

Electronic Resource Management Systems: Alternative Solutions

*Dalene Hawthorne*¹ and Jennifer Watson²

Introduction

Commercial Electronic Resource Management (ERM) systems are available thanks to the efforts of the librarians and vendors who participated in the Digital Library Federation's Electronic Resource Management Initiative (DLF ERMI) project. In addition, vendors have devoted significant resources to developing these systems. ERM systems are designed to assist librarians with the acquisition and management of electronic resources. They provide tools to help manage the licensing and acquisition process and to provide access to materials. In addition, new standards and XML schema are being developed to automate the sharing of licensing information between libraries and publishers (Digital Library Federation 2004).

And yet, many libraries have not yet purchased an ERM system from a commercial vendor. The decision to purchase or not is a complicated one, and should be based on a needs assessment rather than one or individual factors. However, the authors developed a premise, based on their own experience and informal discussion with other librarians, that cost might be a significant factor limiting many libraries from purchasing an ERM system at this time. The authors also hypothesized that libraries were finding that these systems do not address their needs and that librarians at smaller institutions felt that ERM systems were only necessary to libraries with large collections of electronic resources.

Lively discussion following a presentation made by the authors at the North American Serials Interest Group meeting in 2007 indicated that there is much interest in alternative solutions to commercial ERM systems. This prompted further investigation into the reasons libraries have not yet acquired commercial ERM systems and learn what alternatives are in use.

Brief Review of ERM System Literature

The authors conducted a brief review of the literature on ERM systems since they became available commercially in 2004. Much of the literature between 2004 and

¹ Head of Systems and Technical Services at Emporia State University, Kansas.

² Head of Electronic & Collection Services at the University of Tennessee Health Sciences Library in Memphis, Tennessee.

2007 is focused on implementations of commercial ERM systems. One notable exception is an article by Steven Meyer and Maria Collins about E-Matrix, a homegrown system developed by North Carolina State University (NCSU). The E-Matrix system predates the availability of ERM systems, and its development continued after commercial products became available because the commercial systems did not address the local needs of NCSU for an ERM system, such as the ability to manage the entire serials collection, and tight integration with the library's Web site (Meyer and Collins 2006) .

Another exception is the University of Southern California's development of an ERM system that would accommodate all electronic resources, including e-books and e-serials, and that could accommodate the existence of different integrated library systems as well as multiple libraries (Brown, Nelson and Wineburgh-Freed, 2005). In addition, Alan (2005), in his article about transitioning to an in-house/vendor approach, mentions the lack of integration with acquisitions data as an area that still needs to be addressed in commercial ERM systems.

This brief literature survey supports the hypothesis that reasons other than cost may be preventing libraries from purchasing and implementing commercial ERM systems.

ERM System Survey

The authors developed a survey to determine what factors might be preventing libraries from purchasing an ERM system. The survey questions were reviewed by colleagues from the University of Tennessee and some questions were modified based on that feedback. Most of the feedback indicated the need for more clarity in describing how to count electronic resources and with what exactly constitutes an ERM system. The survey was announced on several library-related e-mail lists in the United States and Europe and was left open for a little more than one week.

Survey Results

One hundred and ninety-six (196) respondents completed the survey, most of them located in the United States (73.2%), with smaller percentages in Europe (17.1%), Canada (3.2%), Australia (2.8%), Asia (1.9%), Africa (1.4%) and South America (0.5%). Close to eighty-two percent (81.8%) of the responses came from academic libraries, 15 percent from special or other libraries, 2.8 percent from public libraries, and 0.5 percent from school libraries.

Fifty percent of the libraries responding to the survey indicated that they use a commercial ERM system. It is possible that some libraries may have counted a portion of an ERM system, such as an A-Z list, as a commercial ERM system. If that is the case, the percentage of libraries using an ERM system could be lower than is indicated here.

Of the respondents who do not own commercial ERM systems, 47 percent indicated that cost was a very relevant factor. Cost was the single largest factor cited among libraries that do now own a commercial ERM systems.

