

Dynamics of Managing Electronic Resources: Electronic Resource Management System (ERMS) Initiatives

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ABSTRACT

Even after two decades of digital presence in libraries and proliferation of electronic resources (e-resources) in terms of production, acquisition and usage the management of e-resources remains a cumbersome process. The process involved in the management of e-resources has often overwhelmed the library personnel. The life cycle of e-resources, especially in the academic institutions begin with the discovery and identification of the resource and moves on to the trial access, selecting the specific resource from the gamut of other resources followed by acquisition of the specific resource into the library realm and then facilitating access to the users and then the follow-up of studying the usage of the resource for further continuation of those resources. In between these processes there is the cumbersome chore of going through the licensing agreements and keeping the records correct. All these processes are time consuming and involve a lot of work. These relentless arrays of work have made librarians to look for systems which can save their time and energy and provide efficient management of e-resources. This paper looks at the origin of the ERMS (E-resource Management Systems) and the available ERMS in the library digital landscape.

Keywords: ERMS, electronic resource management systems, digital libraries, collection management

1. INTRODUCTION

Almost two centuries after the invention of movable printing press by Guttenberg the first printed peer-reviewed periodical appeared in 1665¹. From then on it took another three centuries for the electronic version (e-version) of the scholarly publication to be made available for scholars and researchers. Currently the e-resources have become an inseparable part of libraries and researchers. They are often described as resources which are published through the e-media and accessed through e-media. They may be broadly defined as any peer-reviewed publications that are digitally created and stored in e-form either as a standalone or in a database for the purpose of delivery and retrieval electronically through various communication media for either networked access (through the Internet) or offline access through the CD-ROM or floppy disk etc) in various formats like HTML, PDF, text,

Postscript, etc. Skaggs² observes that e-resource is a simple and generic term that can include 'anything from a PDF of a government report to an aggregated database, and the research on the topic is as varied as the types of e-resources that can be discussed'. With its myriad formats and types and with the successful adaptation and acceptance of these formats amongst the academia there is no doubt that the e-resources are here to stay. The main reason for the acceptance of e-resources as part of the mainstream channel of scholarly communication is the nature of these e-resources.

The e-resources provide an enviable comfort which its print counterpart failed to provide. The advent of e-journals and databases provided the users with an array of advantages which prompted them to accept the e-media as the prime channel of scholarly communication. The e-resources allowed users to cross search the entire database with keywords and free text search to narrow down their

research material. With its easy and quick search and display capabilities, the e-resources brought the research findings into the researcher's desktop and the time consumed on accessing the desired documents became predominantly less. The e-resources over the internet further enhanced the quality of service delivery in libraries. Jewell³ points to a study where nearly half of the undergraduate students surveyed in that study indicated that they used e-resources either exclusively or almost exclusively. Liew, Foo and Chennupati's⁴ study in 2000 shows a whopping 73 % of graduate students preferring e-journals over print journals mainly because of the availability of links to additional resources, searching capability, currency, availability and ease of access. With the acceleration of mobile and handheld access to e-resources there is no doubt that the e-resources have earned its rightful prime position at academic libraries and amongst the academia.

While e-resources are much easy to use and have a significant research value to the researchers, there is no doubt that they are complicated for the library administrators. They are complicated to catalogue, manage and administer. Even after two decades since the advent of e-resources into the library mainstream, the librarians still grapple to manage them. Sadeh & Ellingsen⁵ admits that the struggle is mainly due to the amazing growth of e-resources which have taken the centre stage in today's libraries. The e-resources landscape is further complicated with the 'endless variation in the packages offered by the hundreds of players in the market' and 'frequently changing business models'. The concept of 'Big deal and aggregated databases'⁶, where big deals often refer to 'one price, one size, fits all packages'⁷ model and aggregated databases where the e-resources are assembled to the convenience of libraries from different publishers are the main culprits in the complex e-resources mayhem. The advent of resources as open access and open access business models has further complicated the management of e-resources. Open access models suddenly brought in access to thousands of journals into library mainstream. These developments converted the static webpage interface of the libraries into web-enabled dynamic database mode of access.

2. ELECTRONIC RESOURCES LIFE-CYCLE

To understand the dynamics of e-resources, especially in the realm of an academic library, it's pertinent that its life-cycle is analysed. Sadeh & Ellingsen⁵ points to six different processes; starting from the discovery of e-resources to its trial period, selecting the resource, acquiring the resource for the library, providing access to it for the users and the successive decision of continuation and renewals. Figure 1. shows the life-cycle of e-resources.

