



Smart Libraries™

Formerly Library Systems Newsletter™

50 East Huron Street, Chicago, Illinois 60611-2795, USA



Smarter Libraries Through Technology

Ten Technology Trends for 2017

Marshall Breeding

As we approach the mid-point of 2017, it seems like a good time to write about some of the important trends playing out in the library technology sector. Most of these trends are not necessarily breaking news but represent areas of critical concern or opportunity for libraries. This list of trends focuses on the technologies within the scope of the newsletter, primarily the strategic resource management and discovery systems used by libraries. These trends represent important context for the individual events and developments that transpire within the sphere of library technology.

Proprietary Versus Open Source Software

Products based on proprietary software continue to hold overwhelming dominance in the high end of the library technology sector. Library services platforms, especially Ex Libris Alma and OCLC's WorldShare Management Services and integrated library systems (ILSs) such as those from Innovative Interfaces and SirsiDynix continue to stand as the preferred products for mid-sized to large academic and public libraries. Products based on open source software have been routinely implemented by many libraries of varying types and sizes, though with less

penetration into the tier of those with the largest collections and user populations. The open source Koha ILS has been adopted by an ever-growing community of libraries and is one of the most widely implemented systems globally. In the United States, it has become a popular choice for small to mid-sized libraries, with its reach gradually extending upward. Evergreen likewise earned a strong position among consortia comprised mostly of public libraries. A new wave of interest has been sparked by the recently launched FOLIO project to create an open source library services platform. Coming on the heels of the demise of the Quali OLE project, FOLIO has gained attention due to its strong backing by EBSCO Information Services, the involvement of Index Data as a well-regarded software development firm, a fresh technology architecture, and an ambitious development agenda. Open source alternatives can also be found in almost every other genre of library software, including repository platforms, archives management systems, and discovery interfaces. Open source software provides an important competitive element to the dynamics of the industry, raising the bar on innovation and flexibility. It also may serve as a moderating factor in pricing. Many libraries remain agnostic relative to software licenses, implementing a mix of open source and proprietary solutions.

Consolidated and Convergent Business Environment

One of the key observations reported in the 2017 Library Systems Report involves the ever-deepening consolidation of the library technology industry. The previous phase of the industry saw aggressive consolidation among the companies specializing in core library services, resulting in the formation of companies such as SirsiDynix, Innovative Interfaces, Ex Libris, Lucidea, and Axiell. Much of the recent business activity involves

IN THIS ISSUE

Library and Archives Canada to Implement WorldShare Management Services
PAGE 4

Demco Software Established
PAGE 4

Smart Libraries Q&A
PAGE 6

the absorption of technology-focused companies or projects into the top-tier of library services companies. These diversified giants increasingly include strategic library management or discovery technologies as elements of a business portfolio centered on content products. This growing industry dynamic can be seen in ProQuest via its acquisition of Ex Libris, in EBSCO Information Services in its launch and backing of FOLIO, and Follett's acquisition of Baker & Taylor. Some of the same undertones are present in Axiell's diverse portfolio assembled from a long spree of acquisitions spanning technologies for library management, archives, and museums; digital media management and lending; and its role as a major provider of e-books and other digital media in Scandinavia. This trend for convergence means that libraries need to be vigilant to ensure that the technology is independent and unbiased in relation to content offerings from the same vendor, and vice versa.

Growth of Software-as-a-Service

Libraries are not only accepting but are also increasingly requiring that the new products they procure be deployed via some flavor of software-as-a-service (SaaS) or hosted solution. The diminishing cost of cloud-based infrastructure and the scarcity of personnel with deep expertise to implement and maintain locally managed servers and applications have driven libraries past the tipping point where most procurement processes specify a preference or requirement for hosted services. Some product categories, such as library services platforms and index-based discovery services, are deployed almost entirely via SaaS. In the ILSs arena where local hosting may be more of a possibility, most new implementations now specify a preference for vendor hosting. Companies that have traditionally derived most of their revenue from content are increasingly expanding their involvement in services delivered through SaaS technologies. Publishing giants, such as Elsevier, seem to be gravitating to these services to reduce their dependence on subscription-based content. The ability to monetize content may diminish over time due to increasing mandates by universities, funding agencies, and governments for open access content.

