YEAR IN REVIEW AND STATE OF THE STANDARDS

NISO 2014 YEAR IN REVIEW

TC46 2014 YEAR IN REVIEW

THE FUTURE OF LIBRARY RESOURCE DISCOVERY

STATE OF THE STANDARDS
# NISO Upcoming 2015 Educational Events

## April
- **8** Experimenting with BIBFRAME: Reports from Early Adopters (Webinar)
- **29** Expanding the Assessment Toolbox: Blending the Old and New Assessment Practices (Virtual Conference)

## May
- **7** Implementing SUSHI/COUNTER at Your Institution (Training Thursday)
- **13** Software Preservation and Use: I Saved the Files But Can I Run Them? (Webinar)
- **20** Not Business as Usual: Special Cases in RDA Serials Cataloging (NISO/NASIG Joint Webinar)

## June
- **10** Taking Your Website Wherever You Go: Delivering Great User Experience to Multiple Devices (Webinar)
- **17** The Eternal To-Do List: Making E-books Work in Libraries (Virtual Conference)
- **26** NISO/BISG The Changing Standards Landscape (In-person Forum)

## July
- **10** No events in July

## August
- **12** MOOCs and Libraries: A Brewing Collaboration (Webinar)

## September
- **NISO September Two-Part Webinar: The Practicality of Managing “E”**
  - **9** Part 1: Licensing
  - **16** Part 2: Staffing
- **23** Scholarly Communication Models: Evolution or Revolution? (Virtual Conference)

## October
- **1** Using Alerting Systems to Ensure OA Policy Compliance (Training Thursday)
- **14** Cloud and Web Services for Libraries (Webinar)
- **28** Interacting with Content: Improving the User Experience (Virtual Conference)

## November
- **18** Text Mining: Digging Deep for Knowledge (Webinar)

## December
- **2** The Semantic Web: What’s New and Cool (Virtual Conference)
- **9** NISO December Two-Part Webinar: Emerging Resource Types Part 1
- **16** Part 2: Emerging Resource Types

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**NISO Open Teleconferences**

Join us each month for NISO’s Open Teleconferences—an ongoing series of calls held on the second Monday of each month as a way to keep the community informed of NISO’s activities. The call is free.

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Each year, we focus the first issue of ISQ on documenting the previous year’s successes and recap the work accomplished. NISO continues to make significant strides in making information distribution more efficient and functional. Simultaneously, we bring older standards up to date, while also working on newer, even cutting-edge information exchange issues.

We so often forget about maintenance and upkeep of the infrastructure elements that were developed years ago. Old reliable stand-by services and processes might be widely adopted and applied. But as with all things, they begin to degrade over time, needing reconsideration and revision to ensure that they remain fit for purpose and viable in an evolving ecosystem. This is certainly true for a variety of specifications that were reviewed, updated, and advanced in the past year. NISO revised the SUSHI standard, the COUNTER-SUSHI Implementation Profile, and the KBART recommended practice. NISO also initiated its first stabilized standards. Stabilized maintenance removes a standard from the requirement for five-year periodic reviews. It is used for standards that address mature technology or practices and are not likely to require a revision.

While maintenance of our portfolio is an under-appreciated activity, the development of the “shiny and new” remains a focus of our work as well. I have been particularly pleased with the growing leadership role that NISO is carving out in our community in areas such as promoting transparency in library discovery services, demand-driven acquisitions of monographs, metadata indicators for access and licensing, and web synchronization of digital resources—recommended practices and standards that were published in 2014.

Key among these efforts to push forward the state of the art in our community has been the continued development of work in the field of assessment. With the generous support of the Alfred P. Sloan Foundation in late 2013, NISO launched a project focused on new forms of assessment. The project finished up the brainstorming Phase I in June and subsequently led to the approval of five new development efforts that are set to begin in 2015.

2014 was a momentous year in many respects. The Organization celebrated the 75th Anniversary of its foundation in 1935 as the Z.39 Committee of the American Standards Association. We held a small reception at the American Library Association conference in Las Vegas celebrating this achievement.

For the first time in more then a decade NISO hosted the plenary meeting week of ISO’s Technical Committee 46 – Information and Documentation. Under the auspices of ANSI and with the generous support of the Library of Congress and the National Archives and Records Administration, NISO brought together nearly 200 delegates from more than 40 countries for a week of meetings. The week was capped off with a gala dinner in the Rotunda for the Charters of Freedom at the National Archives. Archivist of the United States, David S. Ferriero participated and introduced keynote speaker Vinton Cerf, one of the key developers of the internet. It was a very special evening highlighting the work of ISO, NISO, and information distribution in our digital age. It was also a pleasure to take a moment to honor all those who have contributed to our success over these past three quarters of a century.

Speaking of honoring those who have played a role in our success, I would be remiss if I did not acknowledge the many contributions of Cynthia Hodgson, the Managing Editor of this magazine, as well as of NISO’s monthly newsletter Newsline, and editor of all of NISO’s standards and other publications. Cynthia announced her retirement earlier this year and this will be the last issue she will manage. I can hardly overstate Cynthia’s contributions to NISO’s work over the past thirteen years. During this time, Cynthia has proved herself to be the most competent, detailed, and conscientious editor I’ve ever worked with. Her background
and knowledge about the standards in our space, as well as several that touch on our community is unrivaled. I doubt there is anyone else who has read thoroughly and substantively commented on every single NISO publication we have developed in that time. We will all miss Cynthia’s wit, expertise, detailed eye, and flair for language.

As with any organization that has survived for more than 75 years, we will carry on. Cynthia is by no means the only person to have contributed to our success, nor the first or the last to step away from our organization. She has certainly left an indelible, if subtle, but certainly significant mark on our community.

As you read through this issue, please reflect on the value that she has brought—indeed that all editors bring—to published information. We congratulate Cynthia on her career and many accomplishments. On behalf of the Organization, our Board and staff, the many NISO members, and contributors, we wish Cynthia all the best in this next phase of her life.

I’ll be happy to introduce our next editor of ISQ when our next issue is published this summer.

doi:10.3789/isqv27n01.2015.01

Sincerely,

Todd A. Carpenter
Publisher, ISQ

ISO TC46 Meeting Week Gala Reception at the National Archives
This report summarizing the previous year’s standards development work appears in the first ISQ issue of the year to keep you informed of the scope and status of NISO’s programs on an annual basis.

OVERSIGHT COMMITTEES

Architecture Committee
Current Chair: Michael Teets (OCLC)
Chair through June 30, 2014: Gerry Grenier (IEEE)

In 2014, the Architecture Committee, together with the three Topic Committees, reviewed their areas of work and published a NISO Strategic Directions document that identifies the trends and emerging themes that will direct future development portfolios. The Strategic Directions document identifies many areas where the development and adoption of standards can be valuable to our community and has further validated the NISO Framework developed in 2007.

Business Information Topic Committee
Co-chairs: Christine M. Stamison (NERL Program, Center for Research Libraries) and Anne Campbell (EBSCO Information Systems)
Co-chairs through December, 2014: Denise Davis (Sacramento Public Library) and through June, 2014: Karla Strieb (Ohio State University Library)

Content & Collection Management Topic Committee
Co-chairs: Marti Heyman (Cengage Learning) and Betty Landesman (University of Baltimore)

Discovery to Delivery Topic Committee
Current Chair: Pascal Calarco (University of Waterloo)
Co-chair through June, 2014: Lucy Harrison (Florida Virtual Campus)

Information about the oversight committees is available at: www.niso.org/topics/
Transfer Standing Committee

Oversight: Business Information Topic Committee

Co-chairs: Alison Mitchell (Nature Publishing Group) and Elizabeth Winter (Georgia Institute of Technology)

NISO RP-24-2015: Transfer Code of Practice, version 3.0

The Transfer initiative was begun by the UKSG in 2006 to support smooth and uninterrupted access to content by librarians and readers when a journal changes ownership and online content is transferred from a transferring publisher to a receiving publisher. UKSG announced the availability of the updated Transfer Code of Practice, version 3.0, in March 2014. Following the publication, NISO and UKSG agreed that Transfer support and maintenance would move from UKSG to NISO, and potential future revisions will be provided by a NISO Standing Committee.

Publishers volunteer to become Transfer-compliant by stating that they agree with the roles and responsibilities listed in the Code of Practice and that they will apply it in practice should the situation arise. Transfer-compliant publishers are listed on the Publisher Endorsement webpage. This webpage and other supporting documentation for Transfer are now available from the NISO website.

A very important achievement for the UKSG Transfer Working Group was the creation of the Enhanced Transfer Alerting Service (ETAS). This public, searchable database helps publishers communicate journal transfers and makes it easy for librarians and readers to be notified of journal transfers and to search previous journal transfer alerts. The ETAS is currently offered through collaboration among UKSG, JUSP, Jisc, and Cranfield University, with JUSP and Mimas providing the hosting environment. The current hosting arrangements for the ETAS service will remain in place for the foreseeable future.

Protocol for Exchanging Serial Content (PESC) Working Group

Oversight: Content and Collection Management Topic Committee

Co-chairs: Leslie Johnston (National Archives and Records Administration) and Kimberly Tryka (National Institute of Standards and Technology)

NISO RP-23-201x: Protocol for Exchanging Serial Content (PESC) [forthcoming]

The PESC Working Group is creating a NISO Recommended Practice to describe a packaging specification to be used for exchange and archiving of serial publications. There are many reasons for copies of serial content to be transferred from organization to organization—and even within a single organization—many times during the lifecycle of the content. When exchanging content, the files that comprise a serial “publication” are packaged together in some manner and these packages can be highly variable.

