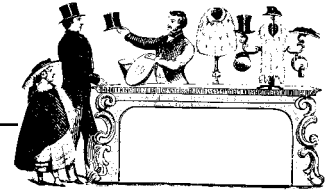


# Standards Column — Electronic Resources: Challenges and Opportunities



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The management of digital resources has never been an easy process. The rapid expansion of digital resources compounded with changing formats and sales models in the short life of Web-based delivery systems has particularly made the management process more complex. Further, from the very beginning, details relating to purchasing, licenses, access, and usage have been kept in ad hoc systems built by in-house teams or by the individual librarian needing to organize her workflow. It is hard to recall the days when digital resources played only a minor role in library management discussions.

It is from these very humble beginnings that a fairly robust community of vendors and librarians developed an entirely new type of library system — the **E-Resource Management System (ERMS)**. There are now several vendors providing more or less integrated ERMS services. The most dominant vendors of these systems are **Ex Libris**, **Innovative Interfaces Inc.**, and **Serials Solutions**. There are also community-developed projects such as **Colorado Alliance's Gold Rush** systems as well as open source systems, such as **HERMES at Johns Hopkins University**. In addition, there are likely dozens (or more) homegrown systems that librarians are using to address complex management details. Even without a formal system in place, however, nearly every library is dealing in its own way with the acquisition, license, title, integration, and usage data information that accompany digital content.

NISO held a two-day seminar in Denver during September to bring together systems vendors and a diverse cross-section of librarians who are at different stages in the process of implementing a formal ERMS. It became apparent that these systems are relatively early in their development and deployment, despite some successes. Approximately one-third of the attendees had an ERMS in production, while the balance of the participants were either just implementing one, in the process of acquiring one, or still considering whether to purchase an ERMS. During this event we also learned that only about 400 institutions have functioning systems in development or production nationwide. Among the issues that were discussed at this forum were the role of ERMS systems in the library; the ERMS relationship to and interoperability with the standard ILS; which functionalities were most critical for adoption and use; and some of the barriers to implementation that have been experienced by the attendees.

When considering the amount of funds invested in electronic resources, the anecdotal indication from the group that gathered in Denver is that not nearly enough staff resources are being dedicated to the ERMS acquisition and

content-management lifecycle. Among ARL libraries, the average percentage of materials budget spending on electronic resources in 2005-06 is 42%, or nearly \$3.6 million, with the highest percentage being 73%. This expense amount is up 20% from the year before. The median percentage is up 5%. Despite this growing trend, we learned that even at some of the largest institutions, where annual acquisitions investment for electronic content is in the millions of dollars, fewer than five full-time staff are responsible for the full management of electronic resources and their acquisition lifecycle. Compared to the staff resources dedicated to managing the print material acquisition and management process, the e-resource HR investments seem modest. Obviously, every institution could use more staff, but the relative investment in print compared with the growing investment in digital content will necessitate changes in staff allocation that go well beyond the scope of having a system that manages these resources.

Perhaps the lack of staff resources is part of the reason that a relatively small number of the ERMS that have been purchased are up and running, or producing the anticipated results. To effectively populate, manage, and use these systems a significant time investment and significant shifts in organizational culture are required, steps that many institutions have yet to make.

One barrier to adoption that was discussed was the complexity of the problems that ERMS are trying to address, compounding the difficulty of rolling out such a system. Larger issues such as adapting workflows, restructuring staff resources to manage digital content, and systems interoperability with existing management tools were also pointed out as causes of delayed implementation. The sheer scale of the volume of data that is expected to be managed by ERMS is also an obstacle, and is an issue where many organizations hope standards can help to make the process of populating the systems easier. NISO and the vendor community are working together to help find standards solutions to this problem in order to help alleviate the challenges that librarians face as they work with these systems.

