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The SICI Emerges, Cicada-Like, After Eight Years of Dormancy

by Ted Koppel

Eight years ago, the Z39.56 standard (*Serial Item and Contribution Identifier*, colloquially known as the SICI), was approved by NISO's voting members. Versatile, extensible, functional, and designed for interoperability, the SICI was immediately adopted by the then nascent document delivery industry (CARL Corporation's *UnCover* and Faxon's *Finder*). A few publishers—primarily European with mostly low circulation scientific titles—began assigning a SICI to each issue and an article level SICI to each article. Some publishers began placing the SISAC (Serials Industry Systems Advisory Committee) SICI barcode on printed issues (see the lower left corner of the front page of this periodical). Aside from these few low-profile applications, the SICI remained in the backwater of library standards. Z39.56 became one on a list of many standard protocols to be "required" on most new library automation system RFPs, but very seldom did the requesting library know what technology they were requesting, or how they would use it.

What Has Changed? Why Now?

In the years since SICI was designed (see the section, *The Guts of the SICI*, later in this article), new models of information manipulation, transfer, and use have proliferated. Digital libraries and repositories have been created and bibliographic (and citation) databases have become ubiquitous in research, academic, and library environments. As scholarly publication increased, so did the need of bibliographic and citation databases to uniquely identify each article for retrieval, digital rights management, and full text document retrieval. Current resource sharing and document delivery services would be far less efficient if identifiers were less exact.

Journal-level identifiers (ISSNs and CODENs) and issue level identifiers—based on enumeration and chronology and described in ANSI/NISO Z39.71, *Holdings Statements for Bibliographic Items* (which incorporates and supersedes NISO Z39.44, *Serial Holdings Statements*)—have existed for decades. However, they do not provide the low-level granularity of access necessary to enable identification and retrieval of articles.

The SICI standards development committee did most of its work between 1993 and 1995, just at the beginning of the "Internet age." The committee's goal was to design a mechanism to uniquely identify a journal issue and its component parts, which would be

self-derivable—that is, a person could sit with an issue of a periodical and, using nothing other than the copy at hand, create a meaningful SICI. That SICI would make sense to both humans and machines without reference to another database, because it was complete and informative. (More on this in the section *SICI Purposes and Goals*, below.) The intervening decade has proven the need for an article level unique identifier.

Are There Alternatives?

Brian Green and Mark Bide, in their *Unique Identifiers: a brief introduction*[1], write that "identifiers are critical to all forms of electronic commerce" and note that electronic book ordering would be all but impossible without the almost universal acceptance of the ISBN. By extension, unique article level identifiers make possible all types of products and activities, including:

- document ordering and delivery,
- copyright and digital rights management,
- current awareness systems, and
- full text retrieval by URL.

Not surprisingly, several possible alternatives to the SICI have developed over the last several years.

The **Publisher Item Identifier (PII)** was an effort by a group of scientific and technical publishers to assign a unique document serial number to any document intended for publication. Based on Elsevier's *Standard Serial Document Identifier* (SSDI), the PII is the combination of an ISSN, the year of PII creation, and a serial number. Unlike the SICI, which is based on the concept of a published item with volume and issue references, the PII would be assigned by the publisher much earlier in the publication process, and could be used as a "tracking number" during the publication process. However, the PII is a "dumb" number in the sense that it can not be meaningfully parsed to locate or identify the item without referring to the publisher. Since there is no central registry or clearing house for all assigned PIIs, and since PIIs are not self-derivable, their use has remained very limited.

PII Example:

PII: S1296-2074(02)01238-4

is assigned to:

Journal of Cultural Heritage 3 (2002) 333–345
Examination, conservation and analysis of a gilded Egyptian bronze Osiris
David A. Scott and Lynn Swartz Dodd

The **Digital Object Identifier (DOI)**[2] is "a character string used to identify intellectual property in the digital environment." [3] The DOI grew out of an effort by the publishing community to protect its assets in the digital environment. Functionally, the DOI is composed of two parts: a prefix which identifies the creating agency of the DOI and the item being assigned the DOI, and a suffix that contains identifying or locating information about that item. A DOI must be resolved by sending a message to a DOI resolver, which returns either a URL or an alternative string that can be used for locating the digital item. Early DOI practice was to resolve to a single item location, most often controlled by the publisher. Current DOI functionality returns multiple retrieval sources and locations.

DOI prefixes can be described as opaque, in that they are not meant to be intrinsically meaningful character strings. Once created, a DOI prefix retains its uniqueness forever, regardless of changes of copyright authority or ownership. Many publishers assign sequentially numeric DOIs according to an internal corporate framework. However, some publishers assign intellectually meaningful strings (such as SICIs) within their DOIs. In the following illustration, the DOI prefix consists of the publisher information (10.1130) followed by a complete, fully qualified, contribution-level SICI. In this case a meaningful and parseable SICI has been embedded within an opaque and theoretically unparseable DOI.

Example of a DOI with an embedded SICI:

doi: 10.1130/0016-7606(1992)104<1592:HARLIT>2.3.CO;2

is assigned to:

Geological Society of America Bulletin: Vol. 104, No. 12, pp. 1592–1607.
Hawaiites and related lavas in the Atenguillo graben, western Mexican Volcanic Belt
Kevin Righter and Ian S.E. Carmichael

DOIs can be assigned to any type of intellectual property resource and are thus used in a much broader context than SICIs, which are focused on serial / journal information. Although DOIs have become a major tool in the delivery of digital information, structurally they suffer from some of the same problems that PIIs did—they are assigned by a publisher or other third party, making them non-self-derivable and not possible to be used independently except through the use of a proprietary, although open, resolution system. [*Editor's Note: See the article on the International DOI Foundation on page 6 for their approach in addressing these issues.*]

Universal Serial Item Names (USINs) were first suggested by Robert Cameron at Simon Fraser University. The USIN structure, although imaginative and progressive, called for a major restructuring of the way that libraries name and access data. USINs were never widely adopted anywhere. An advantage of the USIN structure was that data was (more-or-less) self-derivable and could be used without reference to a third party or resolver.

The **International Standard Text Code (ISTC)**[4], ISO/DIS 21047, is a draft international standard to define a unique number to a textual work, regardless of its medium. The ISTC's success will depend in good measure on the degree of participation from publishers and content creators. ISTCs may address the issue of specific article identification, but ISTC identifiers will be sequentially assigned and not interpretable without reference to the ISTC registry.

SICI Purposes and Goals

The *Serial Item and Contribution Identifier* standard[5] describes the SICI as a variable length string that uniquely identifies serial items (that is, issues), and contributions (articles, letters, etc.) within those issues. SICIs are designed to be self-derivable and parseable—there is no need for a third party registrar to assign a SICI, just as there is no need for any resolver or third party redirector to apply meaning to that SICI. The versatility of the SICI allows for any serial issue or contribution, published previously or currently, to be described by a SICI.

SICIs are aimed at the broadest possible definition of serial items—popular magazines, scholarly and trade journals, published anywhere in the world, in any physical format. As long as a serial bears an ISSN—assigned independently by the ISSN Agency—its items and contributions can be identified with a SICI. The standard specifically allows serials of different formats to be described—printed text, Braille, online, microform, sound, video, and a dozen additional media types are defined. In addition, specially enumerated serials such as supplements, double issues, and similar variants are accommodated.