The PESC recommendations offer guidance to members of the scholarly communication community on preferred practices for the packaging and exchange of serial content that will enable the automation of processes to receive and manage serial content at scale. By following these practices, organizations can make it clear what content has been transmitted, how it is organized, and what processing is required when a new package is received. In preparing its recommendations, two sub-groups looked at 1) use cases under which serials data is exchanged and the various actors who participate in this exchange, and 2) conformance issues to determine what packaging and descriptive metadata and other information is necessary to exchange in any particular transaction.

A draft Recommended Practice was issued for public comment from November 4 – December 5, 2014. The final RP is expected to be published in early 2015.

Co-chair Leslie Johnston provided a Working Group update as part of the NISO Update at ALA Midwinter in Philadelphia in January 2014. PESC Member Laurie Kaplan presented Can You Be a PESCaterian among the Fort Worth Stockyards? at the NASIG Conference in Fort Worth, TX, in May and The Importance of PESC: An Emerging NISO Recommended Practice at the Charleston Conference in November. PESC was also featured on the November 2014 NISO Open Teleconference, for which a recording is available.
Demand-Driven Acquisitions Working Group

Oversight: Business Information Topic Committee

Co-chairs: Barbara Kawecki (YBP Library Services) and Michael Levine-Clark (University of Denver)

NISO RP-20-2014: Demand Driven Acquisition of Monographs

This Working Group completed its Recommended Practice in June 2014 on best practices for the Demand Driven Acquisition of Monographs. This comprehensive document includes recommendations covering overall goals and objectives for a library’s DDA program, profiling, management of MARC records (methods for automated updating and removal of discovery records), means for local program assessment, and considerations for consortia and public libraries. It addresses the models for the three basic aspects of e-book DDA—free discovery to prevent inadvertent transactions, temporary lease, and purchase. The recommendations are expected to be of tremendous use to libraries who wish to maximize their use of DDA and to publishers and vendors supporting these programs.

The creation of the recommendations were just under two years in the making, as subgroups of the Working Group covered the areas of technical processes, access methods, and metric modeling. A master survey was conducted in late summer 2013 with follow-up surveys to delve more deeply into the needs of consortia and public libraries. The analysis of the surveys and research conducted by the subgroups informed the full group’s draft Recommended Practice, which was available for comment from March 24 – April 24, 2014. The DDA Working Group published a summary of the surveys, which is referenced in Appendix A of the Recommended Practice.

Formation of a Standing Committee to manage education, promotion, and further adjudication of potential updates to the Recommended Practice was under way at year end. NISO held an open teleconference on March 10, 2014 to discuss the project, an audio recording of the conference is available from the NISO website. Co-chair Michael Levine-Clark presented the general work of the group at the ER&L Conference in Austin, TX in March 2014, the UKSG Annual Conference in Harrogate, England, in April 2014, and the NISO/BISG 8th Annual Forum, The Changing Standards Landscape: Managing an Increasingly Complex and Interconnected World of Content held at the American Library Association Annual Conference in June 2014.

Open Discovery Initiative Standing Committee

Oversight: Discovery to Delivery Topic Committee

Co-chairs Standing Committee: Lettie Conrad (SAGE Publications) and Laura Morse (Harvard University)

Co-chairs ODI Working Group through June, 2014: Marshall Breeding (Independent Consultant) and Jenny Walker (Independent Consultant)

NISO RP-19-2014: Open Discovery Initiative: Promoting Transparency in Discovery

The Open Discovery Initiative (ODI) Working Group—made up of discovery vendors, primary and secondary publishers, and librarians—was charged with developing best practices for the new generation of library discovery services that are based on indexed search. Published in June 2014, the Recommended Practice included background on the discovery landscape, recommendations in the areas of technical formats for data format and data transfer, communication of libraries’ rights regarding specific content, descriptors regarding particular levels of indexing for content, definition of fair linking to published content, and determination of appropriate usage statistics to be collected to address stakeholder needs.

The creation of the recommendations were just under two years in the making, as subgroups of the Working Group covered the areas of technical processes, access methods, and metric modeling. A master survey was conducted in late summer 2013 with follow-up surveys to delve more deeply into the needs of consortia and public libraries. The analysis of the surveys and research conducted by the subgroups informed the full group’s draft Recommended Practice, which was available for comment from March 24 – April 24, 2014. The DDA Working Group published a summary of the surveys, which is referenced in Appendix A of the Recommended Practice.

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**PIE-J (Presentation & Identification of E-Journals) Standing Committee**

Oversight: Business Information Topic Committee

Co-chairs: Ed Cilurso (Taylor & Francis) and Sarah (Sally) Glasser (Hofstra University)

NISO RP-16-2013: PIE-J: The Presentation & Identification of E-Journals

The PIJ-J Standing Committee, consisting of some members who served on the original Working Group and some new librarians and publishers, is charged with responding to specific questions about the Recommended Practice, gathering comments for a full review of the Recommended Practice document, and promoting PIE-J. The Standing Committee posted a template to the PIE-J website for librarians wishing to contact publishers and providers with concerns about the presentation of e-journals on their websites. The template includes suggested wording but is completely customizable.

Presentations about PIE-J included: Co-chair Ed Cilurso at the NISO Update at ALA Midwinter in Philadelphia in January; Co-chair Sally Glasser at ER&L in Austin, TX in March; member Regina Reynolds at the CEAL Conference in Philadelphia, also in March 2014; member Laurie Kaplan at the NASIG Conference in Fort Worth in May; Regina Reynolds as part of the NISO Update session held at the American Library Association Annual Conference in Las Vegas in June; and a poster presentation at the Charleston Conference in November 2014. PIE-J was the topic of the May 12 NISO Open Teleconference, for which a recording is available.

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**Alternative Assessment Metrics (Altmetrics) Initiative**

Oversight: Business Information Topic Committee and Alternative Assessment Steering Committee

The Alfred P. Sloan Foundation awarded NISO a grant in 2013 to undertake a two-phase initiative to explore, identify, and advance standards and/or best practices related to a new suite of potential metrics in the community. Phase 1 of the project was completed with a white paper that summarized the findings from three in-person meetings and follow-up interviews, along with the identification of potential action items for further work in Phase 2 of the project. More than 250 ideas were generated by participants in the meetings and interviews, which were condensed to 25 action items in nine categories: definitions, research outputs, discovery, research evaluation, data quality and gaming, grouping and aggregation, context, stakeholders’ perspectives, and adoption.

Further prioritization of the proposed action items was solicited via a survey from August 11-29, 2014. Using the white paper and the survey prioritizations, a work item proposal was presented to and approved by the NISO Voting Members to create four Phase 2 projects to develop standards or recommended practices in the areas of definitions, calculation methodologies, improvement of data quality, and use of persistent identifiers in alternative metrics. As part of each project, relevant use cases and how they apply to different stakeholder groups will be developed. Following a call for participation in December, the working groups are in the process of formation and should begin their work in early 2015.
Access License and Indicators Working Group

Oversight: Discovery to Delivery Topic Committee

Co-chairs: Ed Pentz (CrossRef), Cameron Neylon (PLOS), and Greg Tananbaum (SPARC)

NISO RP-22-2015: Access License and Indicators

Formerly called Open Access Metadata and Indicators, the Access and License Indicators Working Group was charged with providing a solution to the problem where many offerings are available from publishers under the banner of Open Access (OA), Increased Access, Public Access, or other descriptions — and the terms offered vary between publishers and, in some cases, based on the funding organization of the author.

Over 100 comments were received to the draft Recommended Practice issued in 2013 and the group spent most of the year revising the document to address the comments. They also changed the name of the group and the Recommended Practice to reflect its application beyond open access resources. Published just after year-end, the final document defines a structure for standardized bibliographic metadata to describe the accessibility of journal articles, how "open" the item is, and a link to the item’s license terms.

Ed Pentz, Working Group Co-chair, described the group’s effort on the NISO Open Teleconference on January 13, 2014, for which a recording is available. Heather Reid, Working Group member provided a general update as part of the NISO Update at ALA Midwinter in Philadelphia. Nettie Lagace of NISO included this project in a NISO update session provided at the NASIG Conference in Fort Worth, TX in May and as part of the programs of the ALCTS Metadata Interest Group and the ALCTS CRS Education, Research, and Publications Committee at the American Library Association Annual Conference in Las Vegas in June.

Journal Article Tag Suite (JATS) Standing Committee

Oversight: Content and Collection Management Topic Committee

Co-chairs: Jeff Beck (National Center for Biotechnology Information, U.S. National Library of Medicine), B. Tommie Usdin (Mulberry Technologies, Inc.)

ANSI/NISO Z39.96-2012: JATS: Journal Article Tag Suite

The JATS Standing Committee utilizes continuous maintenance procedures to determine appropriate actions to be taken on comments received on ANSI/NISO Z39.96-2012, JATS: Journal Article Tag Suite, the intellectual successor to the NLM Journal Archiving and Interchange Tag Suite version 3.0.

Comments on the standard are considered for inclusion in the next revision of the standard. Responses and actions on input through Q2 2014 have been made available in JATS 1.1d1, a draft publication. The JATS Standing Committee is now reviewing more recent input, with the intent of formalizing all the 2013-2014 input as part of an updated JATS standard to be approved and published in early 2015.
Bibliographic Roadmap Project

Oversight: Content and Collection Management Topic Committee

In November 2012, The Andrew W. Mellon Foundation generously provided NISO with a grant to support an initiative to develop a community roadmap to help support movement toward a future bibliographic information exchange ecosystem. The goal of this project was to collectively determine the needs and requirements of the library, higher education, and non-profit networked information communities to ensure they are able to use and exchange bibliographic data in an increasingly networked, linked data environment.

