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Moving Beyond the Library Catalog

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**The law library in an information age: it is time to do
away with the local online catalog and focus on
research guides and digital content.**

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to fulfill course requirements for Current Issues in Law Librarianship, LIS 595,
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Contents

Introduction	1
“For the times they are a changin”	2
The library catalog development	3
The outmoding of the catalog	4
A solution for the legacy catalog	6
Focusing on law libraries	7
The law library catalog	8
Other pursuits: finding a way out of the shrinking stacks	9
Research guides and the law library	9
Research guides in an internet age	10
Creating research guides that are relevant and discoverable	11
Creating guides that target different user groups	12
Implementing research guides	14
Designing guides to be modular	15
Keeping resources stable and consistently discoverable	15
Tracking and search engine optimization	16
Creating resources to be integrated by other law libraries	17
Thinking for the near future: research guides and the semantic web	17
Becoming an archive and repository by owning digital content	18
The semantic web and hosted digital legal content: metadata designed for machines	19
Creating powerful relationships between resources	20
Possibilities for law libraries	20
Coordination	21
Conclusion	21

The law library in an information age: it is time to do away with the local online catalog and focus on research guides and digital content.

Introduction

Nassim Taleb's book "The Black Swan" discusses the concept of the anti-library.¹ The anti-library is the collection of books you have not read and the things you have yet to know. The collection of "unknowledge" in the anti-library is of huge importance because it contains unknown information that may yet change your life.

The anti-library concept can also be applied to actual libraries. There is a massive amount of information that is not contained in the four walls of the library or the library catalog. The world of information that is unknown to the library is potentially life changing to the library patron. Yet the library catalog was not initially designed to explore outside the physical collection.

In a digital age, the amount of material available online—material outside the library catalog—is growing at an exponential pace. The library should respond to this growing amount of knowledge because it is potentially of high importance to patrons. What should be the purpose of the library and the library catalog when so much knowledge exists outside the library's physical holdings? Perhaps it is time to change the nature of the library and the library catalog and instead shift focus on to the anti-library.

It is time libraries stop investing in a local public online catalog, a century old device used to facilitate access to physical holdings within a library. Instead, it is time for libraries to become experts at helping patrons navigate the world of the anti-library by creating original content in the form of subject guides. It is also time for libraries to focus on owning digital resources that can be manipulated by computer algorithms.

¹ See NASSIM NICHOLAS TALEB, *THE BLACK SWAN* (Random House 2007).

“For the times they are a changin”

In the early days of the internet, pioneering search engines struggled to return useful and relevant results. Google shifted the paradigm when it utilized the unique citations that are a fundamental part of the internet architecture.² Google was able to present superior results by extracting and mathematically weighing a web resource’s inbound citations. Higher quality content on websites would have more citations from other quality webpages and would receive a higher ranking in the ordered list of retrieved results.³

As more and more searches were performed, Google was able to analyze user search data to create more accurate search results. The ability to learn from millions of searches performed every day coupled with the ability to track specific user habits allowed Google to evolve expert search capabilities.⁴

Information availability also changed in the networked internet age. Being freed from the print publication step, information could be born and disseminated digitally, ready for immediate consumption. Information could be created by an individual or organization and made available for anyone with internet access.

Resources beyond websites were also made available online through free or licensed databases. The amount of digital information available online, and therefore information in general, was experiencing exponential growth because anyone with a networked device could upload and download resources.⁵

² See STEVEN LEVY, *IN THE PLEX* (Simon & Schuster 2011).

³ The underlying architecture of the internet with unique, universal, and mandatory citation is important because it enables methods to weigh, sort, and connect massive amounts of content.

⁴ Google analyzes search data and adapts the search algorithm hundreds of times a year based on this continuous analysis. *Google Algorithm Change History*, MOZ, <http://moz.com/google-algorithm-change> (last visited May 11, 2014).

⁵ The growth in digital information has increased exponentially with the internet. In 2007, it was estimated that 94 percent of storage capacity was digital where only 6 percent was analog. Furthermore, it is estimated that exponential growth will continue with a 50-fold growth of digital data from 2010 to 2020 resulting in approximately 40,000 exabytes. See Charles Mclellan, *Big Data: An overview*, ZDNET (Oct. 1, 2013), <http://www.zdnet.com/big-data-an-overview-7000020785/>; See also Brian Vastag, *Exabytes: Documenting the 'digital age' and huge growth in computing capacity*, The Washington Post, (Feb. 10, 2011), www.washingtonpost.com/wp-dyn/content/article/2011/02/10/AR2011021004916.html

Beyond born digital information, organizations rebirthed analog documents and placed digital versions online. Digitization allowed for full text search capability and citation linking of previously published analog information. The digitized resources could also be indexed and made immediately discoverable through search engines. Projects ranging from small digital collections to large projects like Google Books or HathiTrust digitized and made millions of once analog resources discoverable online.⁶

