Smart Libraries Newsletter

News and Analysis in Library Technology Developments

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Smarter Libraries through Technology

What to Expect in 2021 and Beyond

By Marshall Breeding

The year 2020 will be long remembered. For organizations, it was a year that saw widespread disruption and strategic responses due to the COVID-19 pandemic. Libraries dealt with the closure of most library buildings for extended periods and increased their reliance on digital and electronic materials. They created new services, such as requests and pickup of materials. They deployed new technologies and processes to support self-check and return, as well as procedures to maintain adequate social distancing and contactless services once buildings reopened. Much of the response to the crisis was supported through technologies created or customized by library personnel or through the vendor community. The year 2020 ends with the pandemic surging at record levels, but with the development and approval of effective vaccines, some relief in sight. We can expect the operational impact and budget fallout of the pandemic to persist through much of 2021. Given these circumstances, the library technology industry will experience ongoing short-term impact, even as longer-term trends continue to play out.

We can anticipate that many of the changes made necessary by the pandemic will endure. Increased offerings of digital and electronic materials are not likely to be rolled back. Library patrons who took advantage of virtual access to resources out of the necessity are likely to appreciate its convenience going forward. The transition of content from print to electronic version has come often at great expense. Licenses and platform fees for electronic resources may be several times the cost of the same print item. Patron expectations for electronic content, which usually comes at a higher cost, will certainly present budget challenges for libraries. It is important to keep in mind that the shift from print materials to electronic equivalents also involves a move from the legal status protected by the "first sale" doctrine to the realm of contracts and licenses, with terms and pricing that must be negotiated with publishers or providers.

In response to the pandemic, many library personnel took advantage of work-from-home arrangements. Those with roles usually performed behind the scenes, such as technical services and administrative personnel, made this shift more easily than those that work on the front lines with patrons and materials. For those able to perform their responsibilities remotely, working from home may be an ongoing possibility offering more flexibility in lifestyle. Many library workers honed their skills with videoconferencing platforms and other collaborative tools such as Microsoft Teams or Slack, which will be of lasting value even for those who return to their workplaces or hybrid arrangements.

The necessity of work from home has implications for the technical infrastructure of a library. Web-based applications deployed via software-as-a-service (SaaS) are ideal for remote workers. Applications requiring dedicated software installed on the laptop or desktop computer complicate remote use.

The transition from library products relying on workstation graphical software to fully web-based applications has been underway for many years. Comprehensive implementation of web-based interfaces for staff functions is long overdue. Some vendors have longstanding projects, which have not yet reached completion, to develop new web interfaces for their ILS products. The pandemic may provide impetus for completing these

IN THIS ISSUE

ISSN 1541-8820 January 2021 Volume XLI Number 1

projects to deliver modernized web-based access to integrated library systems. Notable projects include the BLUEcloud Suite from SirsiDynix and Leap from Innovative Interfaces. Apart from the newer products, created from the ground up with web interfaces, these evolved products have gradually moved in this direction. We should see the completion of these efforts this year.

Remote learning and work from home involve a more distributed approach to accessing library services and staff applications, removed from the direct institutional network infrastructure. Such distributed access tests the limitations of IP-based authentication. Virtual private network (VPN) components and proxy services have been reasonable pragmatic solutions to providing access to IP-restricted resources to remote users. Federated authentication services based on SAML (Security Assertion Markup Language) provide a more modern approach for authentication and access and are gaining wider use in higher education and in academic libraries. SeamlessAccess (https://seamlessaccess.org), for example, is gaining wider adoption in higher education and scholarly publishing. Though conversations continue regarding privacy issues, this service has emerged as one of the leading mechanisms for access to scholarly resources. Though it is unlikely that IP-based authentication will disappear any time soon from the library scene, we can expect to see considerable movement in the next year toward SAML-based authentication and less dependence on IP proxies.

Recent years have seen the transformation of the consumer video arena. Traditional broadcast and cable television services have been disrupted by high-speed internet services and a number of content services. Use of physical media, such as DVD and Blu-ray, has rapidly declined in the consumer sector. Most public and academic libraries continue to lend these discs or make them available for on-site viewing. Like the consumer arena, libraries are making a change to streaming services. Kanopy, Alexander Street, and ProQuest Academic Video Online are examples of services designed for libraries. These services offer business and licensing arrangements that accommodate library models of content delivery, which differ from the direct-to-consumer products. Though physical media for video and audio materials will persist in libraries for a long period, the bulk of library-provided access will shift to streaming services in the next year or so.