An in-person meeting and follow-up webinar were held in 2013. The eight “themes” that emerged from these meetings and over 40 ideas for potential actions to address them were collected and posted in the NISO Ideascale idea-sharing website. The Ideascale tool was discussed in a follow-up webinar and publicized to the community to encourage feedback on prioritizing the ideas. The two top ranked ideas from Ideascale were taken forward to an open discussion session held at ALA Midwinter, January 2014. A final report on the project was published in April 2014.

NISO’s Content and Collection Management Topic Committee further refined the ideas into a new work item proposal that was presented to the NISO Voting Members in December. Following approval, three Working Groups and an oversight Steering Committee will be formed in 2015 to develop standards or best practices in the areas of:

» Policies supporting vocabulary use and reuse
» Vocabulary documentation
» Preservation of RDF vocabularies

Knowledge Bases And Related Tools (KBART) Standing Committee

Oversight: Discovery to Delivery Topic Committee

Current Co-chairs: Magaly Bascones (JISC) and Ben Johnson (Proquest)

Working Group Co-chair through June, 2014: Chad Hutchens (University of Wyoming)

NISO RP-9-2014: Knowledge Bases and Related Tools (KBART) Recommended Practice

The KBART Phase II Working Group finalized an updated KBART Recommended Practice in April 2014 that builds on the recommendations of the first version, specifically addressing the areas of metadata for e-books and conference proceedings, packages licensed via consortia deals, and how open access metadata might be published and shared in knowledge bases while continuing to supply a format for general transfer of journal data to the knowledge base of a link resolver supplier.

Following the publication of the revised Recommended Practice, a new Standing Committee, consisting of many of the previous Working Group members as well as new members, took over the provision of support and education activities for KBART. The KBART Registry continues to be maintained with details of contacts, URLs, and instructions relating to the transfer of e-resource metadata between content providers and link resolvers. Once the updated Recommended Practice was published, registrants have been requested to update their endorsement details pursuant to the new recommendations.

Chad Hutchens, Co-chair of the KBART Working Group, presented on the group’s work at the ER&L Conference in Austin, TX, in March 2014 and discussed KBART on the April 2014 NISO Open Teleconference, for which a recording is available. Chad also presented on the group’s work at the NISO May 14 webinar, Getting to the Right Content: Link Resolvers and Knowledgebases. Nettie Lagace of NISO presented on behalf of the group at the 2014 NASIG Conference held in Fort Worth, TX in May, and at the ALCTS Continuing Resources Standards Forum at the American Library Association Annual Conference in Las Vegas in June. Also as part of ALA Annual, Working Group member Noah Levin of Springer presented KBART as part of the NISO Update.
SUSHI (Standardized Usage Statistics Harvesting Initiative) Standing Committee

Oversight: Business Information Topic Committee

Co-chairs: Marie Kennedy (Loyola Marymount University) and Oliver Pesch (EBSCO Information Services)


NISO RP-14.2014: COUNTER-SUSHI Implementation Profile

This Standing Committee provides maintenance and support for ANSI/NISO Z39.93, The Standardized Usage Statistics Harvesting Initiative (SUSHI) Protocol, and acts as the maintenance group for the COUNTER schema (for changes as approved by COUNTER). A new continuous maintenance procedure was implemented, which enables the group to more smoothly shuttle through further updates to the standard.

In 2014, an updated COUNTER-SUSHI Implementation Profile (NISO RP-14:2014) was published to make minor corrections to several report names. Additionally, a maintenance revision to the SUSHI standard (ANSI/NISO Z39.93:2014) was published to extend the filter support, allowing multiple filters and/or report attributes to be included in the SUSHI Request. Use of these filters and attributes is optional, making the new version backwards compatible with the previous one.

The Standing Committee pursued relevant changes to the SUSHI schema in light of the release of COUNTER 4 and made applicable updates to the SUSHI workroom pages, ensuring SUSHI support materials are congruent with the new community website, USUS. Included in the website updates were an FAQ covering COUNTER 4, additional sample reports and tools for developers, and a more streamlined SUSHI Server Registry, all to better support information sharing for COUNTER 4.

Oliver Pesch updated the NISO community on SUSHI-related efforts at the NISO February 10 Open Teleconference, for which a recording is available. Nettie Lagace of NISO presented on behalf of the group at the NISO Update at the American Library Association Annual Conference in Las Vegas in June.

SUSHI ‘Lite’ Working Group

Oversight: Business Information Topic Committee

Co-chairs: Paul Needham (Cranfield University) and Oliver Pesch (EBSCO Information Services)

This new Working Group was proposed by the SUSHI Standing Committee to create a NISO Technical Report that will explore adapting the SUSHI Standard to accommodate present day development tools and usage needs related to retrieving snippets of usage through web services. Three objectives of the technical report are to:

» Allow smaller units of usage (“snippets”) to be retrieved with SUSHI to enable real-time retrieval of usage for single journals or articles.

» Allow for an optional implementation of SUSHI—using a RESTful HTTP interface with COUNTER usage returned formatted in JSON—to implement the web services that would be accessing SUSHI snippets.

» Introduce a generalized filter specification that can be used with the new RESTful style/JSON approach to allow the client to refine the request to a single book, journal, or article, or to specify extended data like account or customer details that are currently not available in the standard.

A draft technical report is expected to be made available by mid-2015. Members are also creating demonstration code which could be used to test the report’s theories.
ResourceSync Working Group

Oversight: Discovery to Delivery Topic Committee

Co-chairs: Todd Carpenter (NISO) and Herbert Van de Sompel (Los Alamos National Laboratory)


The ResourceSync Framework Specification, published in May 2014, describes a synchronization framework for the web consisting of various capabilities that allow third party systems to remain synchronized with a server’s evolving resources. The problem that ResourceSync was designed to solve spans the areas of search, discovery, deposit, metadata harvesting, and transfer; there is a need to keep collections of resources in sync so that additions, updates, and deletions of one are reflected in the other. The standard was written in such a way that capabilities may be combined to meet local requirements. A server may also describe synchronization capabilities that it supports and ways that third-party systems may discover this support. The core functionality of the specification is intended to represent a functional replacement of OAI-PMH.

The core ResourceSync Working Group was funded by the Sloan Foundation and is augmented by other industry and research participants, some of whom were sponsored by JISC.

Journal Article Versions (JAV) Addendum Working Group

Oversight: Content and Collection Management Topic Committee

Current Chair: Open; Chair through January, 2014: Michael Dellert (SAGE Publications)

NISO RP-8-2008: Journal Article Versions (JAV)

In 2008, NISO published a set of recommended terms to be applied to iterations of an article’s lifecycle. The terms were assigned scope and definition that allow for actionable, unambiguous, and reliable tools for publishers, librarians, aggregators, indexers, and end users. As the Journal Article Versions (JAV) recommended practice was adopted, the scope of the term “proof” was found to be less precise and more difficult to apply than the other terms and a proposal was made to issue an Addendum to address this problem.

This Working Group met during 2013 and discussed perspectives on drafting the addendum to JAV regarding the “proof” category of articles as described above and considered a proposal for an overall metadata framework or dictionary for JAV, in which its terms could be incorporated—meaning that different users of JAV could utilize their own local terms as part of the overall framework without collision. The group went on hiatus due to chair staffing issues, but is expected to re-commence work in early 2015.

NCIP (NISO Circulation Interchange Protocol) Standing Committee

Oversight: Discovery to Delivery Topic Committee

Chair: Mike Dicus (Ex Libris)


The NCIP Standing Committee operates via continuous maintenance procedures to manage the latest NCIP standard, version 2.02, which was published in 2012. On monthly calls the committee reviews status of implementations and other general business. Twice a year, meetings are held in person in order to review ongoing updates to the NCIP protocol per the Standing Committee’s continuous maintenance procedure.

The Standing Committee has used its recent monthly conference calls to discuss implementation projects and the progress of maintenance of the NCIP website, which has been recently taken over by the Standing Committee. The spring meeting of the NCIP Standing Committee was held in Petaluma, CA in April, hosted by the Galecia Group. The committee decided not to hold a fall in-person meeting in 2014.

NCIP was the topic of the October 20 NISO Open Teleconference, for which a recording is available.
Educational Programs

Under the leadership of the Education Committee, NISO continued its robust education program in 2014 with the eighth annual NISO/BISG Changing Standards Landscape forum at ALA Annual, fifteen webinars that included three months with two related parts and a joint webinar with NASIG, and seven virtual conferences. Over 120 libraries took advantage of the benefit of one free connection to all NISO webinars for Library Standards Alliance (LSA) members.

Over 230 sites attended NISO’s virtual conferences and an additional 457 sites participated in the NISO webinars, plus another 122 Library Standards Alliance members who receive a free connection to all NISO webinars. With an average of 3-5 people viewing the virtual events at each site, that’s at least 3200 people benefiting from NISO’s education events!

NISO also held ten free open teleconferences to keep the community apprised of standards-related activities and provide an opportunity for feedback.

Slide presentations from all of the events and the webinars and audio recordings of the open teleconferences are posted on the NISO website in the 2014 events area.

SERU (Shared E-Resource Understanding) Standing Committee

Oversight: Business Information Topic Committee

Co-chairs: Adam Chesler (Business Expert Press) and Anne McKee (Greater Western Library Alliance)

NISO RP-7-2012: SERU: A Shared Electronic Resource Understanding

The SERU Recommended Practice, updated in 2012 to be more flexible for use with online products beyond e-journals, continued to be supported in 2014 by its Standing Committee through efforts to publicize SERU and educate libraries and publishers via direct contacts and public presentations at industry conferences. Such support included the SERU public workroom pages, which are regularly updated and revised to better help publishers and libraries understand and use the SERU material.

