

Engaging With NISO

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Abstract. This paper is based upon presentations given at the inaugural 2020 NISO Plus Conference that was held February 23–25, 2020 in Baltimore, MD, USA. It provides an overview of the National Information Standards Organization (NISO) - who it is, how it is structured, what it does, how it does it, and who it serves. It also provides information on how NISO Members and non-Members alike can participate in NISO's many global activities – activities that fill a major role in ensuring that the information community runs as smoothly and efficiently as possible.

Keywords: NISO, standards, Z39 committee, ISO, ANSI

1. Introduction

The National Information Standards Organization (NISO) is one of many standards organizations around the globe and across diverse fields and disciplines who work to ensure that their specific field or discipline runs smoothly. So what is a “standard?” According to the *Merriam–Webster Dictionary* [1] a standard is:

1. Something established by authority, custom, or general consent as a model or example, and
2. Something set up and established by authority as a rule for the measure of quantity, weight, extent, value, or quality.

Why are standards developed? Across all industries and disciplines, standards are developed to increase efficiency, reduce errors, ensure interoperability, and save time and money. Standards grease the wheel of every workflow. What happens if there are no standards? Problems and lots of them. Here is an example regarding the construction of the Laufenberg Bridge over the Rhine between Switzerland and Germany in 2003 [2]. Germany used the North Sea level as its standard reference while Switzerland used the Mediterranean Sea as its reference level. The difference in levels is 27 cm. To make matters worse, when the adjustment was made the signs were applied incorrectly. The total difference applied to the two ends of the bridge was 54 cm that resulted in a costly error.

The lack of standards can also be life-threatening. Consider the following case study. In a patient, blood glucose levels were read on the glucose meter (made in the USA) as $42 \text{ mmol} \cdot \text{L}^{-1}$ (not an approved unit

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of the International System of Units (S.I.) that was assumed by staff as $42 \text{ mg} \cdot \text{dL}^{-1}$ (an approved S.I. unit), which is equivalent to $758 \text{ mg} \cdot \text{L}^{-1}$. The drastic ramification was a diagnosis of hypoglycemia rather than hyperglycemia, nearly costing the patient his life. The problem arose because the glucose meter used did not conform to IUPAC international standards. The USA is one of a few hold-out countries against adopting the metric or S.I. system, even in medical equipment. As a result of this, the International Committee of Medical Journal Editors has demanded that all measurements associated with medicine are to be reported in metric units and temperatures in degrees Celsius [3]. This example emphasizes the importance of the adoption of an internationally agreed-upon standard around the globe.

While NISO is not involved in either industrial standards for building bridges or deals with life-threatening clinical issues, the impact of NISO's work is significant. It develops or is involved with other organizations in the development of Information Industry Standards. But the importance of those standards *cannot be discounted*. In the Information Industry standards make it easier for customers to find a book online, ensure that a website is fully-accessible, that a content provider is able to trust their usage data, that the user experience is as seamless as possible, and much, much more. Publishing, following the creation of the printing press, was the first industrial process and it was also the first industrial process to apply standards. Publishing standards have become part of our common vocabulary; e.g. upper case and lower case. Even the English language has been standardized because of publishing if you refer to Ben Franklin's "A Scheme for a New Alphabet and a Reformed Mode of spelling;" e.g., "color" instead of "colour" [4]. Publishing has changed a lot in the nearly 600 hundred years since the invention of the printing press by Johannes Gutenberg, and it is the ongoing development of standards that has greased the wheels of information creation, dissemination, and preservation.

2. Who is NISO?

The National Information Standards Organization (NISO) was founded in 1939 as the Z39 Committee of the American Standards Association [5]. It is an industry-based, non-governmental 501(c) [6] membership-organization responsible for developing standards that have an impact on diverse aspects of librarianship, documentation, publishing practices, and information science. In fact, NISO is accredited by the American National Standards Organization (ANSI) to identify, develop, maintain, and publish voluntary, consensus-based standards for managing information. The organization incorporated as a not-for-profit education association in 1982 [7], and assumed its current name the following year. And in June of 2019, NISO merged with the National Federation of Advanced information Services (NFAIS) [8], combining the thought-leadership of NFAIS with the practical, hands-on, tangible goal-oriented NISO.

