Introduction

The inaugural NISO Plus conference took place in Baltimore, MD on February 23-25, 2020. Following the merger of NFAIS and NISO in 2019, our goal was to combine the thought leadership tradition of the former NFAIS conference with the hands-on practicality of NISO. The conference brought together around 250 professionals from across the information community — librarians, publishers, service providers, and more — to focus on our shared challenges and opportunities through a combination of presentations and in-depth discussions, culminating in concrete next steps for NISO and our community.

"Important to have conversations with all groups in information field and avoid silos. We need to establish good communication and work together to cultivate the best information systems." — Librarian

The NISO community consists of stakeholders from all parts of the information landscape, who cooperate to create consensus industry standards and recommended practices, which support better interoperability and communications in scores of different types of technical interactions. The NISO working group process itself is seen as a fruitful learning experience that enables participants to better understand each others’ requirements and motivations, leading to practical outcomes that meet the needs of all stakeholders. NISO standards and recommended practices result in increased efficiencies across diverse supply chains and improved communications and trust between stakeholder groups, and provide platforms for individual players’ innovations.

The NISO team hoped the presentations and discussions at NISO Plus would be lively, and generate reactions and contributions from all attendees. We believe this was the case! We also hoped that the conversations and information shared by NISO Plus participants would continue beyond the end of the conference. In particular, we wanted to ensure that the pain points and gaps that were identified could be evaluated for potential future NISO work, enabling us to build on the momentum from NISO Plus and work with our community to find meaningful solutions. This strategy would place the NISO Plus conference squarely into the NISO process lifecycle, as well as connect NFAIS’s former thought leadership activities and NISO’s standards development.
This report summarizes the outputs from NISO Plus 2020 and provides a clear set of actions for NISO as well as recommendations for other organizations and the wider information community.

Capturing ideas

To ensure that we captured the ideas generated during the conference, links to collaborative note documents were shared for each session, with participants, speakers, and NISO staff contributing to these resources (along with some people following along via Twitter offsite!). These notes are linked in Appendix A. Since the conference, we have worked with the members of our three Topic Committees — Information Curation and Creation (ICC), Information Discovery and Interchange (IDI), and Information Policy and Analysis (IPA) — as well as the overarching Architecture Committee, to review, organize, and prioritize the many suggestions we received. This included identifying ideas that would fit under our existing standards work or could be taken on by other organizations in the information community; well-defined ideas that could be taken forward by NISO, with the approval of our voting members; and ideas that need to be fleshed out in more detail before they can be acted on.

Very early in the planning process for NISO Plus, we identified several strategies for ensuring a combination of value production for the conference community broadly and for NISO more narrowly. Our core principle was to prioritize conversation over content delivery, and we embodied this principle by reflecting it in the schedule. Each time slot was divided into a roughly 45-minute “delivery” section, followed by another 30-45 minutes for a conversation about the topic and content, rather than the usual 5-10 minute question-and-answer session at the end. This approach worked incredibly well to push the conversation about each topic into a more substantive discussion including, where possible, the identification of concrete challenges, opportunities, and possible next steps.

To put this plan into action, when working on the NISO Plus program we first reached out to a variety of stakeholders in our community in order to determine the critical topics and themes that were top-of-mind. These were broad, conceptual topics that would drive the overall feel of the conference and, as we started to define them, they helped shape the tracks for the conference. These tracks broadly divided into topics that revolved around future and near-future developments in the information industry; concerns that were immediate and pressing about what our community is working on now; and work that NISO is already directly driving, such as current and in-progress standards, best practices development, and other committee work.

As we assigned each topic to one of these tracks, we also identified experts who could speak to the topic, including participating in the conversation sessions. We aimed for two to three speakers per session, balanced across our stakeholder community, in order to reflect multiple perspectives on each topic. This process also allowed us to pay special attention to equity and representation more generally, working to be as inclusive as possible in our panels.
We recruited volunteers from the NISO Board and Topic Committees to moderate sessions and charged them with ensuring that the conversations flowed and moved toward synthesis and analysis. A NISO staff member was on hand at each session to help with note-taking, which allowed a level of attention to the topics that made it easier to identify and track outcomes and next steps.

Organizing ideas

On average, each session generated about three ideas for future actions (although some sessions had more ideas and some had none). NISO staff added these to a master spreadsheet, together with the session name, and matched like ideas together in adjacent rows.