The SERU Registry continues to be updated with new supporters of SERU and is intended to enable publishers and librarians to more easily identify each other. In 2014, 29 new publishers / content providers and 51 new libraries / consortia were added to the registry.
Information Standards Quarterly

NISO continued publishing Information Standards Quarterly in open access in electronic form on its website in 2014. A print version was available by subscription and in print-on-demand.

Themed issues published in 2014 were:
- Spring 2014: 2013 Year in Review and State of the Standards
- Summer 2014: Open Access Infrastructure with Guest Editor, Liam Earney (Jisc)
- Fall 2014: Identity Management with Guest Editor Andy Dale (Respect Network Corp.)
- Winter 2014: Licensing of Digital Content

Z39.7 Data Dictionary Standing Committee

Oversight: Business Information Topic Committee
Chair: Martha Kyrillidou, Association of Research Libraries (ARL)

ANSI/NISO Z39.7-2013: Information Services and Use: Metrics & statistics for libraries and information providers – Data Dictionary

The Z39.7 Data Dictionary is an online standard, available in HTML and PDF versions, that is continuously maintained; the fifth edition was released in summer 2013. The purpose of the Data Dictionary is to assist the information community by indicating and defining useful quantifiable information to measure the resources and performance of libraries and to provide a body of valid and comparable data on American libraries. It identifies standard definitions, methods, and practices relevant to library statistics activities in the United States.

As part of its work, the Standing Committee scans and reviews the statistical survey landscape and examines other assessment efforts—including use of particular vocabularies—in the community for effects on the Data Dictionary. Of particular importance to this Standing Committee is the recent modification to language published by the U.S. Department of Education’s division, the National Center for Education Statistics, to eliminate library-related material from its enacting legislation. There are general changes going on in the federal landscape regarding the collection of data for various types of libraries and it is not yet clear what legislation affecting this collection will move forward.

The Standing Committee continues to scan and review the statistical survey landscape, examining other assessment efforts in the community, including conferences and papers such as the 2014 Library Assessment Conference, the ACRL Webcast Series, and the Library Edge initiative. Discussions included the effects of these on the Data Dictionary, including use of particular vocabularies across the various efforts. The Standing Committee is also closely following ISO’s TC46/SC8 group (Information and documentation / Quality - Statistics and performance evaluation), which is working on a number of projects in this area.

Any user of the Dictionary may submit suggested changes, which the Standing Committee reviews during its monthly phone calls. Notifications about approved future revisions to the standard are sent to the Z39.7 notification mailing list.
Standard Interchange Protocol (SIP) Working Group

Oversight: Discovery to Delivery Topic Committee

Co-chairs: John Bodfish (OCLC) and Ted Koppel (Auto-Graphics)

The Standard Interchange Protocol (SIP), introduced by 3M in 1993, provides a standard communication mechanism to allow Integrated Library System (ILS) applications and self-service devices to communicate seamlessly to perform self-service transactions and has become the de facto standard around the world to integrate ILSs and self-service devices. This Working Group is directing the existing SIP version 3.0 specification through the NISO standardization process.

Four important high-level areas have guided the SIP Working Group’s work: the SIP3 documents themselves, including revisions/corrections/additions, resolving ambiguities, etc.; the Maintenance Agency; SIP3’s relation to privacy standards and security; and the relation to NCIP. The group has been meeting approximately bi-weekly for the past year to work through these areas; much of the discussion has been around extensive research and analysis to help progress decision-making. At this time the Working Group is determining the changes and edits that need to be made to the proposed standard pursuant to the group decisions from the past year. DOI: 10.3789/isqv27no1.2015.02

NETTIE LAGACE (nlagace@niso.org) is NISO’s Associate Director for Programs, where she is responsible for facilitating the work of NISO’s topic committees and working groups who develop standards and best practices, and for working with the community to encourage broad adoption of this consensus work.
NISO has been the U.S. liaison group for the International Organization for Standardization (ISO) Technical Committee 46 (TC 46) on Information and Documentation for decades. Officially designated by ANSI as the U.S. Technical Advisory Group (TAG) for TC46, NISO submits the U.S. votes and comments on all TC46 standards, based on the ballot results from the U.S. TC46 TAG members. (NISO voting members that are incorporated (or otherwise legally registered) in the U.S. are members of the TAG.)

In 2014, NISO submitted U.S. votes and comments on 16 draft standards, 17 systematic reviews, and 4 new work items. Additionally, comments were provided on 2 standards from other ISO committees that are in a liaison relationship with TC46 and NISO responded to 11 miscellaneous ballots related to convenors, chairs, liaisons, and calls for experts.

This article summarizes the work of TC46 and its five subcommittees during 2014.
SECRETARIAT

Association Française de Normalisation (AFNOR)

Secretary: Sabine Donnard Cusse
Chairperson: Gaëlle Béquet (ISSN International Centre)

The TC46 plenary meeting was held on May 9, 2014 in Washington, DC.

SYSTEMATIC REVIEWS UNDERWAY AT THE END OF 2014:
» ISO 10754:1996, Information and documentation – Extension of the Cyrillic alphabet coded character set for non-Slavic languages for bibliographic information interchange

PROJECTS UNDERWAY:
» Revision of ISO 5127, Information and documentation – Foundation and vocabulary

NEW WORK ITEM PENDING:
» Revision of ISO 7098, Information and documentation – Romanization of Chinese

MAINTENANCE AGENCY UPDATES:
» 3166 – A new Terms of Reference for the maintenance of ISO 3166, Codes for the representation of names of countries and their subdivisions, was approved by the TC46 members and the ISO TMB.

MISCELLANEOUS:
» New TC46 Chair appointed: Gaëlle Béquet, ISSN International Centre
» New WG 3, Conversion of written languages, convenor appointed: Peeter Päll, Institute of the Estonian Language, Tallinn

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SC4
TECHNICAL INTEROPERABILITY

Secretariat: Finnish Standards Association (SFS)
Secretary: Kati Heiskanen
Chairperson: Juha Hakala (The National Library of Finland)
The SC4 plenary meeting was held on May 7, 2014 in Washington, DC.

New standards published:
» ISO 18626:2014, Information and documentation - Interlibrary Loan Transactions

Standard revisions published:

Approved, pending publication:
» Revision of ISO 10160, Information and documentation - Open Systems Interconnection - Interlibrary Loan Application Service Definition (3rd edition)

Standards confirmed:
» ISO 6630:1986, Documentation - Bibliographic control characters
» ISO 8459:2009, Information and documentation - Bibliographic data element directory for use in data exchange and enquiry
» ISO 15836:2009, Information and documentation - The Dublin Core metadata element set
» ISO 20775:2009, Information and documentation - Schema for holdings information
» ISO 23950:1998, Information and documentation - Information retrieval (Z39.50) - Application service definition and protocol specification

Systematic reviews underway at the end of 2014:
» ISO 2146:2010, Information and documentation - Registry services for libraries and related organizations

Projects underway:
» Revision of ISO 28500:2009, Information and documentation - WARC file format
» Joint Working Group with ISO/TC 37/SC 2 to review and revise as needed the ISO 639 Language codes series

Projects on hold:
» Joint Working Group with ISO/IEC JTC 1/SC 34, to enrich EPUB with long term preservation functionality

New work item pending:
» Data Exchange Protocol for Interoperability and Preservation

Maintenance agency / registration authority updates:
» ISIL Registration Authority (Danish Agency for Culture) - The Library of Congress and the Qatar National Library were added as Allocation Agencies.
» ISO 23950 - This international version of the Z39.50 standard is stable and widely implemented.
» Dublin Core Metadata Initiative - DCMI is discussing with the SC4 leadership the possibility of issuing a Part 2 to ISO 15836 that will include the extended set of semantic-web-enabled properties and classes.
The SC8 plenary meeting was held on May 8, 2014 in Washington, DC.

**New standards published:**
- ISO 16439:2014, Information and documentation – Methods and procedures for assessing the impact of libraries

**Standard revisions published:**

**Projects underway:**
- ISO/CD 18461, Information and documentation – International museum statistics
- ISO/NP 19580, Information and documentation – International archive statistics

**Miscellaneous:**
- DIN has indicated it will be relinquishing the SC8 Secretariat and a call for candidates to take over the Secretariat was issued.

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NISO Hosts 2014 TC46 Meeting Week in Washington, D.C.

The U.S. was the host country of the TC46 Meeting Week in 2014. The American National Standards Institute (ANSI) and the National Information Standards Organization (NISO) hosted the meetings with the support of the Library of Congress and the National Archives and Records Administration. A Gala dinner and reception were held in the Rotunda for the Charters of Freedom at the National Archives for the nearly 200 delegates from more than 40 countries. Archivist of the United States David S. Ferriero introduced keynote speaker Vinton Cerf, one of the key developers of the internet.

Photos from the reception and recordings of the Gala presentations are available at: www.niso.org/international/2014_tc46_meeting/gala_dinner/
IDENTIFICATION AND DESCRIPTION

Secretariat: American National Standards Institute
Secretary: Todd Carpenter (NISO)
Chairperson: Sam Oh (through May 2014); Stella Griffiths, International ISBN Agency (effective January 1, 2015)
The SC9 plenary meeting was held on May 8, 2014 in Washington, DC.

