



Original Article

Digital Collection Management in Libraries

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Abstract:

Electronic resources comprise any information or content stored and accessed digitally on devices such as computers or mobile devices. These resources include e-books, online journals, websites, digital images, videos, audio files, online databases, and software applications, and they can be accessed via the internet or downloaded for offline use. By offering efficient and convenient access to information, digital resources have become an essential component of modern library collections. As libraries expanded their electronic collections in the late 20th century, they encountered challenges in tracking acquisitions and managing access. To address these challenges, institutions developed Electronic Resource Management (ERM) systems. The primary aim of ERM is to deliver seamless, integrated access to a broad spectrum of scholarly literature and other electronic content.

Keywords: *Electronic library resources, Digital Collection of library, E-Libraries, E-resource Management*

Introduction:

Managing a library's digital resources requires specialized strategies and software tools to handle key details about online content (for example, e-journals, databases, and e-books). As libraries progressively incorporate more digital materials into their collections, conventional cataloging and management systems have often proven insufficient. This gap led to the emergence of Electronic Resource Management (ERM) solutions designed specifically for digital content. ERM covers a range of activities, including planning, resource selection, metadata management, access provision, user support, and usage analysis. By implementing ERM best practices, libraries can more effectively oversee the entire lifecycle of electronic resources.

2. History:

ERM systems as a concept began to take shape in the early 2000s. A key milestone was a 2001 survey led by Tim Jewell at the University of Washington, which explored how libraries managed electronic resources. Shortly thereafter, the Digital Library Federation (DLF) and the National Information Standards Organization (NISO) began collaborating (in 2002) on standardizing the data elements used in ERM. Their work led to the publication of a landmark report in 2004 entitled *Electronic Resource Management: Report of the DLF ERM Initiative*. Following this development, many integrated library system vendors incorporated ERM functions into their products, allowing libraries to manage electronic resources more systematically.

3. Features of ERM:

Key features of Electronic Resource Management systems include:

- **Resource registration and metadata management:** Creating and maintaining metadata records for each electronic resource, including titles, access details, and descriptions.

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- **License tracking:** Monitoring and managing license terms, coverage periods, and access rights for each resource.
 - **Access management:** Controlling access to resources through authentication methods such as IP validation or proxy servers, ensuring only authorized users can reach the content.
 - **Usage statistics:** Collecting, analyzing, and reporting usage data (e.g., downloads and views) to help libraries understand and optimize resource use.
 - **Renewal and cancellation management:** Keeping track of subscription renewal dates, cancellations, and expirations to maintain continuous access or manage discontinuation.
 - **Budget and fund management:** Overseeing the costs, budgets, and fund allocations associated with electronic resources and subscriptions.
 - **Reporting and analytics:** Generating reports on resource usage, cost per use, and other key metrics to inform decision-making.
 - **Provider contact management:** Storing contact information for publishers and vendors to facilitate communication about content issues or negotiations.
 - **Issue logging:** Recording problems or support requests related to electronic resources, allowing staff to track and resolve technical or access issues.
 - **Linking licenses to records:** Associating license documents or summaries directly with the corresponding resource records for easy reference.
- These features help libraries efficiently manage their digital collections and provide better service to users by streamlining workflows and improving resource visibility.

4. Examples of ERM:

Several systems and projects illustrate the range of ERM solutions available:

- **AMSL:** A project that develops methods and tools to integrate library metadata with Linked Open Data, aiming for a scalable platform that normalizes diverse data formats (such as RDF).
- **CORAL:** An open-source ERM system with a modular design. CORAL focuses on core components of electronic resource management and is freely available to libraries and consortia.
- **ERAMS:** An approach and set of tools designed to optimize access, usage tracking, data management, and workflows for electronic library collections, effectively bridging the physical and digital library environments.
- **Ex Libris Alma:** A cloud-based library services platform that includes robust ERM capabilities, managing e-journals, e-books, and electronic databases alongside traditional print collections.
- **OCLC WorldShare Management Services (WMS):** A cloud-based library management system that incorporates ERM functions such as handling electronic resource subscriptions, licenses, and access.
- **EBSCO ERM Essentials:** A comprehensive ERM solution that helps libraries manage their electronic subscriptions, including acquisitions and usage statistics, to support decision-making and reporting.
- **ProQuest 360 Resource Manager:** An ERM system that assists libraries in managing electronic resources (e-journals, e-books, and databases), tracking subscriptions, and providing usage analysis tools.

Each of these examples demonstrates different approaches to solving the challenges of managing digital collections within library workflows.

5. Technical Requirements:

When evaluating electronic resources, libraries must consider various technical requirements to ensure compatibility with existing infrastructure. Factors include:

- **Access methods:** Web-based access (such as browser access) is often preferred because it allows for quicker updates and lower maintenance on user devices.
- **Authentication:** Technologies like IP filtering or proxy servers enable seamless access for authorized users, both on and off campus. These should be configured to work reliably with library credentials.
- **License implications:** The terms of license agreements can affect technical setup. For example, a license may require specific authentication methods or impose restrictions on how materials can be accessed and delivered. Key compatibility considerations include:
 - **Platform compatibility:** The resource should work across multiple operating systems (e.g., Windows, macOS, Linux) and device types (e.g., desktop computers, laptops, tablets, smartphones).
 - **Hardware compatibility:** The resource should not demand unusual hardware; it should run on standard processors, memory configurations, and require only commonly available peripherals (unless specific devices are needed).
 - **Software compatibility:** The resource should be compatible with typical software environments, such as current web browsers and any necessary plugins or extensions (for example, PDF readers, Flash players, or other specialized viewers).

