



FEATURE ARTICLE:

NISO FINDS ITS OWN ROAD

Andrew Updegrove

Introduction: It is human nature to pigeonhole things. The world being the diverse and contradictory place that it is, categorizing data in this fashion helps us to organize our knowledge and work with it more comfortably (albeit often at a cost). Applying the same approach to the categorization of standards organizations generally works quite well. But now and again one runs into a body like the National Information Standards Organization (NISO), and all bets are off.

Consider this: NISO is an ANSI accredited standards development organization ("SDO") -- and it also makes its standards available for free. It has its roots in library science -- but creates standards applicable to any organization that maintains large stores of information. It creates standards for paper that can remain stable for hundreds of years -- as well as client/server service and protocol standards for information retrieval. It includes libraries as voting members -- as well as Lucent Technologies and the U.S. Department of Defense. And it not only sets standards for the management of information -- but also butts heads with the International Engineering Task Force (IETF) over the development of namespace identifiers for use on the Web.

All in all, not your average accredited standards development organization. How did an organization founded by the library and publishing community in 1935 get from there to here? And where is it heading next?

Nature and Nurture: The original goal of NISO's founders was to "standardize" serial publications. Libraries were struggling with the demands of cataloging, collecting and providing access to a growing body of serials and journal literature that had no consistent rules for addressing issues such as pagination and formatting. NISO solved those problems when it released its first standard, Z39.1. The organization received formal ANSI accreditation in 1941.

Over the years, some things changed, while others remained constant. On the one hand, data increasingly became stored, accessed and displayed digitally. With these innovations, librarians and archivists needed to solve some of the same types of issues that they had addressed in a paper-based world all over again.

But on the other hand, with the advent of the Web and the feasibility of making local content accessible on a global basis, new challenges arose. How can one search diverse libraries and archives that are not set up identically? And since content is content, and the same technology should be usable to access any type of content, what about the divergent needs of the owners of different types of content? Should these new interest groups (e.g., those who maintain corporate data archives, public data and other masses of information) be welcomed into the organization, and if so, how can their ideas and needs be assimilated and addressed?

In the words of Patricia Harris, the Executive Director of NISO, and a 20 year NISO employee:

NISO's mission expanded with the onset and explosion of digital information exchange. Commercial forces began influencing our timetables and agendas, as it became clear to vendors and others that "library standards" could do more than make libraries more valuable and efficient -- they could enable and improve all kinds of information exchange, and create important commercial opportunities, as well.

The result has been a significant change in the NISO membership base. While thirty years ago its members were mostly corporate libraries and associations, its 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.

Board Chair Jan Peterson of Infotrieve (publisher relations and licensing content) puts it this way:

NISO is, and must be, responsive to the changing business models of publishers and other content providers, as well as the growing community of web services providers. The business models that worked when print on paper was the sole method of distribution are becoming obsolete. The emerging digital business models require identifiers that work at a very granular level, such as articles and the references at the end of an article, as well as defining access rights. The value of information is increasingly defined by its usage, and standards make usage definable.

The way in which NISO adapted to this morphing of its core constituency explains much about the unique road that it has traveled in recent years. While it has embraced new commercial challenges and members, it has remained true to its early (and some would say academic) roots, continuing to act on values that have more in common with the open source community than the world of traditional SDOs.

Bringing customers as well as vendors together in the same organization has had some other interesting benefits. Harris notes: "Too often, consumers don't know what the constraints of business are. We have found that the beneficial side of bringing together consumers and providers is that they all end up having their eyes opened."

NISO Today: Described in a traditional sense, NISO's credentials read as follows: it is an accredited standards development organization that is formally associated with the ISO and is the Secretariat for TC 46 Subcommittee 4, (Technical Interoperability). NISO prides itself, however, on several non-traditional aspects of its approach to standard setting.

The most obvious distinction is that NISO makes its specifications (both completed and in draft form) available for free to the world. NISO is the only ANSI-accredited SDO that has taken this approach -- the balance continue to sell their standards, and are anxiously monitoring the after-effects of the so-called "Veeck Case." In that case, a Texas court held that a standard referenced in a building code must be made available for free to those bound to comply with at code. Since SDOs have traditionally relied on the sale of standards to defray a substantial portion of their operating costs, the case sent shock waves through the SDO system.