NISO draws its support from the many communities that it serves - museums, archives, libraries, publishers, consultants, software developers, subscription agents, etc. Even within those communities there is diversity; e.g. libraries include academic, public, government, and special libraries; publishers include journal, book, and magazine publishers. Between fifteen and twenty percent of NISO members are based outside of the United States (NISO has even considered changing its legal name to "NISO" in recognition of this fact). Since its inception, NISO has become centric to the many individual sectors that comprise the global information community and through its international activities and its diverse membership, NISO has become very well-positioned to pull all information community members together in order to solve problems of mutual interest.

NISO also works with other standards development organizations to represent the U.S. position on international standards and participates in many international activities. Designated by ANSI to represent U.S. interests as the Technical Advisory Group (T.A.G.), NISO is *the* official U.S. participant in the International Organization for Standardization [9] (ISO) and works through ISO's technical committee 46 (ISO/TC 46) [10] that is responsible for the standardization of Information and Documentation practices relating to libraries, documentation and information centers, publishing, archives, records management, museum documentation, indexing and abstracting services, and information science. Within TC46, NISO also serves as the Secretariat for ISO's Subcommittee on Identification and Description (SC9) [11] with the current NISO Executive Director, Todd Carpenter, serving as its Committee Manager. NISO also represents ANSI to the ISO/IEC Joint Technical Committee on Information Technology Subcommittee on Document description and processing languages (ISO/IEC JTC 1/SC 34) [12]. About twenty percent of NISO's work is helping to set the U.S. position on international standards as they are developed. NISO is very well positioned to bring together all interested parties in standards development wherever they are geographically-based. This inherent advantage is reflected in NISO's current Vision, Mission, and Core Values:

Vision: Our vision is a world where all benefit from the unfettered exchange of information.

Mission: NISO's mission is to build knowledge, foster discussion, and advance authoritative standards development through collaboration among the cultural, scholarly, scientific, and professional communities.

Core Values: Engagement: NISO enables libraries, publishers, and vendors to collaborate and solve problems of mutual interest by providing a neutral forum in which they can engage and build consensus.

Interoperability: NISO supports choice and efficiency across our community by promoting the interoperability of information products and services through standards and best practices.

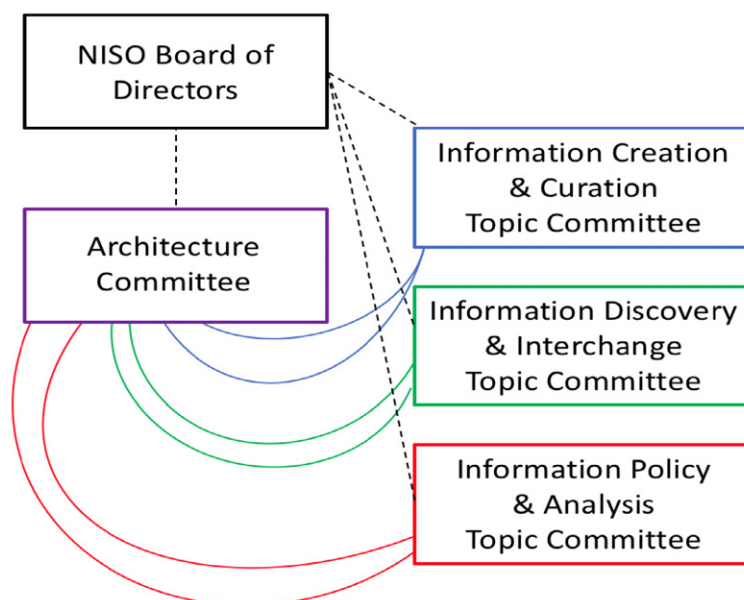
Education: NISO keeps our community up-to-date by publishing news, running educational programs, and providing thought-leadership.

For more information on NISO's goals and strategic objectives through 2023 refer to the current strategic plan developed in 2019 [13].

3. How is NISO structured?

NISO is governed by a Board of Directors consisting of a Chair, Vice Chair, Immediate Past-Chair, and Treasurer, along with twelve Directors. The NISO Executive Director serves as the Board's Secretary and as an *ex officio*, non-voting member of the Board. Turnover of the Board is roughly one-third on an annual basis. The Board has four standing committees: Finance, Audit, Governance, and Nominating. Other *ad hoc* Board Committees are created as necessary.

The current NISO standards development structure was established in 2007 [14] and consists of an Architecture Committee and three Topic Committees all of which report to the NISO Board.