An additional design goal of the SICI standard was to maintain, or improve, interoperability with existing standards at the time of writing. Therefore, SICIs embrace the ISO ISSN standard, and take into account serials enumeration and chronology rules detailed in ANSI/NISO Z39.44, *Serials Holdings Statements* (later withdrawn and replaced by ANSI/NISO Z39.71, *Holdings Statements for Bibliographic Items)*. The SICI standard fits neatly into a number of IETF and W3C schemes dealing with Uniform Resource Identifiers (URIs), Uniform Resource Names (URNs), and other Internet naming and classification hierarchies. The only deviation from current standard practice is that SICIs make use of special (punctuation) characters that in the intervening ten years have come to have a conflicting functional meaning in the HTTP protocol. (See the section *SICI and the Future* later in this document for more on this issue.)

Various potential usage scenarios were listed in the 1996 publication of the SICI standard. These included:

- SICIs being calculated and used as a unique article identifier by abstracting and indexing services;
- SICIs as the most compact mechanism to supply ordering information to ILL and document delivery suppliers; and
- SICIs being used for library serials department technical services functions, such as journal check-in and claiming.

Why Is Self-derivability So Important?

As noted elsewhere, one key attribute of a SICI is that it is self-derivable and self-parseable, unlike a DOI or a PII. The nature of DOIs, PIIs, ISTCs, etc., is that they are assigned and registered by third parties, and that reference to that third party's registry is required for parsing, now and in the future. While in the year 2004, such registries exist and are freely available, there is no guarantee that one hundred years from now, such registries will continue to exist. Further, given the security conditions prevailing in the United States and around the world, a centralized registry introduces a single point of failure. A self-derivable string such as the SICI does not require a third party parser or resolver; instead, a user can easily compose or decompose a SICI at a glance.

The Guts of a SICI

SICIs are composed of three different segments. All three of these segments must appear in every SICI, although values within a segment may be omitted if not applicable. (Note: see the text of the standard[5] for full details and implementation guidelines.)

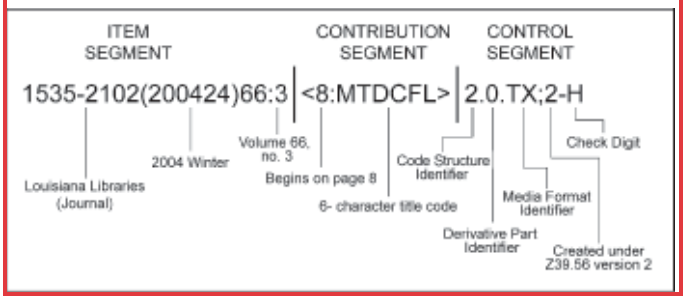
- **Item Segment**, which includes the data elements needed to describe the serial item.
  These elements include the ISSN, chronology, and enumeration of the piece being described.
- **Contribution Segment**, which includes data elements that describe contribution or article information within the serial item.
  These include the title code (determined algorithmically) and page number. Depending on the code structure (see below), the contribution segment may additionally include a PII or other assigned number.
- **Control segment**, which is administrative in function. It contains a version number, to identify the version of the standard being used to create the SICI, and a Code Structure Identifier (CSI), which designates whether the SICI refers to an item, a contribution, or some other alternate type of serial publication. Further, the control segment includes a Derivative Part Identifier

(DPI), which further defines the contribution as a table of contents, index, or abstract. The Medium/Format Identifier (MFI) distinguishes among the different possible formats of a serial—printed text, online, microfilm, etc. Finally, a calculated check digit, derived and calculated from the values of all the elements and segments that precede it in the SICI string, concludes the string.

As noted earlier, SICIs can be used to identify either items (issues) or contributions within items (articles). Structurally, an item-level SICI and a contribution-level SICI are identical; the only difference is that data in the Contribution Segment of an item-level SICI is empty. The following examples illustrate different types of SICIs and their composition.

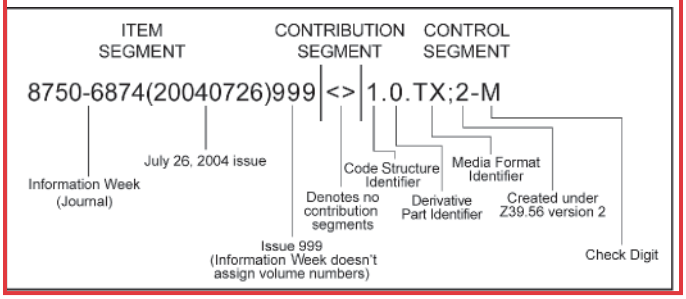
Contribution (article) level SICI example for:

Amsberryaugier, Lora and Hankel, Marilyn. Mining the Decennial Census for Louisiana Data, 1940-2000. Louisiana Libraries (volume 66, no. 3), Winter 2004
(Note: The Code structure identifier is 2 and the Contribution segment is complete. It refers to a single article that begins on page 8.)



Item Level SICI example for:

Information Week, July 26, 2004 issue.
Note: This is an Item level SICI, because it has a code structure identifier of 1 and because the contribution segment is empty.



SICIs in Active Use

Repositories and Archives

Database repository access is only as good as the ability to identify a specific, unique element within its collection. The following examples illustrate how databases and article repositories depend on the SICI to uniquely identify articles within the collection and provide linkages to the full text material.

JSTOR, a not-for-profit organization whose mission is to archive important scholarly journals, held more than 2.5 million articles from 400 periodicals as of June 2004—and each of those 2.5 million articles needs to be directly accessible and digitally deliverable to JSTOR's subscribers. JSTOR uses the SICI contribution level identifier to create "direct URLs" that point to a specific digital document held in the JSTOR archive.

JSTOR's URL using the SICI Code:

http://links.jstor.org/sici?sici=00925853%28200001%2944%3A1%3C35%3APAVB1%3E2.0.CO%3B2-Z

for the article:

"Partisanship and Voting Behavior, 1952-1996", Larry M. Bartels, American Journal of Political Science, Vol. 44, No. 1. (Jan., 2000), pp. 35-50.

JSTOR's implementation of the SICI varies from the letter of the standard. For instance, in processing the SICI string, JSTOR ignores both the title code and the check digit. JSTOR found that those two elements were the most difficult for their partners and customers to calculate in preparing a URL link to JSTOR, and they had a tendency to be inaccurate. JSTOR accepts the full SICI string, but uses the numeric data elements (volume, issue, page number) to identify the specific item for retrieval. JSTOR notes that ignoring the title code can affect the linking success rate.

OCLC's FirstSearch is an online service that gives access to several dozen databases. SICIs are included in full article citations in several databases, and can be used as pointers to the full text of the item. FirstSearch also makes available its "Direct Article Access Service," in which a library can create a SICI-embedded URL link from its own Web presence, directly to a specific full text article housed at OCLC. This capability is useful in electronic reserves or library-maintained reading lists and bibliographies.