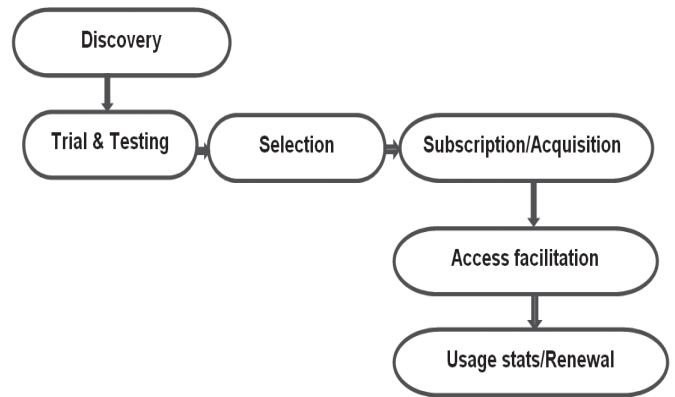


Figure 1. Life-cycle of e-resources

Whole process of electronic resource Management (ERM) the most important aspect is the discovery and identification of the resource. Identification of the resource for an academic institution starts from various sources; from the faculty, from the subject librarian, from an online advertisement, an e-mail alert forwarded by a forum member, from the publishers or from the search for a substantial resource for a genuine project. The second stage of the discovery is the relationship of the resource among the individual resources, packages, licenses, online interfaces, prices, and accessibility issues. This discovery paves way for the rest of the e-resources life-cycle. Once the discovery stage is accomplished the rest of the process runs a smooth way until the resource reaches the access-level. The life of e-resources doesn't stop with providing access alone to the users, but it goes beyond in monitoring its usage and continuation of the same with the usage justification by providing relevant user statistics.

A glance at the life-cycle of e-resources clearly portrays the enormity of the task for the librarian to manage them. The task becomes cumbersome when hundreds of e-resources are added to the library list. They are cumbersome because it is not physically possible for libraries to provide access to all the e-resources titles through their catalogues. Also, they have different business models attached to them, as bundles, as open access and some as partly open access. So the early e-resources management started with custom made webpages by the librarians. Holly yu⁶ observes that when electronic journals first appeared in the library horizon, two different kinds of access were given to them, one through static webpages and the other through library catalogues. Static webpages often necessitated a dedicated person to monitor and update the links and access. Thus maintaining the e-resources has become another job of librarians.

The initial e-resources management concentrated with attempts from the librarians to keep e-records using spreadsheets or linked lists. The amount of information needed to manage these resources

mostly overwhelmed the library managers. Sadeh & Ellingsen⁵ observes that too often the librarians depended on their memory to co-ordinate systems with passwords, URLs, costs, contacts and other related issues. But the overwhelming amount of data along with the inability to meaningfully convert the metrics especially the cost analysis or user statistics of the subscribed e-resources have driven the librarians to look for better solutions in managing e-resources. A system which can support the administrators to manage the e-information and its workflows, by allowing 'to select, evaluate, acquire, maintain and provide information access to e-resources in accordance with their business and license terms'⁸.

The early ERMS points to an effort by Digital Library Federation (DLF) and National Information Standards Office (NISO) in May 2002 to create a Steering Group that would guide the development of e-resource management. The deliberations were drafted and made publically available via Cornell University's web site management⁹. The objective of this initiative is to provide a set of specifications that would encourage the development of ERMS based on the standards and best practices. The end result of the May 2002 workshop was that a roadmap was formed with the specification of functional requirements along with a workflow diagram, Entity Relationship Diagram, Data elements and Definition and XML Schema¹⁰. Since then new tools were developed in the management of e-resources. The first E-resource Management module was developed by Innovative Interfaces for their ILS (Integrated Library System). Since then many other ILS vendors and open source products have started adorning the E-Resource Management sector. While most libraries want ERM as part of the library catalogue process some feel it needs to be a standalone endeavor because of the complexities it brings into the library realm.

3. TECHNIQUES FOR E-RESOURCE MANAGEMENT

In 2011, Stone, Graham and Emery Jill¹¹ suggested a 6 point technique for E-resource Management which is widely considered as the corner stone of creating ERMS. They are broadly classified as

- Investigation and Document selection
- Acquisition
- Implementation
- Evaluation
- Annual review
- Continuation/Cancellation

Investigation and document selection is a bit different for libraries that are involved in traditional

print based resource selection. Finding new electronic content for a specific subject or target group involves knowledge of different vendors their subscription model, their access controls to name a few. Setting up trials are basic pre-requisites of document selection in ERM. Acquisition of the selected material is very straightforward as it follows the print resource acquisition pattern, but the important aspect of e-resource acquisition is the terms and conditions of e-resources, license agreements, signing of licensing and more importantly reading and reassuring the legal finer prints of license agreements. The next step to acquisition is implementation, though both these work very closely. In the case of e-resources the implementation stage will be longer if the resources are vast in size. Implementation also includes training and marketing.

