

# The ERMI and Its Offspring

In the course of researching a CLIR (Council on Library and Information Resources) report, *Selection and Presentation of Commercially Available Electronic Resources: Issues and Practices*, Tim Jewell of the University of Washington uncovered many libraries' specific, internal ERM practices, which they had designed to deal with the workflow and staffing needs to carry out this complex task.<sup>1</sup> Jewell's work highlighted this circumstance—of individual libraries re-creating, many times over, the same kind of database-management systems and other tools—so he and others began to talk about a more coordinated development plan.

## DLF's Electronic-Resource Management Initiative

After many meetings and involvement from a variety of interested parties—including the Association for Library Collections & Technical Services (ALCTS), a division of the American Library Association (ALA); Technical Services Directors of Large Research Libraries Discussion Group; National Information Standards Organization (NISO); Digital Library Federation (DLF); and representatives of several integrated library system vendors and electronic-resource service organizations—the DLF established a working group called the “Electronic Resource Management Initiative,” referred to as “ERMI” in this report. The group of individuals working for ERMI was charged with continuing to explore and document the detailed requirements for a systematic way to support the management of electronic resources in libraries. The working group included Tim Jewell of University of Washington, Ivy Anderson from Harvard University, Adam Chandler representing Cornell University, Sharon E. Farb

from UCLA, Kimberly Parker of Yale University, Angela Riggio also from UCLA, and Nathan D. M. Robertson of The Johns Hopkins University. The final report of the ERMI group was issued in August 2004.<sup>2</sup>

*Selection and Presentation of Commercially Available Electronic Resources: Issues and Practices*, by Tim Jewell

[www.clir.org/pubs/reports/pub99/pub99.pdf](http://www.clir.org/pubs/reports/pub99/pub99.pdf)

*Electronic Resource Management: Report of the DLF ERM Initiative*

[www.diglib.org/pubs/dlfermi0408](http://www.diglib.org/pubs/dlfermi0408)

With this collaboration and broad industry support as a starting point, the ERMI group identified as its goals:

- to record the functionality necessary for the management of large collections of licensed e-resources;
- to identify the data elements necessary for this task and define them;
- to create experimental XML schema and associated document type definitions (DTDs) that could be used to support moving data among systems, could display that data, and that could be tested locally; and
- to identify and encourage a set of best practices, guidelines, and standards for data interchange related to electronic-resource management.

To accomplish these goals, the ERMI group established a list of deliverables. At the last stage of the DLF's initiative, the ERMI's work was reviewed and discussed

by two reactor panels; the first was a reactor panel comprised of knowledgeable and experienced librarians. The second was a reactor panel comprised of vendors.

## Examining the Homegrown Systems

First, the group wanted to produce an overview of the issue and highlight the creative ways in which libraries had been dealing with the “electronic-resources management” problem (as defined in the group’s final report). The group’s work began by examining a few of the existing homegrown systems that libraries had created to address specific, but not necessarily comprehensive, needs within the electronic-resource management sphere.

These homegrown library tools included Pennsylvania State University Library’s tool, ERLIC (Electronic Resources Licensing and Information Center). ERLIC was constructed in 1999 using Microsoft Access to specifically deal with tracking order status. The Massachusetts Institute of Technology Libraries’ VERA (Virtual Electronic Resource Access) system was also built in 1999 and was designed with both back-office and public data-display capabilities. University of California–Los Angeles (UCLA) Library’s ERDb (Electronic Resource Database) was also highlighted by the ERMI group for the guidelines under which it was developed. ERDb was intended to 1) accommodate growth; 2) be flexible; 3) offer different views of the same data; 4) avoid unnecessary duplication; and 5) undergo implementation in phases. Johns Hopkins University’s HERMES (Hopkins Electronic Resource Management System) was noted for its staff roles, workflows, and associated functional requirements.

The ERMI group also wanted to create a detailed, yet generic, workflow diagram and functional specifications for a system that would address the problem. In order to frame the scope of the workflow discussion, Appendix B of the ERMI report includes a side-by-side comparison of a very simplified overview that documents the acquisition and management processes for both physical and electronic resources. The actual flowchart the ERMI group included to illustrate the workflow for electronic resources is four pages long and much more complex than the simplified overview.