Rural Areas and Small Communities Remain Underserved

Access to technology continues to be unevenly distributed among libraries based on their size and geography. Many libraries serving small and rural areas find effective and engaging technologies to be beyond their reach, both in terms

of cost and technical expertise. Technology products and services are often scaled according to the size and complexity of a library. The cost formulas involved unfortunately do not scale downward enough to reach the very modest budgets of small libraries. In some areas, small libraries gain access to high-quality automation systems by participating in a consortium. But many of these small public libraries may not be automated at all or may operate on an outdated PC-based system. These libraries also often lack a modern website or other technologies taken for granted by their larger peers. Providing more equitable access to technology remains a longstanding and unresolved concern.

Library Services Platforms

The genre of library services platforms has become well established among academic and research libraries that manage collections where investments in electronic and digital materials far outpace that of print. These libraries were increasingly stymied by systems still mostly oriented around print. In recent years, most new procurements by libraries in this sector result in the selection of a library services platform. A critical mass of these implementations may now be in place, accelerating the movement of academic libraries that remain on legacy systems.

Public libraries continue to rely on ILSs. These libraries have not seen the same patterns away from involvement in print and continue to need systems able to support the management and circulation of high volumes of physical materials. Until recently, no library services platform had been developed specifically for public libraries. It will be interesting to see how much traction Axiell's new *Quria* platform receives once its development is complete.

Privacy and Security

Libraries voice great concern for technologies that safeguard the privacy of their users and that remain secure to unauthorized access. Yet, progress in the implementation of these safeguards remains very weak within the library community. As demonstrated by last month's issue of *Smart Libraries Newsletter*, the vast majority of libraries do not implement readily available and affordable mechanisms to encrypt their web-based services to protect the online activity of their patrons from third-party interception. I hope for more rapid adoption of privacy-enhancing technologies, but it is hard to be optimistic given the current sluggish momentum. Concern for security and data protection has been greatly heightened as a result of the massive ransomware attacks in recent days. It has

become even more evident that not installing system updates as they are made available is dangerous and irresponsible. As these kinds of attacks become more pervasive, libraries will need to up their game in terms of the security precautions or move to SaaS solutions, where the brunt of responsibility for network and infrastructure security falls on the shoulders of the vendor.

Support for Mobile

Society has passed the tipping point where more access to services takes place via smartphones than it does through desktop or laptop computers with larger screens. Social networks, e-commerce sites, news and media outlets, and other major web destinations on the web offer apps or responsive websites optimized for access via mobile devices. Support for mobile in the library arena continues to lag behind. Many libraries do not yet offer mobile-friendly, patron-facing services. The sluggish progress can be seen both in library-managed websites as well as vendor-provided catalogs or discovery services. I anticipate an accelerated development in this area as trends skew even further toward the dominance of mobile access.

Discoverability Versus Discovery

The library community has been involved with developing and implementing new discovery interfaces for the last decade or so. The traditional library catalog is increasingly supplemented or displaced by discovery tools implementing interfaces more consistent with mainstream search engines. The genre of index-based discovery services has expanded the scope of search to a broad universe of content that libraries deem as reliable and trustworthy. These new search tools have become an essential component of library technology infrastructure. Even though these tools have become more powerful and flexible, they can work only if library users opt to use them. In most cases, patrons search general search engines and expect to find the materials they need in the library. In order to increase the likelihood that patrons will find results for library materials when they search Google Scholar, the basic Google search engine, or Microsoft Bing, techniques need to be devised and implemented that improve discoverability beyond the library-provided interfaces. There has been much recent interest in taking advantage of semantic web technologies to improve the performance of library materials in the broader web ecosystem. These techniques include encoding library-provided resource pages to include semantic markup based on schema.org or BIBFRAME.