Some electronic resources may have special requirements, such as:



- **Multimedia capabilities:** Dedicated audio or video players, graphics cards, or sound hardware if the resource includes rich media.
- **Additional software:** Specific plugins, browser extensions, or standalone applications that must be installed to view or use the content.
- **Specialized hardware:** Devices like graphics tablets, scanners, or scientific instruments, in the case of certain specialized resources.
It is important to consult library staff during the evaluation:
- **Technical staff:** Library IT personnel can review existing hardware and software configurations and advise on whether new resources can be supported without major upgrades.
- **Reference and public services staff:** Librarians who interact with patrons can provide insight into user needs and may identify if special software or hardware will be required on public-access computers.
By carefully considering these technical requirements and collaborating with relevant staff, libraries can choose and implement electronic resources that provide reliable, cost-effective access for their users.

6. Licensing Considerations for E-Resources:

Access to most electronic materials is governed by license agreements, which libraries must carefully review and negotiate. Libraries should aim to secure clear, standard licenses that explicitly outline their rights and responsibilities (such as authorized user groups, permitted uses, and access mechanisms). In lieu of formal licenses, some publishers and libraries use the *Shared Electronic Resource Understanding (SERU)* model. Under SERU, institutions rely on mutual agreement and existing copyright law rather than a traditional contract; participating libraries and publishers agree to uphold each other's stated terms of access without exchanging signed licenses. Whether through a negotiated license or a SERU arrangement, it is essential that the terms protect the library's interests and clearly define user permissions and restrictions.

7. One-Stop Shopping: Why

7.1 What is one-stop shopping?

The concept of "one-stop shopping" refers to offering users a single starting point to discover whether they have access to a particular resource or article. This approach does not require merging all of a library's holdings into a single database; rather, it provides a unified gateway through which users can find available content across different platforms and formats. Librarians recognize that patrons should not have to search multiple catalogues, websites, or vendor platforms to locate information. By consolidating electronic journals and other resources from various sources into a single searchable entry point, libraries can more effectively serve patrons and avoid redundant interlibrary loan requests.

7.2 Defining and implementing one-stop shopping

In essence, one-stop shopping updates the traditional library model where all holdings are discoverable through one interface. However, the proliferation of digital content raises questions about what exactly constitutes a library's "holding" and which materials should be included in the discovery system. The answers can vary depending on a library's mission, collection development policy, and resource constraints. Once a library defines the scope of content it considers part of its collection, it must figure out how to provide access. This involves practical challenges such as cataloguing electronic titles, managing increased workloads, and configuring systems to retrieve items from multiple sources. Libraries must balance the ideal of comprehensive access with the realities of staffing, budget, and system capabilities when implementing one-stop solutions.

7.3 Article-level access: free vs. fee-based

One significant challenge in one-stop shopping is dealing with individual articles rather than whole journal subscriptions. Free articles (distinct from full open-access journals) might be available through author payment or repository deposits, while fee-based articles can be purchased on demand from publishers or document delivery services. Sometimes libraries obtain a limited number of complimentary article downloads as part of a subscription package. Without efficient discovery tools that identify these free or single-article offerings, users may end up paying (via interlibrary loans or document delivery charges) for content that could have been accessed at no cost. Integrating article-level awareness into discovery systems is therefore important to ensure users can find available content—free or paid—without unnecessary expense.

8. Use of the Electronic Information Resource:

Electronic information resources (EIRs) are widely used in education, research, and other settings. They offer numerous benefits, such as:

- **Convenience:** Patrons can access information 24/7 from any location with internet connectivity.
- **Wide range of resources:** Digital libraries provide access to a vast array of journals, books, databases, multimedia, and other content types.
- **Space-saving:** EIRs reduce the need for physical storage space in the library, as materials are stored digitally.
- **Cost-efficiency:** Libraries may lower costs related to physical handling, storage, and printing; many materials can be obtained and delivered electronically.



Up-to-date information: Electronic formats allow libraries to provide the latest research, as updates and new publications can be accessed immediately.

Use of EIRs also requires adherence to legal and privacy guidelines. Authorized users may download and print materials for their personal research or study in accordance with fair use and other copyright provisions. Information providers are expected to deliver usage statistics to libraries, either directly or through consortium agreements; in consortia, data should be provided in both aggregated form (for overall consortium management) and in breakdowns per member library. Licenses for EIRs should include clauses that protect user privacy, ensuring that any personal or usage data collected during access remains confidential.

Examples of electronic information resources include:

- Online research databases (e.g., JSTOR, PubMed)
 - Electronic journals and e-books accessible via publisher platforms or aggregators
 - Digital libraries and institutional repositories (collections of digitized historical texts, theses, etc.)
 - Online reference materials (such as digital encyclopaedias, dictionaries, and handbooks)
- Overall, EIRs have transformed the way people access and use information, greatly enhancing the efficiency and reach of research, learning, and library services.

Conclusion:

To meet evolving user expectations, libraries must prioritize seamless access to information. A key strategy is to aim for one-stop shopping—providing integrated discovery of relevant journals and articles through library catalogs, link resolvers, and other discovery tools. Many libraries already offer combined access to print and electronic journals, including content from aggregated databases and some open-access titles; however, resource constraints (such as budgets and staff capacity) can limit how comprehensive this integration can be. One of the biggest challenges remains access to individual articles (whether open or fee-based) outside of traditional subscriptions. While complete one-stop shopping may not be fully achievable at present, libraries can simplify access to many resources and continue to collaborate with vendors, publishers, and standards organizations. By doing so, they can incrementally expand seamless access to content and enhance the overall user experience.

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