Standard approved, pending publication:
» ISO 17316, Information and documentation - International standard link identifier (ISLI) [publication will occur after a Registration Authority is in place]

Standards confirmed:
» ISO 41997, Information and documentation - Rules for the abbreviation of title words and titles of publications
» ISO 10324:1997, Information and documentation - Holdings statements - Summary level
» ISO 21047:2009, Information and documentation - International Standard Text Code (ISTC) [to be discussed further at 2015 plenary due to comments received]

Systematic review decisions pending:
» ISO 10957:2009, Information and documentation - International standard music number (ISMN) [no majority on any position; to be discussed at 2015 plenary]

Projects underway:
» Revision to ISO 3901, Information and documentation - International Standard Recording Code (ISRC)
» Revision and possible merger of ISO 999, Information and documentation - Guidelines for the content, organization and presentation of indexes, and ISO 5963:1985, Documentation - Methods for examining documents, determining their subjects, and selecting indexing terms
» ISO/OP 20247, Information and documentation - International library item identifier (ILII)

Ad hoc work in progress:
» Identifiers interoperability
» Registration Authorities

Projects on hold:
» Revision of ISO 15707, Information and documentation - International Standard Musical Work Code (ISWC)

Registration authority updates:
» DOI (26324) - The 100 millionth DOI was assigned in September 2014 by the Entertainment Identifier Registry. The International DOI Foundation became one of the six founding Board members of the Linked Content Coalition (LCC), a global consortium to improve the management and communication of online copyright through the effective use of interoperable identifiers and metadata. DOI registration agency (RA) CrossRef has developed FundRef, a system that enables funder information to be deposited with the DOI metadata for a publication. Airti, the DOI RA in Taiwan has been experimenting with the use of DOI to identify educational content in MOOCs. RAs DataCite and CrossRef announced a collaboration in November 2014 to accelerate the adoption of DOIs for data publication and citation. The Tenth Anniversary of Assigning DOI Names to Scientific Data and a Five Year History of DataCite was published in D-Lib Magazine (doi: 10.1045/january2015-brase).
» ISAN (15706) - In January 2014, ISAN-IA released a new version of the ISAN registry API to enable easy and cost effective integration with third parties of information from/ to the ISAN registry. A public web-based lookup service has been added to the ISAN public search to enable easy creation of hyperlinks for public visual resolutions of an ISAN or version ISAN. As of March 2014, the ISAN registry was populated with 920,000 ISAN identifiers. The Korean Film Council (KOFIC) was appointed as an ISAN Registration Agency for South Korea. ISAN Italia organized a conference on Managing Audiovisual Rights in the Digital Environment, held in June 2014, to encourage the use of the ISAN. The UK AV Registration Agency was launched by the founders of ISAN UK (International Standard Audiovisual Number) and the Entertainment ID Registry (EIDR) to deliver both EIDR IDs and ISANs, effectively becoming a ‘one-stop shop’ for UK organizations that wish to uniquely identify their audiovisual content.
» ISIL (17316) - The members of SC9 have approved the International Information Content Industry Association (ICIA) as the Registration Authority for ISO 17316, International Standard Link Identifier (ISIL). ISO TMB approval and contractual agreement were pending at year-end.
» ISMN (10957) - The International ISMN Agency has joined the Linked Content Coalition (LCC). The Agency issued a recommendation that members vote to revise the ISMN standard when it came up for systematic review to better align the standard with ISO 2108 (ISBN) and allow a possible expansion of ranges.
» ISNI (27729) - The National Library of France was appointed as an ISNI Registration Agency in 2014 joining the two existing agencies, Ringgold and Bowker. The ISNI database contains...
over 8.6 million identities, including 446,000 organizations. An analysis done in May 2014 by Bowker showed that more than 33% of its contributors to *Books in Print* had ISNIs assigned. Bowker also began including the ISNI in ONIX 2.1 data feeds to retailers. ISNI and ORCID signed a Memo of Understanding to further ensure interoperability through linking identifiers and sharing public data.

» ISSN – Gaëlle Béquet was appointed in March 2014 as the new director of the ISSN International Centre. 57,800 new ISSN were registered between the 2013 and 2014 SC9 plenary meetings. ROAD: the Directory of Open Access scholarly Resources (http://road.issn.org/) now provides free access to a subset of the ISSN Register of scholarly resources available in Open Access. The German ISSN National Centre began supplying automated feeds to the ISSN International Centre using the OAI-PMH, allowing more frequent and streamlined data updates. The Bibliothèque nationale de France, which contributes to the ISSN Register and is also an ISNI registration agency, announced that beginning in January 2015 it will integrate BnF ISNIs into the ISSN database for a better identification of the issuing bodies of continuing resources.

» ISRC (3901) – A new ISRC website has been created with extended information resources for ISRC users, and key guideline documentation on ISRC assignment. Major effort in 2014 has been on the revision of the ISRC standard.

» ISTC (21047) – EDItEUR is administering and managing the International ISTC Agency. Over 185,000 ISTCs have been assigned. Work has focused on encouraging adoption of the standard.

» ISWC (15707) – CISAC and BMAT, a technology company specializing in music identification technologies, signed an agreement to integrate the ISWC into Vericast, a global music identification service that monitors millions of songs over radios and televisions across more than 50 countries worldwide.

New liaisons:


Miscellaneous:

» Stella Griffiths (ISBN International Agency) was appointed as the new SC9 Chair from 2015-01-01 to 2017-12-31.
SC10

Requirements for Document Storage and Conditions for Preservation

Secretariat: Deutsches Institut für Normung (DIN)
Secretary: Hans-Jörg Wiesner (DIN)
Chairperson: Dr. Sebastian Barteleit (Bundesarchives [Federal Archives], Germany)
SC10 held three plenary meetings in 2014: on January 17, 2014 in Berlin, Germany; May 8, 2014 in Washington, DC; and September 25, 2014 in Krakow, Poland.

Standards confirmed:
» ISO 11800:1998, Information and documentation – Requirements for binding materials and methods used in the manufacture of books
» ISO 14416:2003, Information and documentation – Requirements for binding of books, periodicals, serials and other paper documents for archive and library use – Methods and materials

Projects underway:
» Revision of ISO 11799, Information and documentation – Document storage requirements for archive and library materials
» Revision of ISO/TR 17068:2012, Information and documentation – Trusted third party repository for digital records
» ISO/NP TS 18344, Recommendation on methods of validating the success of deacidification processes for printed and handwritten documents
» ISO/NP TR 19814, Information and documentation – Holdings management
» ISO/NP TR 19815, Information and documentation – Management of the environmental conditions for archive and library holdings

Miscellaneous:
» TC46/SC10 liaison representative appointed to an ISO TC6/SC2 ad hoc group developing a new work item proposal for a new standard, Paper – Requirements for stability for general, graphic applications
The SC11 plenary meeting was held on May 5 (opening) and May 8 (closing), 2014 in Washington, DC.

New standards published:

Standards confirmed:

Systematic reviews underway at the end of 2014:
» ISO 22310:2006, Information and documentation – Guidelines for standards drafters for stating records management requirements in standards

Projects underway:
» Revision to ISO 15489-1, Information and documentation – Records management – Part 1: Concepts and principles

Preliminary / ad hoc work in progress:
» Records management in Enterprise Architecture services
» Distributed platforms and services
» Relationships between the ISO 30300 series of standards
» Records management in relation to open data
» Implementation guidelines for disposition of records

New liaisons:
» JTC1 / SC38, Distributed application platforms and services (DAPS)
» TC176 / SC1, Quality systems

CYNTHIA HODGSON (chodgson@niso.org) is an independent information consultant and writer/editor. She is the Managing Editor of Information Standards Quarterly and a technical editor/consultant for NISO. She also coordinates NISO’s international standardization documentation and ballots.
The Future of Library Resource Discovery

NISO’s Discovery to Delivery Topic Committee commissioned a white paper on *The Future of Library Resource Discovery* from Marshall Breeding as part of its ongoing examination of areas in the discovery landscape that the information community could potentially standardize. The white paper was published in February 2015. This article provides an extracted summary of the paper. The full paper is available for download from the NISO website.

The current discovery environment in the academic library arena is dominated by a set of products within the genre of index-based discovery services, often marketed as “web-scale discovery services,” which rely on a large central index populated by metadata, full text, or other representations of the content items in a library’s collection. These indexes are a component of a multi-tenant platform comprised of search and retrieval technology components and an end-user interface. The platform may also expose APIs that allow programmatic access to the search and retrieval functionality that bypasses the provided interface. This group of discovery services does not exist in isolation, but as part of the ecosystem of scholarly and popular publishing, abstracting and indexing (A&I) services, and in the information infrastructure of the libraries that adopt them.

**Categories of Discovery Systems**

The arena of library-provided resource discovery products includes several different categories. Each of these categories addresses a specific scope of functionality and underlying components.

- **Discovery interface**
  - Includes the discovery interface, end-user interface, interoperability with a link resolver, local search and retrieval, ability to interactively communicate with the library’s ILS implementation, and access to remote index platforms via API.
  - Commercial examples: Ex Libris® Primo®, SirsiDynix® Enterprise®, Bibliocommons BiblioCore, ProQuest® AquaBrowser® Library, Innovative Interfaces Encore
  - Open Source examples: Blacklight, VuFind, eXtensible Catalog, Franklin

- **Index-based discovery services**
  - Include a discovery interface with the characteristics described above, but which also provide a central index populated by resources that represent the general body of content of interest to libraries.
  - Commercial examples: Primo® and Primo Central from Ex Libris Group, EBSCO Discovery Service™ from EBSCO Information Services, Summon® from ProQuest, WorldCat® Discovery Service from OCLC®
Local index content
is the ability to incorporate local resources in addition to article-level scholarly content from proprietary and open access sources. Some of these categories of content include archival material, digital collections, institutional repositories and electronic theses and dissertations, and museum or exhibition materials.