## Functional Requirements of ERM Systems

The ERMI group included in its deliverables an “Entity Relationship Diagram” (ERD), which was used to group related pieces of data and show interrelationships among other data elements. Based on all of this, the group wanted to produce an XML schema to standardize and codify data elements. The final report brought together all of these elements into one document.

The functional requirements of electronic-resource management systems (ERMS) documented in the ERMI report define a small number of guiding principles:

- The system should support both management of, and access to, electronic resources without creating duplicate systems and duplicate data entry.
- The system should provide the capability for the input of complex data in one place as well as enable the use of that data in many places, either by integrating functionality or by normalizing data to allow for easy import or export.
- The system should be designed to allow for global updating and have enough customization capability/flexibility to allow for the addition of fields.
- It should have the capacity to display records for both public and staff, with versions of the display tailored to the appropriate category of user.
- It should be interoperable with other systems and be able to share data with OPACs, Web portals, and link resolvers.
- It should be able to store, access, and search for information and be able to generate reports.

In all, forty-seven requirements were identified and recorded under the category headings of Resource Discovery, Bibliographic Management, Access Management, and Staff.

Some of the documented requirements in the Resource Discovery category include the ability of the ERMS to provide an end-user display or be able to integrate data into an existing end-user interface, such as an OPAC, an A-to-Z list, or a library portal. The system also should be able to display relevant license information, such as permitted uses, any use restrictions, citation requirements, and locally defined notes. Additionally, the Resource Discovery component should be capable of linking to other manifestations of the resource and include interface information and even downtime information.

These systems should also provide a pass-through for data, thus making individual entry points for shared bibliographic data possible; they also should allow for the import of information from outside providers. The ERMS should support any authentication or access-management system, no matter how simple or complex, and it should allow for different staff views, based on roles and responsibilities, with capabilities and alerts for all tasks within the scope of one’s role and accessibility to records (based on a variety of categories, such as license, vendor, interface, status, consortium, and selector).

In developing the ERD for its final report, the ERMI group managed to document how the abstract concepts—which are the necessary building blocks for an effective ERM system—relate to each other. Notably and frequently present in discussion of electronic-resource management systems and services are the conceptual relationships among the terms *e-product*, *interface*, *package*, and *individual title*. E-products may be referring to interfaces, e-packages, or individual titles. The use of these sometimes

indistinct terms accurately reflects the various and complex ways in which libraries can acquire the same materials in different combinations or via different platforms.

## The ERM Tool

In the end, what the ERMI group accomplished is a definition for the ERMS: “a system that supports management of the information and workflows necessary to efficiently select, evaluate, acquire, maintain, renew/cancel, and provide informed access to e-resources in accordance with their business and license terms.” The group’s work has contributed greatly to what a well-designed system might look like and how it might work. The group’s work, too, has helped libraries move forward; now, instead of every, individual organization re-creating a proprietary ERM system or workflow, the ERMI report presents guidelines for developing an effective ERM tool for general use. Finally, the group’s work has provided many vendors with a starting place and a clear impression of what they need to build.

Many of the homegrown systems—that provided the motivation for the documentation of what the field defines as “electronic-resource management,” which culminated in the ERMI’s final report—are no longer being maintained or were not developed any further. Instead, the library field now has a new product type to evaluate, the vendor-supplied ERMS. From the ERMI’s functional specifications, many vendors of many different types have started building ERM tools for the library field.

In a July 2004 article (“Clarity in the Mist”) appearing in *Library Journal*, Raschke and Weiner emphasize the need for an electronic-resource management system integrated with the library’s ILS and fully developed.<sup>3</sup> In the article, they expressed that “locally grown solutions have hit a plateau, and the push for more standardized, interoperable, and robust ERM systems is in full gear.” In “Clarity in the Mist,” the authors discuss the fact that ILS were built for, and appear to be stuck in, the print universe and have not responded to the library’s electronic-resource management needs. They contend that it’s time for ILS vendors to rise to the challenge.