The size of the collection also seems to play a role in whether a library owns a commercial ERM system. Approximately 40% of libraries that manage fewer than 100 e-resources own a commercial ERM system. Fifty-seven percent (57%) of the responding libraries that manage more than 100 e-resources own a commercial ERM system. Interestingly, however, only 49 percent of libraries that manage more than 500 e-resources own a commercial ERM systems. This may be partly because these are likely to be the libraries that were compelled to create a local solution before commercial ERM systems were available, or for whom the commercial systems do not meet local needs.

Other factors cited by libraries that do not own a commercial ERM system include concerns about interoperability (28%), concerns about functionality (27%), the limited availability of staff and funding to manage an ERMS (25%), the existence of a homegrown system (18%), and the limited availability of staff and funding to research which system to purchase (15%). Additionally, 15 percent indicated that a consortium would be responsible for purchasing an ERM system, 12 percent indicated that their current workflow was sufficient to meet their needs, 11 percent indicated that there were too few e-resources in their workflow to justify the expense of an ERM system, and 10 percent cited unsupportive management. Respondents were permitted to pick multiple reasons; hence the total exceeds 100 percent.

Examples of Alternative Solutions in Use

As part of the survey, respondents were asked to describe a methodology they are using to manage their e-resources. Sixty people responded to the question, and some provided contact information. The authors contacted selected respondents to obtain more information about the systems in use.

Homegrown Databases

Libraries that choose to use homegrown databases to manage their e-resources instead of subscribing to a commercial A-Z e-journal product like Serials Solutions or TDNet, or purchase a full blown ERM system such as the Innovative's ERM, do so for a number of reasons. The cost of an annual subscription to a commercial service or the cost of purchasing an ERM system may push libraries towards an inexpensive homegrown solution. Other benefits of a homegrown database include the ability to instantly update and alter the database. The library's database can be customized to the specific needs of the individual library, whereas a commercial entity must consider the needs of its customer base as a whole, as well as its profit margin, before responding to enhancement requests from individual libraries. A homegrown solution may integrate better with the library's website than a commercial product. On the other hand, while there have been complaints about the quality of vendor data, a homegrown database requires sufficient library staffing to be able to keep up with changes to e-journal access or the technical expertise necessary to maintain and improve the database.

One of the University of Tennessee Health Science Center's (UTHSC) e-resource databases employs the FileMaker Pro database software. The software costs US\$299 to purchase, and academic discounts are available. Fields can be added, altered or deleted as needed. The database is populated by asking vendors to send spreadsheets with purchased journal information; downloading spreadsheets from free e-journal sites such as BioMed Central, PubMed Central, or the Directory of Open Access Journals; or by typing data manually into the database. Staffs also download usage data from spreadsheets into the database, so that titles on different platforms can be compared. When the subscription cost for a title is added, the cost per use can be ascertained.

One useful feature of FileMaker is the ability to set up so-called "calculation" fields to automatically generate coding, such as machine-readable cataloging (MARC) and Hypertext Markup Language (HTML), from the data in the journal records. Using a calculation field, the text for the library catalogue's MARC 856 field can be automatically generated and then simply copied and pasted into the relevant catalogue record. HTML coding, also generated using a calculation field, can be exported from FileMaker and then be pasted onto the library's website to produce a simple A-Z list of the library's e-journals.

A second UTHSC database utilizes two pieces of open source software: MySQL database software, and Ruby on Rails, a web application development

framework. In the administrator side of the database, four tabs provide access to the various fields of information for each journal link. The database has been constantly under development since it was launched a year ago and new features and fields are added frequently. Not only does the database allow electronic resource staff to keep track of all administrative information, it also updates the library website's e-journal list automatically.

All of the links in the e-journal list are to "smart" URLs. These links take the user to a server that counts hits and detects whether the user is within the journal's Internet Protocol (IP) range. If the user is outside this range, they are automatically redirected to the library's proxy login screen. The system has been so successful that library staff have replaced all the e-journal links in the catalog with the smart links, and are now working to add databases, e-books, and electronic theses and dissertations to the same system.