1. The Vice Chair of the NISO Board of Directors serves as the Chair of the Architecture Committee.
2. Co-chairs of each Topic Committee serve as members of the Architecture Committee.
3. Three Board members each serve as liaisons to the Topic Committees and attend Architecture Committee meetings as observers.

NISO's Architecture Committee [15] is composed of the co-chairs of each of the Topic Committees, Board liaisons, the Vice Chair of the ORCID Board, and NISO staff. It is responsible for providing strategic direction on standards development for NISO overall, including in areas that are new to NISO. The Committee meets monthly to share reports on work and strategy approaches, and it provides leadership, oversight, and guidance to the three Topic Committees.

The Topic Committees bring together leaders in specific areas to provide strategic direction to NISO for standards development in those areas. Each Topic Committee is charged with:

- Tracking standards development related to its topics at NISO and other standards organizations.
- Identifying areas for new standards development.
- Incubating new standards activities through thought-leadership meetings and other input.
- Providing guidance and oversight to the standards Working Groups for its areas of work, including creating new groups as needed.
- Managing the five-year reaffirmation process for approved standards.

These committees are supported by the NISO staff of seven. More information on these committees and their activities can be found at: <https://www.niso.org/topic-committees>.

4. How does work done?

Work is done on a voluntary basis by NISO Member representatives and limited participation from non-members. There are two membership classifications: Voting Members (currently totaling one hundred organizations) and non-voting members (the NISO Library Alliance members who pay a lower dues and currently total one hundred and sixteen members). Today, more than five hundred individual experts and practitioners from across the information community voluntarily serve on NISO Working Groups, Committees, and as Officers of the organization. The NISO staff are not involved in the writing of standards or recommendations. They are responsible for:

- Bringing people together to create, publish, and maintain standards and Best Practices, and supporting those people in their efforts.
- Fostering the adoption of existing standards.
- Educating the community on information and technology-related issues.
- Incubating thought-leadership activities to advance technology.

It is the NISO Voting Members who ultimately decide which projects are implemented. This is done in order that time and energy is focused only on the issues that apply to at least a significant number of NISO members. If a project is one that only impacts only one community, it is not truly a collaborative effort. Also, as an ANSI-accredited organization NISO follows their process for formalizing standards (note that NISO also publishes recommended practices, which follow a lighter-weight version of the ANSI process). The process for standards is as follows:

Phase 1: Idea to Proposed Work Item

Topic Committee (TC) approval is required for all new proposals, before the work item description can be sent to NISO voting members for their approval as a new NISO project. Initially someone (the proposer does not have to be a NISO member) has a great idea and puts together a preliminary work item proposal that is two to three pages long. This proposal describes the problem, an idea for solving it, who needs to be involved, how the group can work to resolve the problem, and level of funding required if needed. It is then submitted to the relevant TC. They will vet the proposal and either approve, disapprove, or send it back to the proposer for changes. If the TC approves the proposal it moves on to Phase Two.

Phase 2: Approved Work Item

Once a work item is approved, the TC assists with creation of the Working Group (WG) roster as needed, and formally approves the final roster. Working Groups can be as small as seven volunteers or as large as one hundred volunteers.

Phase 3: Creating Work Plan

Once established, Working Groups must establish a work plan, which is then approved by the TC.

Phase 4: Work Plan to Draft Standard/Recommended Practice/etc.

During the project development, the TC receives quarterly progress reports from the WG and typically establishes a TC liaison to the WG to assist in communication. Normally, they conduct their work as much as possible via teleconference or web-conference. Occasionally, working groups arrange in-person meetings often associated with industry events. Once the group achieves consensus on a draft, the draft is put before the community for a public review period. In this way, the community has an opportunity to provide comment on the working group's efforts. The working group is then required to respond to the public comments. Once a final draft is ready, it is submitted to the Topic Committee for their approval.

Phase 5: Working Draft to Draft Standard for Trial Use/Final Publication

Once the group achieves consensus on a draft, the draft is put before the community for a public review period. In this way, the community has an opportunity to provide comment on the working group's efforts. The working group is then required to respond to the public comments. Once a final draft is ready, it is submitted to the Topic Committee for their approval.

Phase 6: Approval

The TC reviews the resulting draft derived from the Draft Standard for Trial Use and the responses to public comments, considering it for final publication. If the committee approves the document, if it is a national, ANSI standard it must be voted on and approved by the NISO Voting Members; if it is a NISO Recommended Practice, the document can move to formal publication. Before being published as a formally-designated National Standard, it must also go through additional administrative processes. Once published, NISO also works to promote adoption of the standard.