It should come as no surprise that these technological jumps and immediacy in information availability changed the way users search, evaluate, and consume information. There became a growing expectation of information availability and immediacy. There was also a growing dependence on obtaining quality search results to navigate the increasing amount of information.⁷

The library catalog development

During the information changes brought with an internet age, the catalog's underlying structure remained largely unchanged. The innovation of Cutter and the card catalog arranged by title, author, and subject was upgraded to MARC records when the computer became mainstream.⁸ MARC records have since remained virtually the same in structure.⁹

⁶ For an example of the goals and scope of mass digitization projects, see HathiTrust's about page. *See Welcome to the Shared Digital Future*, HathiTrust, <http://www.hathitrust.org/about> (last visited May 12, 2014).

⁷ BARRIE GUNTER, IAN ROWLANDS & DAVID NICHOLAS, *THE GOOGLE GENERATION* 123-145 (Elsevier 2009).

⁸ *See* Francis Miksa, *The Legacy of the Library Catalogue for the Present*, 61 *LIBR. TRENDS* 7 (2012).

⁹ The MARC record structure itself has not been substantially updated from its original purpose of input, file maintenance, retrieval, and output of bibliographic information. New fields have been added to accommodate new forms of media. In 1993, for example, the 856 field was added to make internet resources accessible through the MARC record format. More recent developments wrap the MARC record data in XML to make the record more discoverable in a web environment. Even with these updates, the MARC record structure has not changed and still only contains basic bibliographic information. *See MARC standards*, Library of Congress, <http://www.loc.gov/marc/> (last visited May 12, 2014).

The local online catalog records expanded in size with the change in online information availability and the general growth of information.¹⁰ As a growing amount of information was being made available online, libraries began to access this content via licensed subscriptions to databases. Catalog records with outbound links were created for subscription content as well as information available freely online.

Libraries also utilized internet connectivity to share physical resources with other libraries through alliances and joined catalogs. This allowed patrons to use the catalog to search outside the library's physical holdings to find resources that could be requested externally and shipped to their location.

As an increasing number of resources were licensed digitally, the library also had to deal with the issue of how to discover resources not added to the online catalog. To compete with the ease of the Google single search box that returns results from the massive indexing of the web, some libraries added federated searching¹¹ to their catalog results. Federated search returned results that included not only the online public catalog but also multiple licensed digital databases.¹² The end result was a growth in the number of search results because resources not owned, but licensed by the library, were included alongside items in the online public catalog.

The outmoding of the catalog

The library's public online catalog as a finding aid has slowly become outmoded in a networked society. Library patrons expect an increasing amount of content to be available immediately due to the exponential growth in information available online. Yet the catalog was not initially designed to navigate the digital

¹⁰ See Sally Chambers, *Catalog 2.0. the Future of the Library Catalogue*, 143-170 (American Library Association 2013).

¹¹ Federated search is a method used to simultaneously search multiple databases of resources. A single search box will query separate databases and then aggregate the results into a single list for the user. In a library setting, the catalog is queried along with other digital databases.

¹² Many libraries attempt to accommodate federated searching from multiple database vendors. Unfortunately many databases do not allow for federated searching. Therefore some databases are included in the search results while other databases still need to be searched individually. See Joshua Barton & Lucas Mak, *Old Hopes, New Possibilities: Next-Generation Catalogues and the Centralization of Access*, 61 *LIBR. TRENDS* 83 (2012).

content residing outside the four walls of the library. The legacy catalog as a finding aid in a digital age has only limited usefulness. It is time the library stops using the catalog as a procrustean solution for patrons to find, identify, select, and obtain digital resources not owned by the library.

The catalog struggles to compete with online solutions that have been created specifically for navigating digital information. For instance, the catalog struggles to compete with solutions that include the full text search capabilities of the actual underlying resource. Full text searching when trying to find and select a resource is extremely useful. In a time when digital projects are digitizing analog resources and indexing searchable text, the library catalog has limited usefulness in comparison.¹³

The library catalog also struggles to compete with increasingly sophisticated algorithms. Algorithms have the ability to sort massive amounts of content¹⁴ and indexes new resources quickly and automatically. The catalog does not have a structure that allows it to effectively weigh search results because it does not have an architecture like the internet with unique citations.¹⁵ The local catalog also does not have millions of searches per day to adjust search result quality.

Even the monetary investment to create a discovery layer of both the catalog and networked content has a finite future. Federated searching has limited usefulness because each database being searched has different search rules and thesauri. Once again, the discovery layer only has limited ways to weigh and rank

¹³ A study found that Google Books retrieved almost all the books that are currently in WorldCat. Google Books additionally offered previews of resources and a feature to find a copy in a local library. See Xiaotian Chen, *Google Books and WorldCat: A Comparison of Their Content*, 36 ONLINE INFO. REV. 507 (2012).