FirstSearch URL using the SICI Code:

http://firstsearch.oclc.org/FSIP?sici=0028-6583%2820001030%29223%3A18%3C24%3ATF%3E&dbname=WilsonSelect

for the article:

"Test flight," Marcia Yablon, *The New Republic*, v.223, n.18, p.24. (Full text is available in the Wilson Select database.)

Protocols and standards using the SICI

OpenURL reference linking[6] is a process by which a database source takes citation data and prepares a metadata message for transmission to a link resolver. The link resolver processes the incoming message and points to appropriate targets where the full text of the item can be found.

The OpenURL standard defines several different roles for data in a metadata string. The referent (abbreviated in the OpenURL string as "rft.") is the desired item to which the OpenURL query refers. A referent can have a number of values that describe it, including a title (rft.title), an author's first and last names (rft.aulast, rft.aufirst), the article title (rft.atitle), a journal title (rft.jtitle), and a number of numeric referent identifiers that describe the original citation (rft_id).

Among the referent identifiers allowed in an incoming OpenURL message are both SICIs and DOIs (which, as noted above, can contain meaningful SICIs within their prefixes). Upon receipt of an OpenURL metadata message containing a SICI, the OpenURL resolver decomposes (or parses) it into its meaningful parts and acts on each of them (ISSN, volume number, issue number, page, etc.) in order to resolve the citation and deliver the appropriate list of targets to the end user.

In addition to being able to process SICIs in incoming OpenURL strings, most link resolvers have the ability to create outgoing SICIs pointing to text delivery targets. An example of this would be a link resolver processing a citation from an article database which points to a full text article that is housed in JSTOR's archival repository of digital items.

The **Dublin Core** metadata standard[7] is a set of fifteen data elements that can be used to describe a broad array of network resources. It is analogous to, but different from, the descriptive cataloging information contained in a cataloging record. Among the fifteen data elements is the "identifier" element, structurally labeled as "dc.identifier" and defined as "an unambiguous reference to the object within a given context." Identifiers can be ISBNs, ISSNs, DOIs, SICIs, etc.

A very current potential role for SICIs that is being explored is the **Serials Release Notification (SRN)** format of the still-developing ONIX for Serials project. SRN, as envisioned, will support distributing data relating to the release of serial resources (issues, or articles within issues) by the publisher at about the same time the physical issues are dispatched. Potential uses for SRN are current awareness services, advance notice of publication for abstracting and indexing services, pre-assignment of DOIs by publishers, and more complete and accurate expected date and check-in information for automated library systems.

For SRN to be effective, a unique, unambiguous identifier that can accurately describe a serials contribution (article) or issue is required. This identifier would be assigned by the publisher and needs to be easily parsed by the receiving application. Although determination of the SRN unique identifier is very much still in the discussion and consideration stage, the SICI is an attractive candidate to fill this role because of its self-referential characteristics and its ease of resolution and parsing.

SICI and the Future

All NISO standards are re-examined and re-evaluated on a five year cycle. NISO's Standards Development Committee will be determining Z39.56's specific re-evaluation process and schedule some time during 2005, with the goal of achieving re-approval by NISO membership in 2006. The re-evaluation process is traditionally a time for addressing problems and deficiencies to a standard, and adding or extending functionality if required.

The SICI standard largely reaches its goals as a self-derivable, variable length, interoperable unique identifier for serial items and contributions. Still, there are several areas where improvements to the standard are needed:

- The standard uses certain special punctuation characters (colons, greater-than, less-than, semicolon, slash, etc.) as delimiters within all three segments of the SICI. In addition, the title code, since it is composed of the first characters of the first six title words, permits other non-alphanumeric characters to appear. Pre-Internet, use of these characters caused no particular problems. However, the HTTP protocol, URLs, and other Internet addressing conventions assign specific (and conflicting) meaning to these special characters.

  URL encoding (also known as hex encoding) has evolved as a workaround to this character conflict, but it is imperfect. It brings along its own set of problems with encoding, decoding, and SICI matching and parsing. Any re-examination of the SICI should consider alternatives, if any, to special characters for SICI construction.
- The Medium/Format Indicator (MFI) currently defines 16 possible presentation formats for serials. This list needs to be updated and probably expanded to include the large variety of online format options potentially available.
- The six-character title code has been confusing and problematic to some SICI implementers. Although a title code is necessary to distinguish contributions (articles) within issues, the rules for creating that code can probably be made clearer so that implementations will be more consistent.

- Finally, the check-digit algorithm is complex, primarily because it deals with alphabetic, numeric, and punctuation characters. The standards revision committee should examine if (and how) the check digit adds value to the SICI as a whole, and, if still desired, if there is a more easily implemented algorithm than the current one.

The NISO Standards Development Committee will no doubt suggest other areas where the SICI standard re-evaluation committee should consider revisions.

Conclusion

Eight years after its release as a national standard, the *Serials Item and Contribution Identifier* is finally coming into its own as a unique identifier for serials contributions. Advances in technology, Internet based products, and resource sharing prove the need for a mechanism that allows interoperability with digital databases and archives. With the opportunity for re-evaluation and improvement in 2005, the SICI can fill the role of a self-derivable, versatile, efficient, and unique identifier for another generation of serials.

Greater use and acceptance of the SICI implies a maturing understanding of the very important role that unique identifiers play in all areas of information transmission and delivery. The need by libraries, database suppliers, and similar industry entities for unique and unambiguous identifiers is already seen in the development of other standards, such as NCIP, the Interlibrary Loan Protocol, and in NISO's Metasearching Initiative. The information industry can build on the lessons learned from the renaissance of the SICI standard.

References

1) Brian Green and Mark Bide, *Unique Identifiers: a brief introduction*, Revised edition March 1997, copyright Book Industry Communication and EDItEUR. Available from: http://www.bic.org.uk/uniquid.html

2) ANSI/NISO Z39.84 – 2000, *Syntax for the Digital Object Identifier.* Available from: http://www.niso.org/standards/resources/Z39-84-2000.pdf

3) IBID, p. 5

4) ISO/DIS 21047, *Information and documentation – International Standard Text Code (ISTC).*
Note: ISO/DIS 21047 will be balloted in late-2004.

5) ANSI/NISO Z39.56 - 1996 (R2002), *Serial Item and Contribution Identifier (SICI).* Available from: http://www.niso.org/standards/resources/Z39-56.pdf

6) NISO Z39.88, *OpenURL: A Transport Mechanism for ContextObjects.* Available from: http://library.caltech.edu/openurl/
Note: The NISO ballot period for this standard has closed and the Standards Committee is now responding to Members' comments.

7) ANSI/NISO Z39.85 – 2001, *Dublin Core Metadata Element Set.* Available from: http://www.niso.org/standards/resources/Z39-85.pdf

About the Author

Ted Koppel is Senior Product Manager, Standards Implementation at The Library Corporation.
Email: tedk@tlcdelivers.com

MEMBER SPOTLIGHT

The International DOI Foundation:
A Persistent Organization Supporting a Persistent Identifier

by Cynthia Hodgson, ISQ Editor

The International DOI Foundation (IDF) is a not-for-profit membership organization, established in 1998, to develop and manage the Digital Object Identifier (DOI) System. The DOI is a persistent, actionable, and interoperable identifier assigned to any intellectual property entity—digital files, abstractions, even non-digital content—for use on digital networks. The first DOI Registration Agency (RA), CrossRef (also a NISO member), was authorized in 2000; by midyear 2004 there were nine RAs and more are to follow. Collectively, they have assigned over 13 million DOIs.