Tech Companies Seek Wider Presence in Communities

The organizations that have traditionally created products specifically for libraries have expanded their sites to find new opportunities in the broader organizations or communities served by the libraries. Such a strategy enables developers to leverage the technologies they have created for the library to expand the reach of library content and services. In the academic arena, for example, there is great interest in products that may not be operated directly by the library but are operated by other members of the academic institution. The genre of reading list management systems, such as Talis Aspire, the open source Rebus:list, and Ex Libris Leganto, operate alongside the learning management environment of the campus to help instructors create lists that provide access to supplemental reading materials for each course. Libraries have an interest in these products since they optimize the use of their content in the curriculum. Products such as SIPX add an additional layer of cost savings and copyright compliance for materials assembled for course packs. In the K-12 school arena, companies such as Follett work to create a broad field of products of interest to the entire district and not just its libraries.

Divergence among Library Sectors

The work accomplished by public, academic, school, and special libraries has become increasingly distinct in recent years, though each type embraces many common values and core areas of expertise. The deep transformation of academic library collections toward electronic resources and the ongoing reliance of public libraries on physical formats is a theme that continually arises in *Smart Libraries Newsletter*. School libraries likewise have to manage collections with a strong emphasis on reading level and age appropriateness relative to community values. These differences mean that it is increasingly difficult to create technology products that serve all types of libraries well. This trend has resulted in increased specialization in the companies that produce library technologies. For example, Ex Libris works primarily with academic and research libraries, Follett with the K-12 sector, and Axiell with public libraries. Those companies such as SirsiDynix and Innovative that have historically been involved with libraries of different types face a more difficult challenge than might have been the case a decade or so ago. These companies have seen a drift in their customer base toward the public library sector, though they continue to retain and even recruit new customers in other sectors.

Library and Archives Canada to Implement WorldShare Management Services

Library and Archives Canada announced that it has finalized its contract to implement WorldShare Management Services from OCLC to replace AMICUS. The selection of WorldShare Management Services by this national library represents a major boost for OCLC, especially given the broad scope of service it provides. The current AMICUS system, in addition to managing the collections of Library and Archives Canada itself, supports a national union catalog, which includes materials held by 1,300 libraries throughout Canada. AMICUS includes over 30 million bibliographic records, representing many different formats of materials, including books, serial publications, government documents, maps, audio recordings, and braille and large print materials. Once implementation is complete, WorldShare Management Services will support the acquisitions, cataloguing, access, and circulation of the collections of Library and Archives Canada, and WorldCat will function as the national union catalog.

The current AMICUS system is based on software developed specifically for Library and Archives Canada, which was implemented in 1996. According to the October 1997 issue of *Library Systems Newsletter*, the initial development of AMICUS was performed by a software development firm named CCI. AMICUS library had previously used DOBIS, a mainframe-based automation system developed and supported by IBM. As a system that has been developed and supported in-house for two decades, Library and Archives Canada is ready to replace AMICUS with a standard commercially-available product.

The selection of WorldShare Management Services not only provides a new technology platform for its own operations, it essentially outsources the maintenance of the national union catalog to OCLC. The holdings representing libraries in Canada will be transferred to WorldCat as part of the implementation. Subsequently, Canadian libraries will work directly with OCLC to keep their holdings current in WorldCat. The

ability to set holdings in WorldCat depends on these libraries being OCLC members. Currently most Canadian libraries are not OCLC members, but the project will provide financial support to support membership for small and mid-sized libraries.

Serving a bilingual country, the new service must be offered in both French and English, including interfaces use by library personnel and by users. In support of this project, the French name authority file will be implemented on WorldShare Management Services.

Library and Archives Canada had previously provided an interlibrary loan service for materials represented in Amicus. Due to budget cutbacks and declining use, this interlibrary loan service operated by LAC ceased operation in December 2012. According to statistics provided on the LAC website, requests had dropped from around 150,000 annually in the 1990's to 34,000 in 2011. AMICUS can be used to locate which Canadian libraries may own materials of interest, but requests are no longer brokered directly by AMICUS. Materials in Canadian libraries will be discoverable in WorldCat and available through OCLC's WorldShare Interlibrary Loan service.