¹⁴ An example of the catalog's weakness with massive amounts of content is subject headings. Utilizing subject headings to find, identify, select, and obtain a resource is only useful when there are a relatively limited amount of resources available. When a subject heading or a mixture of multiple subject headings returns thousands of results without the ability to meaningfully rank the results, subject headings are no longer a useful way of finding and selecting resources.

¹⁵ A Google run search engine used with the catalog is not a viable solution because the catalog does not have citations to weigh navigation. Google engines do not work well with content on internal webpages because of their reliance on subject taxonomies and organizational charts instead of user citation ranking. See Mark Bennett, *Search 2.0 in the Enterprise: Moving Beyond "Single Shot" Relevancy*, <http://www.ideaeng.com/search-20-single-point-0303> (last visited May 12, 2014).

search results.¹⁶ Adding federated searching makes an initial query easy to perform, but weakens the power that each database's controlled vocabulary provides. Again, federated search is a procrustean solution in an attempt to compete with search tools that exist online.

A solution for the legacy catalog

With the ever increasing amount of content being leased by libraries in databases and an increasing amount of content available freely online, it makes decreasing sense to catalog these digital items with the library's physical holdings. The physical holdings, effectively, is just another database of resources.¹⁷ If libraries treated these physical holdings like a database and kept them separate from digital resources, then more innovative solutions for finding and selecting both analog and digital resources could be implemented.¹⁸

A possible solution for the legacy online catalog is moving the library's catalog of physical holdings to a centralized and shared location. This centralized location would manage the catalog's bibliographic records and discovery function for multiple libraries. Individual libraries would only need to hang their physical holdings onto this central catalog.¹⁹ This would be way for the library to get out of managing the local online catalog while still having a system where their physical holdings can be discovered, evaluated, and selected by patrons.²⁰ The

¹⁶ See David Stern, *Waiting for Weighted Navigation*, 37.2 Online Searcher 51 (2013) (also available at: http://works.bepress.com/david_stern/6)

¹⁷ The library analog stacks is shrinking in unique content as more and more analog content is being digitized and made available online. In future years, for example, a large percentage of a library's analog items could be available online through projects like Google Books. The remaining percentage of the holdings are still unique and should be made discoverable globally to researchers.

¹⁸ Effectively this would be a break from the past where libraries try to catalog digital resources alongside the cataloged analog monographs and serials. Instead the analog resources would be separated into their own database.

¹⁹ Libraries could move the entire integrated library system to a central location on the cloud and manage all aspects of library operations through this centralized system. Libraries could also maintain a local software system to manage aspects like ordering, invoices, patron records, and item records. The local system would then need to update the centralized catalog with item availability so that the centralized location could effectively manage the classification and discovery of resources.

²⁰ The potential benefits come at the obvious expense of libraries giving up control of their local online catalog. Potential benefits include the ability to improve search results

fact that a central catalog is already being implemented through OCLC suggests a centralized solution will not be a large jump for libraries to eventually make.²¹

A central location and catalog could potentially add more discovery functions for analog resources as many are being born and reborn digitally. A library's physical holding records, for example, could be attached to databases that have full text search capabilities and linked citations of resources. This would create added value in an online environment where users desire full text searching, weighted results, and immediate answers.

Although libraries would still need an internal database to effectively hang owned resources onto this central catalog, the local online public catalog itself, as a finding aid, would cease to be managed locally. The library could then focus on innovative ways to organize and present resources to patrons.

Focusing on law libraries

Academic law libraries have unique issues because of the diverse user groups they attempt to serve. Law libraries are different from other special libraries because their diverse user groups have a wide range of information needs. Many law libraries, for example, try to serve faculty needs for scholarship, the needs of developing law students, the needs of small firm practitioners who cannot afford expensive legal materials, and also public patrons who have personal legal needs but do not have access to legal help. From a collection and service standpoint, this means that libraries must maintain diverse resources and offer services tailored to these many different groups.

In a networked online environment, the number of resources covering legal materials has grown in size and complexity. The larger legal content providers like Westlaw, LexisNexis, and Bloomberg Law come with narrow license restrictions. Unfortunately providing access to these content providers cannot usually be offered to users not directly affiliated with the law library due to these restrictions. Law libraries therefore try to offer similar content with LexisNexis Academic, Legal Track, HeinOnline, a low cost database like Fastcase, and information freely available online. Also, since most online access

as more searches are being performed, decreased cost, standardized and improved bibliographic information, unique citation identifiers, and global discoverability.

²¹ The implementation done by OCLC should not be considered the final implementation I would envision. For instance, creating specialized finding aids for serials would be important to meet specialized needs.

to digital secondary sources is restricted, law libraries have been forced to keep extensive print resources updated to serve all types of patrons even when the resources are also licensed online.

