ABSTRACT

The article brings out the deficiencies of the existing Integrated Library System (ILS) in handling the various challenges brought by extensive use of electronic resources and their management. It stresses the need for an exclusive Electronic Resource Management (ERM) system based on standards that would take care of solving issues relating to e-resource management. It reviews the efforts made by various agencies at different levels to address the challenges, developing standards and recommended practices for the ERM system in libraries.

Key Terms: Electronic Resources, E-Resources Management, ILS, MARC, ERM System, ERMs Standards.
conditions, the complexity in local and remote user authentication to access licensed content, and most importantly, the lack of suitable automated tools to deal with these complexities of e-resource management.

To exercise some control over their e-collections the libraries then started using multiple independent systems and data containers, which are often not integrated with each other. At one point of time even they used five to six systems to maintain their holdings: MARC 856 fields (tag with URLs) in the ILS to point to electronic journals, an external SQL/ColdFusion database for public users and spreadsheets for administrative information, license information, and statistics. Thus, as in the words of Gatenge, somewhere in the period 1998–2008, the ILS no longer merited its capital ‘I’ since it no longer integrated a library’s processes in one system. Further these multiple systems are increasingly becoming expensive and cumbersome to maintain.

During the last decade there have been attempts to integrate the management functions relating to e-resources into a single package: ERM system for which open-source and usage-data standards are being developed. This single source of data then would uploaded to other systems and OpenURL resolves; allow wider access to the license data, and centralize the collection development decisions.

Building ERM into ILS Environment

ERMs are the latest batch of stand-alone modules mostly developed by ILS vendors and lately by e-journal management providers to manage electronic resources in libraries. ERMs can be integrated in the ILS system in two ways: just as a module to the existing set of modules in an ILS or can stand outside at any given ILS to act as the metadata licensing source to supply information about electronic resources into many other access tools such as OpenURL link resolvers, meta search mechanisms and discovery front-end modules. However, an ERM system based on standards only has the power to integrate all management functions relating to e-resources such as subscription product names, descriptions, producer, license start and end dates, renewal alerts, images of contracts, price and payment terms, access URLs, user authentication, interface administrative URLs, verification access methods and restrictions, vendor contracts, contact history, usage statistics and links to usage reports, etc. into a single package. A good ERM relies increasingly on the effective uses of technology and adopts standardized procedures to sail over interoperability problem. Thus it is very crucial for the library to look for standardized tools when it is re-examining the architecture of its existing ILS to incorporate ERM system.

Developing Standards for ERMs

Setting of standard data elements in ERM system is very crucial for smoother integration of such systems into existing ILS. ERM system, designed with standard specifications, ensures smooth transfer of information from a vendor or an interface to a library, or between libraries, or migrated from one ERM product to another. Now libraries are offered to choose from a variety of ERM products mostly developed by ILS vendors and e-journal management providers. Even some open source solutions like CUFT, CORAL, ERMES, E-matrix, etc. are available. However, libraries find these unwieldy as many of these ERMs are non-standardized or even many lack essential features. Majority of ERM systems fail to resolve issues relating to workflow efficiency and, especially, interoperability with other systems although some other issues like license management and administrative information storage to some extent are addressed well. ERM systems are so far seemed to be a patchwork of standards. Interoperability is the most knotty one among all the areas that need to be resolved for smooth integration of ERM system into ILS. Vendors develop ERM systems that fall short to correspond with different vendors (subscription agents and book providers) and different systems and records (acquisitions records, ERM records, MARC records, etc.) to support easy data transfer, automatic update of metadata like ISSNIs and URLs and allow the export of data for its use in other applications within ILS system. Very little has been done to solve interoperability problem due to lack of standards. However, a review of literature on ERM standards reveals various efforts have been made to address the issue of developing technology and content standards for ERM mainly in the areas of communications management, license management, statistics management, administrative information storage, and acquisitions functionality and also in interoperability. In this paper an attempt has been made to highlight the developments in standardization of ERM system through a number of initiatives and projects for example DLF, ERMI, ONIX-PL, KBART, SUSHI, COUNTER, CORE, etc.