The DOI System is made up of four components: identifier, resolution, description, and policy. Standards play a critical part in three of the four.

The first component, the **identifier** or "name", is the alphanumeric string of characters that are assigned to an object. A DOI is associated with the digital content object as an independent entity. This approach differs from identifiers such as a URL which specifies a particular attribute of an object, i.e. its location on the Internet. The syntax for a DOI is defined in the standard, ANSI/NISO Z39.84, *Syntax for the Digital Object Identifier*. This syntax provides for the incorporation of other identifiers, such as ISBN and SICI, into the DOI. Once assigned, DOIs are managed to be persistent through both the resolution and policy components of DOI.

The second component of the DOI system, **resolution**, is an Internet process which associates a DOI to one or more current values of information about the identified object. Frequently, the resolution is to an instance of the actual digital object (e.g., a URL), but this is not the only option. The DOI for a particular journal article, for example, may provide resolutions to a PDF version of the article, an HTML version, a bibliographic citation

with abstract and metadata, and an online ordering form for a print copy. DOI resolution utilizes the Handle System developed by the Corporation for National Research Initiatives (CNRI) and defined in three Internet Engineering Task Force (IETF) Request for Comments (RFC): RFC 3650, *Handle System Overview*; RFC 3651, *Handle System Namespace and Service Definition*; and RFC 3652, *Handle System Protocol Specification*. The resolution component is what makes a DOI actionable.

Description, the third DOI component, is aimed at interoperability of metadata that describes the object being identified. Both humans and machines need more information than just an identifier to make use of an information resource, especially outside the system in which the identifier was assigned. Since the DOI identifier does not carry in its syntax any descriptive information about the resource, the DOI System includes the option of providing a set of associated metadata. The description component is actually a Data Model, encompassing both a data dictionary and a framework for applying it. A minimum (kernel) set of metadata elements is required to be supplied when a DOI is issued for interoperable uses. This metadata is mapped to a data dictionary built using methodology from the <indecs> (interoperability of data in e-commerce) framework. The data dictionary component is designed to ensure maximum interoperability with existing metadata element sets, such as Dublin Core and ONIX. The associated framework allows the metadata to be grouped in meaningful ways so that certain types of DOIs all behave the same way in an application.

Perhaps the most important component of the DOI system is the **policy** and governance. Norman Paskin, Director of the International DOI Foundation, emphasizes that "persistence is a function of organizations, not technology. A persistent organization is necessary to ensure the ongoing support and management of a persistent identifier." The IDF was established to provide the "social" infrastructure of shared commitment and rules needed to support the technical infrastructure, as well as to promote the technical development of the DOI System. The governance and policy setting is done by the members of IDF through working groups and an elected Board. The operational work of assigning DOIs is handled through designated Registration Agencies operating under IDF terms. Technical support is provided by IDF's partners, CNRI and OntologyX.

Although the development of the DOI and the IDF was initiated and implemented by the publishing industry, it was always envisaged as a generic tool and use of the DOI has grown beyond the original audience. Government agencies and international organizations, such as the European Union, the UK government, and the Organisation for Economic Co-operation and Development, are utilizing DOIs. The Conference of European National Librarians (CENL) joined the IDF in 2003 to further the interests of libraries in the usage of the DOI. Applications both within and outside the mainstream publishing world can be found with a diversity of multimedia objects—from journal articles and photographic images, to sound recordings, and video. DOIs are being promoted for use in learning objects and projects are underway with the IDF and the scientific data community to use DOIs to persistently identify primary data sets.

The DOI is increasingly gaining recognition in other standard development activities. In the NISO world, the *OpenURL Framework* standard (Z39.88) includes the DOI as one of its registered "namespaces" and DOIs are widely used in OpenURL implementations. The forthcoming revision of ANSI/NISO Z39.29, *Bibliographic References*, includes the DOI as an element for electronic information resource citations. The NISO committee revising Z39.18, *Scientific and Technical Reports*, expects to include a recommendation on the use of persistent identifiers such as the DOI.

From its inception, the DOI has been envisioned as a key component in digital rights management, since unique and persistent identification is fundamental to rights transactions. The IDF has closely followed and provided input to the ISO/IEC committee developing the MPEG-21 *Multimedia Framework* series of standards (ISO/IEC 21000). The DOI is an MPEG-21 registered Digital Item Identifier that can be referenced when using the standard's Rights Expression Language. The IDF implementation of the <indecs> data dictionary was a model for the MPEG-21 Rights Data Dictionary (RDD) and the MPEG committee has recommended the appointment of The International DOI Foundation, in partnership with Rightscom, as the Registration Authority for the MPEG-21 RDD.

"One of the challenges in the continued implementation and development of the DOI," states Norman Paskin, "is integrating standards from several different development communities. The DOI utilizes and depends on standards from ISO, NISO and the IETF, as well as working with the Handle and <indecs> communities to promote their superb technologies. Each of the organizations we deal with is developing and evolving their standards on different timetables, which can complicate keeping everything in synch and advancing integrating technologies. IDF also has a mission to explain to various communities how DOIs can be used and integrated with their existing practice and we are active in promoting a wider vision of identifier systems for example, they are not restricted to the Web, Western languages, or specific Internet implementations."

Making it all work requires persistence, which should be no problem for IDF since persistence is their mission.

Three Execs Join NISO Board

NISO has elected three new Board members: Douglas Cheney, Barnes & Noble; Robin Murray, Fretwell-Downing Informatics; and James Neal, Columbia University. The selection of Cheney, Murray, and Neal reflects the balance of communities and international reach that have developed within the organization's membership.

"NISO's mission expanded with the onset and explosion of digital information exchange. The result has been a significant change in the NISO membership base," noted Pat Harris, NISO Executive Director. "Thirty years ago our members were mostly corporate libraries and associations. NISO's members today also include information dependent businesses of all types, such as publishers, content aggregators, and the companies that provide the software and technology that enable publishing and content distribution."

An integral part of NISO's nomination and election process involves assertions from the candidates about their professional priorities within the standards body. The newly elected members offered the following statements, which highlight both current and emerging areas of importance for NISO:

Douglas Cheney is responsible for all product data for **Barnes & Noble**, a role he assumed after serving as Director of Enterprise Data Management at Staples: "I'm a staunch advocate and implementer of standards. But more than that, I am particularly interested in the practical application and expansion of standards in the realm of business and technology practices. Examples of two particular areas of such interest are advancing standardized services-based architectures (on the technology side) and standardizing competition-neutral business practices within the supply chain. Examples of the latter within the book industry include data quality measurement systems and forecasting frameworks."

Robin Murray, CEO and President of **Fretwell-Downing Informatics** since 1999, joined FDI in 1988 to lead the development of graphical MIS applications and has since held the positions of technical manager and technical director: "The impact of e-Learning, e-Government and corporate governance on library services will be profound. Major opportunities lie in the integration of the information service into the strategic objectives of the organization, whether they be learning outcomes, social improvement, or corporate profit. More than ever, standardization is the key to realizing these opportunities and the work of NISO is critical to this."