Non-library discovery services
such as Google Scholar or Microsoft Academic Search can be seen as an alternative to the index-based discovery services produced by library-oriented organizations.

Article-level discovery services
not based on central indexes such as federated search are still in use. While there has been a major shift toward reliance on central indexes in support of discovery, the change is not universal.

Public library discovery services
need the ability to search local print collections, licensed e-book collections, modest collections of scholarly and popular electronic resources, as well as any local repositories of content. One of the top issues in the public library arena involves the ability to fully integrate e-book discovery and lending into the online catalog or other search interface provided.

Commercial examples: BiblioCommons, AquaBrowser, ProPAC for Polaris, Encore from Innovative Interfaces and the LS2 PAC from The Library Corporation

Comprehensive library portals
include a discovery component that resides among other parts of a library’s overall web presence.

Commercial examples: Iguana from Infor Library Solutions, Arena from Axiell, BiblioCMS from BiblioCommons, and Enterprise from SirsiDynix (optional capability)

Standards and Recommended Practices
Discovery-specific project initiatives include:

NISO Open Discovery Initiative
The NISO Open Discovery Initiative Working Group developed a recommended practices document for Promoting Transparency in Discovery (NISO RP-19-2014).

NFAIS Recommended Practices: Discovery Services
The National Federation of Advanced Information Services’ Recommended Practices: Discovery Services was published

The current discovery environment in the academic library arena is dominated by a set of products within the genre of index-based discovery services, often marketed as “web-scale discovery services.”

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in August 2013 to address the interests of the providers of abstracting and indexing services.

Discovery: A metadata ecology for UK Education and Research

This Discovery initiative in the United Kingdom was active between 2011 and 2012 with the intent to improve discovery of resources through improved metadata practices. One of the outcomes of the project was the development of a set of Discovery Open Metadata Principles.

Apart from the ODI recommended practice, there are few formal standards that apply generally to the realm of library resource discovery. Several protocols or standards may be used in specific aspects of the discovery ecosystem:

  to facilitate the transfer from content providers to discovery service providers.

- **KBART (Knowledge Bases and Related Tools (NISO RP-9-2014) and related standards**
  can be employed to help define the structure of the metadata transferred from content providers to discovery services.

Indexing and relevancy is currently accomplished through entirely proprietary methods. A variety of application programming interfaces (APIs) are involved in the discovery services ecosystem, but there has been little progress toward developing commonality. How an index-based discovery service interacts with discovery interfaces also lacks standardization.

Open Access Global Discovery Service or Index

The index-based discovery service arena remains entirely dominated by commercial providers. The development and deployment of these services requires extensive resources, including a highly scalable technology platform; a broad program of publisher relations that negotiate and execute agreements relative to the provision of content to populate central indexes; and the development of software for interfaces, indexing, relevancy, and many other technical components that comprise these services. A few open source discovery interfaces are currently available to provide the end-user interface. So far, the creation of new index-based discovery services based on open source software and an open access index has been beyond the resources of non-commercial entities to produce.

One major challenge for any proposed open access implementation would involve the implementation of a technical platform capable of indexing 1-2 billion content items, including a high portion of very large full-text records.

The creation of an open access alternative in the discovery services arena would depend on the feasibility of a grant-funded or community-sourced project able to create and maintain each of the components that comprise a discovery service. Such a service would include a variety of tasks such as the creation of a technical platform to manage the index, processes to gain access to content for indexing from publishers, and the processes to maintain the currency of the index. One major challenge for any proposed open access implementation would involve the implementation of a technical platform capable of indexing 1-2 billion content items, including a high portion of very large full-text records. The construction of an open access discovery index must also address the intellectual properties related to the content resources indexed; much of the content of interest remains under the proprietary ownership of publishers. Any project to create an open
access discovery interface would need an extensive network of participants to initiate discussions and coordinate content contributions from publishers.

Integration of Discovery Services with Resource Management Systems
An important issue in the current environment relates to the degree of independence between resource management systems and discovery services. Libraries may prefer a discovery service based on its functionality and content coverage and may prefer a resource management system from another vendor based on another set of distinct requirements. To enable full interoperability, additional APIs or other mechanisms must be enabled in the ILS.

Many vendors of resource management systems (including both integrated library systems and library services platforms) also offer discovery services. But any unbreakable coupling between specific discovery services and resource management platforms imposes concerns for libraries. Libraries often have an interest in the ability to use their preferred discovery service regardless of the resource management platform in use. Many libraries may also prefer to assemble their own discovery environment based on an open source tool.

Linked Data
The current model of index-based discovery seems likely to persist for the indefinite future. These platforms will become increasingly powerful tools for providing access to library collections, especially if their ecosystem evolves toward universal participation. Yet, this model will not remain unchallenged indefinitely. The current momentum seen with open linked data will likely lead, at a minimum, to extensions of the index-based model or hybrid systems, with a longer-term possibility of discovery services based entirely on linked data rather than harvested citations and full text.

The realm of open linked data provides opportunities to leverage content and relationships outside of what can be bound within a discovery index. Exposed linked data also serves as a source of content that can be harvested and indexed by the current model of index-based discovery services.

Gap Analysis
What are some of the features or concepts that may not be fully realized in the current generation of discovery services?

Coverage of Relevant Resources
The central indexes of the major discovery services continue to expand, working toward a goal of comprehensive representation of the content resources of interest to libraries. Yet, omissions in coverage remain. Many issues remain unsettled regarding how discovery services handle A&I data related to indexing and treatment of their value-added proprietary content, which continue to impact the participation of these vendors with index-based discovery services. The general participation of A&I resources in the discovery services arena remains moderate to weak.

Internationalization and Multi-Lingual Coverage
Coverage of bibliographic resources from diverse international sources is growing. Coverage of article-level scholarly resources, primary research resources, and other material in non-English languages is likewise improving, but is far from universal. The content represented in discovery indexes is becoming increasingly heterogeneous by language, which introduces challenges in search and retrieval. Cross-language searching remains fertile ground for future development in discovery services.

Coverage of Open Access Materials
Each of the discovery services includes commercially published open access titles, materials from major disciplinary open access servers, and can tap into open access materials through centralized services such as OAIster. The challenge is how to expose open access materials from a variety of sources. The recently published NISO recommended practice on Access License and Indicators (NISO RP-22-2015) suggests use of new metadata that can be leveraged to improve the representation of open access materials in discovery services.

Libraries may prefer a discovery service based on its functionality and content coverage and may prefer a resource management system from another vendor based on another set of distinct requirements.
Online catalogs excelled at providing precise methods for interacting with a library’s local collections, enabling patrons to browse through collections based on name or subject authority databases, and to virtually browse items as they would be shelved based on call number indexes.

**Precision and Known-Item Searching**
Advanced and precision searching continue to be areas of interest for discovery services. Online catalogs excelled at providing precise methods for interacting with a library’s local collections, enabling patrons to browse through collections based on name or subject authority databases, and to virtually browse items as they would be shelved based on call number indexes, and to perform advanced Boolean queries. The authority work performed by libraries has never been applied at the article level of electronic resources. Even though A&I services apply structured metadata, they tend to be based on discipline-specific ontologies. One additional challenge lies in the ability of discovery services to find known items, especially when searching for resources with one-word titles or common words, such as Nature or Time.

**Relevancy Rankings**
The way in which discovery services order search results is critical. Relevance ranking remains one of the key issues that impedes support of librarians for these products, and improving relevancy ranking has been a high priority for the developers of discovery services. However, how relevancy functions within each of the discovery services remains in the proprietary realm and is considered one of the main competitive features. Expectations for transparency in how discovery services calculate relevancy could be a positive factor in improving the performance and the acceptance of these products.

**Enhanced Discoverability through Non-Textual Associations**
Discovery services aim to provide enhanced discovery beyond keyword matching. They may perform some level of query enhancement and facilitate the retrieval of relevant materials even when the user does not enter query terms that align with the vocabulary used in the full text of the articles. Clustering technologies may be able to produce facets based on the content of articles retrieved to guide the searcher toward the ones that match their interests. Other technologies employed in the current generation of products include exploiting various types of use data to improve retrievability and relevancy. Though progress has been made, discovery services still have much room for improvement.

**Mechanisms for Linking to Resources**
One of the most critical operations of a discovery service lies in how it provides access to articles or other items of content when selected by the user. The OpenURL standard (ANSI/NISO Z39.88) provides a mechanism for context-sensitive linking designed to provide access to the full text of an item or other services based on its availability within the library’s subscriptions and other factors. One of the questions that arises regarding the ongoing role of OpenURL in discovery services is whether it should become more of a transparent mechanism and less of something that presents its own interface to end users. Some discovery services have implemented techniques that avoid the OpenURL menu when the full text is actually available.

**Learning Management Systems**
It is critical for the content and functionality of discovery services to be available through the interfaces of other services that are part of the natural environment of the user. Students in most colleges and universities, for example, must interact with learning management systems in the routine performance of their work for each course. The ability for instructors to identify reading materials held by the library for a course represents a significant opportunity. Areas of future development in
this area might include the exploration of the APIs that would benefit the interoperability between discovery services and learning management systems or other products within the campus enterprise that depend on library resources.

Opportunities for Future Enhancements in Discovery Services
The genre of discovery services will continue to be enhanced to add new functionality and capabilities in response to requests from libraries and to improve their commercially competitive position. Some useful improvements and enhancements might be:

- **Application Programming Interfaces**
  Many implementation scenarios depend on the APIs exposed by discovery services. It may not always be entirely clear what APIs are available and what restrictions may apply.

- **Expanding API Ecosystem**
  Given the interest in developing more APIs to enable interoperability and extensibility for each product, there is a window of opportunity for a set of cross-vendor APIs to be defined within each of the areas of intersection among products.