NISO views the issue from a different perspective. Libraries, after all, are about making information available, and academics depend upon publishing to not only spread their ideas, but advance their careers as well. This focus on access and sharing rather than selling ultimately led NISO to take the consortium approach of free access to its work product when the Web made it possible to share that work product at no added cost per recipient. In the words of Harris, "NISO standards grew out of an open source spirit long before open source became a buzzword."

NISO Board member and Standards Development Committee Chair Pat Stevens, of member OCLC, explains the NISO view this way:

While there is competition in some sense between universities for research dollars and students, they have a strong tendency to work together to solve shared problems. Libraries are particularly known for the level of cooperation and sharing. Also, the academic world has a deeply held belief that the greater the access to information and knowledge the more rapid the growth of that information and knowledge. This spirit is of great benefit to NISO as it provides an environment that encourages and rewards collaboration even among those who provide services for a fee. For those who provide services, NISO standards have created opportunities for creating innovative solutions that take advantage of the standards and the open environment.

NISO has strong feelings regarding the practices of other SDOs in this regard as well. When ISO mooted the possibility of charging for the use of the ubiquitous (and elementary) country codes that are called upon by all manner of IT applications, NISO joined the hue and cry against the possibility. NISO's Harris puts it bluntly: "Standards are so critical to the NISO community, that we want no barriers to implementation. This is not a viewpoint that ISO shares. TC46, for which NISO is the US TAG, has repeatedly taken resolutions back to ISO to help us make the country codes freely available, but to no avail."

Not surprisingly, NISO also takes an advanced position with respect to including royalty-bearing intellectual property rights ("IPR") in its standards. Under the current ANSI, NISO is not permitted to adopt a strictly royalty-free IPR policy. With ANSI reconsidering its patent policy, NISO is looking forward to the time when it expects to be able to take this step.

A reach that exceeds its grasp: NISO's efforts have wide impact beyond its core constituencies. Several of its current initiatives illustrate the broad relevance of its work beyond the needs of its immediate membership:

- **Metasearch Initiative:** This initiative seeks to enable a "Google like" search capability across multiple sources of licensed material, employing search software that is more sophisticated than a bot. Ideally, the technology will enable responses to queries by content providers in real time, and eliminate duplicative responses in the process. Currently, this is not a practical option for content providers. NISO expects that its work in Metasearch will improve capabilities in the area of e-learning, where there is a need to provide for the exchange of supplementary learning "objects" (e.g., a PowerPoint presentation), and to access multiple learning objects.
- **Identifiers** NISO is already well known for its ISBN (books) and ISSN (periodicals) identifiers, and for the Digital Object Identifier (DOI) that is transforming access to digital content. In January, a NISO group debuted the new INFO URI scheme, which will provide a consistent and reliable way to represent and reference such standard identifiers as Dewey Decimal Classifications on the Web. The new scheme permits existing identifier systems (such as the identifiers assigned to records in the PubMed database maintained by the National Center for Biotechnology Information (NCBI) of the National Library of Medicine). PubMed identifiers pre-date the Web, and the Web only recognizes URIs as a means to identify information resources. The INFO URI scheme allowed the NCBI to register the PubMed identifier namespace under the INFO Registry. The result: the record currently known by PubMed identifier "12376099" is now registered in URI terms as info:pmid/12376099.
- **Networked Reference Standard:** While search engines can access content, they cannot answer actual questions. The NRS standard is intended to support actual questions and answers between users and expert services (e.g., a virtual reference service offered by a library that would allow the user to query a reference librarian from her home, dorm or office). The NRS standard would support both real-time chat and asynchronous e-mail,

as well as extended referrals among services. Like the existing NISO Z39.50 standard, the new service is intended to enable new services and businesses, as a result of permitting both client and expert to employ different technology platforms.

- **OpenURL Standard:** Although this standard was originally targeted at the electronic delivery of scholarly journal articles, it is expected to enjoy a much wider uptake. The standard enables a user searching for an information resource citation to obtain immediate access to the most "appropriate" copy of the full resource through the implementation of extended linking services. "Appropriateness" can take into account the user's preferences relating to attributes such as location, cost, and contractual or license agreements already in place with information suppliers.
- **RFID Standards** While RFID technology in retail settings has achieved the greatest current attention (and concern, on privacy grounds), this technology plays a less controversial role in the library setting. Typically, a library tag carries a "dumb-number" item identifier, readable only from inches away. A tag on merchandise in a store might contain diverse kinds of identification information, readable from a much greater distance.