James Neal is Vice President for Information Services and University Librarian at **Columbia University**. There he oversees the operations of the Columbia libraries' system, the tenth largest research library in North America, and the University's Academic Information Systems (AcIS): "Standards are the lifeblood of a successful and productive organization and society. In my over thirty years of working in academic research libraries, with computing and networking, with instructional technology, and with publishing, I have championed and advanced standards as critical infrastructure. NISO has been fundamental to raising the visibility and assuring the application of standards to the work of all organizations that work with information."

MODS Receives NISO Registration

The *Metadata Object Description Schema* (MODS), version 3.0, is the first specification registered under NISO's new registration process. By offering a lighter-weight review and accreditation, NISO registration complements and extends the formal consensus process, supports the work of organizations and communities that are developing new practices in evolving information services, and introduces the NISO community to emerging specifications of potential interest.

MODS is both a syntax for encoding descriptive metadata, using an XML schema language, and a list of metadata elements, derived from the MARC 21 bibliographic format. Developed and maintained by the Library of Congress Network Development and MARC Standards Office, the MODS element set is simpler than the full MARC format and more end user oriented than the full MARCXML schema. MODS records may use other NISO standards for the content of elements, such as a DOI in the <identifier> element or a Z39.53 language code in the <language> element.

For more information on the NISO registration process and an application form, visit: http://www.niso.org/registration/registration.html

The MODS specification and related information can be found at: http://www.loc.gov/standards/mods/

Vendor Initiative for Enabling Web Services (VIEWS) Announced

VIEWS, an initiative by vendors and library service organizations has been formed for the enabling of Web services between disparate applications used in libraries. Chaired by Carl Grant, President & COO of VTLS, the initiative is a response to the growing need in the vendor and library service communities to create both a discussion forum and a plan to implement Web services. The group that has agreed to cooperate in the initiative includes Dynix, Fretwell-Downing, Index Data, MuseGlobal, OCLC, Endeavor, Talis, and VTLS.

Web Services is the next dimension in systems architecture. It builds on core standards including at the foundation: TCP/IP, HTTP, and XML. Using new technologies, the core of Web services will be the ability for software to interoperate at many different levels, thus resulting in a more seamless integration of functional capabilities for end users of the products. The technology is already seeing rapid adoption in the traditional business sectors, with companies like Amazon, Home Depot, Google, and others building business processes using the technology. In the library marketplace, many vendors are already offering applications that support Web service, including Dynix, Index Data, and VTLS. To reach the ultimate goal of web services—true interoperability—the vendors will need to work out guidelines and possibly standards, which will extend the foundation.

Follow the progress of VIEWs at: http://www.niso.org/committees/VIEWS/VIEWS-info.html

NISO's participation will ensure that the results of the VIEWS initiative can be quickly and readily adopted across the library community. Plans call for the group to begin meeting shortly and to set up a test bed for working through the numerous details involved in implementing the architecture across product lines.

Metasearch Moves Forward

NISO launched the Metasearch Initiative in 2003 to identify, develop, and frame the metasearch standards and common understandings to enable:

- metasearch service providers to offer more effective and responsive services,
- content providers to deliver enhanced content and protect their intellectual property, and
- libraries to deliver services that distinguish their services from Google and other free Web services.

The standards setting component has been launched, with Jenny Walker (ExLibris USA) and Andrew Pace (North Carolina State University) co-chairing the Initiative. Task Groups will work in three areas:

- Investigation of access management - Chair: Mike Teets (OCLC, Inc.)
- Collection description - Chair: Juha Hakala (National Library of Finland)
- Search and retrieval - Co-Chairs: Matt Goldner (Fretwell-Downing Inc.) and Sara Randall (Endeavor Information Systems).

These teams involve more than 60 individuals from five countries and comprise publishers, librarians, and library software providers. Following a series of conference call meetings the project teams met for a two-day summit in Chapel Hill, NC on April 22-23.

The **Search and Retrieval** group has broken into three working groups. WG1 is working on data elements for article citations. WG2 is working on result set level metadata elements. WG3 is conducting a survey of content providers and software developers to gather information about current practices in metasearch and retrieval. To participate in the survey contact Matt Goldner, email: matt.goldner@fdusa.com. The survey report and analysis will be available in October. When this work is completed the task group will focus on the description of current practices and make recommendations for further work and/or practice.

The **Collection Description** group launched their work by describing various metasearch use cases that need to be supported. The group identified three user types (end-user, metasearch portal provider, and application) and two use cases (enable configuration and enable discovery). The Collection Description group is organized into two working groups:

Collection Description, chaired by Pete Johnston (UKOLN), will identify functional requirements by developing various scenarios or use cases for Collection/Service description. Existing metadata element sets for Collection Description will be analyzed to determine their capacity to support the defined functional requirements. Priority will be given to Dublin Core. They will also recommend syntaxes to express the metadata records and develop guidelines for the use of the metadata element set including best practices for content providers.

The working group on Service Access Description Metadata, has reviewed the service description metadata sets now in use (including Z39.50 Explain, Explain-Lite, ZeeRex, JISC-IESR), identified questions to be addressed, and come to consensus on scoping topics related to: services (information services are in-scope); protocols (in-scope are Z39.50, SRW/SRU, OAI (URL only), http

(URL only), FTP, LDAP, X500, Grid Metasearch, GIS); and service description.

The Task Group on **Access Management** is gathering requirements for metasearch authentication and access needs, inventorying existing processes, and developing a series of formal use cases describing needs. Deliverables of this task group may encompass: a glossary of access management and metasearch terms; a definition of the basic user requirements of constituents; an inventory of methods and techniques in use today; use cases describing authentication and access needs; and recommendations on statistics to satisfy access management systems.

News, meeting minutes, the roster of participants and observers, and reports on the Metasearch Initiative activities are featured on the NISO website and on the Metasearch committee's website. To join any Task Group as an observer contact nisohq@niso.org.

Metasearch Initiative committee website: http://www.lib.ncsu.edu/niso-mi/index.php/Main_Page

NISO Workshop Showcases Cutting Edge Metadata Practices

NISO's May 20 workshop, *Metadata Practices on the Cutting Edge*, was attended by over 125 individuals representing a diverse group of organizations including libraries, content providers, solutions providers, government agencies, and archives. Attendees overwhelmingly rated the workshop as excellent or very good, commenting on the quality and range of topics of the speakers.

Lorcan Dempsey (OCLC) opened the workshop with an overview of metadata, how it can be utilized in a variety of applications, and current communities of practice. Howard Ratner (Nature Publishing Group) followed with a discussion of RSS (Rich Site Summary)—an increasingly popular Internet information feed technology—and the role of metadata in RSS search and access. Chuck Koscher (CrossRef) described the use of metadata in conjunction with DOIs and linking technology such as OpenURL to access full-text digital content. Oya Rieger (Cornell University Library) reviewed trends in the use of metadata with image collections and learning objects. William LeFurgy (Library of Congress) outlined metadata approaches in two developing ISO standards, MPEG-21 (ISO 21000) and PDF-A (ISO 19005).