Key among the issues under development at NISO is the need for interoperability and common structures around which data exchange models can be built. Licensing and license expression, usage data, interlinking content, purchasing and EDI: each of these areas of management has its own challenges. During his presentation, **Oliver Pesch**, Chief Strategist of E-Resources, **EBSCO Information Services**, outlined the scope of the problem as it relates to the data elements in the **Digital Library Federation ERMI** data structure. This model contains 315 data elements for tracking

electronic resource content. While a significant percentage of data is possible for agents and publishers to provide, the remaining elements still require significant library time, staff, and energy to track. Important questions for people engaged in developing an ERMS are: How practical is it to track all of this data? To what extent can a smaller data model — which might facilitate a less robust but more manageable system in the end — be used?

For NISO, then, the question is: What can NISO do to help further the state of the art in the information flow of management information for electronic resources? With the increased use, creation, and expenditure on e-resources, the need for standardization is becoming even more significant. There are several initiatives underway at the moment that focus on interoperability and functionality of ERMS. For instance, NISO's **License Expression Working Group (LEWG)** is mapping the **DLF ERMI** data model to the new **ONIX-PL (Publication License)** format, which is part of the **ONIX** family of standards developed by **EDItEUR**. **ONIX-PL** is an XML structure that encodes the numerous terms of a license, including a means for the library to identify whether that use is allowed, prohibited, or open for interpretation. This format will provide a mechanism for publishers to provide information on their licenses in machine-readable format for population of an ERMS. It is important to note that expression of license information does not remove the ability of institutions to negotiate or interpret licenses; it is simply a means of computer-to-computer transfer of the agreed terms.

The second critical aspect of ERMS development, in which NISO is engaged, is the recently passed **SUSHI** standard for transmission of usage data between publishers and libraries (**NISO Z39.93-2007**). While **SUSHI** is focused at the moment on the packaging and transmission of usage data, the underlying model of **SUSHI** — that is, machines communicating data automatically to other machines — is a promising one for future development relating to other types of management data for digital content.

However, there continue to be areas where further development is needed. Greater integration with existing ILS systems, continued development of automated information exchange and data population, and error checking are issues where speakers and attendees alike expressed interest in seeing further work. The ever-changing nature of the content being managed by ERMS necessitates standardization of information related to how title transitions, URL updates, missing issues, and other critical information are communicated to libraries. Working with content providers to

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improve the transmission of this information will be vital to the eventual success of libraries in using **ERMS** and managing the data they contain. Technological systems never reside inside a vacuum, though, and beyond the structure of the **ERMS** there are several additional areas regarding the management of digital resources that could benefit by study and structured analysis. It was suggested that the community explore the creation of a best practice document — perhaps by **NISO** — that relates to organizational structures necessary to facilitate management of digital content and that addresses implementation needs relating to **ERMS**.

While relatively new to the community, **ERMS** are slowly making progress in improving the management of digital content. These systems will continue to develop over time, replacing the ad hoc structures librarians used when digital content first began to gain prominence. As the discussion of whether an **ERMS**

should be a stand-alone product or incorporated into the traditional **ILS** continues, there can be no doubt that the management of digital resources needs significant support structures — both technological and cultural. Helping to smooth this process through standards is a goal that will continue well into the future.

#### **SUSHI Formally Approved and Published**

The **NISO** membership formally approved the **SUSHI** standard (**NISO Z39.93-2007**) in October. This important new standard will help to improve the logistical problems of collecting usage data from publishers and content providers. The standard is publicly available for download on the **NISO** Website, along with other useful **SUSHI** implementation information, at: [www.niso.org/standards/SUSHI/](http://www.niso.org/standards/SUSHI/).

The difficult work of gaining broad application must now begin. We encourage all content providers and libraries to familiarize themselves with the standard. A number of **ERM** system providers are already building **SUSHI** into their products. Libraries that have homegrown **ERM** tools or processes should

look at implementing the **SUSHI** protocol to streamline their workflow in gathering **COUNTER** and related usage statistics. **NISO** is also working with **COUNTER** to have **SUSHI** compliance a requirement in the next revision of the **COUNTER Code of Practice**. Although this issue is still under consideration, incorporating the **SUSHI** standard will help tremendously in the usability and functionality of **COUNTER** reports for librarians.

If your organization would like assistance or advice on implementing **SUSHI**, please contact the **NISO** Office. We also encourage the community to speak with their vendors and information providers to ask that **SUSHI** be incorporated into their systems that utilize usage statistics. 🌱