The law library catalog

Because the amount of legal content available in online databases has increasingly grown, it especially makes a catalog as a finding aid for law libraries less useful and important. The catalog does not, for instance, have full text search capabilities of resources but only allows for text searching of bibliographic records. Full text searching is extremely useful and is offered in legal online content provider databases. The catalog is therefore less useful and less valuable as a finding aid than digital databases holding similar if not precisely the same resources.

Attempting to utilize federated searching in conjunction with the online catalog is also not a practical solution for law libraries because not all patrons have access to all available databases.²² In addition, attempting to include results from large online databases would present the problem of returning a large number of search results without an effective method of weighing and sorting the results.²³

Maintaining the public online catalog as a finding aid makes decreasing sense for the law library. As many information needs are for recent materials found in online databases, the cataloged physical collection has become less important and has become basically another legal database. The library should therefore separate physical holdings from digital databases and online resources. The legacy catalog of physical holdings should be maintained in the most efficient and effective manner possible. A central location would allow for cost savings

²² See Valeri Craigle, *Discovery Layers in Law Libraries*, 16 AALL SPECTRUM 3(2011), <http://www.aallnet.org/main-menu/Publications/spectrum/Archives/Vol-16/No-3/discovery-layers.pdf>.

²³ Even if a solution was designed where federated search could return results based on the patron's level of access, these results still cannot compete with a results available through Westlaw or other large content providers. These providers have the ability to weigh and sort results based on previous searches, linked citations, and controlled vocabularies. These providers will be able to perform superior searches on their own content and architecture.

while also facilitating the evolution of more advanced location, evaluation, and selection features in the future.²⁴

Other pursuits: finding a way out of the shrinking stacks

If there was no longer a local catalog and a growing amount of information is available in online databases and content providers, what is the role and future role of the library in serving patrons? How can the library remain important and relevant if even the catalog is no longer under the library's control? If more analog resources are being made available online, what is the role of the library as a repository? What should be the role of the future law library?

These are important questions for the library to be asking in a networked digital age. The library can maintain its function as a service provider and function as a repository, but it needs to adapt. But just what adaptations should the law library be making?

The law library can serve patrons by creating research guides to help patrons navigate the growing amount of information available online, in complex legal databases, and in research products. The library can also own digital content and host this content online.

Research guides and the law library

As the number of subscription databases grow and as the number of free online resources grow, legal research is getting more complex. Law libraries can maintain relevance by developing research guides.²⁵ Creating guides will be a shift from the historical model of purchasing content, creating bibliographic records, and placing items in the stacks. Instead libraries will author original content that links, curates, and explains available resources.

In an internet age, knowledge curation is more than selecting resources and organizing them in a catalog. Knowledge curation is also about showing how

²⁴ Putting the local catalog in a central location would help support the scholarship needs among a larger group of researchers who are trying to locate unique materials that are unavailable in digital form.

²⁵ Meredith Farkas, *Research Guide Technologies*, TIPS & TRENDS. (2012), <http://www.ala.org/acrl/sites/ala.org.acrl/files/content/aboutacrl/directoryofleadership/sections/is/iswebsite/projpubs/tipsandtrends/2012spring.pdf>.)

and why to use research products, databases, resources, and search engines that exist outside the library's holdings or control. A research guide is specifically well suited to handle the task.

Research guides will allow the library to provide an *entry* into the many research products and databases holding legal content without cataloging any of the underlying content. Authoring original content in the form of research guides will allow the library to show users where and how to use the many available resources online.

In addition, guides allow libraries to create an *explanation* of what types of information is available by describing and arranging databases and online tools in a subject specific context. Guides that explain what information can be found in a database or resource makes content more meaningful to patrons. This, in turn, allows for the advanced curation of the ever increasing body of knowledge outside the library's physical holdings and owned digital content.

Research guides in an internet age

Research guides are especially important because for a growing number of users the library webpage is their entry into the library. Other users get onto the library webpage through search engines.²⁶ The library only exists as a small piece of the greater internet repository. As more and more patrons solely use library resources through the library webpage or through search engines, there must be a solution to help these patrons navigate their research needs.

Developing research guides creates context and meaning about available resources that are search engine readable and rankable. This allows libraries to describe databases and curate resources for search engines like Google. Search engines can then rank these guides among the rest of the internet repository.

Another benefit to pursuing research guides is it creates a single and stable location with an entry into multiple databases and resources. A single location will allow databases, research products, and research tools to change while the

²⁶ For information consumers, both academic researchers and the general public, 84 percent started research with a search engine while only one percent started through the library website. Connaway, Lynn Silipigni, & Timothy J. Dickey, *The digital information seeker report of the findings from selected OCLC, RIN, and JISC user behavior projects*, at 6 (2010), <http://www.jisc.ac.uk/media/documents/publications/reports/2010/digitalinformationseekerreport.pdf>.

research guide remains the stable portal into perpetually changing material. This creates a middle layer²⁷ between patrons and complex digital databases where the explanation of how to use legal materials remains the same even when the databases change.

