion 8:00 - 10:00 a.m.
Penn. Convention Center, Room 109B

**January 13**

NISO Update 1:30 - 3:30 p.m.
Penn. Convention Center, Room 109B

**January 14**

Z39.7 Standing Committee Meeting 9:00 a.m. - 12:00 noon
Penn. Convention Center, Room 203A

**March 2008**

**March 4/5/6**

NISO Webinar day/time to be confirmed

**March 14**

NISO Digital Preservation Forum Washington, D.C.

**March 27-28**

NISO Forum: Discovery Tools