Many librarians believe that their job is done with the implementation of the e-resources into their library stream. But the real work starts after implementation. Evaluation and ongoing access are critical in finding the relevance and usage of the resources. Most of the e-resources come with a usage statistics, but the real evaluation stems from user satisfaction with regards to the relevance, ease and currency of the resource. The evaluation process paves way for the review of the resource which will ensure the continuation or cancellation of the resource.

4. ERM SYSTEMS

With the noble initiatives of DLF and NISO and the subsequent streamlining of the functional requirements for good ERM systems a host of new developments started adorning the information landscape¹². While most of them are commercial and integrated with library systems, some independent and open access systems also started appearing. Some of the notable developments in the ERM systems are:

4.1 CUFTS

CUFTS (<http://researcher.sfu.ca/cufts/erm>) is an open source ERMS¹³ which is part of the reSearcher suite of open source library discovery tools developed by the Simon Fraser University library. The thrust of CUFTS is to allow the libraries to centralise all of the details about their e-collections, including licensing terms, renewal dates, contacts, and more. CUFTS ERM also features a renewal notification system, reminding the approaching deadlines and an A-Z list of e-resources available in the library. CUFTS allows the management of e-books, evaluation of the collection and license management. The ERM implemented in Simon Fraser University interacts with the ILS used in the library to basically create records at the creation stage to port the records to the ERM to maintain them. CUFTS also has a healthy reporting functionality where numerous reports can be generated.

The CUFTS knowledge base contains over 475 full text resources which can be freely downloaded by libraries can set up their own installation, or have Simon Fraser University to host their CUFTS installation. The title list data that comprises each resource comes from freely available resources such as the publisher's website. The link resolver capabilities of the knowledge base work with various title lists downloaded directly from publisher sites, but some lists do have to be manipulated manually as the data provided by the vendors are barely enough for the purposes of CUFTS. The link resolver, called GODOT, uses the knowledge base to resolve to full text and uses OpenURLs, digital object identifiers (DOIs), or its own internal linking syntax, to provide article level linking in all major indexing and abstract databases. GODOT also works with ILL software and major ILS. The CUFTS e-journals database allows for the creation of MARC records which can be loaded into any OPAC allowing for immediate display in the local OPAC

4.2 TNet Open ERAM Old

TNet's OpenERAM (<http://web.tdnet.com>) is a low cost, integrated e-resource and management solution for providing a flexible open platform ERM. The core of OpenERAM is the master knowledge base which has metadata of over 370,000 unique titles covering journals and ebook manager. This is a NISO compliant OpenURL enabled full-text resolver which also has a powerful search analyser for federated searching across external sources and internal repositories, for abstracting, categorisation and analysis of retrieved items. It has a 'License and Acquisition' module which helps in the e-resource procurement and to tackle license-related issues. The 'Advanced Statistics' feature provides various statistics needed for the evaluation of the use of e-resources. TNet OpenERAM boasts a single point of maintenance whereby all the relevant modules can be maintained from a single point. It has separate modules for 'eBook Management', 'Public display of titles (A to Z listing)', 'Collection evaluation', 'Authentication and Access Management', 'License Management' and 'Powerful Reporting Management' which includes usage of resources across different facets with COUNTER (Counting Online Usage of Networked E-resources) compliance. OpenERAM also provides acquisitions data as well as cataloging functionality whereby MARC records are provided to customers through its holdings manager.

4.3 EBSCO's ERM Essentials

EBSCONet's Essential ERM (<http://www2.ebsco.com/en-us/ProductsServices/ERM/Pages/index.aspx>) comes with the slogan 'Manage Less, Deliver More through Smart E-Resource Management'. With its long history of print subscription management in

the library market, ERM Essentials integrate the e-resources acquired through EBSCO so that all the needed information for resources is loaded from the EBSCO integrated Knowledge-base which acts as the central source of updating e-resource information. EBSCO's Integrated Knowledge Base serves as the basic corner stone on which the EBSCO Management and Discovery Solutions are built which also allows tracking e-collection development decisions, including trials, evaluations, orders and renewals. EBSCO AtoZ and LinkSource along with EBSCO's OpenURL link resolver provide the needed impetus for an effective ERM solution. Along with EBSCONet usage consolidation service, EBSCO's ERM Essential proves to be one of the leaders in providing customer-based ERM solutions to libraries. EBSCO claims with the use of ERM Essentials hours of labour especially in consolidating the publisher and license data and the human error are minimised.