Phase 7: Maintenance

Some standards require ongoing support and maintenance. In those cases, the TC identifies and recommends the selection of Maintenance Agencies or Standing Committees and monitors their work, including conducting regular standards reviews and making recommendations on reaffirmation ballots.

When appropriate, a TC may also approve the publication of a Working Group's deliverable as another type of NISO document, such as the publication of a recommended practice instead of an ANSI/NISO standard, or a technical report instead of a recommended practice. For the average time line see: <https://www.niso.org/standards-timeline>.

Once approved, standards and recommendation are maintained by a relevant Standing Committee. For example, the Standardized Markup for Journal Articles (The Journal Article Tag Suite or JATS) is maintained by the JATS4R (JATS for Reuse) committee (see: <https://www.niso.org/standards-committees/jats>).

Some of the key Standards and Recommendations currently in the NISO portfolio are:

ISSN	SERU
ISBN	DAISY (accessibility)
Country codes	Licensing
DOI	RFID in libraries
MARC record format	Paper and Ink Permanence
OpenURL	Privacy Policies
KBART	Research Data Publishing
SUSHI and Counter schema	Assessment and altmetrics
Indexing methods	RA21 (access control)
Ontology creation	
JATS	

5. Other opportunities for NISO voting members

In addition to the standards and recommendations that NISO itself develops, Voting Members have the opportunity to vote on Standards developed by other organizations such as ISO and the International Electrotechnical Commission (IEC). Note that ISO and IEC have established the ISO/IEC JTC 1 [16] - a joint technical committee that for more than twenty-five years has provided a standards development environment where experts come together to develop worldwide Information and Communication Technology (ICT) standards for business and consumer applications. This committee also is addressing such critical areas as teleconferences and e-meetings, cloud data management interfaces, etc.

NISO Voting Members have the opportunity to vote on ISO and JTC 1 standards in the areas of Document description and processing languages (ISO/IEC JTC 1/SC 34) that ultimately may impact them; e.g. positions on standards related to Microsoft Office such as Office Open XML. EPub is also standardized within this subcommittee. Through NISO, its members have a voice in the development of both national and international standards. Even if not themselves technical, NISO members bring diverse perspectives to the table and know what will or will not work within their specific organization. Members are also welcome to volunteer on as many Standards Working Groups as they wish. Even Non-Members can engage with NISO, but participation is limited to a single Working Group.

Besides having the right to vote, NISO Voting Members are given free registration for all NISO's monthly webinar series and receive a discount on the registrations of all other events (see: <https://www.niso.org/events> for a list of future webinars and other events as well as the archive of those held over the past decade). As noted above, Voting Members can volunteer for multiple Working Groups and Committees and U.S.-based Voting Members can volunteer to participate in applicable ISO Working Groups. Members also benefit from inclusion on the NISO membership page and are included in every Standard that is published while the status of Voting Member is maintained. In addition, Voting Member news can be highlighted in the NISO Newsletter if so requested. More information on member categories, dues, benefits, etc. can be accessed at: <https://www.niso.org/join>.

6. Learn more about NISO and become actively engaged

NISO's organizational ethics are the very foundation of all that NISO does. NISO is:

- *Transparent and open*: There are written procedures and everyone has the right to appeal.
- *Community-led*: There are more than five hundred volunteers, including the Board, Working Groups, and Committees.
- *Equitable*: A balance is maintained across *all* stakeholders. No single special interest group constitutes a majority in any Working Group, Committee, etc.
- *Collaborative and Consensus Driven*: Members vote on all new work items, draft proposals, etc.
- *Inclusive*: All views are considered. Members and non-members can have a say and all comments are given a reply.

Voting Members, Library Alliance Members and Non-members alike are encouraged to actively engage with NISO. How? Comment on documents during the public review period; Share your ideas for new standards and best practices; Join a Working Group and contribute through providing your ideas and expertise; Serve on a NISO Standing Committee and support standards through continuous improvement and marketing; Volunteer for any of the other committees (Education, Topic Committees); and Adopt

a NISO Standard and share your use case with NISO for possible inclusion on the NISO website (see: <https://www.niso.org/standards-in-practice>).

In closing, for a summary of the points discussed in this paper and access to a video on engaging with NISO, go to: <https://www.niso.org/welcome-to-niso>.