- **Social Features**
  Many libraries are interested in enabling individuals to interact with their collections in a variety of ways. For example, collaborative communities of scholars might be able to lend their expertise within a subject discipline to provide additional points of access, or to express relationships among materials. Opportunities to enable such social interactions would depend on standardized mechanisms that enable interoperability between the ecosystems of discovery services and those of external social networks.

- **Rich Media Materials and Collections**
  The current generation of library resource discovery products has been focused on textual materials and on text-oriented technologies. To the extent that audio and video materials are represented, they rely on the text of the transcripts for indexing, search, and retrieval. Future discovery services may be able to offer search tools more able to exploit the visual content and qualities of video by taking advantage of automated video description tools to automatically index video. It will also be beneficial for discovery services to be empowered with specialized tools able to address the digital video or audio directly, through pattern matching, facial recognition, or other techniques that already exist or are emerging.
Research Data Sets
There are a variety of opportunities in expanding the involvement of discovery services into the realm of research data. It is important to facilitate the discovery of this data and there may also be some opportunity to include the research data itself at a more granular level within discovery. A key capability might include the ability to link to data sets from published articles based on that data, enabling other researchers to validate or replicate findings or to perform related studies based on that data.

Discovery and Access Related to Special Collections Materials
The current generation of discovery services does not necessarily provide adequate access into the specialized collections of the library, the archives of an institution, or unique information resources in other departments. Special collections and archives follow different concepts in the management of their collections, rely on a specialized set of metadata standards, and tend to follow a more hierarchical approach to management and description. To provide better access to special collections, discovery services would need further development in supporting their metadata structures and hierarchical organizational concepts.

Analytics
Libraries and publishers have considerable interest in the ability to measure the performance of their discovery service and which resources are retrieved as a result of its use. The ways in which use of discovery services is recorded and evaluated needs to become more sophisticated.

Altmetrics
As alternative measures emerge relative to describing the impact of scholarly resources and the performance of academic libraries, to what extent can they become part of the discovery ecosystem? Can they be used in relevancy algorithms to help identify materials of higher interest or quality?

Potential Areas of Action for NISO
There are some areas where NISO can play a beneficial role through extensions of some of its existing workgroups or programs. Some of these actions might include:

- Convene a second phase of the Open Discovery Initiative to address the tasks proposed in the white paper.
- Launch a study group or research project focused on open linked data and opportunities to facilitate the exposure of metadata in index-based discovery services.
- NISO’s Alternative Assessment Metrics Initiative could investigate how altmetrics can be incorporated into the discovery services ecosystem to improve relevancy or other areas of their performance.
- Explore recommended practices related to the presentation of content on the web in ways that maximize exposure and indexing by Google Scholar or other search tools.

MARSHALL BREEDING (marshall.breeding@librarytechnology.org) is an independent consultant, speaker, and author, specializing in the areas of library management and end-user discovery and service delivery. He is the founder and editor of Library Technology Guides (http://librarytechnology.org/) and was Co-chair of NISO’s Open Discovery Initiative.
Recommended Practice on Metadata Indicators for Accessibility and Licensing of E-Content Published

NISO has published a new Recommended Practice on Access License and Indicators (NISO RP-22-2015) that defines metadata to be used to indicate free-to-read content and a link to license terms for the use/re-use of that content. Developed by the NISO Working Group on Access License and Indicators (formerly Open Access Metadata and Indicators), the recommended practice proposes the adoption of two core pieces of metadata and associated tags: <free_to_read> and <license_ref>. The first tag would indicate that the work is freely accessible during the specified timeframe (if applicable). The second tag would contain a reference to a URI that carries the license terms specifying how a work may be used.

Adoption of these two metadata designations will allow both humans and machines to assess the status of content. The combination of the two metadata tags can be particularly useful in indicating the subtle nuances of different Open Access content. The indicators include a date attribute so that content with access and re-use rights that change over time can be adequately understood. The recommended metadata tags can easily be incorporated into existing metadata distribution channels, encoded in XML, and added to existing schemas and workflow. The <free_to_read> tag can also be used to automate the display of appropriate status icons to users and for signaling or determining compliance with most funder and institutional policies.

ALI Working Group webpage: http://www.niso.org/workrooms/ali/

Mellon Grant Awarded to NISO to Explore Patron Privacy in Library and Publisher Systems

The National Information Standards Organization has been awarded a grant from the Andrew W. Mellon Foundation to develop a Consensus Framework to Support Patron Privacy in Digital Library and Information Systems. The grant will support a series of community discussions on how libraries, publishers, and information systems providers can build better privacy protection into their operations. The grant will also support creation of a draft framework to support patron privacy and subsequent publicity of the draft prior to its advancement for approval as a NISO Recommended Practice.

This project will consist of three phases. It begins with a pre-meeting discussion phase, which will consist of four virtual forums to discuss privacy of internal library systems, privacy of publisher systems, privacy of provider systems, and legal aspects influencing data sharing and policies. Each of the discussion sessions will be a three-hour web-based session designed to lay the groundwork for a productive in-person meeting at the conclusion of the American Library Association meeting in San Francisco, CA in June 2015. Following the in-person meeting, a Framework document will be completed detailing the privacy principles and recommendations agreed to by the participants, and then circulated for public comment and finalization.

Privacy project webpage: http://www.niso.org/topics/tl/patron_privacy/
UKSG Transfer Code of Practice to be Maintained by NISO

The National Information Standards Organization (NISO) and UKSG announce that the Transfer Code of Practice will now be supported and maintained by NISO. The Code provides voluntary guidelines for publishers to follow when transferring journal titles between parties to ensure that the journal content remains easily accessible by librarians and readers. NISO has republished Transfer version 3.0 as a NISO Recommended Practice (NISO RP-24-2015) and has moved all supporting documentation to the NISO website. A NISO Standing Committee has been established to manage the ongoing support of the Transfer Code of Practice.

The Transfer project was initiated by UKSG in 2006 and the first version of the Code was released in 2007 in response to issues identified by the scholarly communications community when journal titles change platform providers or owners. Such transfers can negatively impact libraries, intermediaries (such as serials subscription agents, link resolver administrators, and vendors of large-scale discovery systems), and readers. Often the journal would seem to disappear and links from existing information systems to the content would break, even though the title was still being published. The Transfer Code provides publishers and platform providers with the specifics of how they can make sure that all of their stakeholders can continue to make the content available with the least amount of disruption.

A very important achievement to date for the UKSG Transfer Working Group was the creation of the Enhanced Transfer Alerting Service (ETAS). This public, searchable database helps publishers communicate journal transfers and makes it easy for librarians and readers to be notified of journal transfers and to search previous journal transfer alerts. The ETAS is currently offered through collaboration among UKSG, JUSP, Jisc, and Cranfield University with JUSP and Mimas providing the hosting environment. The current hosting arrangements for the ETAS service will remain in place for the foreseeable future.

Bowker to Include ISNI in ONIX 2.1

ProQuest® affiliate Bowker® will now include the ISO-certified International Standard Name Identifier (ISNI) in its ONIX 2.1 data feeds to retailers such as Barnes & Noble, as well as the major search engines, ensuring that authors are accurately identified in search and discovery. ISNIs are unique 16-digit codes applied to public identities. This single identifier is leveraged across many applications, syncing alternate or disparate spellings of the same name, and eliminating confusion when names are the same or alike. ONIX 2.1 is used by the book trade to automate the exchange of massive amounts of metadata about books in any format. With more than 2.3 million authors now using ISNIs, their inclusion in ONIX will significantly boost the system’s precision.

ISNI was created just over two years ago and has topped 8 million assignments, with rapid uptake by authors and other contributors. They are in use by organizations such as Wikipedia, Digital Science, ORCID, Virtual International Authority File (VIAF), and many others who value the standard’s ability to pinpoint the correct identity.

**Full press release:**

**ISNI International Agency:**
http://www.isni.org/
Linked Data Platform 1.0 is a W3C Recommendation

The Linked Data Platform (LDP) Working Group has published a W3C Recommendation of Linked Data Platform 1.0. “Linked Data” refers to an approach to publishing data that puts linking at the heart of the notion of data, and uses the linking technologies provided by the Web to enable the weaving of a global distributed database.

This specification defines a set of rules for HTTP operations on Web resources, some based on RDF, to provide an architecture for read-write Linked Data on the Web. It “describes the use of HTTP for accessing, updating, creating, and deleting resources from servers that expose their resources as Linked Data. It provides clarifications and extensions of the rules of Linked Data….The intention of this specification is to enable additional rules and layered groupings of rules as additional specifications. The scope is intentionally narrow to provide a set of key rules for reading and writing Linked Data that most, if not all, other specifications will depend upon and implementations will support.”

Linked Data Platform (LDP) Working Group:
http://www.w3.org/2012/ldp/

Linked Data Platform 1.0:
http://www.w3.org/TR/2015/REC-ldp-20150226/

NDSA Publishes 2015 National Agenda for Digital Stewardship

The NDSA National Agenda for Digital Stewardship integrates the perspective of dozens of experts and hundreds of institutions, convened through the Library of Congress, to provide funders and executive decision makers insight into emerging technological trends, gaps in digital stewardship capacity, and key areas for funding, research, and development to ensure that today’s valuable digital content remains accessible and comprehensible in the future, supporting a thriving economy, a robust democracy, and a rich cultural heritage.