Still, old labels die hard. When asked what popular misconception about NISO Harris would most like to correct, the answer was emphatic: "That NISO does more than just "library standards!" NISO's standards are robust examples of information solutions. NISO solves problems of information retrieval, management, storage, and publishing that people in other communities have to solve."

So many organizations, so little turf: Externally, life for NISO is sometimes complex. As is the case with any other accredited or non-accredited standards development organization (SSO), it cannot create standards in isolation. Increasingly, standard setting addresses multi-dimensional needs: the same challenges often arise in diverse settings, especially since the advent of the Internet and the increasing convergence of information technology and communications. Often, each commercial domain has its own SSO, with its own agenda and its own ideas about what solution will suit its members best. Too often, there is an unavoidable overlap of effort, and the loose ad-hoc system of liaison relationships maintained between SSOs is sometimes not sufficient to resolve all differences.

Not surprisingly, NISO's ability to execute on its mission is affected by changing technology, intense competition in the field of information services among diverse commercial interests, and an occasional lack of effective coordination among those standards organizations whose efforts overlap those of NISO. The standards of other SSOs do not necessarily complement those of NISO, and, in the view of Harris, the efforts of other SSOs sometimes even undermine those of NISO. With no "uber SSO" that coordinates the efforts of the hundreds of SSOs active in the ICT space today, there is no formal way to resolve differences of approach, opinion, and priority.

The result can be conflict, as occurred when NISO launched its INFO URI identifier scheme (discussed above) in January of this year. This work builds on earlier consultations with representatives from the World Wide Web Consortium (W3C) and the Internet Engineering Task Force (IETF). Nevertheless, the relationship with IETF on the issue of namespace is, in the words of Harris "not exactly harmonious." Harris reports that NISO's introduction of the INFO URI scheme is considered by some to be an unwelcome invasion of IETF's historic turf.

For its part, NISO believes that it is making a valuable contribution to Web users at large, and not its members alone. At the same time, Harris is under no illusions over the prospect for NISO displacing the W3C or the IETF. She says:

What's happening in our world is being driven by the Internet. The world needs content with integrity, not just endless links to websites. Because the NISO community of publishers and content aggregators provides the content that has integrity, our organization should not be dismissed. NISO isn't asking to direct the big-picture agenda, to drive the car, so to speak. But we do want to have our pinky on the steering wheel!

Leslie Daigle, an individual technologist who's been involved in the IETF URI work for some time, views the situation somewhat differently (speaking on her own behalf, and not as an official representative of the IETF):

I don't understand this as NISO "moving into IETF space." I see it as NISO wanting to use our output. Where there has been some tension in registering URI schemes (and this generalizes beyond the discussions with the NISO folks) is that people are in fact less focused on understanding the URI standard in its entirety (including its applicability in protocols beyond HTTP and web applications) than they are focused on getting "something that I can use in XML or web." When those people enter the IETF URI registration process as the last step in their efforts (i.e., products have shipped, another standards organizations specifications have been published), they are understandably less than perfectly receptive to IETF requests or suggestions for change to the scheme registration. They just want their scheme registered. Tension ensues. And a lot of unregistered URI schemes fly around the Internet.

NISO Tomorrow: As we have frequently noted in the past (see, for example, Past, Present and Future: The Accelerating Rate of Change www.consortiuminfo.org/bulletins/feb04.php#feature), SSOs today cannot afford to rest on their laurels, or to assume that what they did yesterday to serve their members' needs will be sufficient to meet the challenges of tomorrow. To address this reality, NISO's Board of Directors this month launched a year-long strategic planning initiative, funded by a grant from the Mellon Foundation.

The approach that the Board has adopted is self-critical, and will seek to evaluate NISO's past progress, present challenges, and future directions. The review will involve not only Board retreats and member surveys, but also a formal external evaluation. The external review will be conducted by a panel of thought leaders in the communities that NISO impacts, as well as those that it serves. Further details on these activities will be featured on the NISO website beginning in May 2004.

What gives rise to this type of introspection at this point in time? As described by Harris, the answer is opportunity, rather than stress: "NISO is at a juncture. More and more interest groups -- technology vendors, information services, publishers, content aggregators, and libraries -- are drawn to NISO. Our members are positioning NISO as the international leader in its field and a necessary partner to complementary standards development organizations. The challenge is to turn that potential into a fait accompli."