Architecture Committee Review

NISO’s Architecture Committee is responsible for providing strategic direction for our organization’s activities. This includes oversight and leadership of standards development in areas that are new to NISO, as well as coordination with and guidance to the three NISO Topic Committees. Architecture Committee members were therefore the first to review the spreadsheet, over the course of several meetings. They noted additional relationships and matchings between ideas, and also observed that some ideas were more fleshed out than others, with more background information and/or good existing understanding about the issue at hand, while others were much briefer and vaguer. They therefore split the list into two categories, “Concrete” and “Needs Exploration,” and tagged the relevant Topic Committee(s) for each idea.

In the near term, Topic Committees will focus on the concrete ideas and, over time, the Architecture Committee plans to investigate and expand on the suggestions that need more exploration. The latter may also be a source of ideas for future NISO thought leadership events.

High-level themes that emerged across multiple ideas include:

- The need for quality metadata
- Identifiers; controlled vocabularies
- Linking and interoperability between systems
- Metrics and other indicators of value
- Opportunities for education and sharing understanding between stakeholders, including the development of best practices in discrete areas of work
In many respects these themes are not terribly surprising, given our community’s work, and they signal the need to remain mindful of industry requirements for these areas no matter the discrete area of application. They could provide jumping-off points for possible in-depth study of overall requirements and directions in particular scoped areas. They highlight the universal imperatives to ensure general findability, identification, and connections between systems and their users; the need to support local workflows while efficiently sharing information used for many different purposes; the need to agree on appropriate measurements for various contexts; and ultimately, realization that the different perspectives, experiences, use cases and requirements brought by different participants result in richer and more productive outputs.

Topic Committee Review
Each Topic Committee has reviewed and discussed the “concrete” ideas assigned to them by the Architecture Committee, as follows:

Information Curation and Creation Committee:
- Metadata and controlled vocabulary standards for digital humanities work
- Metadata requirements for data set curation
- Publisher responsibilities for data
- Fine-tuning of publishing platform input to improve web crawling
- Crosswalks for book metadata schemas
- Strategies for involving creators in digital preservation preparation
- Best practices for assigning identifiers

Information Discovery and Interchange:
- Examination of recent user discovery processes to highlight technical opportunities for cross-search, improved linking to related materials, and identification of additional discovery pathways (such as citation trail, recommender systems, virtual browse)
- Best practices for training data preparation for artificial intelligence
- Determination of new metrics to include resource types beyond journal article (such as streaming media)

Information Policy and Analysis:
- Identifiers for publisher journal/book packages for use in link resolvers and electronic resource management systems
- Further statistics to track use of demand-driven acquired materials
- Creation of a Plan S requirements checklist and recommendations for Plan S compliance
• Organizing metadata around article processing charges; and analysis of incentives for adoption of standards

Notes from these discussions can be found in Appendix B.

Making ideas a reality

All the Topic Committee discussions mentioned the need to organize small ‘review’ groups, ideally made up of topic experts, to describe further contexts and stakeholder perspectives for each problem statement for the areas listed above. Such groups could include (but are not limited to) NISO Plus speakers and participants, and would meet virtually once or twice. Besides shedding additional light on the relative need for the work, these reviews might identify other organizations or individuals interested in participating.

For example, many of the issues raised related to metadata. The Architecture Committee recognized that metadata almost always has a specific purpose, and metadata requirements differ depending on the application or intended process. Metadata applied for descriptive purposes naturally has a role in discovery processes, so these are usually related, but the Architecture Committee noted that it is also important to be looking forward as systems change and new features are developed. A review group of experts, meeting for a few discussions, could expand on the specific metadata-related problems raised at NISO Plus, place them into a specific context, and recommend appropriate next steps to a NISO Topic Committee. This could include development of a NISO project proposal.

Based on their initial discussions, the Architecture and Topic Committees felt that some items could be managed in two phases by different NISO groups. For example, the NISO Plus session on electronic resource management (ERM) included a lively audience discussion of package IDs, identifiers for publisher-specified packages of electronic content. How these would be defined and implemented would be of interest to both those involved in the management of library resources and those involved in discovery and access (often not the same people, either in a publisher company or a library!). The Information Discovery & Information Topic Committee and the Information Policy & Analysis Topic Committee therefore proposed that one group should determine the rules for identification and a second should address application and implementation.