In a presentation for an ALCTS symposium (held at ALA’s 2003 Midwinter Meeting in Philadelphia), Beth Warner also pointed out that the traditional ILS simply cannot handle the functions necessary for an effective electronic-resource management system.<sup>4</sup> Her suggestion was to make the traditional ILS more interoperable and to build external systems that would be more easily extended and developed.

In a January 2005 article in *Computers in Libraries*, Marshall Breeding sums up the automation situation this way: “As the scope of libraries expand, we have an à la carte menu of automation utilities rather than a unified and comprehensive environment for library automation.”<sup>5</sup>

Like Raschke, Weiner, and Warner, Breeding concurs the ILS hasn’t kept up with the times; however, Breeding is concerned that we no longer have anything that coalesces into an integrated system, but rather a “federation of software applications that need to be marshaled into some semblance of order.” He anticipates “the current environment of the ILS plus add-ons tailored for electronic content to evolve into a more tightly woven environment.”

## From the Vendors

If the intent of the ERMI group was to provide a framework for an ERMS design that would motivate organizations to develop these types of systems and services, it was a tremendous success. Every major ILS vendor now has an electronic-resource management system either in development or officially launched.

As of mid-September 2005, according to a brief survey conducted by Stephen Meyer, Innovative Interfaces had listed 149 installations of its electronic-resource management system, while CARL, Endeavor, and Serials Solutions were listing the number of installations for their products in double digits. Ex Libris and VTLS were listing their ERMS installations in single digits; TDNet had modules installed for many libraries, although “none full-service”; and SirsiDynix had not yet released its product.<sup>6</sup> EBSCO and Harrassowitz both offer a suite of services aimed at helping libraries support ERM functions, and Swets is currently developing services to address these needs for its clients.

Although the landscape for ERM systems is rapidly changing, a few recent articles are available and provide side-by-side comparisons of the currently available systems.<sup>7</sup> These articles, all extremely helpful, include Duranceau’s September 2004 *Against the Grain* article on systems from ILS vendors; her June 2005 follow-up article on systems from serial and data vendors; Maria Collins’s June 2005 work on electronic-resource management systems, and Stephen Meyer’s “Helping You Buy” article in the November/December 2005 issue of *Computers in Libraries* (also see table 2 on page 18 for Web resources on ERM).

## SirsiDynix

Of all of the ILS-vendor products currently, or soon to be, available (as of the time of writing, fall/winter 2005), SirsiDynix (which merged to become company in the summer of 2005) is the only one to offer a product (one developed under Sirsi, the other developed under Dynix before they merged) that can only be used with its ILS offerings. If you are already a Sirsi or Dynix client, either of these products is something for you to consider. If you are *not* currently either a Sirsi or Dynix client, consideration of these ERM systems is only logical if you are considering

**Table 2:** Where to Find More Information about ERM

CARL Gold Rush	<a href="http://grweb.coalliance.org">http://grweb.coalliance.org</a>
Dynix	<a href="http://www.dynix.com/products/erm/">www.dynix.com/products/erm/</a>
EBSCO EJS	<a href="http://www.ebsco.com/home/ejournals/default.asp">www.ebsco.com/home/ejournals/default.asp</a>
Endeavor Meridian	<a href="http://www.endinfosys.com/prods/meridian.htm">www.endinfosys.com/prods/meridian.htm</a>
Ex Libris Verde	<a href="http://www.exlibrisgroup.com/verde.htm">www.exlibrisgroup.com/verde.htm</a>
Harrassowitz HERMIS	<a href="http://www.harrassowitz.de/periodicals_e-journals.html">www.harrassowitz.de/periodicals_e-journals.html</a>
Innovative's ERM	<a href="http://www.iii.com">www.iii.com</a>
Serials Solutions ERMS	<a href="http://www.serialssolutions.com/promotion/ERMS">www.serialssolutions.com/promotion/ERMS</a>
SirsiDynix	<a href="http://www.sirsi.com">www.sirsi.com</a>
Swets SwetsWise	<a href="http://informationservices.swets.com">http://informationservices.swets.com</a>
TDNet TeRM	<a href="http://www.tdnet.com">www.tdnet.com</a>
VTLS Verify	<a href="http://www.vtls.com/Products/verify.shtml">www.vtls.com/Products/verify.shtml</a>

changing to the ILS offered by the now-merged vendor, SirsiDynix.