Rebecca Guenther (Library of Congress) kicked off the afternoon session with an introduction of the *Metadata Object Description Schema* (MODS) and a description of some of its current applications including MINERVA, LC's web archiving project. Morgan Cundiff (Library of Congress) gave an overview of the *Metadata Encoding and Transmission Standard* (METS) and the development of METS Application Profiles. Nathan Robertson (Johns Hopkins University) provided an update on *ONIX for Serials* and the NISO/EDItEUR Joint Working Party for the Exchange of Serials Subscription Information. William E. Moen (University of North Texas) described the problems and current solutions for metadata interoperability. MacKenzie Smith (MIT Libraries) reviewed the objectives, status, and future plans for the SIMILE project, a joint effort of MIT, Hewlett Packard, and the WorldWideWeb Consortium to "make metadata interoperability a reality for digital libraries." Bruce Rosenblum (Inera) concluded the presentations with a discussion of the challenges of metadata quality. Jenny Walker (ExLibris USA) wrapped up the workshop with a question / answer session.

Metadata workshop presentation slides can be downloaded at: http://www.niso.org/news/events_workshops/MD-2004_agenda.html

NISO Welcomes New Member: SAGE Publications

SAGE Publications, co-located in Thousand Oaks, California, and London, is NISO's newest member. An independent international publisher of books, journals, and databases, SAGE Publications prides itself on its responsiveness and personal attention to its publishing partners, authors, and customers.

The company publishes over 325 journals, including those of more than 70 learned societies and institutions, and such award winning reference books as *Encyclopedia of Community*, *Handbook of Death and Dying*, and *Encyclopedia of Terrorism*. In partnership with Cambridge Scientific Abstracts, SAGE produces the databases: *Sage Full-Text Collection*, *Criminal Justice Abstracts Online*, and *Communication Abstracts Online*. Their Corwin Press imprint focuses on K-12 educational materials and their Pine Forge Press imprint publishes teaching-oriented materials and resources in the field of sociology.

Anthony Ross, VP Content Management, is SAGE Publications' voting representative to NISO. Carol Richman, Director of Licensing, is the alternate.

Learn more about SAGE and access their online catalogs at: http://www.sagepub.com

NISO Aids in Understanding Metadata

In conjunction with the *Metadata Practices on the Cutting Edge* workshop (see previous article), NISO published *Understanding Metadata*. The 20 page booklet provides an overview of what metadata is, its uses, how it is structured and created, what is being done to facilitate interoperability and exchange of metadata, and future directions.

Thirteen metadata elements sets and schemes in use today are described: Dublin Core, the Text Encoding Initiative, Metadata Encoding and Transmission Standard, Metadata Object Description Schema, the Encoded Archival Description, the IEEE Learning Object Metadata, <indecs>, ONIX, Categories for the Description of Works of Art, the Visual Resources Association Core Categories, MPEG multimedia metadata, the Federal Geographic Data Committee Content Standard for Digital Geospatial Metadata, and the Data Documentation Initiative. Several of the descriptions are illustrated with coded examples of their schemas. A resource guide, with Web links to additional information sources on metadata, and a glossary of metadata terminology are included.

Understanding Metadata is a revision and expansion of NISO's popular 2001 publication, *Metadata Made Simpler*, by Gail Hodge. Rebecca Guenther and Jacqueline Radebaugh, staff members in the Library of Congress Network Development and MARC Standards Office contributed to the update. *Understanding Metadata* is available in PDF format as a free download from the NISO website or can be purchased in hard copy from NISO Press. It can also be customized for distribution at workshops or other events. Call NISO for details on bulk order pricing.

Download *Understanding Metadata* or order hardcopy at: http://www.niso.org/standards/resources/UnderstandingMetadata.pdf

NATIONAL STANDARDS NEWS

ANSI forms Copyright Ad Hoc Group

The ANSI Board of Directors announced the formation of a Copyright Ad Hoc Group (AHG) to "review issues relating to the assertion of copyright in standards. The AHG will seek to develop strategic recommendations (a) to assist standards bodies and participants in arriving at a common understanding of these issues and addressing them in a constructive manner, (b) to formulate ANSI's actions and policy positions vis-à-vis the government and (c) to provide guidance to the relevant ANSI governance bodies."

The formation of the AHG was motivated by the decision in the legal case *Southern Building Code Congress International v. Veeck*. The courts found that when a standard is adopted as law by a government entity, the text of the referenced standard enters the public domain and loses its copyright protection. Since the sale of standards publications is a major source of revenue for many standards organizations, this decision has far-reaching implications on their financial business models.

Mr. Dan Bart, Senior Vice President of Standards and Special Projects at the Telecommunications Industry Association, and a member of the ANSI Board of Directors, was appointed chairman of the Ad Hoc Group. Member nominations have been solicited from ANSI's constituent groups. Approximately 15-20 individuals are expected to be appointed to the AHG.

SDO Act Becomes Law

The Standards Development Organization (SDO) Advancement Act of 2004 (H.R. 1086) was signed into law on June 22. The SDO Act amends the National Cooperative Research and Production Act of 1993 to extend its antitrust liability protections to standards development organizations that have no commercial interest in the specifications contained in the standards.

"Standards development organizations develop technical standards that are essential to the efficient functioning of our national economy," stated R. Hewitt Pate, Assistant Attorney General in the Department of Justice Antitrust Division. "Congress has determined that the threat of treble damages pressures SDOs to restrict their standards development activities at a great cost to the United States. The Standards Development Organization Advancement Act of 2004 relieves SDOs from certain antitrust concerns and facilitates the development of pro-competitive standards." SDOs must file a notification with the Department of Justice and the Federal Trade Commission (FTC) to obtain the Act's liability protections.

The the American Society of Mechanical Engineers (ASME), ASTM International, and the National Fire Protection Association (NFPA) initiated the call for legislation. It was supported by numerous standards organizations including the American National Standards Institute (ANSI).

The final version of the bill can be viewed at: http://thomas.loc.gov/cgi-bin/query/C?c108:./temp/~c108pReDzJ

LC Issues Metadata Authority Description

The Library of Congress Network Development and MARC Standards Office has developed a Metadata Authority Description Schema (MADS) to serve as a companion to the Metadata Object Description Schema.

MADS is an XML schema for an authority element set that can provide metadata about agents (people, organizations), events, and terms (topics, geographics, genres, etc.) MADS is related to the MARC 21 Authority format but simplifies the data.

The draft MADS has been released for public review, comment, and experimentation. Feedback from prospective users will be incorporated into the final version of the specification.

For more information, visit: http://www.loc.gov/standards/mads/

ARL Endorses Digitization as Preservation Option

The Association of Research Libraries (ARL) has released the paper, *Recognizing Digitization as a Preservation Reformatting Method*, which encourages ARL members and others engaged or interested in digital reformatting "to make organizational and economic commitments to adhere to accepted standards and best practices in digital reformatting and to establish institutional policies to maintain digital products for the long term."