Vendor tools

Libraries that do not use a commercial ERM system often utilize other types of commercial products to assist in the management of their e-resources. In addition, libraries utilizing homegrown systems can look to the features offered in commercial products for inspiration.

Emporia State University (ESU) is using the Registration Tracker feature of EBSCOhost EJS Enhanced to help manage e-journal registration. This is a fee-based service available to EBSCO customers. Journals requiring attention can easily be identified from the list view, without the need to open each journal record individually. EBSCO populates the registration tracker database with information on each journal, such as the registration instructions, access information, authentication information, and details on backfile availability. One feature of Registration Tracker allows a library staff member to create a custom note and have it e-mailed to the relevant contact on a specific date. This helps to remind library staff if further action is needed to resolve an ongoing problem with e-journal access. Another feature allows staff to input a note that will be displayed to library patrons as they access the journal via EBSCOhost EJS.

One service that was not mentioned in the survey, but could prove useful to librarians managing e-resources, is WorldCat's new My Lists feature. This service allows any user to register for a free account and save lists of OCLC records. These records can be annotated using the notes field before being exported into Excel. The resulting spreadsheet includes the OCLC number, which can be used to create links to WorldCat, or for cataloging purposes.

New Uses for Existing Tools

Many libraries have successfully adapted tools originally devised for other purposes, to assist in the management of e-resources. In addition to the database software discussed earlier, other software products, as well as some low-tech solutions, are being used effectively in this endeavor. Tools mentioned in the survey responses include blogs, wikis, web pages, DSPACE, and Microsoft Word, with Excel being the resource mentioned most often. The following are some examples of these types of tools.

Emporia State University is using its integrated library system, Innovative, to keep track of license information. A dummy record is created for each license agreement, using Innovative Millennium. Each of the e-resource titles covered by the license agreement is listed in a MARC 246 added title field. ESU uses the Digital Library Federation Electronic Resource Management Initiative Data Element Dictionary to format notes about license terms, and these are stored in MARC 500 note fields. The record is suppressed from public view so that it cannot be found in the library's online public access catalog (OPAC). Library staff scan the license agreements to generate Portable Document Format (PDF) versions, which can then be attached to the relevant record using the Media module of Millennium.

To provide access to staff that do not use Millennium, such as university legal staff, the records are then linked to Innovative's Electronic Reserves system. All patrons can view the list of license agreements by searching the course reserves area of the OPAC. However, to actually view the license, library staff must issue the user with a username and password. This ensures compliance with any confidentiality clauses in the agreement.

Blackboard or WebCT are available on many campuses to manage student courses. UTHSC has created a course that manages license and invoice information. The course has a simple structure. Documents on e-resources that are in the process of being purchased or renewed are added to the "active invoices" folder. Once all work on an e-resource is complete for that year, the documents are moved to the "paid invoices" folder. In the active and paid folders are individual folders, one for each subscription period of each e-resource. In these folders are all the documents and notes relating to that subscription year's renewal, such as invoices and drafts of license agreements, the text of e-mail communications, and notes on phone conversations or actions taken. Paper documents are scanned and converted to JPEG or PDF format to be

stored in Blackboard. Once work on a renewal or purchase is complete, the folder is moved to the paid invoices area of the course.

Colleagues can be provided access to the course. The role assigned to the staff person determines how much control they have in adding, editing, or deleting content in the course.

The University of Liverpool is amongst those using a blog to keep track of and communication information on electronic resources. The University of Liverpool's blog is primarily used to communicate information on trial access to e-resources.

Many survey respondents mentioned using Microsoft Excel to track information such as passwords, renewal dates, and usage statistics. The Baylor Health Sciences Library (part of the Texas A&M University system) uses two main spreadsheets to keep track of e-resource information. The first is a list of the problem e-resources along with actions taken. Unresolved problems are highlighted in red text, which enables library staff to see at a glance which items require follow-up attention. A date field helps keep track of how long it takes to get problems fixed. A second spreadsheet collects information on each e-resource provider such as contact information, administrator access, and usernames and passwords.