Creating research guides that are relevant and discoverable

Research guides should be designed so that users can easily discover them online through the library website or through search engines.²⁸ For instance, if a patron comes into a reference office at a law library and the reference librarian refers the patron to an online subject guide, this could be a sign of failure. It could be a failure because the patron, who is increasingly using Google and the library website, did not find the research guide on their own. If the patron first searched Google and the research guide was not formatted properly to be a top Google hit, the research guide was a failure because it failed to be formatted for Google. Likewise, if the patron searched the library website and catalog and did not find the research guide this is a failure of the library website.

Another sign of failure is when a patron searched for information on a very popular research task and there was no research guide to help them—the library was not fulfilling the information needs of their patrons. Even still another sign of failure is when a research guide is available but does not meet the information needs of that particular type of patron.

It is therefore very important that libraries be thoughtful about how they create and publish research guides. Guides should be made for particular user groups, for particular research tasks, and should utilize the functionality that web resources facilitate.

²⁷ A middle layer, conceptually, is a buffer zone between interacting systems. It creates stability because the middle layer absorbs the technical differences when systems inevitably change. A library guide functioning as a middle layer frees the patron from worrying about changing databases and resources. Even with databases and resources change, the research guide is a stable location to begin the research task.

²⁸ The existence of research guides is often ignored by both students and faculty and needs to have increased marketing and visibility. Since a majority of research initially begins on search engines, this would be an obvious place to increase visibility. See Ouellette, Dana, *Subject Guides in Academic Libraries: A User-Centered Study of Uses and Perceptions*, 35 CANADIAN J. OF INFO. & LIBR. SCI. 436-451 (2011).

Creating guides that target different user groups.

A well-known library saying is for every reader his book and for every book its reader.²⁹ The same holds true for research guides--for every type of patron should be a research guide and for every research guide there should be a patron type. Research guides should be designed based on the mission of the library and tailored to specific user groups and information needs.

Designing research guides for public patrons

Public patrons are laymen who have a legal problem they are trying to resolve. The needs of these patrons can be diverse and their range of education can be from remedial learning in high school to education beyond college. They either cannot afford a lawyer or are trying to figure out if they should seek legal help. The library is a resource both online and in a physical location where they can go to find answers.

This group can be looking for resources that are unknown to them. Many times they are trying to find an answer to a problem they cannot yet define. Designing relevant research guides requires both teaching, explanation, and problem recognition.³⁰ In many cases, useful resources for this group are websites such as AVVO.com that exist entirely outside the library's resources and control. These resources are of potentially great importance to the library user and a research guide should allow the library to curate the quality content available on the internet.

Designing research guides for practitioners

Practitioners have the need for practice related materials in the library. Although there are both inexperienced and experienced practitioners, both are

²⁹From library patriarch Ranganathan's five laws. For every book its reader implies that libraries should have books even if they are not popular. In the same way, law libraries should have research guides even if they are not popular. See B K Sen, *Ranganathan's Five Laws*, 55 ANNALS OF LIBR. & INFO. STUD. 87-90 (2008).

³⁰ Tufts University has a "Patents for Research" guide that is specifically geared to non-legal users in the business, entrepreneurship, and engineering fields. The guide, built with LibGuides, gives added explanation and instruction to the resources provided. See *Patents for Research*, <http://researchguides.library.tufts.edu/patents> (last visited May 11, 2014).

trying to fulfill fairly known information needs.³¹ What is unknown to practitioners is how to solve these information needs with the many unfamiliar resources available to them in the library.

In many cases, a practitioner will be looking for a specific resource they have used in the past but no longer have access. Many times the library also does not allow access to that specific resource but does have access to similar resources that are unknown to the practitioner.

Designing research for this group is practice centered and should be more focused on what materials are available to meet their known information needs or showing them what alternatives are available to the specific resource they have used in the past.

Creating research guides for faculty

Research guides for faculty are probably the most difficult because faculty want to keep abreast with current scholarship within their expertise as well as research topics only related to their expertise.

A research guide in this sense would be a place that organizes current scholarship and interdisciplinary resources. A research guide would therefore provide information on services like the Current Index to Periodicals where faculty members can subscribe and stay updated on current legal developments.³²

Creating research guides for law students

Creating research guides for law students is unique because their needs overlap with other groups. Law students need materials to learn the law and prepare for exams. They need to locate sometimes rare or obscure resources for law journals. They also may need practice type materials for legal clinics.

³¹ Yale libraries separates specialized databases and loose-leafs in their research guides which facilitates the organization of resources that would be known to practitioners alongside resources that are similar but unknown. *See Securities Law Research*, <http://guides.library.yale.edu/content.php?pid=86658&sid=665118> (last visited May 11, 2014).

³² For example, many of Georgetown's law library research guides include a current awareness section that would be relevant to professors attempting to stay updated on developing legal issues. *See Immigration Law Research Guide*, <http://www.law.georgetown.edu/library/research/guides/immigrationlaw.cfm#current-awareness> (last visited May 11, 2014).

