

Overview of Integrated Library Systems

EDUCAUSE Evolving Technologies Committee

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The Overview Perspective:

Integrated Library Systems have been part of college and university computing systems since the early 1980's and would seem to be "old technology" and part of text-based mainframe systems. Nothing could be farther from the truth. Today's ILS is a multi-function Web-based multimedia content information management system, generally built on a standard relational database structure. While the system architecture remains grounded in bibliographic citations presented via structured indexes, the basis of these indexes is moving beyond the MARC fields designed for text information to include metadata descriptions for multiple digital file formats and content.

The one outstanding change in ILS systems that emerged during the 1990's is the linkage between bibliographic citations and the content they represent. This content initially came as Table of Contents records linked to the citations. It has now become linkage to full content with that content going beyond text to sound, images, and full motion video. ILS systems provide indexing at the bibliographic unit level but also allow indexing within and across full content. Through common cross database indexing and inquiry structures, a single query can retrieve citations and content from multiple databases on variant software platforms. What makes the multi-database searching ILS vital to efficient information retrieval is the combination of structured results sets, elimination of duplicate responses, and retrieval from indexing interior to content files. If this aspect of ILS functioning seems unimportant, try using any of the general Web search engines and consider the chore faced as you select from the many thousands of responses. Integrated Library Systems continue to do what has always been the critical value of libraries. They provide access to vast amounts of information and enhance access through drill-down organized indexing.

ILS systems have also become vital in the provision of information that is licensed by libraries but does not exist in their physical collections. Database providers now include citations for journal titles and journal articles that can be loaded into ILS software systems, thereby providing the web links to find content and provide access to it within courseware and as multimedia content for classroom presentations and online courses.

Online journals even contain distinct URLs for illustrations and embedded multimedia files within the digital version of the journal article. These distinct URLs become the learning objects that can so easily be integrated in course presentations as discreet digital objects apart from the full article or book context.

The information value added provided by libraries has been the collection of reliable content and the organization of that content on shelves for browsing and in card catalogs for locating and retrieving like and related materials. This is the same value added by

Integrated Library Systems but with a vastly expanded universe of information. Within the academic environment, the additional value added is a system that can interrelate the content to the unique curriculum and research strengths of the home university.

The Vendor Marketplace:

The international marketplace has numerous ILS vendor options. One excellent link from which to sample vendor offerings is:

<http://libinfo.com/vendors-systems.html>

Here you will find links to the vendors' web pages and often links to customer sites. As with any hardware and software selection process, the vendor provides a somewhat glorified picture of their products but customer contacts and site visits ferret out the realities. The ILS market is ever changing with vendors dropping out of the market and others merging each year to achieve product advantage, name recognition, and market share. A sampling of three such vendor system descriptions will provide you with a reasonable picture of the options and opportunities available, whether you are considering a new system purchase or an upgrade with your present vendor: You will notice the similar agendas and system options across this sampling.

Examples of Integrated Library Systems Functionality:

From Endeavor Information Systems: (<http://www.endinfosys.com>)

Every library is in a different place in completing their goal of becoming a "**digital library**." Some libraries have a wealth of commercial e-content that could be more utilized, other libraries aim to integrate archival material and electronic research findings into their virtual collections, while still more libraries have the goal of integrating both commercial and local digital content. No matter where your library is on the digital library continuum, Endeavor Information Systems has a system to fit your library's growing needs. With three ENCompass Solutions, Endeavor can assist libraries of all sizes in achieving their goals.

Endeavor's three ENCompass Solutions are:

- **ENCompass for Resource Access:** providing instant access to e-resources and expanded search capabilities.
- **ENCompass for Digital Collections:** ensuring integrated access to a wide variety of local collections-including the local OPAC
- **ENCompass:** the complete solution for accessing all of the resources of your library and your campus

ENCompass for Resource Access

Providing instant integrated access to commercial content along with the local OPAC, ENCompass for Resource Access is a one-step solution for researchers. ENCompass for Resource Access integrates access to licensed and free resources such as:

- A & I databases
- e-journals
- e-books
- relevant web sites
- the local OPAC

ENCompass for Resource Access is intuitive to search across resources, via:

- HTTP searching for web-enabled databases
- XML searching for structured requests and receipt of information
- Z39.50 gateway searching for resources enabled with this protocol

ENCompass for Resource Access ensures researchers can find all resources on a topic-whether the best information is in a remote commercial database, a print book in the library, or a librarian-qualified website included in the search. Librarians can simplify the search process by grouping journals into tangible categories such as "engineering journals" or "first year nursing resources" so researchers do not have to know the names of resources before searching.

From Innovative Interfaces, Inc.: (<http://www.iii.com>)

Innovative's MetaSource is a suite of tools that allows libraries to effectively manage their digital collections. This includes digital object storage, crawling external collections, and full support for metadata schemes such as Dublin Core.