On the library systems front, we can expect that 2021 will be an especially slow year for new procurement projects. Most libraries that have made commitments to purchase new systems will go forward with implementation. In libraries hit with severe budget reductions, deals not yet signed may be postponed. My recent analysis of the numbers of library system procurements over the last two decades in US academic and public libraries shows a peak in 2011 with diminishing turnover since.[1] The already diminished number of procurements expected according to these trend lines may be even further reduced due to library budget cuts. While 2021 will probably be a lean year for library systems vendors, their longer-term prospects may not be as bleak. The need to replace legacy products will persist past the budget crisis. The pent-up demand will drive higher volumes of procurements in subsequent years. The apex of system purchases seen in 2011 may be at least partially explained by projects deferred because of the recession of 2007–2009.

This year will be a critical year for FOLIO, the open source library services platform that has been in development since 2016. FOLIO may be considered more viable in the mainstream now that several libraries are using it in production and with the completion of releases that represent a more complete set of functionality. The marketing muscle of EBSCO Information Services and an enthusiastic community of developers and early adopters have been effective in promoting FOLIO as a viable alternative to proprietary products. Ongoing budget challenges may alter the considerations that libraries make regarding the risk associated with new products, which may increase interest in exploring FOLIO or other open source products. Some libraries may decide that open source would result in lower costs and less dependence on vendors.

Resource sharing will become a new competitive front for library vendors and collaborative projects. Restricted access to library materials due to building closures intensified use of digital delivery via resource sharing networks and collaborative services such as HathiTrust. Constricted budgets will amplify the ongoing trend for libraries to purchase fewer materials individually and increase involvement in resource sharing partnerships. Products to support resource sharing will see higher demand, including the well-established services from OCLC and the SHAREit service from Auto-Graphics, as well as more recent projects such as Rapido and RapidILL from Ex Libris, Project ReShare, and others.

Public libraries will make more investments in marketing and engagement technologies and services. Products and services to help libraries communicate and promote their services to their communities in more sophisticated ways is becoming essential business infrastructure. We can expect increased interest in the creation and advancements of library-specific marketing products from library systems vendors, discovery providers, and businesses specialized in this niche.

We should expect additional business transitions in the next year or two. The anticipated slow-down in new sales could potentially accelerate acquisitions. Lower revenues may

impact company valuations in a way that makes them more attractive to potential investors, especially if they show promise of longer-term recovery and growth. In this phase of the industry, it seems more likely that larger-scale companies will acquire library tech vendors than lateral hand-offs from one investment firm to another. Potential acquirers could include large businesses with direct or indirect dealings with libraries. It seems remotely possible at best that any of the global high-tech giants, such as Google, Microsoft, Oracle, or Amazon, would take an interest in the comparatively tiny companies involved in library technologies.

The FTC review of the acquisition of Innovative Interfaces, Inc. by ProQuest that was underway for much of 2020 may have suppressed additional acquisitions under consideration during that period. The conclusion of the review with no divestiture requirements signals the level of consolidation allowable under regulatory restrictions and provides reassurance to investors or businesses interested in acquiring companies in the library technology arena.

For the past two decades, every year has brought one or more major acquisitions. While no deals are known to be underway, it would be surprising to see a lapse of such activity in 2021.

These possible developments in the library technology industry are offered to encourage readers to look ahead and think about the possible changes that may arise out of the trends of recent years. Time will tell whether any of the anticipated events will be realized. Readers can look to the monthly issues of *Smart Libraries Newsletter* to chronicle major milestones of the industry, ongoing developments in related products and services, historical and contextual information, as well as commentary and perspective.

New General Manager for BiblioCommons

BiblioCommons has named a new general manager, its top executive position. When Volaris Group purchased the company in February 2020, Matt Goddard was appointed as its general manager to lead the company through its initial phase of business integration. As of December 1, 2020, Sebastien Lopes has assumed the role of general manager, following a three-month recruitment process. This transition in leadership was expected and does not necessarily portend any major changes in product or business strategies.

Volaris Group recruited from within its ranks of executives in its portfolio of more than 70 companies. Lopes was previously associated with Wynne Systems, a Volaris company that produces software supporting the industrial equipment rental and transportation sectors. From 2012 through November 2020, he served in a variety of positions, most recently vice president of international operations. Volaris acquired Wynne Systems from United Rentals in May 2012. Tapping talent from existing companies ensures continuity of the preferred software development and support models and business practices that Volaris Group instills in its portfolio businesses. According to Lopes, despite the differences in products and target customer base, the companies share similar approaches to technology development and deployment of interfaces and in customer support.