The SirsiDynix system is being designed to comply with all of the ERMI group's recommendations. It's also being built to support data management in a variety of existing and developing standards areas including ONIX, COUNTER, and various MARC formats. The Dynix product will integrate with its A-to-Z lists, subject lists, and library portals and is currently working to integrate with non-Dynix link resolvers and external A-to-Z lists. One of the well-developed features of Dynix's system is its project-manager functionality, which allows for customizable groups; configurable lists of tasks with associated responsibilities and time frames and alerts for upcoming and overdue tasks; dependencies; and editable workflows. Because Dynix's ERM system is so tightly integrated with the rest of its library system, print and electronic information are also closely integrated for both staff and public users. The tight integration of print and electronic resources is also present in the ERM system being developed by Sirsi. Integration with other services—in relation to the Sirsi electronic-resource management module—includes that of Sirsi's SingleSearch, its federated-search module. With this module, URL maintenance can be done using other external systems and other data import and export capabilities exist as well.

## Endeavor

Endeavor's electronic-resource management system, Meridian, is available either as a stand-alone system or can be integrated with other Endeavor products and modules. A recently released new version will allow Meridian to be integrated with other library systems. Bibliographic and acquisitions data available in Endeavor's Voyager (the company's flagship ILS) will be accessible from Meridian but will only need to be stored in one place. Meridian also has some flexibility in the way in which it can import data

from different sources and in several formats. Meridian can be integrated with A-to-Z lists, link resolvers, and OPACs. An interesting feature of Meridian is its reporting capability built on Endeavor's partnership with Cognos ReportNet. The reporting feature offers a range of standard reports and the ability to create nonstandard reports using drag-and-drop for data elements to be represented in the report. Graphic representations of data are also an option within the reporting module.

## Ex Libris

Ex Libris offers an electronic-resource management system called Verde, which can be used either as a stand-alone system or can be integrated with other Ex Libris products and modules. This integration extends to OpenURL link resolvers, A-to-Z lists, and the like. Batch-import and -export capabilities are also available. Unlike other ILS vendors, Ex Libris supports the database Global Knowledgebase, which is used to update Verde on a regular basis. Another difference is that Verde doesn't have a public interface; rather it presents information within pre-existing services, such as the OPAC. Verde developers have stuck very close to the DLF ERMI report's provisions, in that much of the terminology used in its product's displays is precisely the terminology presented in the ERMI report, for example, terms such as *e-package* and *e-interface* are used throughout Verde.

## Innovative Interfaces Inc. (iii)

Innovative Interfaces Inc.'s module, Electronic Resource Management (ERM), is available as a stand-alone system or as an integrated component of the Millennium library-management system. With Innovative's ERM product, data can be imported in a variety of formats from several different sources, including from vendors of access-management systems (such as TDNet or Serials Solutions). It works with portals and OPACs as well as with link re-

solvers, A-to-Z lists, and the Millennium serials and acquisitions modules. Innovative's product was the first to market and designed to the DLF ERMI specifications; its head start in the market seems to have given the product and its developers more real-world experience than many of the other organizations currently offering electronic-resource management systems. Innovative Interfaces Inc.'s system is built around the concept of a resource record, from which all other records emanate. These other types of records include the License Record, Contact Record, Holdings Record, and others.

## VTLS

Verify is the electronic-resource management system in development from VTLS. It is being developed as both a stand-alone module and as part of the larger ILS called Virtua, offered by VTLS. Records in Verify are structured in a hierarchical manner that mirrors FRBR's (Functional Requirements for Bibliographic Records) hierarchical structure. Data can be imported from systems outside of the VTLS product family.

## CARL

The Colorado Alliance of Research Libraries (CARL) began developing its Gold Rush product in 2001 before the DLF ERMI group was even officially formed; however, through the period when the ERMI group was holding meetings and making presentations, CARL was monitoring the progress of the initiative. As a result, Gold Rush developers use, and will continue to use, the final ERMI report in guiding software updates and developments.

