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Recommended Citation

Duncan, J. (2005). "Serials Standards: Envisioning a Solution to the Online Serials Management Mess" *Serials Librarian* 48(3/4): 304-5-314.

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Serials Standards: Envisioning a Solution to the Online Serials Management Mess

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Summary

Whereas the transmission of data relating to the initiation, renewal, or cancellation of serial subscriptions has developed into a robust and standardized system based on Electronic Data Exchange (EDI), the ability of serialists to effectively exchange and manipulate information pertaining to data about the specific content and access rights to the subscriptions at a given library has become increasingly problematic. The rapid development of local and vendor systems designed to handle subscription data has necessitated that this data be standardized for smooth exchange. Ted Fons' and Regina Reynolds' discussion of the standards work underway at NISO and EDItEUR, as well as the current ISO revision of the ISSN, provides an overview of the framework for potential resolution to this challenge.

The Problem Identified

It is no secret that the rapid growth in number of electronic serial publications, combined with the many permutations of access rights, providers, and packages, has resulted in a corresponding complexity in how content can be obtained and how serials librarians manage subscriptions. Providing access to and information about electronic content has rapidly moved beyond the world in which paper files or local spreadsheets suffice and now frequently requires complex programming or external vendor support in order to make this type of information available to both library users and staff. Data transmission between libraries and their vendors is increasing as this voluminous coverage and rights information drives an ever-growing number of

manual and automated processes. In their presentation on Serials Standards, Ted Fons, Product Manager at Innovative Interfaces, and Regina Reynolds, Head of the National Serials Data Program (the U.S. ISSN center, located at the Library of Congress), provided a description of the standards work currently underway under the auspices of NISO/EDItEUR as well as ISO to address the multiple challenges involved in standardizing these data exchanges.

Ted Fons began the presentation with an overview of the problem. Referencing the conclusions reached by Ed Jones in a 2002 white paper commissioned by NISO, "The Exchange of Serials Subscription Information,"¹ Fons described the real world of serials data exchange and identified the key issues, many of which are rooted in local library needs including the population of serials data into A-Z lists, link resolvers, Electronic Resource Management (ERM) systems, the ILS, and other locally grown databases. The maintenance of these systems requires data transactions between a number of parties. The players Fons described as participants in these transactions currently include: libraries, publishers, subscription agents, and publications access management services (PAMS). The publication of the Jones white paper finally gave a name, PAMS, to these types of services like TDNet and Serials Solutions, the recent development of which is indicative of the growing need for new ways to successfully manage large electronic collections.

What kind of transactions are we talking about? Fons gave several concrete examples:

- Libraries need to inform publishers of the titles and holdings to which they wish to have access
- PAMS and subscription agents need to know from libraries which subscriptions they will manage for libraries
- PAMS need to supply libraries with coverage data for A-Z lists

- Publishers need to supply libraries with price and title lists
- Publishers need to communicate with PAMS to provide accurate coverage databases

Right now these transactions are already occurring but without much standardization. Libraries, PAMS, and publishers are all exchanging data, trying to say the same thing; however, they are all saying it in different ways. For example, a PAMS may provide coverage dates to a library in one form (e.g. MM/DD/YYYY) but the library needs to populate an ERM or MARC holdings records with the dates in another form (e.g. YYYYMMDD).

Initially, the iterative process of local and vendor system development was a good thing. The players saw needs and developed quick solutions. Over time, however, problems evolved when a growing number of vendors began to create new mechanisms to parse the same information. Fons used the analogy of two people trying to say the same thing in different languages; systems are essentially using different alphabets. The result is that the “translation” process causes much redundant work, and therefore added cost, for all of the players.

Libraries and their partners constantly come up with new ideas for possible ways to massage and display the metadata for their electronic collections; thus, the number of these types of transactions will probably only increase. As Fons succinctly put it, the goal of the standard is to “harmonize the relationship between provider and consumer.” Only when data is expressed in a standard way is it really possible or advantageous to develop useful software applications on a large scale to manage that data.