Areas for Further Exploration

Several ideas were not defined well enough in the session notes for the Architecture Committee to determine specific actions; these could be explored in the future by the Architecture Committee, or NISO may organize one or more thought leader meetings to examine them more closely:

• Big data: badging for data, standardized methods of review/categorization
• Opportunities for cooperation, collaboration in repository management (Example: Coordination around redaction/modifications/retraction)
• How to manage content in diverse output formats; metadata in non-traditional formats
• Best practices for indexing large collections in discovery services
• Challenges for open content in electronic resource management
• Focus moving from discovery to resource management, for example, KBART data is relied on by systems other than link resolvers

There were also many ideas and points raised at the conference that fell into areas already covered by existing NISO Working Groups and Standing Committees, and these have been shared with them for exploration and potential action. They include:

• An easy way for authors to deposit materials from submission systems to repositories — included in the NISO Manuscript Exchange Common Approach (MECA) Recommended Practice, expected to be published in June 2020.
• Several ideas related to NISO KBART (Knowledge Bases and Related Tools) — likely due to community pain points regarding subscription tracking, discovery, and linking:
  ○ Transmit KBART data in XML format
  ○ More automatic interactions (such as APIs) between publisher KBART data and library electronic resource management (ERM) systems
  ○ Better management of coverage gaps and article or chapter-level collections, as KBART currently defines coverage at journal or book level

Similarly, some discussions raised points that are part of work being addressed by other organizations working in our community, including COUNTER, SeamlessAccess, and Metadata 2020. We are communicating these outputs directly to these organizations for their consideration and action:

• SeamlessAccess. These presentations prompted many observations about challenges in SAML implementation, and configuration for publishers and libraries, including descriptions of issues around costs, system complexities and technical barriers to interoperability, the need to police “bad actors,” and other general hurdles.
• COUNTER. The general need to accurately measure online usage of all materials was mentioned in many sessions, with measuring usage of open access material seen as a growing problem, since the community both produces and consumes this material in many forms, which are typically not captured in existing systems and processes.
• Metadata 2020. This initiative has been advocating for “richer, connected, and reusable, open metadata for all research outputs” for several years, and this came up as a priority in many sessions. While Metadata 2020 in its current form is ending this year, we will share the ideas from NISO Plus with the team for consideration as they begin discussing future plans for the initiative.
This leaves us with many ideas from the Topic Committee discussions that we need to prioritize. As a community-led organization, anyone is welcome to submit ideas for new NISO standards and recommended practices, typically using the NISO “Work Item Template” (included here as Appendix C). These ideas are then considered in much the same way as described above for the outputs from NISO Plus — they are reviewed by the Topic Committees, who may approve project proposals to be reviewed by NISO’s Voting Members for ultimate approval on whether they should advance as actionable projects. NISO is a very small organization with a large volunteer community consisting of dozens of people who participate in one or more of our standards working groups and committees. Our role is to support those volunteers by facilitating these groups and helping them define and publish their recommendations.

"Standards help establish trust! It's all about the community! Humans should be ON the loop!" – Service/Infrastructure Provider

But, as with any organization, our resources are finite. With so many ideas to consider from NISO Plus, we’d like to invite everyone in the information community to help us prioritize which of them to move forward with. As mentioned above, we have already identified which ideas were best articulated at the conference. We will soon solicit community feedback to help distinguish between those that are quick wins (but not necessarily important), and those that are more complex, but will be more valuable to the information community. The feedback gathered will aid in the prioritization needed and the means for organizing this input and feedback will be announced soon.

Comments are always welcome via nisohq@niso.org.
### Appendix A: Collaborative Notes from NISO Plus Sessions

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Appendix B: Topic Committee Notes