Creating research guides for this group needs to both teach the students where and how to find resources and be diverse to meet the many possible needs that they will have during their law school education.³³

“Prior art for all that it teaches”

Westlaw is an amazing resource with legal knowledge organization that can inform law libraries how to organize research guides. Westlaw has integrated content, timely updates, and a key number system that organizes, facets, and connects the resources it publishes. In the same way legal research guides need to have integrated content, timely updates, and an organization that connects research guides to each other.

Implementing research guides

Since there are diverse user groups with varied needs,³⁴ research guides need to be created for these different needs. Implementation can be as simple as creating a unique guide for each type of user’s information need. A more sophisticated and comprehensive method would take into account that not all users fit neatly into predefined categories and would allow for user exploration of guide materials.

Because webpages have multiple displays and can load different content for different users, research guides should have tailored views and content. Users can start with a simple guide and expand resources in area categories they want to pursue. The user would have the ability to take a guide to a deeper level to find information of greater granularity and complexity. By including faceted or customizable displays within a research guide, users can expand a guide to fit their specific information needs.³⁵

³³ Northwestern University School of Law, utilizing LibGuides, is a good example of a contracts research guide tailored to law students and their educational needs. *See Contract law research guide*, <http://lawlibraryguides.neu.edu/ContractLaw> (last visited May 11, 2014).

³⁴ The examples above are far from exhaustive but are included to illustrate the complexity of needs research guides should be designed to meet. Needs vary both by research task and by type of patron performing the task.

³⁵ The guide can be designed in layers. The top layer having the least amount of simplified content with the ability to expand to include more linked resources and more explanation at the lower layers.

Designing guides to be modular

Since a guide can condition users to come to a single location to fulfill an information need, they should be designed to be modular. Guides should be designed so that databases and sources of information can change without seriously altering the structure of the guide itself. A modular guide allows for databases and information resources to change regularly while the structure and content of the research guide remains minimally altered.

To facilitate the creation of multiple types of guides for multiple information needs, guides should be created from elements stored in databases instead of static webpages.³⁶ On a database-driven website, a research guide would be created in real time whenever it is selected by a user. The web guide is created by pulling information from the elements found in the database. When elements are updated in the database, every guide that utilizes the element will also be updated. This allows for a minimum amount of labor when databases update or methods of obtaining information change because the information only needs to be changed once in the database.

The creation of web based research guides from databases enables libraries to create multiple entries to the same information. Research guides can therefore be created specifically for different information needs while sharing many of the underlying elements. The utilization of database driven design facilitates ease in both creation and maintaining updated information.

Keeping resources stable and consistently discoverable

A recent study found that almost one third of Supreme Court link citations in opinions were no longer valid.³⁷ This is a problem that should be considered by library websites when they create a location for research guides. The link for a research guide should remain valid for the life of the guide.³⁸ This enables

³⁶ See Corrado, Edward M. and Kathryn A. Frederick, *Free and Open-Source Options for Creating Database-Driven Subject Guides* (2008), <http://journal.code4lib.org/articles/47>

³⁷ Raizel Liebler, Raizel Liebert, *Something Rotten in the State of Legal Citation: The life Span of a United States Supreme Court Citation Containing an Internet Link (1996-2010)*, 15 *Yale J.L. & Tech.* 273 (2013).

³⁸ Alex Dolsk, *The Importance of Stable URIs on the Library Website* (July 10, 2009 3:31 PM), http://www.library.unlv.edu/webbin_rebels/2009/07/importance-stable-uris-library-website.html.

incoming links that are placed in other publications, guides, and websites to remain valid as long as the library website is in operation.

When a library does not have control of their webpage or they want to be able to freely implement needed webpage redesigns, keeping links valid can still be achieved. If research guides cannot be stably stored in a constant location, then the library should utilize persistent uniform resource locators (PURL). A PURL is an index that redirects a unique link to the current location of the web resource even when the resource moves. This allows the library to rearrange the website without resulting in broken inbound links.³⁹

Tracking and search engine optimization

Online library research guides exist in the greater internet repository. As such, library guides are competing with other websites and resources in search engine results. Because libraries should theoretically be providing superior resources, they also have a duty to make the resources prominent when a potential patron searches the internet for legal answers.

Search engine optimization is a way for libraries to maximize their exposure to search engine web crawlers and algorithms. Simple actions like properly describing what content is on the webpage through metadata tagging allows the search engines a way to better understand and rank the content.⁴⁰

The library should have an expert in best practices in creating highly visible webpages on staff or they should subcontract the responsibility. As the library webpage is becoming the sole interaction with an increasing number of patrons, libraries are doing their potential patrons a disservice by not putting more resources behind making their research guides highly ranked on search engines.