The Standards Community Responds

The Ed Jones white paper, which so clearly spells out the relevant issues, spurred NISO and EDItEUR into action on the development of a standard. Together, these two organizations

assembled a Joint Working Party (JWP) to look into the potential for a standard. Fons was one of the founding members of this group. The JWP charge was threefold:

1. Propose enhancements to ONIX for Serials to support the exchange of serials subscription information.
2. Conduct pilot projects involving publishers, intermediaries, and libraries to demonstrate ONIX for Serials as an exchange format for serials subscription information (move information back and forth using ONIX).
3. Recommend how to accommodate the query/response scenarios within the emerging EDItEUR framework for transaction-based exchange (automated requests). [This element is not being pursued at this time.]

The JWP, which initially convened in 2002, is comprised of a growing number of influential contributors representing producers of serial content, consumers of this information, and those who provide value-added services. Participants include: CrossRef, Ebsco, EDItEUR, Fretwell-Dowing, Glasgow University, Innovative Interfaces, Johns Hopkins University, Library of Congress, North Carolina State University, OCLC, Harrassowitz, Oxford University Press, Serials Solutions, and the University of Chicago. ONIX, a family of descriptions for serials metadata in XML, already includes developing standards describing the Serial Item, the Serial Title, and the Subscription Package. Therefore, it was natural to develop ONIX to further describe the terms of subscription offerings. The JWP has proposed three additional standards to the ONIX family:

- Serial Online Holdings (SOH): used by PAMS to manage a library's online coverage information. This is the information required to populate a knowledgebase necessary for a resolution server database or to create A-Z lists, for example.

- Serial Products and Subscriptions (SPS): used by publishers or vendors to show the range of resources offered, much like a price list or a catalog. Libraries could also use this format in order to list titles to which they believe they have access.
- Serial Release Notification (SRN): used at the issue level to provide an alert that a specific journal issue or article has been published. This could be used as an alert for check-in, for example.

Members of the JWP started pilots to test the feasibility of these standards in early 2004. SOH has been tested with the Innovative Interfaces ERM; and Serials Solutions has been working with the Library of Congress to test the population of their A-Z list as well as their link resolver. So far, these pilots seem to be producing positive results. SPS is undergoing tests between Oxford University Press and the University of Chicago, however as of this writing, the results were unknown. The JWP has been extended through 2004 so it can review and enhance SRN. Additionally, there has been some discussion of using ONIX to describe license information.

Fons said that while the work of the JWP has been extremely productive and there seems to be hope of developing a useful standard, the group has run into a real conundrum vis a vis selecting unambiguous identifiers to use for packages and journal titles. In order for the new ONIX standards to work well, it will be essential to clearly define these identifiers, which have most typically been tied to the use of ISSN. Unfortunately, the JWP found that there was much uncertainty about what the ISSN identifies, how it is obtained, and where it can be looked-up. A survey conducted by Priscilla Caplan for the JWP found three critical needs if the ISSN was to serve as an identifier: title-level identification; a clearer way to convey the process and the requirements for obtaining an ISSN; and a way to identify multiple types of coverage for the

same title. Consequently, the JWP called on Regina Reynolds, Head of the National Serials Data Program, to become involved in the project.

ISSN Revision

Reynolds explained that current ISSN assignment rules require separate ISSN to identify each manifestation of a single serial title. Thus, unique ISSNs are generally required for serials in different formats—even if they represent the same title. However, publishers do not adhere to this model consistently and, because obtaining ISSN requires an application process, there has been much confusion on the part of publishers about acquiring and then providing accurate ISSN data. In order for the ISSN to serve the needs of its various user communities, clarification of what the ISSN identifies is crucial. Additionally, interest was expressed at the 2004 CONSER Summit and elsewhere within the library community in providing ISSNs at the package level, something that the ISSN Network will have to consider.