Matt Goddard, after concluding his tenure at BiblioCommons, has shifted to another Volaris Group company, equivant, which produces software supporting the justice profession, including courts, attorneys, and organizations involved in supervision and custody (see https://www.equivant.com).

Since its business transition, BiblioCommons has continued to develop its core products and recruit new customers.

The company released improvements to BiblioCore, its core discovery platform. The new features help emphasize staff recommendations and other content, an important capability when library workers may be hindered from providing in-person services. Most of the enhancements relate to the BiblioCore Bib Page, the display presenting all the information on a given work. The new Bib Page features an improved layout design, larger cover art images, collages of staff recommendations of related items, and improved metadata. Early implementors of this new version of BiblioCore include the Arapahoe Libraries in Colorado.

BiblioEmail, a new product to support library marketing initiatives, was delivered in its initial version. Chicago Public Library was the first library to place BiblioEmail into production. BiblioEmail taps content created in BiblioWeb for distribution through selected communications channels and uses Mautic (https://www.mautic.org), a marketing automation package based on open source software, to manage the selection and distribution of content. BiblioCommons had originally planned to use marketing automation components from Salesforce to support BiblioEmail, but shifted to Mautic to gain flexibility and to reduce cost to customers. BiblioCommons announced the BiblioEmail product in June 2019.

BiblioCommons has also recently delivered its new BiblioApps mobile app to customer libraries. Initially released for iOS for Apple devices, it is now also available for Android. Chicago Public Library is also an early adopter of BiblioApps. Libraries that have subscribed to BiblioApps using earlier versions will migrate to this new version.

The Outagamie Waupaca Library System in Wisconsin recently subscribed to BiblioCore and is expected to place it into production in early 2021.

BiblioCommons products are designed to engage with library patrons, employing some concepts similar to social media platforms. This social approach naturally brings to mind concerns regarding patron data and patron-created content, which must be handled in ways consistent with a library's privacy policies. Business acquisitions can heighten such concerns. Addressing this, Erica Reynolds, BiblioCommons' vice president for library engagement noted, "All BiblioCommons data and privacy practices have remained the same under Volaris Group and Constellation Software, Inc. User-generated content is owned by the patron who contributes it, and BiblioCommons just has a license to use it. Patron data that comes from the ILS belongs to the library."

BiblioCommons recently assembled a new Partner Advisory Board. This group of customer stakeholders will advise the company regarding new products and features and will provide feedback on topics such as product roadmaps.

In the first year of its transition from ownership by its founders to becoming part of Volaris Group, BiblioCommons has maintained continuity in its product and business strategies. While the company has made some minor adjustments along the way, its library customers have not experienced abrupt changes or disruptions.

For more information on BiblioCommons see https://www.bibliocommons.com.

New President at Ex Libris

ProQuest has named Oded Scharfstein the new president of Ex Libris, effective January 2021. He will succeed Bar Veinstein. Ex Libris has been a portfolio company of ProQuest since October 2015.

Bar Veinstein joined Ex Libris in 2010 as corporate vice president with responsibility for the company's resource management products and has led the company as president since May 2017. He advanced to the top leadership position in Ex Libris when Matti Shem Tov became the president and chief executive officer of ProQuest. Shem Tov had led Ex Libris since 2003.

Following the transition in leadership, Veinstein will continue involvement with Ex Libris as a member of its advisory board. Veinstein will become the chief executive officer of Taranis, a startup headquartered in Sunnyvale, CA that specializes in high-resolution imagery and artificial intelligence in support of agriculture. (see https://taranis.ag)

Scharfstein most recently served as chief financial officer for LiveU, a company that develops and deploys streaming media technologies for sports coverage. LiveU was acquired in May 2019 by Francisco Partners, a private equity firm that owned Ex Libris from June 2006 through April 2008.

Prior to his involvement with LiveU, Scharfstein also held multiple roles at Ex Libris, including DigiTool product manager (2003–2006), corporate vice president for Asia and Pacific (2006–2011), and chief financial officer (2011–2019). Scharfstein earned a degree in Law and an MBA from Hebrew University of Jerusalem.

Throughout its corporate history, Ex Libris has had stable leadership. Veinstein's three-year tenure as president may have been be a bit short, but it is also not unexpected that a senior executive would move on to a CEO role in another company. Under ProQuest, the top executive position in Ex Libris is president, with all C-level positions residing in the parent organization. Likewise, the top executive position in Innovative Interfaces is managing director. ProQuest and Ex Libris representatives stated that they expect a smooth transition, and one that does not portend significant changes for the company.

Smart Libraries Q&A

Each issue Marshall Breeding responds to questions submitted by readers. Email questions to Patrick Hogan, Managing Editor, at phogan@ala.org.