Libraries should also optimize the online library experience for patrons by utilizing web analytics. Learning more about users by thoughtfully tracking and analyzing their online behavior is an important step in creating a meaningful online library presence.

³⁹ See Keith Shafer et al., *Introduction to Persistent Uniform Resource Locators*, OCLC, http://purl.oclc.org/docs/long_intro.html (last visited May 13, 2014).

⁴⁰ See generally Google Search Engine Optimization Starter Guide, (2010), <http://static.googleusercontent.com/media/www.google.com/en/us/webmasters/docs/search-engine-optimization-starter-guide.pdf>

Webpage analytics allows for the tracking and understanding of how users navigate the library website and what pages and resources are the most popular.⁴¹ By watching and learning user behavior, libraries can better serve their patrons by continuously supporting their most useful content and research guides. This also allows for libraries to optimize navigation as they gain an understanding about how patrons are using the website by monitoring the paths taken to and from content.⁴²

Creating resources to be integrated by other law libraries.

Creating a full range of research guides should be a joint effort among law libraries. There has been a recent trend where libraries have increased the number of research guides offered.⁴³ However, these offerings have significant overlap between libraries.

Research guides should be created to share content with other libraries so overlapping efforts can be avoided. If libraries are going to invest the time to create detailed research guides that fit the needs of diverse groups, then these efforts should not be redundant.

To facilitate sharing, libraries should explicitly allow other non-profit libraries the use of their intellectual property. Libraries should also commit to updating the research guides they create on a regular bases and indicate the currentness of the information.

Thinking for the near future: research guides and the semantic web

The semantic web⁴⁴ is an idea that through collaboration, the internet can move beyond creating data made for consumption by humans. Instead, in the semantic web, there is a common framework that allows computer algorithms to process data because information is being created specifically for the consumption

⁴¹ This is the modern day equivalent to circulation statistics. It is highly important to keep and analyze statistics when hosting a website and research guides.

⁴² See generally *Google Introduction to Google Analytics*, <https://support.google.com/analytics/answer/1008065?hl=en> (last visited May 13, 2014).

⁴³ Ingrid Mattson, *Untapped Potential: A Study of Academic Online Legal Research Guides*, 32 LEGAL REFERENCE SERVICES Q. 247 (2013).

⁴⁴ See Tim Berners-Lee, James Hendler and Ora Lassila, *The Semantic Web*, Scientific American Magazine, <http://www.scientificamerican.com/article/the-semantic-web/> (last visited May 13, 2014).

of computer algorithms.⁴⁵ Computers have the capability to process and connect data at much faster rates than humans can achieve.

For this eventual end, research guides should be created to be processed by algorithms. Eventually, a common description⁴⁶ could be created so algorithms can be employed to utilize information created by other law libraries. If this coordination was pursued, libraries could have a large collection of updated research guides while only needing to put institutional effort into the information they have committed to maintaining.⁴⁷

Becoming an archive and repository by owning digital content

Law libraries are at the point where they have to decide if they are going to seriously join the digital information landscape and commit to owning valuable digital content. Being a digital repository and owning this content will ensure information availability when database prices increase or businesses cease to exist. Digital content is valuable because it can be shared with anyone, everywhere, instantly.

Attempting to own this information in analog form only is of limited usefulness as digital content can also be utilized in much more powerful ways. This is an inflection point where law libraries must decide to become increasingly a subsidizer of databases or if they want to also be an owner and repository of digital legal materials that they can freely distribute.

The versatility of digital content is a powerful reason law libraries need to move beyond being an analog repository to a digital one. For example, having all the Supreme Court decisions in analog form is of virtually no use to researchers wanting to track word usage over time. This analog form is of merely limited use in other scenarios when computer assisted researching can yield results in seconds

⁴⁵ See Melissa Beck, *Linked Data, Law Libraries, and the Semantic Web*, 38 TECHNICAL SERVICES L. LIBR. 39 (2012)

⁴⁶ This can be achieved by tagging research guide elements with metadata. The metadata would need to share a common ontology so that algorithms can gather and understand this information.

⁴⁷ Currently there is very little standardization of library guides even within individual institutions. A majority of libraries are using LibGuides to create their research guides which could offer future standardization. See Jimmy Ghaphery & Erin White INFORMATION TECHNOLOGY, *Library Use of Web-based Research Guides*, INFO. TECH. & LIBR. (March 2012).

where analog researching must be done manually and would take hours if not weeks to complete.

Libraries need to therefore decide what content to digitally own⁴⁸ and what content to license. The content they own must exist in a way that is useful. The usefulness of digital content is centered on accurate sorting, searching, and manipulation. The way this is done is through full text indexing and through common metadata schemas.

The semantic web and hosted digital legal content: metadata designed for machines.

Cataloging was a process initially completed with the purpose of creating a catalog—information designed for human consumption. This was a good system when information was in a fixed analog form within the control of the library. With the invention of computers and the internet, information was free from this analog form. With digital content, it is more useful to describe the resource within the resource itself by adding metadata instead of creating a description in a central location.