The involvement of the National Serials Data Program in the Joint Working Party was quite timely, as the ISO standard for ISSN had just come up for its five-year review. In the past, many of these 5-year reviews had been rubber-stamped. But this time when the question of revision was brought up, the answer was that it was definitely time to revisit various provisions of the standard. A working group has been assembled to perform the revision. Participation in the group is broad-based including members representing publishers, subscription agents, ISSN centers, the abstracting and indexing community, DOI, Open URL, and others. Reynolds indicated that she recognizes the challenges inherent in revision such a key standard because over its lifetime of some 30 years, the ISSN has become many things to many people. However, the revision process has been started and the revision group is well-positioned to tackle the challenge.

In January 2004 the working group convened in Paris and came up with four options for resolving the question of how many ISSN to assign to continuing resources issued in multiple forms:

- Maintain the status quo (i.e., separate ISSN for each different form)
- Change the ISSN to a title-level identifier
- Change the ISSN to consist of a base ISSN, which would represent all formats, and a suffix, which would denote each specific format
- Choose one of a cluster of ISSN as a “master” (title-level) ISSN and link this ISSN in the ISSN Register to separately-assigned manifestation-level ISSN

Members of the working group returned home and conducted surveys within their constituent communities. However, when the working group reconvened in Amsterdam in May 2004, it was determined that *none* of the options was acceptable to, or able to be implemented by, all of the constituencies.

Reynolds surveyed numerous librarians in North America. The most popular option was the third: the base ISSN + suffix. However, even respondents who were strongly in favor of this option had many questions. How would the potentially ever-increasing number of formats be handled? Would one suffix represent online, or would multiple suffixes be needed to represent various file formats (e.g. PDF vs. HTML)? Who would issue and control these suffixes? Would publishers be tempted to make up their own suffixes rather than apply for them? What would happen to “legacy” ISSN no longer needed in this option? And, perhaps most critical of all, would ILS vendors and individual libraries be able to implement this option?

In the worldwide survey results the two most popular choices were staying with the status quo and using a base ISSN + suffix. The presentation audience audibly gasped at this point and

interrupted Reynolds, wanting to know how anyone could find the status quo to be acceptable. Reynolds explained that it was her impression that the use of link resolvers and packaged content is not as widespread internationally as it is in North America so the need for title-level identification has not yet emerged as strongly elsewhere. Additionally, the library community abroad still seems to use separate bibliographic records to represent different formats in national bibliographies and union catalogs, while in the US there is a mix of single-record approach and the use of separate records. As link resolvers and different approaches to handling bibliographic records for multiple versions become more common in other parts of the world, different perceptions about how the ISSN should be configured and assigned might emerge.

From the survey and discussions at the Amsterdam meeting, several clear and compelling needs emerged: the need for a "title-level" identifier; the need for a "product-level" identifier; and the need for an easy and authoritative way to access ISSN data. The outcome of these discussions was the development of a plan that takes a three-pronged approach to meeting the identified needs. This plan is a way to move forward, but none of the options being pursued is written in stone at this point. Separate sub-groups were formed to work on each of the three major revision areas identified: "a functional granularity" solution to the question of how many ISSN to assign and the scope of ISSN coverage; development of a title-level identifier incorporating the ISSN; and an assessment of ISSN records and the ISSN database.

The principle of "functional granularity" as an answer to the question of how many ISSN to assign is based on the idea that the publisher is the most appropriate authority to determine how many ISSN should be assigned to a resource because the publisher should have the best idea of what he needs to identify for transactions with business and other partners such as subscription agencies and A&I services. Once again, there was some grumbling from the

audience, but Reynolds explained that this model could encourage publishers to take more “ownership” of the ISSN and its use by others. ISSN Centers would mentor large publishers, who, after training and mentoring, might be able to get blocks of ISSN to self-assign. There would be a strict requirement, perhaps a written agreement, for the publisher to supply metadata to the Centers. The underlying idea is that better comprehension by the publishers of how to use ISSN will result in fewer errors and that there will be new opportunities to build ties between publishers and ISSN Centers. Of course, there are several outstanding questions about how and whether the functional granularity model will work. For example, to what will publishers want to assign ISSN? The scope of ISSN coverage will have to be carefully studied and guidelines will need to be developed. Under this model, it is possible that packages and combinations could get ISSN.