MetaSource is made up of three components: Millennium Media Management, XML Harvester, and Metadata Builder. Millennium Media Management creates and stores media objects such as images, sound files, and audio files. It also includes a Copyright and Access component to handle the complex licensing and copyright issues of digital collections. The XML Harvester gathers XML records from any server; it then parses and creates records on the Innovative system. Metadata Builder stores XML in the metadata scheme of choice. Together, these tools create a comprehensive digital library management strategy.

Features include:

- Java-based media client that enables importing, linking, and scanning of digital objects
- Local Media Storage
- Support for multiple filetypes: JPEG, TIFF, BMP, PNG, PDF, DOC, PPT, AVI, and more
- Multi-page image set support
- Fully integrated with the main bibliographic database or with a separate reference database
- Support for scanning with TWAIN compliant devices and ADF (Automatic Document Feeder)
- Thumbnail association with any media set
- Fully integrated with the Web OPAC for viewing thumbnails and digital objects
- Image viewer for JPEG and TIFF files for image manipulation, printing, and saving
- Text file association with media objects for document indexing and retrieval
- Copyright statement and tracking
- Patron authentication for viewing digital objects on an object-by-object basis

- Course passwords for access to electronic reserves
- Statistical reports on use of resources and publisher and copyright tracking

XML Harvester

Innovative's XML Harvester leverages XML technology to provide an automated cataloging tool which can create library records from metadata records stored on servers anywhere in the world. The XML Harvester unifies access to different XML databases by integrating external records into the library catalog and making it a single repository for the library's different digital collections.

Features of XML Harvester include:

- A crawler that can harvest XML records from any server according to library-defined filters
- A parser that creates MARC records from XML documents encoded in schemes such as EAD or Dublin Core
- Library-defined parameters such as sorting and frequency of loading
- Leverages standards such as the OAI (Open Archives Initiative)

Metadata Builder

Libraries are looking for ways to describe digital collections effectively and efficiently. Metadata Builder allows libraries to describe and store digital collections using a variety of metadata schemes such as EAD or Dublin Core.

Features of the Metadata Builder include:

- Support for the storage of metadata structures and formats (e.g., EAD, TEI, Dublin Core, and XML)
- Ability to enter, batch load, store, and export XML in a defined metadata scheme
- Indexing and retrieval on the various metadata schemes
- Web-based display appropriate to both object- and collection-level metadata
- Links digital objects with appropriate metadata (e.g., image database with Dublin Core or digital archives with EAD)

MAP: Millennium Access Plus

Libraries offer a diverse array of information resources—both in electronic and print formats. The challenge for libraries is to provide access to all of these resources in an integrated and user-friendly way. Millennium Access Plus (MAP) meets the challenge by enabling libraries to provide access to all of their information resources. These resources may include any digital collection such as image databases, archival collections, finding aids, Abstracting and Indexing (A&I) databases, full-text aggregators, and library catalogs.

MAP is an integrated solution that manages access to information resources, quickly guiding patrons and staff to Internet content, while protecting the rights of the library and content providers. MAP leverages resource selection decisions and integrates the searching power of the Web OPAC and Millennium staff modules into a suite of resource access management tools.

MAP is made up of three independent components: WebBridge, MetaFind, and Web Access Management. Together, these provide libraries with tools to manage and control access to all of their information resources by providing contextual linking, multi-protocol meta-searching, and authentication

From SIRSI: (<http://www.sirsi.com>)

Technology exclusively for libraries

When the library invests in technology, it's never technology for technology's sake. It's all about having the tools and capabilities to help the library serve users better. That means making knowledge and resources more accessible and more valuable to more people.


Focused for serving library users


At Sirsi, our 25-plus years in the business have been focused on providing software and services that help libraries of all types and sizes serve their user communities. That's what we do. And since our merger with DRA, we have even more to offer - from e-Library, integrated library management, and digital archiving solutions to a comprehensive slate of library technology services.

People behind it all


Technology is only as strong as the people who stand behind it. Sure, that means we must know the "nuts and bolts." But it's much more. It's about being a library's technology partner. It's about collaborating... listening... responding... and delivering effective software and services today and the future.


From this experience, we offer a broad array of advanced software and service offerings built from the ground up for libraries:

Electronic library  solutions for all library types.

Integrated library management systems  for automating and managing all library functions

Staff interface software for use by staff in managing library functions

Digital media archive system  for organizing, storing, and maintaining digital collections

ASP Services for libraries, access to a full-featured integrated library management system  in a hosted environment.

Client services for system implementation, training, support, consulting, and Web development

Conclusions:

The question facing colleges and universities today is whether to consider their Integrated Library System as a Digital Asset Management System or venture into the more generalized vendor systems in that emerging area. See Alan McCord's white paper on Digital Asset Management Systems on this website. Today our ILS systems have become DAMS with library indexing system overlays. Library professionals have long addressed the descriptive and indexing requirements of vast quantities of print and multimedia information. We can view the ILS as insular to the library or we can view it as a university DAMS. We can look at DAMS offerings and consider managing library content through such systems. We can maintain two discrete systems, both doing largely the same tasks. In any case, the digital asset management aspects of Integrated Library Systems can bring library and IT professionals together for the betterment of the academy.