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What are the forces that are likely to shape the future for NISO? In the words of Harris:

The standards world will continue to reflect the changes impacting the business community and society at large. For example, the proliferation of elearning has reshaped the business model for publishers and NISO's agenda does, and must, reflect such dramatic shifts in how members stay competitive. In general, in the information community the physical is giving way to the virtual; even digital concerns no longer have the significance they once held. At the heart of the matter now are service, delivery, and performance. For example, in the metasearch environment, each user session involves services from many providers. The standards must work in this context so they must be developed in the context of the entire information exchange. NISO standards will continue to focus on those objectives.

Summary: Standard setting as such may not be a dynamic activity, but the IT and commercial context in which it occurs is becoming ever more so. Successful SSOs have recognized that reality, and have adapted to new challenges and opportunities to remain relevant and useful to their members (and beyond). In the SDO world in particular, there has too often been a "circle the wagons" reaction to challenges such as the rise of consortia and the economic threat of the Veeck case. In contrast, NISO presents an image of an organization that is happy to push the SDO envelope to realize the goals of its members, and to extend its manifest destiny aggressively into the future.

Not bad for "a bunch of librarians."

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NISO at a glance:

Date of formation	Founded in 1939, incorporated as a not-for-profit education association in 1983, and assumed its current name the following year
Number of Current members	85 Voting Members. For a full list, see: http://www.niso.org/members/members.cfm
Number of classes of membership	One; individual libraries may also join the lower cost, affiliated Library Standards Alliance
Membership Fees	\$1,260 (for organizations with less than \$500,000 in revenues) up to \$9,450 (for those with revenues greater than \$15 million)
Number of issued standards or specifications	35 - See list at http://www.niso.org/standards/index.html
Significant Relationships	NISO is formally associated with the ISO and is the Secretariat for TC 46 Subcommittee 4, Technical Interoperability.
Number of current initiatives	10
Other types of work product	white papers, technical reports, meeting reports
Other activities	Workshops, programs at professional meetings, conferences
Website address	www.niso.org
Companies currently represented on the Board of Directors	EBSCO Publishing, John Wiley and Sons, H. W. Wilson, VTLS, Infotrieve, Davandy
Executive Director	Patricia R. Harris
Total Staff	8 (2 employees and 6 contractors)
Annual Budget	c. \$500,000

Some of NISO's more significant standards:

ANSI/NISO Z39.2 -1994 (R2001)

Information Interchange Format

Equivalent international standard: ISO 2709

Abstract: The basis for the MARC (Machine-Readable Catalog) record, this standard specifies the requirements for a generalized interchange format that can be used for the communication of records in any media. This standard was first released in 1971.

ANSI/NISO Z39.48 -1992(R2002)

Permanence of Paper for Publications and Documents in Libraries and Archives

Equivalent international standard: ISO 9706

Abstract: Sets the basic criteria for coated and uncoated papers that will last several hundred years under normal use. It covers pH value, tear resistance, alkaline reserve and lignin threshold. Recycled papers will meet the criteria specified.

ANSI/NISO Z39.50 -2003

Information Retrieval: Application Service Definition & Protocol Specification

Abstract: Defines a client/server based service and protocol for Information Retrieval. It specifies procedures and formats for a client to search a database provided by a server, retrieve database records, and perform related information retrieval functions. The protocol addresses communication between information retrieval applications at the client and server; it does not address interaction between the client and the end-user.

ANSI/NISO Z39.9 -1992 (R2001)

International Standard Serial Numbering (ISSN)

Equivalent international standard: ISO 3297 (SEE NOTE BELOW)

Abstract: Well-known as the ISSN, this standard defines the structure and presentation of a code to uniquely identify serial publications in print and non-print formats. This standard sets forth the format and characteristics of the ISSN and designates a central authority for code administration.

US leadership on ISBN and the revision of ISBN

The International Standard Book Number (ISBN) is based on an ISO International Standard that was first published in 1972 as ISO 2108. ISO 2108 specifies the basic structure of an ISBN, the rules for its allocation, and the administration of the ISBN system. ISO 2108 is currently under revision—it will go from a 10-digit to a 13-digit number—to deal with changes to the ISBN system.