This contract culminates a process that has been underway since 2014. At that time, Library and Archives Canada began negotiating with OCLC, which it had previously identified as the only provider able to meet its requirements.

The shift from a locally-developed and supported automation system to a commercial product and the outsourcing of the national union catalog is part of its reallocation of priorities to support its new digital strategy (Digital Strategy 2015 and Beyond: <https://www.bac-lac.gc.ca/eng/about-us/publications/digital-strategy/Documents/LAC-Digital-Strategy.pdf>).

The transition to the OCLC WorldShare platform is expected to be completed in 2019.

Demco Software Established

Demco Software has been established as a new technology-focused company, operating as a division of Demco, Inc., a major distributor of furniture, supplies, and other products.

This new division brings together the technology companies that Demco has recently acquired, Evanced Solutions and Boopsie.

Evanced Solutions was acquired by Demco in May 2011. The company had developed a variety of products to assist libraries with managing their programs, services, and facilities. Key products offered by Evanced include the Spaces room and equipment booking system, event management and SignUp calendar, and the event management software. The company also developed the Wandoo Reader, a reading engagement platform for children. It helps an organization manage a reading program that uses gamification concepts to motivate students to read and track their progress. Wandoo Reader was launched by Evanced Solutions in June 2014. Its mobile app D!BS enables students to find and reserve study rooms in the library or on campus.

Evanced had also developed a fully self-contained vending machine for library materials available for self-service check-out and return called BranchAnywhere. This product was launched in March 2010 but is not currently marketed.

Evanced was founded in January 2002 by Rob Cullin and Todd Cutler and employed 21 employees at the time it was acquired by Demco.

Demco acquired Boopsie, a company specializing in developing mobile-friendly apps and content platforms for libraries in October 2015. Tony Medrano served as President and CEO of Boopsie from April 2013 through 2016. Boopsie based its products on a platform-as-a-service architecture, enabling it to efficiently create and deploy customized apps for libraries, including online catalog functionality. The company formed partnerships with a diverse set of organizations to integrate content and services into its mobile platform, including EBSCO Information Services, ProQuest, OverDrive, Baker & Taylor, and Recorded Books. Boopsie Analytics, introduced in 2014, provided libraries with detailed data describing how their patrons access resources via the mobile app.

Boopsie was founded in 2006 by Greg Carpenter and Dr. Tim Kay. In early 2015, just prior to its acquisition by Demco, Boopsie employed 13 personnel. The May 2015 issue of *Smart Libraries Newsletter* included a feature on Boopsie, including its product strategies and corporate background.

Demco Software also distributes BrainHQ to the public library sector. This service, developed by Posit Science is positioned as a brain fitness program that guides users through exercises designed to provide benefits, such as improved cognition and reduce the risk of dementia in the elderly.

New Leadership for Demco Software

Ravi Singh was appointed as Executive Director of Demco Software in January 2017. Prior to joining Demco, Singh was Senior Vice President of Technology for Tillster, a company

that provided self-service ordering technology products for the restaurant industry. He founded NaviVision in 2000, a platform based on data extraction and semantic search in support of marketing analysis.

The formation of Demco Software as a new corporate division joining the efforts of Evanced and Boopsie is a logical move to internally consolidate a set of related business acquisitions. The products involved span an interesting variety of functions that aim to help libraries manage some of their key patron-facing services. Bringing them together into a technology-focused organization and under a seasoned professional should result in opportunities for the company to strengthen Demco's position in the library technology sector.

Demco Corporate Background

Demco, the parent company of Demco Software, is a well-established purveyor of products and services to libraries. The company was originally established in 1905 as a division of the Madison-based Democrat Printing Co. Demco was owned by Norman Bassett from 1931–1972.

The headquarters are located in Madison, WI. Demco is a subsidiary of Wall Family Enterprise, which is privately owned by the children of John Wall. According to the organization's website, John Wall was named President of Demco in 1968, became majority owner of the company in 1978, and gained full ownership in 1988. Mike Grasee has served as President of Demco since September 2008.

