

Linked Data in the Library

The heart of a metadata ecosystem for enriched discoverability, comprehensive interoperability, and the revival of serendipity.



Paradigms Need to Change

The primary mission of academic libraries is to make the resources in their collections available to researchers, students, faculty members and, in many cases, the general public as well. These patrons need to be able to read, cite or analyze the content to which they are provided access. To help them do so, librarians devote their time and energies to managing tasks such as cataloging, indexing, discovery, quality assurance, bibliographic record keeping, and more.

Currently, libraries generally use dedicated formats for managing and sharing their bibliographic records (such as MARC 21, UNIMARC, etc.). While this approach has proven very valuable for streamlining interlibrary and internal library communications, it

also inadvertently led to what is essentially a closed loop. It has become the only standard for ingesting and exposing library data, shaping how resource management and cataloging is done.

Yet, many of the concepts and standards behind traditional library resource data sharing actually go back to the 1970's. They were developed long before the World Wide Web, the internet, became a practical tool for widely disseminating information. At this point, of course, library patrons are regularly and intensely using the web to search for resources and to expand their knowledge. Library records must be part of this ecosystem if libraries want to ensure exposure of their research materials, wherever and whenever people are looking for them.

Threads of the Semantic Web

In some ways, the internet functions like a massive, disorganized, ever-changing repository of informational resources. The World Wide Web Consortium (W3C), the primary international standards organization, uses the term “Semantic Web” to describe the way in which data on the internet is interconnected. The technologies involved allow the establishment of mutually comprehensible data handling across web locations, making it possible to explore, find and connect information.

Linked Data creates the threads that make up the Semantic Web. With content metadata built around URIs, Linked Data is how resources are easily identified and exposed in various representations without confusion or lost information. Such Linked Data is also easier to query, to use in artificial intelligence algorithms, and to automatically relate to relevant resources published by others.

While Linked Data is standard for publication and interoperability on the web, it has yet to be significantly adopted for library resources. Moreover, without Linked Data, library collections are practically cut off from the larger Semantic Web.

Bringing Linked Data into the Library

The Linked Data infrastructure is ideal for academic libraries, as patrons need to access a wide variety of resources for research and learning. With cataloging and exposure driven by Linked Data technology, the value of discovery is increased exponentially with maximum information coming from one, easy search. Users need not focus energy on figuring out how to conduct their searches while limited to specific phrases, keywords and Boolean modifiers.

In addition, given the ever-growing wealth of online and offline resources, Linked Data helps students overcome one of the major challenges they face: information filtering. The web of relevant linked sources immediately provides the context and balance needed to effectively evaluate the quality of search results. At the same time, it also opens the door to new, possibly unexpected resources that can enrich the patron’s experience.



Let's drill down a bit into the benefits Linked Data brings to the academic library



Better discoverability

Linked Data enables sophisticated querying, making it easier for the patron to zero in on what they are looking for with greater accuracy. The results are enriched data in the appropriate context, regardless of the interface in which they are conducting their search, complete with related information and resources drawn from external systems.

The links allow for display enrichment, with more accessible details on the searched item, and easier navigation to related resources. In Linked Data-based discovery, more information is brought directly to the patron, without library staff having to be involved in manually making connections or filter results.



Restoring the joy of serendipity

With Linked Data, the research journey becomes “discovery” in the broadest sense of the word. Patrons find not just a single resource, but an array of potentially valuable related resources. Following the chain of relationships from their jumping off point, their initial search, patrons can (virtually) revive the rewarding experience of exploring the stacks and independently coming across sources of valuable information they were never previously aware of. Unlike when physically meandering through the stacks, however, the resources at the patron's fingertips will always be related to the topic or author they are researching.



Efficient cataloging

Linked Data facilitates greater accuracy in cataloging with less manual effort on the part of librarians. As it is easier to create relationships between resources in a Linked Data ecosystem, it is also easier to generate special collections, collate unique materials, and increase their exposure to patrons.

As Linked Data becomes more common in the library management sector, it will become an integral part of library workflows. Catalogers will be able to quickly and easily add metadata from publishers or other sources that might assist with the cataloging process.



Global interoperability

Once the library catalog is enriched with Linked Data, it has a common language for communication with separate siloed systems. Metadata from one system can be used to search any other system, with seamless interoperability. On the one hand, patrons can discover and analyze sources in external systems, such as data stored in research facilities, the US Library of Congress, and the like. On the other, external applications or systems can use the library's Linked Data resources to improve the quality and accuracy of their own data.



Increased exposure

Interoperability is a critical key to increasing the exposure of a library's collection, allowing applications that use Linked Data to create valuable links to library information. Linked Data formats improve the discoverability of a library's catalog in standard online search engines (such as Google, Yahoo!, and others) when people are seeking specific resources. This improved visibility on the web for assets held by the library or its consortium is crucial, because such online engines are generally the first tool used for research and learning.

Integrated into the Ex Libris Ecosystem

Ex Libris is leading the way in making Linked Data an integral part of its global ecosystem.

Enriched library records with URIs for language, name, subject, and other identifiers can be displayed and exported by various Ex Libris applications. As a result, resources dependent on such linked open vocabularies can be connected through the Ex Libris platform (for purposes such as discovery, authority management, and more).

Ex Libris also leverages Linked Data for greater discoverability and organic SEO. Library resources are far more exposed to the web, with general global search engine results providing richer detail about items in the library's collection and direct links.

However, existing bibliographic records in traditional formats need not be converted, as Ex Libris solutions will continue to seamlessly support them even as new Linked Data records become more and more common. The objective is to add to the library's toolbox, rather than replace it.

Adapting to a new discovery paradigm, created by the expanding Linked Data environment, can have a significant impact on an institution. Therefore, Ex Libris provides its customers support with understanding and navigating the transition, from library cataloging technical services to advanced end-user guidance.

What Gets Caught in the Semantic Web

Relevant, accurate, informative, and fast. That's the kind of discovery Linked Data makes possible across a vast array of resources. For example:



All history books by authors influenced by Dutch publications.



Resources on adolescence by authors influenced by Sigmund Freud.



From a single article: information about the author, including their other works, similar authors and collaborators, and related subjects.



An imprecise author search: results include several possibly relevant authors and their full details (name, expertise, years of activity).



Works in which a given individual is mentioned or listed as a co-author, with linked media resources for each result.



Imagination is the only limitation.

What Linked Data Has to Offer

Cataloging: Higher accuracy, less manual work.

Enrichment: Leveraging relationships between data for display and navigating.

Interoperability: Open to external systems.

Exposure: Catalog discoverability in global search engines.

Ecosystem: Connect to and manage linked open vocabularies.

Validation: Reduce redundancy and increase data reliability.

Serendipity: Discover new resources through indirect relationships.



About Ex Libris

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