Information Creation & Curation Topic Committee, May 7, 2020

3. Updates from Architecture Committee
   a. Nettie provided updates following up on NISOplus conference. At NISOplus, discussions after each presentation generated notes that were collected by NISO staff, on Google Docs. Spreadsheet is a collection and distillation of notes compiled by NISO staff. Shows all action items from all sessions. Architecture committee discussed and reviewed all of these ideas, then separated them out to two tabs: “Concrete Ideas” & “Needs Exploration” tabs.
   b. Jody created ICC-specific spreadsheet for us to review. List has been separated out by Topic Committee and each one is discussing with their committees in this round. Goal is to come up with one or two actionable items for ICC to take up, going forward.
   c. Jody discussed views of those in her group who saw particular value in supporting linked data initiatives. Some felt digital humanities support was next most important; others felt it is important to focus on big data. Some said Z39.19 isn’t worth updating if we’re using linked data. Jody asked if “standardized persistent identifier systems” referred to DOIs, or to something else? Or some coming up with their own?
   d. Peter said he’d been looking at what projects might have the biggest impact on the overall community. Not “low hanging fruit”, as Nettie pointed out.
   e. Sharon talked with others at her institution; they have a particular focus on big data, linked data in the repository space, repository data, cataloging data. Across the board was questions about persistent identifier systems. Sharon looking at using existing systems more effectively, rather than new systems. Community is seeking guidance and policy around how to reduce variation across implementations of the same standards.
   f. Amy wonders, re identifier systems, how many are in use? What is the world of identifiers? ARCs, DOIs, handles, etc. Perhaps a working group could be looking into this, as ‘pre-work’ or research phase. Ken suggested a good problem statement is really helpful in this sort of instance. Amy suggested a survey to determine usage would be helpful, perhaps to ensure we are able to define the problem. Nettie pointed out link to notes from that session at NISOplus. Ken asked if there’s enough interest to investigate this; Sharon said she’d be interested in participating in such a group. Jody pointed out connection to question about publishers not wanting to be responsible for data. Is there interest? Would work make an impact? Nettie emphasized a need to see who else we should be asking. We clearly need a clear problem statement.
   g. Actions to pursue:
      i. Define experts in the field; who should we talk with?
      ii. Construct survey to identify identifiers currently in use
      iii. Approach known specific repositories to see what they use and what issues are they trying to address in this area
      1. Who do we mean, when we say “repository”?
      iv. Talk with speakers from the session in question, to see what they see as challenges, questions, context
v. Prob create a small group to move forward, see what we can determine. Sharon expressed interest in working on a small group, also Jody, Ken. They will meet soon to discuss next steps, with Nettie.

h. Digital Humanities Roundtable - could be useful to participate here. DHR is a group and a subcommittee from NFAIS to NISO, led by Jill O’Neill. They could certainly investigate and perhaps push forward on questions around DH and metadata standards.

i. Maybe get input from Research Data Alliance (RDA) to look at how their work might interact with the issues we’re investigating here. Could someone from RDA speak with us, to give us a sense of how or where RDA and NISO might work together here? Todd will investigate.

j. For Manifold and Fulcrum platforms, look at ways to ensure their structure, perhaps through discussion with Javin White. A Mellon grant, roughly “preserving new forms of digital scholarship”, is taking content and looking at how it could be preserved most effectively. Publisher-focused recommendations will come from this project, due in Fall 2020.

Information Discovery & Interchange Topic Committee, April 20, 2020

II. Outcomes from NISOnplus
See “IDI” rows for “Concrete Things” and “Needs Exploration” tabs in https://docs.google.com/spreadsheets/d/1IlswxQUNvlJ9i3KVc2mcRzQC_3U0ksX8ghT-k_mVyl/edit#gid=1236715849
(Full session notes are linked in Column C)
Notes were expanded in column G of the spreadsheet. Summary of action items for some of the IDI-targetted topics:

- Explore how people discover materials, open access and otherwise. Examine user processes. Make recommendations for smaller publishers for how to present search on their websites.
- Encourage more broad sharing of item metadata. Communicate metadata formats and availability of full text files.
- For preparing best practices or guidelines for preparing training data for machine learning and AI for use in library and publisher data, a working group is an idea … but need more consultation to form the working group proposal. Talk to editors and manuscript analysis tools. Need more study (volunteers?)
- For supporting new discovery paths (citation trails, recommender services, virtual browse, and “visual treasures” in a collection, are there museum standards that cover this area?