Demco has strengthened its position as the leading supplier to libraries through multiple business acquisitions. In May 2003, Demco purchased Gaylord Bros., its chief competitor in the library supplies sector. In December 2010, Demco acquired its competitor Highsmith from W.W. Granger.

Aside: Missed Chance for Polaris

The acquisition of Gaylord Bros. did not include Gaylord Information Systems, the company's technology division that had developed the Galaxy and Polaris ILSs for public libraries. Since Demco purchased the Gaylord brand, Gaylord Information Systems took the name GIS Information Systems. Gaylord was one of the earliest developers of technology for library circulation, beginning with mechanical equipment, and later introducing some of the earliest computer-based systems. Following the sale of Gaylord Bros. to Demco, GIS Information Systems grew to become one of the most successful technology companies in the public library sector. Its Polaris ILS became especially popular for large consortia and municipal library systems. The company was renamed to Polaris Library Systems in May

2005. Innovative Interfaces acquired Polaris in March 2014. It is interesting to note that Demco opted not to purchase the

technology division of Gaylord back in 2003 and is now working to strengthen its position in the library technology sector.

Smart Libraries Q&A

Each issue, Marshall Breeding responds to questions submitted by readers. Email your questions to Samantha Imburgia, Associate Editor for ALA TechSource, at simburgia@ala.org.

What measures can we take when looking for new library automation software that can help negate the possibility of winding up with an outdated or obsolete product a few years down the line?

Libraries make significant investments in their technology infrastructure, so it is essential for them to derive the best value from them as possible. The financial costs and the time and disruption involved in implementing a new system motivate libraries to find systems that will serve them well for a very long time. According to data in libraries.org, libraries on average stay with the same automation system for 12- 15 years. It is not unusual for a library to keep the same automation system in place for over 20 years. The selection and implementation of a new automation system is a long-term commitment, making it imperative to identify that the vendor and products are well aligned with current and future strategic priorities. A variety of factors should be considered in the process.

Consider the Present, Plan for the Future

Given the long-term tenure of these products, libraries should be careful to shape their criteria for selection more on the needs they anticipate for the future. Many aspects of library operations change over time, making it important to look beyond the concerns that may be immediately pressing. It is especially important not to formulate requirements only around current-day or past practices but to anticipate future trends and strategies. Libraries should work to identify products that are able to meet the anticipated high-level goals of the library, even if they are oriented to different approaches to processes or workflows.

When creating requirements for a new system, the organization might use statistics and analytics to predict the types of collections and services that might prevail in the next five years. Keep in mind that three years can easily transpire from the early phase of a procurement process, when system requirements are developed, until a product has been selected

and implemented. A short-term focus can therefore result in a system being a bit outdated by the time that it is placed into production use.

Align Operational Tasks with Strategic Priorities

The selection and implementation of a new system should be taken as an opportunity to reevaluate operational priorities, resource allocation, and how routine tasks are fulfilled. As individual staff members participate in evaluating new candidate systems, it is natural for each to think about how each might support their day-to-day work. While respecting that context to the extent possible, it is also important to consider that thinking in terms of supporting the tasks associated with the current system may result in a conservative choice representing lateral instead of forward momentum in terms of supporting new or changing aspects of library services or operations.

Seek Flexible Technologies

This perspective of constant change in libraries means that the technology product or service most likely to succeed in the long term are those able to accommodate new workflows, formats of materials, metadata conventions, or other aspects of functionality. The ILS has been the basic model of automation for several decades, but in many contexts, it is approaching the point where it is not able to meet future expectations. Its fixed modular structure, ingrained design around specific metadata schemes, and its generally rigid approach don't necessarily result in the flexibility and adaptability needed as the speed of the cycles of change accelerate in libraries.