4.4 Ex Libris Verda

Ex Libris (<http://www.exlibrisgroup.com/category/VerdeOverview>) which has a very strong library market in Europe has Verda as its centralised repository product for ERM which takes care of e-resources workflows such as acquisitions, trials, usage, costs, access and administrative data. Verda boasts a comprehensive knowledge base which helps librarians to choose the desired resources from the e-resource market place. This knowledge base provides an extensive coverage of costs and usage which enables librarians to make data driven decision making and electronic collection development. Verda conforms to the open system standards by providing SUSHI (Standardised Usage Statistics Harvesting Initiative)-based user statistics and other related reports.

4.5 Gold Rush

Gold Rush (<http://www.coalliance.org/grinfo/>) ERM and Discovery from Colorado Alliance of Research Libraries is a standalone ERM originally developed in 2001 for the member libraries to organise their e-resources. From 2003 onwards this product is given to outside of the alliance mainly because of its cost-effective ERM solution. Gold Rush boasts a fully customisable subscription record with the ability to order databases in the public interface and link resolver page and the ability to link directly to the article bypassing the link resolver. Its suit of functionalities include, Public Search Interface (A-Z) listing for easy listing of e-resources, Subscription Management for managing e-resource subscription, OpenURL link resolver for link resolving and a content comparison module for comparing the contents. Since Gold Rush is centrally hosted it doesn't require any local server management and interoperates with any integrated library system (ILS).

4.6 HERMIS

Harrassowitz E-resources Management and Information Solutions (HERMIS) (http://www.harrassowitz.de/subscription_services/hermis.html) is an ERM product from Harrassowitz booksellers and subscription agents. With more than a century of experience in global print subscription market, Harrassowitz has this electronic subscription system which has a complete workflow for ERM. Tools for Resource Identification and Evaluation, License Management, Ordering, Payment, Renewal, Cancellation, Activation of e-resources, Public access through A-Z listing and usage tracking are the complete list of tools available in HERMIS ERMS. The HERMIS also has a technical access management tool for notification of URL changes and notification of publisher of library IP changes.

4.7 Innovative Interfaces ERM

Innovative Interface (http://www.iii.com/products/electronic_resource.shtml) has a very powerful E-resource Management suit which integrates with its millennium ILS (WebPac Pro and Encore) to provide a centralised ERM Solution. Innovative ERM allows the librarian to access all the assimilated technical as well as administrative details of digital resources centrally so that analysis can be achieved from the data. Innovative proposes that their ERM can be used as a standalone product also so that any library which doesn't use millennium can also benefit from their ERM solution. Interestingly for libraries which need complete software solution for the e-resources, Innovative ERM offers Content Access Service (CASE) which populates the coverage database with extensive information about the chosen resources.

4.8 360 Resource Manager

ProQuest Serials Solution's 360 Resource Manager (<http://www.serialsolutions.com/en/services/360-resource-manager>) is yet another powerful ERM system which comes with the caption 'Control your resources to streamline workflows and optimise collections'. This is a cost-effective and efficient ERM solution to track data throughout the ERM life-cycle to provide more meaning and sense so that it can be effectively used by the administrators and users. It makes use of the serials solution's knowledge works knowledgebase to track license terms and managing renewal dates and all the other related workflow of ERM. Its web-based applications allow the librarian to extract subscription data from documents and effectively manage it as spreadsheets. It also helps to eliminate redundant data entry and streamline the entire management of e-resources. Its elaborate modules provide customisable alerts, resource notes and provide critical solutions of notifying appropriate personnel of trial and renewal dates.

4.9 Swetswise Source Manager

eSource manager (<http://www.swets.com/swetswise/e-source-manager>) from the stable of Swets Subscription Services is another commercial ERM solution which is highly successful amongst libraries which use Swets print subscription systems. From its years of experience in print subscription management, Swets provide this e-resource manager which has a pre-populated database of standard publisher license conditions, which enable libraries to quickly and efficiently search, view and maintain licenses for libraries. The thrust of eSource manager is to oversee and maintain the publisher licensing. Coupled with the library's acquisition eSource manager is a handy tool to manage e-resources.

4. CONCLUSIONS

While many commercial ERMS seems to be the choice of bigger libraries with higher rate of procurement and consumption of e-resources the choice of small libraries still linger around the cost effective open access ERM models and custom made spreadsheet and linked lists. The effective ERMS for any library depend on the available resources they have. Since many ERM solutions provide custom-made knowledge-base to work with it is eminent that the future ERMS will concentrate on choice-based solutions streamlined and cut out for individual libraries. This will be highly recommended for libraries which form part of consortiums where individual procurements are while their bulk of resources are channeled through the consortium. In the end the librarians look forward to ERMS which are cost effective and at the same time save lot of their time and easy to manage.

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