Digital Library Federation’s (DLF) Electronic Resource Management Initiative (ERMI) has undertaken an important initiative in this regard via its two working groups, the ILS Discovery Interface Group and the Electronic Resource Management Initiative. In August 2004, this task force produced a report resulting from its collaboration with libraries and major ILS vendors. The initiative’s aim was to provide the library community with a set of specifications that would encourage the development of electronic-resource management systems based on standards and best practices. It would make possible interoperability of ILS and ERM system and ensure immediate improvement in data availability and reusability for managing e-collections throughout their life cycle and also for decision making in collection development. An increasing number of vendors are now developing ERM modules that can be either integrated into the existing ILS or stand-alone incorporating DLF ERMI specifications.

National Information Standards Organization (NISO) has been emerged as a pioneer player in developing standards for e-resources management which require urgent attention. NISO/UKSG Knowledge Base and Related Tools (KBART) initiative prescribes new possibility for OpenURL linking. OpenURL, which has now evolved into a formal standard (ANSI/NISO Z39.88), can improve the quality of OpenURL knowledge bases and their metadata.

Some other major initiatives taken in the area of licensing are worthy to mention. ONIX for Publication Licenses (ONIX-PL) provides a XML format for the communication of license terms for digital publications in a structured and substantially encoded form and designed to exchange licensing terms between publication vendors and libraries. In this regard NISO’s Shared E-Resources Understanding (SERU) also provides guidelines to libraries in case they want to forgo negotiated licenses without problem. This is possible because once the libraries and publishers join SERU registry they do not require any license to
negotiate or sign at the time of placing order\textsuperscript{12}.

Tracking of usage data through the ERMs is another area which has also been standardized to a great extent. COUNTER’s Codes of Practice standardizes the usage data through an agreed international set of standards and protocols that govern the recording and exchange of online usage data\textsuperscript{3}. Standardized Usage Statistics Harvesting Initiative (SUSHI) is another effort by NISO to gather usage data from a large number of e-content suppliers. By incorporating SUSHI standard now vendors are developing ERM systems where usage data can be imported with less cost and managed properly. Further NISO’s ongoing project is developing system related standards such as Cost of Resource Exchange (CORE), a communication protocol between ILS and ERM to address client problems\textsuperscript{1}.

Similarly, libraries that have developed their own ERM systems are either migrating data to systems developed by vendors or letting vendors take over the further development of their systems as maintenance costs are increasingly high. A number of commercial ERM versions such as Verde, Lagace, and Alma are designed by a leading vendor, Ex Libris that works with a range of library systems\textsuperscript{7}. These are products developed with collaboration between vendors, Ex Libris and its customer libraries. Ex Libris Alma, the latest project, is rule based and allows users to local workflow management. Its mechanism with standardized tools helps in smooth integration of ERMs and the existing ILS infrastructure into a single system.

**CONCLUSION**

ERM system, an important tool in re-engineering of ILS process, badly requires to be based on standard development and practice. Given the challenges for ERM system, not a single commercial, in-house or open source solution is currently available that can meet all the requirements in managing the nitty-gritty of e-resources on a regular basis. However, the future seems to be promising as DLF, ERMI and NISO have already set the groundwork for standards. NISO regularly conducts a gap analysis of ERM workflow to explore the need to develop new standards and to bring out the implementation challenges and recommended practices for stakeholders. Succumbing to the pressures from the library customers, the system suppliers would definitely implement the available standards: ONIX-PL, KBART, CORE, COUNTER, SUSHI, SERU, etc. successfully into ERM systems. However, an effective and standardized ERM system is believed to build in coming years as a product of collaborative endeavor of stakeholders: the libraries, the system vendors and the subscription agents.

**REFERENCES**