According to William A. Gosling, University Librarian at the University of Michigan and Chair of the ARL Preservation Committee, "Students, and more and more faculty, expect libraries to provide information in electronic formats. It is now time to move forward, time to recognize and adopt digitization as an acceptable preservation option for reformatting brittle and hard-to-access materials. ARL is prepared to serve as a catalyst for this movement."

Appendices to the endorsement document discuss the pros and cons of various reformatting technologies, the benefits of digitization as a preservation reformatting option, standards and best practices in digital reformatting, and current state of commitment to long-term preservation of electronic resources.

Read the full text of the ARL paper at: http://www.arl.org/preserv/digit_final.html

NDIIPP Launches Research Grants Initiative

The National Digital Information Infrastructure and Preservation Program (NDIIPP) of the Library of Congress is partnering with the National Science Foundation (NSF) to establish the first research grants program to specifically address the preservation of digital materials. NSF will administer the program, which will fund cutting-edge research to support the long-term management of digital information.This effort is part of the Library's collaborative program to implement a national digital preservation strategy.

The new Digital Archiving and Long-Term Preservation research program, which expects to make approximately $2 million in initial awards using NDIIPP funds, has three main focus areas for which proposals are sought:

- Digital repository models
- Tools, technologies and processes
- Organizational, economic and policy issues

Check the NSF website for a call for proposals: http:\\www.cise.nsf.gov/div/index.cfm?div=iis

Stay current with the National Digital Information Infrastructure and Preservation Program(NDIIPP) of the Library of Congress through their new online newsletter: http://www.digitalpreservation.gov/index.php?nav=5&subnav=2

ARMA Releases Two Draft Standards for Public Comment

The ARMA International Standards Development program has released two draft standards for public review and comment:

Requirements for Managing Electronic Messages as Records provides recommendations for the life cycle management of email records.

Managing Recorded Information Assets and Resources: Retention and Disposition Program defines the principles for structuring such a program for all types of recorded information.

Review the draft standards at: http://www.arma.org/standards/public/

ISSN Revision: Progress Report

A second meeting of the ISO working group tasked to revise the ISSN standard was held in Amsterdam in May 2004. The groups reviewed the results of the user survey conducted in March-April that elicited feedback on a number of ISSN revision scenarios including:

- changing the ISSN to a title-level identifier,
- using one base ISSN for content plus a suffix to indicate medium,
- using a "master" (title-level) ISSN plus a manifestation ISSN, or
- making no change to the ISSN and maintaining the status quo.

The survey results indicated that none of the proposed scenarios would meet the needs of all affected communities or all ISSN users within a single user group. Three possible solutions are now being explored:

- A "functional granularity assignment policy to allow publishers to determine how many ISSN are assigned, based on their own requirements for ISSN use and business transactions with partners.
- Embedding a base (title level) ISSN within a larger product identification system if such a system existed (the system would need to be developed).
- Using an existing identifier system such as DOI, URN, or ISTC to contain an ISSN selected to function as a title-level identifier.

The WG also decided to study the ISSN Register to explore its functionality and accessibility as the ISSN registration database, particularly in terms of the proposed functional granularity assignment policy. The next meeting of the ISSN working group will be held October 25-26, 2004 in Washington, D.C. The NISO representatives to the working group are Regina Reynolds (Library of Congress), Ed Pentz (CrossRef), and Yvette Diven (R. R. Bowker).

ISSN WG webpage: http://www.collectionscanada.ca/iso/tc46sc9/wg5.htm

ISO Publishes MPEG-21 REL and RDD standards

In May 2004, ISO published two new parts of MPEG-21, *Information technology – Multimedia Framework*, dealing with rights management.

MPEG-21, Part 5: *Rights Expression Language* (ISO/IEC 21000-5:2004), specifies an XML-based language for expressing rights related to the use and distribution of digital content. (See the ISQ feature article on page 1 for an introduction to rights expression languages.)

MPEG-21: Part 6: *Rights Data Dictionary* (ISO/IEC 21000-6:2004) defines a set of terms to be used with the *Rights Expression Language* of Part 5. The Rights Data Dictionary (RDD) defines a single meaning for each term but accommodates the mapping of terms and definitions from other rights applications. A partnership of the International DOI Foundation and Rights.com has been recommended as the Registration Authority for the RDD System. (See the Member Spotlight article on page 9 for more on the International DOI Foundation.)

The Moving Picture Experts Group (MPEG) has a long history with addressing digital rights management. The MPEG-2, MPEG-4, and MPEG-7 standards all contained specifications for dealing with specific elements of digital intellectual property protection. MPEG-21 integrates the components of multimedia management into an overall framework for interoperability. The *Rights Expression Language* and *Rights Data Dictionary* are critical components of this framework. Both standards can be purchased from ISO.

MPEG committee website: http://www.chiariglione.org/mpeg/

Electronic Image Guidelines Released

A new ISO technical report, ISO/TR 15801:2004, *Electronic imaging – Information stored electronically – Recommendations for trustworthiness and reliability,* defines recommended practices for electronic storage of business or other information in image form. It describes procedures whereby an electronic copy may be demonstrated to be a true copy of the original, whether that original was itself an electronic data file or a physical source document.

Although directed at businesses with regulatory requirements, the report's guidelines apply to any organization with an interest in ensuring the authenticity and integrity of electronic image files. "The technical report is expected to result in improved access, reduced requirement to keep paper originals or copies, better long term accessibility, and improved confidence in electronic storage," said Alan Shipman, Project leader of ISO/TR 15801:2004.

The new technical report is the work of ISO technical committee ISO/TC 171, *Document management applications*, subcommittee SC 3, *General issues*.

RDF Access Use Cases and Requirements Drafted

The Resource Description Framework (RDF) Data Access Working Group (part of the WorldWideWeb Consoritum's Semantic Web program) has issued its first working draft of *RDF Data Access Use Cases and Requirements,* specifying use cases, requirements, and objectives for an RDF query language and data access protocol.

Currently, there are no standards for querying or accessing RDF data. A number of projects or commercial software developers have created their own approaches for such queries. A review and summary of these existing use cases has identified potential common requirements and design objectives for a standard RDF query language.

Review the draft requirements at the WG's website: http://www.w3.org/2001/sw/DataAccess/

IMS Resource List Interoperability Draft Published

IMS Global Learning Consortium issued the first version of the *IMS Resource List Interoperability* (RI) specification, detailing how "structured metadata can be exchanged between systems that store and expose resources for the purpose of creating resource lists and those that gather and organize those resource lists for educational or training purposes." A typical example of such a resource list is a reading list; potential metadata exchanges may occur with a library's OPAC, a publisher's electronic content, or a course management system.

The specification is based on a data model expressed in XML that combines elements from the IEEE Learning Object Metadata and the ISO 690-2, *Bibliographic references – Part 2: Electronic documents or parts thereof*, standards. The RLI data model provides for a "location" element and other necessary metadata for an application to construct OpenURLs and DOIs.

The RLI draft specification and accompanying documents are available at: http://www.imsglobal.org/rli/

COUNTER Code of Practice Updated

Release 2 of the COUNTER Code of Practice has been made available for public review and comment through September 30, 2004. COUNTER (**C**ounting **O**nline **U**sage of **N**etworked **E**lectronic **R**esources) is an international initiative to facilitate the recording and exchange of online usage statistics. The Code of Practice, originally released in December 2002, "specifies: the data elements to be measured; definitions of these data elements; usage report content, format, frequency and methods of delivery; and protocols for combining usage reports from direct use and from use via intermediaries."