The Lesley University Library (Cambridge, Massachusetts) is using Microsoft Outlook to share administrator login information between library staff. E-resource administrator accounts can be used to update IP addresses, customize branding or download usage statistics. The Outlook data can be viewed full-screen, as shown here, in list view, or can be keyword searched. The shared Outlook account is linked to the library's generic e-mail account and shared calendar function, but access to the contact list is restricted to the relevant library staff.

Outlook is also a useful tool for organizing tasks and time, using the Calendar and TaskPad functions. A reminder window (and reminder sound) notifies the user when the task is due to be completed. Both Calendar and TaskPad allow users to set up repeating tasks, such as annual renewals.

The staff at the Bailey/Howe Library (University of Vermont) take advantage of the library's shared folder, which can be accessed by serials and acquisitions

staff. A library staff member is scanning current license agreements, and placing the PDFs in the shared folder.

At the Chicago Public Library, electronic resource staff utilize a paper calendar to keep track of renewals. It allows staff to quickly see which resources are coming up for renewal.

Content Management Systems

Content Management Systems are becoming an increasingly popular way to manage websites of all types. However, they can also be adapted to provide easy access to library e-resource information. As many systems allow information to be added to web pages with minimal knowledge of HTML, this allows library staff without web development skills to be able to update the library's e-resource listings.

The ESU database list, built using a content management system, allows databases to be accessed by title, subject, database type, or by keyword search. The system was designed by the university webmaster using MySQL and a PHP front-end. The University of Tennessee Health Sciences Center (UTHSC) uses Drupal as its content management system. Drupal is used to manage the entire library website, including e-resource listings. Adding information is straightforward using a password-protected web-based form that can be accessed from anywhere. No knowledge of web development is needed.

Conclusions

The primary goals of e-resource management are to organize and share information. Many libraries have purchased commercial ERM systems to assist them in meeting these goals, while many others have not taken this step yet, because they found these systems either costly or wanting.

The purchase of a commercial electronic resource management system is not a magic bullet erasing all of the difficulties associated with managing electronic resources. Even after buying a commercial ERM system, the library still has to find copies of relevant documents, load or enter data into the system, determine when tasks need to be performed, and who needs to know what. Rather than rushing headlong into an expensive solution that may never be utilized effectively, a needs analysis should be conducted to determine what data need to be collected, what need to be shared and with whom, and when activities need to take place. After a needs analysis has been conducted, it is important for

librarians to evaluate the tools already at their disposal to see if they meet the exposed needs.

Librarians have demonstrated that they are able to adapt all kinds of systems, from database software to a simple paper calendar, to better manage their e-resources. The solution does not necessarily need to be expensive or technologically advanced to be effective. Depending on the needs assessment, a well-organized filing cabinet can function better than a poorly-populated electronic resource management system. Commercial ERM systems have their place, but libraries should consider them in the context of all the tools at their disposal.

References

Alan, R. "Electronic Resource Management: Transition from In-House to In-House/Vendor Approach." *The Serials Librarian* 47, no. 4 (8 April 2005): 17-25.

Brown, J. F., Nelson, J. L., and Wineburgh-Freed, M. "Customized Electronic Resources Management System for a Multi-Library University: Viewpoint from One Library." *The Serials Librarian* 47, no. 4 (8 April 2005): 89-102.

Jewell, T.D., et al. *Electronic Resource Management: Report of the DLF ERM Initiative*. Washington, D.C.: Digital Library Federation, 2004.
<http://www.diglib.org/pubs/df102> (accessed November 30, 2007).

Hawthorne, D., and Watson, J. "ERM on a Shoestring: Betting on an Alternative Solution." Presented at the annual North American Serials Interest Group meeting, Louisville, Kentucky, June 2007.

Meyer, S., & Collins, M. "E-Matrix—Choosing to Grow Your Own Electronic Resource Management System." *Serials Review* 32, no. 2 (June 2006): 103-105.