The issue of functional granularity elicited the most heated discussion from the audience. When Reynolds asked how comfortable members of the audience were with publishers assigning ISSN, there was a decidedly negative response. “Highly uncomfortable,” said one person who continued by explaining that ISSN were much more complex than ISBN and publishers seem to have problems assigning those. Another person commented that he had a problem allowing “the same people who can’t number their issues” to assign ISSN. Reynolds said that there would definitely be an adjustment period but that it was even more difficult when the ISSN Centers and the publishers were unable to work well together. She continued to explain that the publishers had never been given the background or mentoring necessary to make these decisions. It is clear that providing more accurate identifiers would make publishers’ transactions go more smoothly too so they should have incentive to make this work. At any rate, Reynolds pointed out that clearly the status quo is not working and it might be time to think outside the box.

Reynolds next discussed the plan to develop a title-level identifier to meet the expressed need for linking to content via various mechanisms, particularly OpenURL resolution. Reynolds said, "If we can't provide title level identification, we haven't really met the needs of our community." The explosion of link resolvers and the need for collocation and identification in both catalogs and ERMs require a piece from this part of the puzzle. The real need is to be able to connect content regardless of format. The current thought is to find an existing identifier system into which an ISSN can be embedded. Candidates include the URN, the DOI and ISTC. Currently, the URN is not in widespread use and does not have an infrastructure for use with link resolvers. Reynolds indicated that there are some concerns with using DOI as it is generally at the article level and this may introduce confusion in terms of what is represented. However, a means of clearly differentiating title-level ISSN from manifestation ISSN, or ISSN used as part of article identification, might be able to be devised by use of particular terminology or syntax. The ISTC (International Standard Textual Code) is at the correct level of granularity; however, that standard is only now emerging and was not developed with serials in mind so work would need to be done before that standard could be used. Also, the ISTC syntax, at this point, does not seem to be able to accommodate an ISSN. Finally, with any of these options, the issues of how to treat editions (e.g. geographical or language), and how to distinguish a title-level ISSN from a manifestation-level identifier are still to be resolved. One audience member asked whether or not the title-level ISSN would cover title changes. Reynolds said that the current focus was on a specific title, but that, not surprisingly, how to treat title changes might open a big can of worms with publishers.

Third, the promotion of the ISSN Register could be a critical part of the solution. Currently, people seem to have trouble knowing where to find ISSN. If the existing data were

more usable and available, perhaps the problem would be solved. During her administration of the recent survey about options for solving the multiple ISSN problem, Reynolds was extremely disappointed to discover how many people didn't know about the international database maintained by the ISSN International Centre in Paris. National ISSN Centers create and send records to Paris. The database is available as an online subscription product (ISSN Online) and as a CD-ROM product (ISSN Compact). One perceived problem is that the ISSN Network must charge for subscriptions to these products, as these subscriptions constitute a vital revenue stream. Currently, one of the revision sub-groups is undertaking a study of the usability, functionality, and accessibility of the existing database. One of the aims of this group is to assess whether publishers could input and edit records directly. Once again, this proposal presents its own set of problems.

The working group plans to meet again in October 2004 to present and assess ^{the} progress of the sub-groups. When solutions to the challenges discussed above have been agreed upon, the revised standard will be drafted. As Reynolds reminded the audience, ISO standards are consensus standards, so there will be a period for comment and revision. The deadline for completion of the Group's work is December 2006, so Reynolds suggested that we stay tuned for further developments.

The NISO/EDItEUR Joint Working Party continues to pilot its work with ONIX and will move toward the proposal of a standard while continuing to work on the issue of identifiers. Both projects see as their goal solutions to everyday problems for librarians, so we are well advised to continue to support standards work and advocate for needed standards.

1. Ed Jones, *The Exchange of Serials Subscription Information: A White Paper Prepared for the National Information Standards Organization, with support from the Digital Library Federation* (Bethesda, Maryland: NISO Press, 2002).