This new edition of the Agenda builds on earlier work, updating the 2014 report, and highlighting new areas of focus, specifically the selection and preservation of content at-scale. It also more clearly articulates the need for an evidence base for efficient and reliable digital preservation practice. Recent gains and observations on the technical infrastructure required for large-scale digital stewardship and the supporting policies and organizational structures required are also outlined. The report synthesizes the latest issues for funders, researcher, and organizational leaders and provides actionable recommendations for practitioners.

Executive Summary:

Full Document:

I NW | doi: 10.3789/isqv27n01.2015.05
This comprehensive report on NISO’s standards and initiatives appears in the first issue of the year of *ISQ* to keep you informed of the scope and status of NISO’s program on an annual basis. If you have questions about any of the standards or development programs, contact the NISO office by phone (301-654-2512), via e-mail (nisohq@niso.org), or visit the Standards section of the NISO website (www.niso.org/standards).

**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 (www.niso.org/workrooms/) and the *Newsline* quarterly supplements, *Working Group Connection* (www.niso.org/publications/newsline/), for updates on the working group activities.

<table>
<thead>
<tr>
<th>WORKING GROUP</th>
<th>STATUS</th>
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| Alternative Metrics  
  Co-chairs: TBD | Working groups being established to address: definitions, calculation methodologies, improvement of data quality, use of persistent identifiers, and development of use cases for various communities. |
| Bibliographic Roadmap  
  Co-chairs: TBD | New work item to create standards on: Vocabulary policies on use and reuse, Vocabulary documentation, and Vocabulary preservation requirements. |
| Journal Article TAG Suite Standing Committee  
  Co-chairs: Jeff Beck, B. Tommie Usdin | Revision of the JATS standard (Z39.96-201x) in development; draft version 1.1d2 to be released for comment. |
### In Development Continued

<table>
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<tr>
<th>Working Group</th>
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<tr>
<td><strong>Journal Article Versions (JAV) Addendum</strong>&lt;br&gt;Chair: Open</td>
<td>Revised Recommended Practice (NISO RP-8-201x) in development.</td>
</tr>
<tr>
<td><strong>Paper Permanence</strong>&lt;br&gt;Chair: TBD</td>
<td>Working group being formed to revise standard (NISO Z39.48-201x)</td>
</tr>
<tr>
<td><strong>Protocol for Exchanging Serial Content</strong>&lt;br&gt;Co-chairs: Leslie Johnston, Kimberly Tryka</td>
<td>Recommended Practice (NISO RP-23-201x) being finalized for publication following the public comment period.</td>
</tr>
<tr>
<td><strong>SUSHI Lite</strong>&lt;br&gt;Co-chairs: Paul Needham, Oliver Pesch</td>
<td>Technical Report (NISO TR-06-201x) in development.</td>
</tr>
<tr>
<td><strong>US Profile of ISO 3166 Country Codes</strong>&lt;br&gt;Chair: TBD</td>
<td>Working group being formed to develop standard (Z39.101-201x)</td>
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### In Revision

The following are published and approved NISO standards or recommended practices that are in the process of being revised.

<table>
<thead>
<tr>
<th>Designation</th>
<th>Title</th>
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<tbody>
<tr>
<td>NISO RP-8-201x</td>
<td>Journal Article Versions (JAV)</td>
</tr>
<tr>
<td>NISO Z39.48-201x</td>
<td>Permanence of Paper for Publications and Documents in Libraries and Archives</td>
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</table>
Periodic Review

The following published and approved NISO standards are either currently undergoing or will begin the five-year review process in 2015. The relevant Standing Committee, Maintenance Agency, or Topic Committee will make a recommendation for whether to reaffirm, revise, or withdraw the standard. If fifteen percent (15%) or more of the NISO voting membership joins a Voting Pool for each standard and balance requirements are met, ballots will be issued to approve the recommendation. If less than 15% of the membership joins a standard’s Voting Pool, the Board may initiate procedures for an administrative withdrawal.

See Section 7 of the NISO Procedures for more information periodic reviews (www.niso.org/about/documents).

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<tr>
<td>ANSI/NISO Z39.29-2005 (R2010)</td>
<td>Bibliographic References</td>
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Published and Approved NISO Standards

The following NISO standards are approved and published. Free downloadable copies of the standards are available from: www.niso.org/standards/

The notation R, e.g. R2002, indicates that the standard was reaffirmed in the specified year. Standards on a periodic maintenance schedule must be reviewed every five years. The notation S, e.g. S2015, indicates that the standard has been converted to stabilized maintenance. Stabilized maintenance removes a standard from the requirement for five-year periodic reviews. It is used for standards that address mature technology or practices and are not likely to require a revision.

★: Highlighted rows indicate standards that are managed under continuous maintenance by an appointed Standing Committee. Comments and suggestion for revisions may be submitted at any time and are reviewed by the Standing Committees on a regular published schedule. When either a substantive revision is required or a significant number of changes have been approved, a revised standard is submitted for approval by the NISO consensus body. Such a revision may be completed at any time but no later than five years after the approval of the current version.

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<tr>
<td>ANSI/NISO Z39.43-1993 (R2011)</td>
<td>Standard Address Number (SAN) for the Publishing Industry</td>
</tr>
<tr>
<td>ANSI/NISO Z39.71-2006 (R2011)</td>
<td>Holdings Statements for Bibliographic Items</td>
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<tr>
<td>ANSI/NISO Z39.85-2012</td>
<td>The Dublin Core Metadata Element Set</td>
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</table>
### NISO Recommended Practices

NISO Recommended Practices are “best practices” or “guidelines” for methods, materials, or practices in order to give guidance to the user. These documents usually represent a leading edge, exceptional model, or proven industry practice. All elements of Recommended Practices are discretionary and may be used as stated or modified by the user to meet specific needs.

Free downloadable copies of these documents are available from: www.niso.org/publications/rp/

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<td>JATS: Journal Article Tag Suite</td>
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### Published and Approved NISO Standards Continued

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<tr>
<td>NISO RP-2006-01</td>
<td>Best Practices for Designing Web Services in the Library Context</td>
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<tr>
<td>NISO RP-2006-02</td>
<td>NISO Metasearch XML Gateway Implementers Guide, version 1.0</td>
</tr>
<tr>
<td>NISO RP-6-2012</td>
<td>RFID in U.S. Libraries</td>
</tr>
<tr>
<td>NISO RP-7-2012</td>
<td>SERU: A Shared Electronic Resource Understanding</td>
</tr>
<tr>
<td>NISO RP-8-2008</td>
<td>Journal Article Versions (JAV)</td>
</tr>
<tr>
<td>NISO RP-9-2014</td>
<td>KBART: Knowledge Bases and Related Tools</td>
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<tr>
<td>NISO RP-10-2010</td>
<td>Cost of Resource Exchange (CORE) Protocol</td>
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<tr>
<td>NISO RP-12-2012</td>
<td>Physical Delivery of Library Resources</td>
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<tr>
<td>NISO RP-14-2014</td>
<td>NISO SUSHI Protocol: COUNTER-SUSHI Implementation Profile</td>
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<tr>
<td>NISO RP-16-2013</td>
<td>PIE-J: The Presentation &amp; Identification of E-Journals</td>
</tr>
<tr>
<td>NISO RP-17-2013</td>
<td>Institutional Identification: Identifying Organizations in the Information Supply Chain</td>
</tr>
<tr>
<td>NISO RP-19-2014</td>
<td>Open Discovery Initiative: Promoting Transparency in Discovery</td>
</tr>
<tr>
<td>NISO RP-20-2014</td>
<td>Demand Driven Acquisition of Monographs</td>
</tr>
<tr>
<td>NISO RP-21-2013</td>
<td>Improving OpenURLs Through Analytics (IOTA): Recommendations for Link Resolver Providers</td>
</tr>
</tbody>
</table>
# NISO Technical Reports

NISO Technical Reports provide useful information about a particular topic, but do not make specific recommendations about practices to follow. They are thus “descriptive” rather than “prescriptive” in nature. Proposed standards that do not result in consensus may be published as technical reports.

Free downloadable copies of these documents are available from: www.niso.org/publications/tr/

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<tr>
<td>NISO TR01-1995</td>
<td>Environmental Guidelines for the Storage of Paper Records</td>
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<tr>
<td></td>
<td>by William K. Wilson</td>
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<tr>
<td>NISO TR02-1997</td>
<td>Guidelines for Indexes and Related Information Retrieval Devices</td>
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<tr>
<td></td>
<td>by James D. Anderson</td>
</tr>
<tr>
<td>NISO TR03-1997</td>
<td>Guidelines for Alphabetical Arrangement of Letters &amp; Sorting of</td>
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<td>Numerals &amp; Other Symbols</td>
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<tr>
<td></td>
<td>by Hans H. Wellisch</td>
</tr>
<tr>
<td>NISO TR04-2006</td>
<td>Networked Reference Services: Question / Answer Transaction Protocol</td>
</tr>
<tr>
<td>NISO TR-05-2013</td>
<td>IOTA Working Group Summary of Activities and Outcomes</td>
</tr>
</tbody>
</table>

# Withdrawn NISO Standards

In accordance with NISO procedures, standards may be withdrawn because they are superseded by a newer standard, a national version is withdrawn in favor of an international equivalent, or the content is deemed to be obsolete. In accordance with ANSI procedure, all American National Standards that are not revised or reaffirmed within ten years following ANSI approval are automatically administratively withdrawn. A list of all withdrawn NISO standards is available on the NISO website by checking of the “Show Inactive Projects” filter, (http://www.niso.org/apps/group_public/projects.php). Copies of these standards are available online or from the NISO office.

There were no standards withdrawn since the last State of the Standards report.
NISO helps you and your organization connect with the information world.

NISO crosses over the library, publishing, and information systems communities, providing an excellent forum for these groups to agree on solutions.

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