Products designed to accommodate the changing realities of libraries will naturally be less likely to become obsolete. The recent genre of library service platforms embrace a set of characteristics that are not only more consistent with current expectations in research libraries but also are designed in ways to accommodate future changes. Products such as these have been created not only to address currently prevailing practices but also to adapt to future possibilities. Rather than being

designed around MARC bibliographic standards, for example, a product might take a more abstract approach to metadata, supporting a range of standards and formats that apply to different collection formats, including those that may emerge in the future. Systems that enable organizations to design workflows around configurable business rules provide more flexibility than those with hardcoded functionality.

Open Technologies Resist Obsolescence

Open technologies also stave off obsolescence by enabling the organizations using them to address new areas of interest as they emerge. Openness can be delivered in multiple ways, such as through open source software, through comprehensive and documented APIs, or through open data models.

It isn't possible for any given product to offer every detail of functionality expected by a library in its default configuration. There is just too much complexity and variation among different types and sizes of libraries and related organizations. It is therefore important to provide tools and mechanisms for each library to configure or extend the system to fill in any gaps.

Open source software development can result in the creation of products that can be modified and extended to meet the ongoing needs of a library. Open source ILSs, for example, have become a routine segment of the technology industry. The two leading products in this area, Koha and Evergreen, both benefit from active development communities and a variety of for-profit and non-profit firms offering support services for implementation, hosting, and support. In addition to using their own technical abilities to create enhancements to an open source product, libraries can also contract with a development firm. Open source alternatives have been developed for almost all categories of products used by libraries, such as ILSs, discovery interfaces, institutional repositories,

digital asset management systems, and archival management systems. The ability for open source products to avoid obsolescence depends on the completeness and maturity of functionality, underlying technical architecture, the level of capacity and engagement of their development communities, as well as having a critical mass of installations to sustain them.

Open APIs can add an additional layer of extensibility and interoperability to open source and to proprietary software. It is becoming increasingly expected for technology products to be deployed via platforms with comprehensive APIs that enable libraries to gain additional value through writing scripts, modules, or apps that leverage its data and core functionality. Open APIs enable programmatic access to data and units of functionality without the need to work with the deep code within the application itself. Although highly trained software engineers may be needed to modify and extend complex open source applications, individuals able to use high-level scripting languages, such as Python, Ruby, PHP, or Perl can easily create services based on the APIs of their core systems.

Open data can also enhance the resilience of a product or service. Technology-based products often have a knowledge base, discovery index, or other data component. The ability of a product to take advantage or to expose open data can help ensure its ability to evolve along with the changes in the library environment.

These examples stand out as some of the factors that a library can keep in mind as it acquires a new technology product to increase the chances that it will remain viable for the long term. Especially in the realm of ILSs or library services platforms, changing systems is expensive and disruptive. But working with a product that has not kept up with the changes in libraries can be a liability. Selecting a system designed to be flexible and extensible in these ways can help ensure that it will not become obsolete before its time.

Questions or suggestions
for topics in future issues?



Contact Samantha Imburgia at
simburgia@ala.org



Smart Libraries Newsletter
American Library Association
50 East Huron Street
Chicago, IL 60611-2795 USA
Address Service Requested

NON PROFIT
US POSTAGE
PAID
PERMIT 4
HANOVER, PA

June 2017 Smarter Libraries through Technology

Smart Libraries Newsletter

Marshall Breeding's expert coverage of the library automation industry.

Editor

Marshall Breeding
marshall.breeding@librarytechnology.org
Twitter: @mbreeding

Managing Editor

Samantha Imburgia
312-280-3244
simburgia@ala.org

Digital Access for Subscribers

journals.ala.org/sln

TO SUBSCRIBE

To reserve your subscription, contact the Customer Service Center at 800-545-2433, press 5 for assistance, or visit alatechsource.org.

The 2017 subscription price is \$85 in the United States and \$95 internationally.

ALA Techsource purchases fund advocacy, awareness, and accreditation programs for library professionals worldwide.

Production and design by the American Library Association
Production Technology Unit.

Smart Libraries Newsletter is published monthly by ALA TechSource, a publishing imprint of the American Library Association.

alatechsource.org

Copyright © American Library Association 2017. All rights reserved.