Among the group of producers of electronic-resource management services and software, Gold Rush is unique. It is the only product or service produced by a nonprofit organization in a very competitive market niche. It is a hosted system, meaning that the library does not need any hardware or software, other than access to a standard Web browser, to access the system. The CARL staff members manage the database, so it's not possible for individual libraries to add content or information about that content unless, and until, it's listed in Gold Rush. Although Gold Rush has a fair-sized database, those managing it are willing to add records for anything a client requests that isn't currently in the database. Initially, Gold Rush functions as an OpenURL link resolver, but it has non public records that address some of the needs of electronic-resource management.

## EBSCO

EBSCO's role in electronic-resource management (as a company that's conventionally been known as a subscription agent and database producer, thus as a converging point of a great deal of data) will be that of the middleman. It will manage the collocation, processing, and exchange of all this newly required information in much

the same way as it managed the collocation, processing, and exchange of data for libraries and publishers in the print universe. EBSCO did not choose to develop one electronic-resource management product, but rather to further develop existing print systems and create linked systems and services in support of electronic-resource management.

EBSCO offers its own A-to-Z list service and its own OpenURL link-resolver service. The company's EBSCOhost Electronic Journal Service (EJS) provides both staff-based management and administrative features, such as registration tracking and support. Although EBSCO does not cover all of the tasks involved in bringing electronic resources into the library, it does support many of them—through the extension of existing services developed for the print universe and the creation of new services to track new kinds of data and support end-user needs in the electronic environment.

## Harrassowitz

Harrassowitz also approaches ERM from its long-standing operation as a serials-subscription agent. HERMIS 3.0 (HARRASSOWITZ Electronic Resources Management and Information Solutions) is available in two service-level versions: standard services, which are available to all Harrassowitz customers; and enhanced services, which have additional fees associated with the services offered.

Much of the electronic-resource specific data is integrated into the pre-existing print database. HERMIS provides links to publishers' licenses and will allow for the storage of negotiated and signed licenses (that have been scanned) as well as the tracking of the actual license negotiations. Library clients can create an activation profile that includes appropriate and salient information, such as IP address ranges and contact details, and these activation profiles will support the HERMIS staff's efforts to activate titles for library clients. Although Harrassowitz does not offer its own A-to-Z list services or OpenURL link-resolver services, it does partner with other organizations within the industry that can supply these services.

## Serials Solutions

ERMS, the Serials Solutions electronic-resources management system, is the obvious continuation of development of the Serials Solutions suite of products that began with overlap analysis. It can be tightly woven into the use of the company's other products, such as Article Linker, Central Search, and Ejournal Portal, all of which rest on the company's extensive electronic-resource knowledgebase. ERMS is hosted by Serials Solutions, making it unnecessary for client libraries to acquire and support local hardware and software (other than what's necessary for a standard and current Web browser). Because ERMS is a hosted service, all of a library's data

must initially be imported. Its ability to import library-specific data is the cornerstone of the firm's business. The ability to export data in a variety of formats is also a feature of the service, and data can easily be sent out to a library's link-resolver or federated-search application or portal; however, the serials and acquisitions modules of a library's ILS may not be quite as accessible. ERMS has been developed with guidance from the DLF ERMI specifications and continued development rests on both these specifications and client demand.

## Swets Information Services

Like EBSCO and Harrassowitz, Swets Information Services is a traditional subscription agent, and it also continues to develop and extend its services beyond print subscriptions. An interrelated set of services and modules is housed within the SwetsWise group. Currently included in this group of services are: an end-user subscription module; an online-content access module; an A-to-Z list module; and an OpenURL link-resolver service module. Swets is extending its current library-subscription module, DataSwets Connect, to accommodate more information and services geared toward the management of electronic resources (beyond the existing capability) to just being able to identify and order electronic resources. Its system will allow clients to store data related to the management of electronic resources, generate reports, and export data in a variety of standard formats. The goal is to be able to support a client's need to gather data in a convenient place, and if necessary, export that data to any of a variety of other services or platforms the client uses.

## TDNet

TeRM is the service provided by TDNet to support its customers' needs in the electronic-resource management area. Although development is ongoing, many features of the service are already available. The service is generally hosted by TDNet, but it allows for the export of data to other services and systems, and library clients can host the application on their local intranets using a standard PC and SQL database. TDNet's product can take advantage of the expertise of its partner company, TELDAN, a subscription agency. The core of TeRM is based on the company's comprehensive knowledgebase and on its original services in overlap analysis, A-to-Z lists, and support for OpenURL link resolution.