Information Policy & Analysis Topic Committee, May 19, 2020

a. Architecture Meeting Notes

Discussion regarding NISO + outcomes continued. All topic committees have also been engaged in these discussions. NISO is working on a narrative document summarizing the outcomes of the conference, intended for public consumption. Is in draft stage.
b. Follow up from NISO +
c. NISO + Session Outputs Spreadsheet

Email conversations led to four topics for further consideration: Package IDs, APC metadata, EBA data standards, and cross-platform discovery (which is also being discussed in IDI). Some discussion about cross-platform /discovery service searching challenges regarding specialized metadata, primary sources being an example. Discussion about identifying gaps in cross-platform searching to determine if there are practices that could help close those gaps, not just for primary sources, but any content. Serious business considerations would be important in this work. Some comments that non-traditional content (data, IR material) is at a disadvantage in these platforms, as they are just not included yet. A fifth topic was metrics related to research and whether quarantine and its disruption to higher ed could be an opportunity to explore what NISO could do to create some recommended practices.

Lisa recommended we split into smaller sub-groups to explore each topic in more detail in order to help us determine how to prioritize. We can use the work item proposal form as a guide for criteria. Next meeting we will split into these groups after having reviewed the work item proposal form between now and June.
Appendix C: NISO Work Item Template

NISO Proposed Work Item Template
This document will help you to organize information about a proposed project and to get feedback from the NISO Topic Committee, NISO membership and the community. Project Proposers draft Work Items for approval by a Topic Committee and the NISO Voting Membership.

Good practice is to prepare a draft and circulate to experts within and outside the NISO membership before submitting or asking for broad feedback. This allows you to improve the content and begin to build a constituency for the project. Work to keep the content to approximately one to two pages.

The following sections should be included:

Work Item Title:
The title should include a verb that describes the kind of work that would be done and the deliverable or other objective, and any key contextual information. For example: Develop a Recommended Practice on the Application of RFID in US Libraries. In addition, a shorter, more easily identified working group name should be proposed at this stage (e.g., SUSHI).

Background and Problem Statement:
Describe the current environment and issues or problems that this work item is intended to address. Please include related work that has been completed or that is underway and describe what is needed to complete or augment that work. While it is important to take a broad strategic view, please provide specific details or example of how the issue affects the constituencies that NISO serves. What are the risks to the community of not doing the project? Think of the audiences you are trying to reach through this work and what they care about.

Statement of Work:
Describe goals, objectives, and means. Remember that this is a starting point. Be specific as possible but don’t start the project! Please include:

- Project Goals: What are you trying to accomplish? Think of verbs like “improve” or “allow for”. Describe who will benefit and how. This builds from your problem statement.
  - What does the initiative need to do/provide/solve. AND, what does it NOT need to do/provide/solve
  - Who will benefit from the deliverables?
- Specific Deliverables and Objectives: Describe the concrete outcome(s) of the project. Expand on the deliverables in the title. Include any discrete tasks that must be accomplished as part of creating the deliverable. This might include conducting surveys, collecting examples of current practice, defining new practice.
  - How will the success of the work be measured or proved?
Process: What approach do you foresee using: e.g., Appoint a Working Group (typical), Hold a Thought Leader Meeting, Engage Primary Editor and Response Panel, etc.

Return on Investment: What benefits will accrue to adopters? It would be helpful if these can be described in relation to anticipated required development.

Engagement Plan: How will the output of this project be circulated/advertised/communicated, particularly to stakeholders? How can uptake be encouraged?

Partners and Participation:
This is a crucial section of the Work Item Proposal. Describe other organizations—or organization subsets—that have a stake in the issue (or who would be expected to implement any solution), especially any that may bear development costs, and what role they will play in the work, if any. Are they already included in communication about this issue? Do they already support this project, and how? [Including specific statements of support, participation and/or adoption is encouraged.] Describe the type of people you need rather than specific people. Include a description of specific knowledge or skills, what organizational representation is required both from the perspective of the type of organization and role within organizations. Identify any expertise or skills that will need to come from outside NISO.

Timeline:
Provide target dates using Months from Project Approval for the stages of the work. Typically, NISO recommendations are published within 18 months of the formation of the working group (but shorter timetables are acceptable too, of course). An example timeline is shown below.

- Month 1: Appointment of working group
- Month 2: Approval and publication of charge and initial work plan (including final determination of scope)
- Months 3-9: Completion of information gathering (phase 1)
- Months 10-13: Completion of initial draft recommended practices document (phase 2)
- Months 14-16: Public comment period
- Month 18: Responses to comments and publication of final NISO Recommended Practice (target <month> <year>)

Funding:
This may or may not be applicable, as most NISO projects are accomplished with industry volunteers meeting via conference call and asynchronous work. If applicable, identify any external sources of funding for the project. If you are seeking funding, please include this only for internal review.