COUNTER Release 2 can be reviewed at: http://www.projectcounter.org/cop2.html

Draft Full-Text Search Specification Issued

The XML Query Working Group and the XSL Group (both part of the WorldWideWeb Consortium's XML Activity) have jointly issued the draft specification, *XQuery 1.0 and XPath 2.0 Full Text*. This first public working draft defines the syntax and semantics of a language to add full-text search capability to XQuery and XPath. The specification recognizes that XML documents may contain unstructured or semi-structured data and that full-text searching of that data is different from searching structured data or doing substring searches.

Review the draft specification at : http://www.w3.org/TR/xquery-full-text/

ISTC Registration Agency Named

ISO standard committee TC46/SC9, responsible for the development of the draft standard ISO 21047, *International Standard Text Code* (ISTC), has selected a consortium made up of the International Confederation of Societies of Authors and Composers (CISAC), Nielsen BookData, and R.R. Bowker for the standard's Registration Authority. The ISTC standard defines a unique identifier for an individual textual work, regardless of its medium, to distinguish such works within computer applications and for the purposes of administering rights.

CISAC is a non-governmental, non-profit organization for some 200 authors' societies worldwide. Nielson BookData and R.R. Bowker are international publishing and information companies. Nielson, owned by VNU, currently manages the ISBN and SAN Agencies for the UK and Ireland. R.R. Bowker, a subsidiary of Cambridge Information Group, serves as the U.S. Agency for the ISBN, ISMN, and SAN. The consortium will be named in the text of the ISTC standard as it advances to the Approval stage, a five month ballot projected to begin in September 2004.

Follow the progress of the ISTC at the committee's website: http://www.collectionscanada.ca/iso/tc46sc9/wg3.htm

ISO 3166 Country Codes Standard Update Underway

The latest revision of ISO 3166-1, *Codes for the representation of names of countries and their subdivisions – Part 1: Country codes*, is now being balloted as a Committee Draft (CD). This standard is under continuous maintenance with new and changed codes announced on the Maintenance Agency's webpage. This revision incorporates into the published standard all of the changes agreed to by the ISO 3166 Advisory Group since the last release of the standard in 1997.

ISO 3166 is one of the most widely used ISO standards. Its codes are utilized by all national postal organizations to indicate international destinations, in machine-readable passports, and in the Internet domain name system for country-coded Top-Level Domains. Most computerized systems which store and process information related to countries and country names use the ISO 3166 codes. Many national and international standards require or recommend the use of the ISO-3166 country codes as part of their specifications.

The text of the CD can be viewed on the NISO website through the ballot period ending August 16, 2004 at: http://www.niso.org/standards/balloting.html

For more information and updates on ISO 3166, visit the Maintenance Agency's website: http://www.iso.ch/iso/en/prods-services/iso3166ma/index.html

STANDARDS STATUS: JULY 1, 2004

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

Note: DSFTU stands for Draft Standard for Trial Use.

STATUS	COMMITTEE	STANDARD
Under SDC review	AJ	Z39.80-200X, Standard Format for Downloading Bibliographic Records
Reviewing DSFTU comments. To be balloted in 2004.	AU	Z39.87-200X (AIIM 20-200X), Data Dictionary—Technical Metadata for Digital Still Images
Revision in development. To be balloted in 2004.	AW	ANSI/NISO Z39.18-1995, Scientific and Technical Reports-Organization, Elements, and Design
Ballot completed in March 2004; comments being addressed.	AX	Z39. 88-200X, OpenURL: A Transport Mechanism for ContextObjects
Approved	AY	ANSI/NISO Z39.7-1995, Library Statistics *New title:* Information Services and Use: Metrics and Statistics for Libraries and Information Providers-Data dictionary
DSFTU through April 5, 2005	AZ	Z39.90-200X, Networked Reference Services: Question/Answer Transaction Protocol
2nd ballot to address substantive changes will be conducted in 2004	00	ANSI/NISO Z39.29-1977, Bibliographic References
Revision in development		ANSI/NISO Z39.19-1993 (R2003), Guidelines for the Construction, Format and Management of Monolingual Thesauri
In development	BA	Metasearch Initiative - Task Group 1 - Access Management
In development	BB	Metasearch Initiative - Task Group 2 - Collection Description
In development	BC	Metasearch Initiative - Task Group 3 - Search/Retrieve

NEW NISO REGISTRATIONS

STANDARD	REGISTRANT
Metadata Object Description Schema (MODS), version 3.0	Library of Congress Network Development and MARC Standards Office

LEARNING LINKS

Understanding Metadata
NISO Press, May 2004, ISBN 1-880124-62-9
A general introduction to metadata, that includes an overview of leading metadata element sets and schemas, examples of practical applications, and a guide to metadata resources.
http://www.niso.org/standards/resources/UnderstandingMetadata.pdf

Access in the Future Tense
Council on Library and Information Resources, April 2004, ISBN 1-932326-09-X
A report of presentations made at a 2003 CLIR conference that examined factors shaping the information environment and their affect on libraries' stewardship of cultural and intellectual resources. Particular emphasis was on the long-term preservation and access of a multimedia collection in a networked environment.
http://www.clir.org/pubs/reports/pub126/pub126.pdf

DOI: a bar code for digital information
by Robin Wilson, Information Economics Journal, June 2004, pp. 38-39.
Brief introduction to the Digital Object Identifier and its benefits.
http://www.butlergroup.com/iej/

Interoperability between Library Information Services and Learning Environments—Bridging the Gap
by Neil McLean and Clifford Lynch, A Joint White Paper on behalf of the IMS Global Learning Consortium and the Coalition for Networked Information, May 10, 2004
"Explores potential interactions between information environments and learning environments, with emphasis on work that needs to be done involving standards, architectural modelling or interfaces."
http://www.imsproject.org/digitalrepositories/CNIandIMS_2004.pdf

Report on the Meeting of Experts on Digital Preservation
U.S. Government Printing Office, March 12, 2004
Reports on a March 2004 meeting, sponsored by the U.S. Government Printing Office, of experts in the field of digital format conversion to "discuss the current standards and specifications for the creation of digital objects for preservation" and to develop draft requirements for digitizing the legacy collection of federal depository library documents. Includes summary table of a number of major library digitization projects.
http://www.gpoaccess.gov/about/reports/preservation2.pdf

CALENDAR

July 2004

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

July 29-30 *ISBN Working Group meeting (ISO TC 46 / SC 9 / WG 4)*
Paris

September 2004

September 9-10 *NISO Board of Directors meeting*
Washington, DC

October 2004

October 11-15 *World Standards Week 2004*
(Check ANSI website for more information www.ansi.org)
Washington, DC

October 25-29 *ISO Technical Committee (TC) 46, Information and documentation, Meeting Week and Plenary Meeting*
Washington, DC

December 2004

December 13 *NISO Metasearch Workshop*
Philadelphia, PA

December 14 *NISO Open/URL Workshop*
Philadelphia, PA

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