

# INFORMATION STANDARDS QUARTERLY

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TOPIC: STANDARDS IMPLEMENTATION BENEFITS

NISO CIRCULATION  
INTERCHANGE PROTOCOL (NCIP)  
IMPLEMENTATION COST SAVINGS

SCHOLARLY iQ AND SUSHI  
IMPLEMENTATION

BENEFITS FROM USING SERU:  
A SHARED ELECTRONIC  
RESOURCE UNDERSTANDING

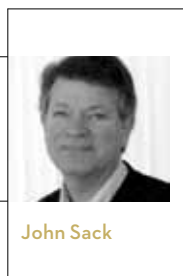
INNOVATION AND  
STANDARDIZATION

NEW NISO INITIATIVES:  
DIGITAL ANNOTATION SHARING;  
OPEN DISCOVERY

# OP

[ OPINION ]

A judgement formed about something;  
a personal view, attitude, or appraisal



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## Innovation and Standardization: Friends not Foes

The scholarly-publishing “industry” has been full of innovation these last 15+ years as the outputs—books and journals at the least, with datasets potentially to follow—have moved almost completely online in a transformative, yet transparent way. Transformative in that it now sounds quaint to talk about “e-journals,” since the “e” is assumed. (We are not quite in that same place with e-books.)

And transparent in the sense that structure of the scholar’s workflow has not been altered substantially as each of the many steps—finding articles, reading articles, managing a literature database, writing and editing a manuscript, etc.—have individually gone online. When an industry’s innovation has both these characteristics, it should be fertile ground for standardization.

There is a natural tension between innovation and standardization. If you standardize too early or in the wrong way, you can actually stifle innovation (the QWERTY keyboard is often cited as an example of this). But standards can also be a lever to enable network effects, as a process can be more rapidly adopted by many parties—including competitors—with greatly expanded utility. Some of us can probably still remember the days when instant messages and text messages couldn’t be sent across different services; you had to have the same cell phone provider to text another phone, or you had to sign in to AOL Messenger to “instant message” another person, who also had to be signed in to AOL.

Our industry has some good examples of successful standards—the DOI™, OpenURL and the NLM XML journal tag suite. But standards aren’t easy. Some standards fail to be adopted even though they may be technically superior (remember Betamax vs. VHS) and others don’t reach final standardization—the institutional ID—despite multiple attempts and being an obviously good idea. There are some historically

important standards that are now the equivalent of an electronic buggy whip—Z39.50 comes to mind—and yet they still show up in RFPs. And there are future standards we have great hope for, such as the Open Researcher & Contributor ID (ORCID), that have big challenges and bright implementers. Sometimes the toughest challenges are not technical but organizational.

Successful standards not only fill a need, but allow for innovation to be accomplished in a standard way—the word “extensibility” is often used to describe a standard that enables this kind of innovation within a standard framework. The HTML standard and the HTTP protocol were certainly excellent examples of this; but web developers saw the chaos that resulted when innovations of the same type were implemented in different ways in different programs. Layout and JavaScript extensions that work differently in Firefox and Internet Explorer are examples of this. We may see this again with HTML 5.

Our industry’s big opportunities for standards are in (at least) two areas:

- 1 Strong identifiers
- 2 Value-chain integration

A strong identifier uniquely identifies an item (or an individual) in a population, whereas a weak identifier can be applied to many individuals. A DOI and a PubMed ID are two typical



Value-chain integration allows two different parts of the scholarly workflow to be *linked* in a way that allows for automated solutions. There is already a lot of this integration now, but it is not highly standardized.

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examples of strong identifiers in wide use. An author ID (e.g., ORCID) is a strong identifier with very high leverage, if it is made as easy to use as the other IDs, while an individual's name is a weak identifier. Strong IDs are key to building links that work precisely and reliably and in building services for the semantic web.

Value-chain integration allows two different parts of the scholarly workflow to be linked in a way that allows for automated solutions. There is already a lot of this integration, but it is not highly standardized. The lack of standards means that different parts of the chain have to connect “inefficiently”—e.g., a supplier like HighWire has to have one set of rules and tools to support EBSCO and a different set to support OCLC (and vice versa); or a library has to put IP addresses in several different systems in different ways; or an end user has to use different tools or passwords or programs to save information retrieved from different platforms into his or her research-management system. This last example harkens to the early 1990s, prior to the birth of web browsers: each different data source on the Internet needed its own program for access (compare this to apps on a smartphone today). This creates a lot of friction in the system—think of how you react every time you get prompted for a password!—and is an opportunity for us to improve the work lives of our customers. For value-chain integration, the greatest leverage is with standards that benefit end users. HighWire regularly interviews end users of research information and we have heard loud and clear that connecting published information into personal workflow tools is key—and that proprietary tools are just another silo to be avoided.

Our challenge in standardization efforts in these and other areas is the right balance between standards and innovation. To effectively interoperate, we can't all do our own thing. But by allowing innovations such as extensions or apps within a standardized environment, we can still encourage new ideas and paradigms. And over time, some of these extensions or apps get integrated into the standardized environment or become new standards themselves.

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**DOI; Digital Object Identifier standard (ANSI/NISO Z39.84)**

[www.niso.org/standards/z39-84-2005/](http://www.niso.org/standards/z39-84-2005/)

**HTML 5**

[dev.w3.org/html5/spec/](http://dev.w3.org/html5/spec/)

**NLM XML Journal Article Tag Suite (draft standard NISO Z39.96)**

[www.niso.org/standards/z39-96/](http://www.niso.org/standards/z39-96/)

**OpenURL standard (ANSI/NISO Z39.88)**

[www.niso.org/standards/z39-88-2004/](http://www.niso.org/standards/z39-88-2004/)

**ORCID project**

[orcid.org/](http://orcid.org/)



**RELEVANT  
LINKS**