About the Author:

Todd Carpenter is the Executive Director of NISO. In this role, he provides leadership to NISO as well as focuses on improving constituency relationships, standards development, and operational procedures. Prior to joining NISO, Todd was Director of Business Development with BioOne, where he served the goals of both libraries and publishers by enhancing products, services, and distribution. Previously, Todd directed the marketing of approximately sixty academic journals and was closely involved in the growth of Project MUSE at the Johns Hopkins University Press. He has also held marketing and business development positions at the Energy Intelligence Group, a news service covering the oil and natural gas industries, and the Haworth Press, an academic and professional publisher. Todd is a graduate of Syracuse University and earned a Masters degree in marketing from The Johns Hopkins University. He writes a regular standards column in *Against the Grain* and is a Chef in the SSP Blog, the *Scholarly Kitchen*. In addition, Todd serves as Committee Manager of ISO's Technical Subcommittee on Identification & Description (TC 46/SC 9); is Director Emeritus and former Vice President of the Board of the Foundation for Baltimore County Public Library; Director of the Free Ebook Foundation; former Treasurer of the Society of Scholarly Publishing, and a member of several publication advisory boards. E-mail: tcarpenter@niso.org.

References

- [1] Standard, *Merriam-Webster Dictionary*, see: <https://www.merriam-webster.com/dictionary/standard>, accessed August 29, 2020.
- [2] What Happens to a Bridge when One Side Uses the Mediterranean Sea level and another the North Sea?, October 2, 2013, see: https://www.science20.com/news_articles/what_happens_bridge_when_one_side_uses_mediterranean_sea_level_and_another_north_sea-121600, accessed August 29, 2020.
- [3] For details see the editorial, "S.I. for Dummies," printed in the *Journal of Medical Toxicology*, Vol. 3, No. 3, pp. 87–88 (2007) by Dr. Christian Tomaszewski, see: <https://link.springer.com/article/10.1007/BF03160915>, accessed August 29, 2020.
- [4] N. Twilley, Six New Letters for a Reformed Alphabet, see: http://www.benfranklin300.org/_etc_pdf/Six_New_Letters_Nicola_Twilley.pdf, accessed August 29, 2020.
- [5] See: <https://archives.lib.umd.edu/repositories/2/resources/1070>, accessed August 20, 2020.
- [6] 501(c) organization, Wikipedia, see: https://en.wikipedia.org/wiki/501%28c%29_organization, accessed August 20, 2020.
- [7] NISO Celebrates 70 Years: Special Anniversary Edition, Part Two. *Information Standards Quarterly*, Winter 2009. VOL 21 ISSUE 1. ISSN 1041-0031 doi: 10.3789/isqv21n2.200901. Accessed August 28, 2020.
- [8] NFAIS, Wikipedia, see: https://en.wikipedia.org/wiki/National_Federation_of_Advanced_Information_Services, accessed August 28, 2020; see also NISO Press Release, July 1, 2020 at: <https://www.niso.org/press-releases/2019/07/merger-major-information-industry-associations-finalized>, accessed August 28, 2020.
- [9] International Organization for Standardization (ISO). Website: www.iso.org, accessed on August 28, 2020.
- [10] ISO Technical Committee 46 – Information and Documentation (ISO TC 46). Website: <https://www.iso.org/committee/48750.html>, accessed on August 28, 2020.
- [11] ISO Technical Committee 46 Subcommittee – Identification and Description (ISO TC 46/SC 9) <https://www.iso.org/committee/48836.html>, accessed on August 28, 2020.

- [12] ISO/IEC Joint Technical Committee on Information Technology Subcommittee on Document description and processing languages (ISO/IEC JTC 1/SC 34). Website <https://www.iso.org/committee/48836.html>, accessed on August 28, 2020.
- [13] NISO Strategic Plan, 2020 – 2023, at: <https://www.niso.org/what-we-do/strategic-plan>, accessed August 28, 2020.
- [14] T. Carpenter, The NISO Framework for Understanding Standards, April 2007, accessible at: <https://www.niso.org/niso-io/2007/04/niso-framework-understanding-standards>, accessed August 28, 2020.
- [15] NISO Architecture Committee. Website: <https://www.niso.org/architecture-committee>, accessed on August 28, 2020.
- [16] ISO/IEC JTC1, Wikipedia, see: https://en.wikipedia.org/wiki/ISO/IEC_JTC_1, accessed August 28, 2020.