What we have is a dizzying array of choices in an ever-changing landscape. All of the systems currently or soon to be available are being extended, and any published snapshot will very likely be out of date by the time it becomes publicly available. Even beyond systems and services developments, the DLF ERMI specification continues to produce more change in the electronic-resource management environment.

## Other Relevant Initiatives

Two notable initiatives, both sponsored by NISO, are gathering momentum as of this writing. One, referred to by the acronym SUSHI, is the Standardized Usage Statistics Harvesting Initiative. The other initiative focuses on Digital Rights Expression and Management.

### *Standardized Usage Statistics Harvesting Initiative (SUSHI)*

[www.cornell.edu/cts/elicensestudy/ermi2/sushi](http://www.cornell.edu/cts/elicensestudy/ermi2/sushi)

### *Digital Rights Expression and Management: The License Expression Working Group*

[www.niso.org/committees/License\\_Expression/LicenseEx\\_comm.html](http://www.niso.org/committees/License_Expression/LicenseEx_comm.html)

## SUSHI

The first is the recently announced SUSHI; this is a NISO-sponsored initiative, and it builds on the work of Project COUNTER (Counting Online Usage of NeTworked Electronic Resources), which published its first code of practice early in 2003 and created agreed-upon definitions of terms and guidelines of counting and reporting use of electronic resources. COUNTER statistics are now available from most of the major online-resource providers to library clients for their subscribed titles. These statistics have great value to libraries, because they provide a mechanism for evaluating how much and how well library patrons are using electronic resources. And because publishers are provided these statistics based on an agreed-upon set of definitions, librarians can now come closer to comparing apples with apples among the many content providers.

The problem for librarians is that these potentially valuable use reports reside in individual content providers' silos, and therefore, must be retrieved individually for each of these sites, which is a very labor-intensive and time-consuming task. The SUSHI protocol addresses this problem by gathering individual COUNTER-compliant reports in a standard data container that can be imported into an ERMS. Librarians using the SUSHI protocol will be able to create automated and scheduled downloads of COUNTER-compliant reports and have these reports stored within an electronic-resource management system or any other designated and accessible storage system.

As with so many of the new projects in the electronic-resource arena, SUSHI is a joint effort composed across the industry and actively involves participants from libraries, ILS vendors, subscription agents, content providers, and other electronic-resource management providers,

including but not limited to EBSCO, Ex Libris, Innovative Interfaces, and Swets Information Services. In other words, each of these organizations has a representative who serves as a member of the SUSHI Working Group.

Several other members of the ERM community are either actively developing this application within their own spheres or actively monitoring the progress of this working group and planning for its inclusion in their systems and services. The most current information about SUSHI is presently available at the URL listed in the gray box on page 19.

As with other aspects of electronic-resource management system development, it is most likely that this initiative will gather momentum; librarians should check the Web site for the latest developments and should also expect rapid development of applications using this initiative and imminent availability within ERM systems.

## Digital Rights Expression and Management

The second initiative to be aware of is also sponsored by NISO and focuses on Digital Rights Expression and Management. An initial exploratory workshop was held in the spring of 2005 to investigate issues surrounding the licensing of electronic resources and related digital-rights expressions for the scholarly/educational community. This meeting identified areas for standards development in five key areas:

- Extend the ERMI model to include nonlicensed objects and communities in addition to libraries.
- Create a standardized collection of rights bundles similar to the Creative Commons licenses.
- Identify a core set of requirements for rights expression relevant to the NISO community.
- Build a reference model for content providers, libraries, and museums that includes a glossary of standardized terms for rights expression.
- Launch a campaign to educate both users and practitioners about rights and permissions. A short-term goal will be to produce a freely available, basic reference document similar to NISO's *Understanding Metadata*.<sup>8</sup>

Most immediately relevant for librarians concerned with ERM are the recommendations to create a more standard collection of rights to be defined in electronic-resource licenses, to identify a standard way of expressing these rights, and to describe a common set of definitions for these rights. The result could be that a standard license for an electronic resource would cover specific rights based on agreed-upon definitions and expressed in a codified way.