Adding metadata, even at a minimal level, to the resource itself allows for many powerful future uses because it facilitates discoverability, organization, manipulation, and linking by machines.⁴⁹ In short, metadata allows for complex relationships to be created by computers at the resource level. All the expertise developed in cataloging is needed in describing digital content for these complex relationships to have maximum relevance and meaning.⁵⁰

⁴⁸ This content should be digitized resources already owned in the stacks. Although primary case law is important, commercial databases have made access to most primary case law affordable. Items like court briefs and state legislative documents that are not fully available in commercial databases should be initially digitized and owned by the library.

⁴⁹ See generally DEAN ALLEMANG & JAMES HENDLER, SEMANTIC WEB FOR THE WORKING ONTOLOGIST (Elsevier 2011).

⁵⁰ Ultimately government entities who publish primary law should add metadata at the time of creation. An organization like the American Association of Law Libraries needs to develop a metadata standard and then lobby the government to use the standard when creating and publishing primary law.

Creating powerful relationships between resources

Metadata is of greater importance than text indexing because it allows for the inclusion of ontologies with defined meaning. These rules, much like the rigid rules of cataloging, create a common meaning. Machines can take this common meaning and can link information together.⁵¹ Computers have the ability to make connections in metadata and resources from multiple locations. The reason this can be done is because the ontology creates a common meaning over the network.⁵²

A new form of cataloging is taking place with metadata built into resources themselves. This makes sense in a digital age because copies of resources are continuously being made and moved around the internet. Having metadata attached to the resource itself allows for organization even when information moves, is altered, or is updated.

Resource level metadata is very important with information growth because as more and more content is tagged with metadata made for machines, computer algorithms can build large and refined information systems. A way to keep up with such a large amount of information is to utilize machines. Metadata makes this possible and accurate.

Possibilities for law libraries.

If legal libraries decide to become repositories of digital content and then attach meaningful metadata, libraries can also start utilizing indexing tools and algorithms to connect this information. Libraries should create cooperative agreements to share important digital content. This would ensure the existence and access to important resources in the future. This would also create a large valuable mass of digital content owned and controlled by libraries themselves. Law libraries are in a position to take the lead as a digital repository because of

⁵¹ *See generally* JOOST BREUKER, LAW, ONTOLOGIES AND THE SEMANTIC WEB (IOS Press 2009).

⁵² A fixed vocabulary needs to be created so that algorithms can index multiple depositories of data and create links between the resources and depositories. On a resource level, this can be minimally achieved with universal citation.

the rare legal materials already owned by many libraries⁵³ and can start by digitizing the rare analog materials in their stacks.⁵⁴

Coordination

The key to creating a meaningful digital repository in the future is coordination. In a networked internet age, libraries need to become connected and share digital materials to compete with large online research products. Specifically, libraries hosting digital content need to create a framework on how to add metadata to digital content so networked information systems and linked data networks can be created in the future.⁵⁵ This is not a far-fetched or utopian concept as scientific communities are already designing these systems with structured frameworks and common metadata schemas.⁵⁶ It is therefore important to initially create a legal metadata schema so that institutions can start describing the digital content they choose to own and host.

Conclusion

The exponential growth of networked information on the internet, the anti-library, is an exciting development because there is so much unknown information that is potentially life changing. As digital information continues to grow and entities like Google continue organize it, it is important for the library to stay involved.

The library needs to minimize expenditures related to the maintenance of the local catalog as a finding aid so it can engage in other innovative pursuits. As many library resources are digital it makes decreasing sense to catalog them. The analog resources owned by the library is of waning importance due to mass

⁵³ Legal citations and their strict formatting rules will allow for powerful connections to be made among digitized legal materials with relative ease.

⁵⁴ This could begin with a focus on whatever state the library resides. For example, many libraries have legislative materials and court briefs that are not yet available in databases. This would be a valuable starting point to start digitizing and hosting content.

⁵⁵ This specifically is a metadata schema. The schema is designed for machines to interpret and link information together.

⁵⁶ GoPubMed is a working example of search built on a semantic web architecture. *See* Lee Feigenbaum et al., *The Semantic Web in Action*, *The Scientific American* (2007) (also available at: <http://www.thefigtrees.net/lee/sw/sciam/semantic-web-in-action>).

digitization projects. Because of this, the internal online catalog should be managed in a central location where items can be discovered worldwide.

Another key way for the library to stay involved is through authoring original content in the form of research guides to curate the anti-library. These research guides can help users navigate information found outside the control of the library. In order to pursue meaningful and relevant research guides, libraries need to have diverse subjects that are targeted to different user groups. This undertaking is complex and will take coordination with other institutions.

The library should also join the digital information network as a repository by owning and hosting important digital content. This content needs commonly defined descriptive information in the form of metadata so that large linked data networks can be created in the future.