In addition, it takes another step in the logical progress of digital-rights expression to create a mechanism for transferring this information—in a standard data contain-

er and an agreed-upon format—that could allow for the import of these terms of agreement into an ERMS, and from there, to a public display for users. Instead of spending time and labor on reading licenses, identifying salient clauses, and copying the appropriate information into a free text field in a license record in a way that will be useful and understandable to library patrons, in theory, a licensor (content provider) could produce and send the licensee (library) a file in an agreed-upon format, such as XML, that would populate fields in the ERM system's license record and display in simple and easy to understand terms for the library's patron.

One outcome of the initial exploratory workshop held in the spring of 2005 is the convening of the License Expression Working Group; for more information about the working group's progress, visit the group's Web page on NISO's Web portal (at [www.niso.org/committees/LicenseExpression/LicenseEx\\_comm.html](http://www.niso.org/committees/LicenseExpression/LicenseEx_comm.html)). It is likely that a real-world application, based on the License Expression Working Group's efforts, will take longer to develop than those which will come out of the SUSHI efforts.

## Notes

1. Timothy Jewell, *Selection and Presentation of Commercially Available Electronic Resources: Issues and Practices* (Washington, D.C.: Digital Library Federation, Council on Library and Information Resources, 2001), [www.clir.org/pubs/reports/pub99/pub99.pdf](http://www.clir.org/pubs/reports/pub99/pub99.pdf) (accessed January 31, 2006).
2. Timothy Jewell, et al., *Electronic Resource Management Report on the DLF ERM Initiative* (Washington, D.C.: Digital Library Federation, 2004), [www.diglib.org/pubs/dlfermi0408/ERMFINAL.pdf](http://www.diglib.org/pubs/dlfermi0408/ERMFINAL.pdf) (accessed January 31, 2006).
3. Greg Raschke and Suzanne Weiner, "Clarity in the Mist," *Library Journal (netConnect)*, July 15, 2004, [www.libraryjournal.com/article/CA428134.html](http://www.libraryjournal.com/article/CA428134.html) (accessed February 7, 2006).
4. Beth Warner, "Managing Electronic Resources in Today's IMLS Environment" (presented at Managing Electronic Resources: Meeting the Challenge, An ALCTS Symposium, ALA Midwinter Meeting, Philadelphia, Pa., January 24, 2003), [http://kudiglib.ku.edu/Personal\\_prsns/ALA\\_Preconf\\_2003MW.htm](http://kudiglib.ku.edu/Personal_prsns/ALA_Preconf_2003MW.htm) (accessed February 7, 2006).
5. Marshall Breeding, "Re-Integrating the 'Integrated' Library System," *Computers in Libraries* 25, no. 1 (January 2005): 28–30.
6. Stephen Meyer, "How Many ERM Systems Are Out There?" *Computers in Libraries* 25, no. 10 (November/December 2005): 24.
7. Ellen Duranceau, "Electronic Resource Management Systems from ILS Vendors," *Against the Grain* 16, no. 4 (September 2004): 91, <http://hdl.handle.net/1721.1/18191> (accessed February 7, 2006); Ibid., "Electronic Resource Management Systems Part II: Offerings from Serials Vendors and Serial Data Vendors," *Against the Grain* 17, no. 3 (June 2005): 59,

<http://hdl.handle.net/1721.1/18190> (accessed February 7, 2005); Maria Collins, "Electronic Resource Management Systems: Understanding the Players and How to Make the Right Choice for Your Library," *Serials Review* 31, no. 2 (June 2005): 125-40; Stephen Meyer, "Helping You Buy: Electronic Resource Management Systems," *Computers in Libraries* 25, no. 10 (November/December 2005): 19-23.

8. Katherina Klemperer, *Report on the NISO Pre-Standards Workshop on Digital Rights Expression* (prepared for the National Information Standards Organization [NISO] Initiative on Digital Rights Expression, Pre-Standards Workshop, May 18-19, 2005, Denver, CO), [www.niso.org/news/events\\_workshops/RE-report.html](http://www.niso.org/news/events_workshops/RE-report.html) (accessed February 1, 2006).