With the current ILS market constricting into only a few players for academic libraries, how sustainable for a long-term strategy is the current subscription pricing model of 5% annual increases? Especially when a library's ILS consumes a large block of operations budgets, which don't grow at that pace, if at all. Libraries can cut serials and book budgets, but there is little flexibility for an ILS. You either have one or you don't. Do you see a potential "crash" where the same libraries who migrated to Alma or WorldShare a few years ago are forced to migrate to open source systems, given the projected declines in higher education in general? Also, what do you recommend as an appropriate ratio between the annual cost of a library's inventory management system and the annual cost of a library's inventory to use as a determining factor of when to jump away from a particular ILS?

The consolidation of the library technology industry has many implications, including availability of systems and their costs. The library technology industry differs from most other business sectors because the customers are non-profits with constrained funding and lengthy budget planning cycles. I have previously mentioned research that shows that libraries generally have choices of multiple viable products in the current business environment, with a more varied slate of choices than in previous times (See Nov/Dec 2020 issue of *Library Technology Reports*.)

The pricing of products remains a valid concern that likewise warrants further research. Secrecy of pricing hampers the ability to perform this research. Almost all contracts for big-ticket technology systems include non-disclosure clauses that preclude the library from sharing the price paid for the product. I see this practice as generally harmful to libraries. They are in a weaker position without the data needed to understand the market value of these products and related services. In the same way that libraries have made progress in removing non-disclosure terms from major contracts for content products, it seems that they could likewise insist on public disclosure of system pricing.

The current business paradigm of major technology products reflects some basic characteristics worth noting.

Subscription pricing. Libraries increasingly acquire technology products through software-as-a-service deployment models paid for through annual subscription pricing. These subscription fees cover all aspects of the product, including hardware, software, continual upgrades, and support services. A true web-based SaaS-based product obviates the need for local server equipment, software installed on user computers, and technical personnel for system administration. The total cost of these factors involved in a technology product housed and managed locally should be a point of reference when calculating the relative budget impact of a SaaS-based product.

Inflationary increases. Affecting all areas of spending, price increases exert tremendous pressure on library budgets. In academic libraries, annual increases in electronic journals, for example, cause sacrifices in other areas, especially monographs. Thus far, open access publication models have not yielded relief to collection budgets. Table 1 illustrates the levels of inflation academic libraries have seen in journal subscriptions, according to surveys and data from EBSCO Information Services.

Flat library budgets. Academic library budgets overall have not kept up with inflation. According to figures derived from statistics published by the Institute of Education

Table 1. EBSCO Information Services Serials Price Projections (percentages)

Year	Individual Titles	Ejournal Packages
2021	2-3	1-3
2020	5-6	4-5
	Overall	
2019	5-6	
2018	5-6	
2017	5-6	
2016	4-6	
2015	5-7	
2014	5-7	
2013	5-7	
2012	4-6	

Table 2. Expenditures (billions $), All US Academic Libraries (2000–2018)

Year	Total	Collection	Personnel
2018	$7.88	$2.97	$3.34
2017	7.79	2.93	3.31
2016	7.65	2.87	3.26
2015	7.52	2.82	3.23
2014	7.39	2.79	3.17
2012	6.56	2.49	2.80
2010	6.40	2.36	2.78
2006	5.82	2.09	2.57
2000	4.64	1.64	2.26

Sciences, average total expenditures have been mostly level from 2014-2018, with a total increase across those years of 6.6 percent (Table 2).[2] (Data from the 2019 survey has not yet been published.)

The COVID-19 pandemic has disrupted university budgets. Library allocations, especially for 2020 and 2021, are likely to decline. Libraries will necessarily have to make painful cuts in spending beyond their already constricted budgets.

The costs for a library automation system falls within these challenging budget contexts. Are the financial pressures so great that libraries will opt to change to less expensive systems? What are appropriate levels of spending for resource management systems and discovery services relative to total budgets or in proportion to collections spending?

Given the secrecy in pricing, it is difficult to assess how current pricing scales to the broader budget constraints. Some anecdotal information can be gleaned from public sources. A systematic study would be needed to posit spending trends with a high level of confidence. Based on a very small sample, I currently estimate that an academic library might spend 2 to 3 percent on these systems relative to its total collection budget. A library with a $10 million collections budget might spend $200,000 to $300,000 on its resource management and discovery services. Additional data from more libraries could be used to more fully articulate the current trends on spending for these products. The costs of a resource management system usually represent less than 1 percent of the library's overall budget. The cost of these products is a small part of a library's overall budget scenario compared to collections expenditures and personnel.

Personnel expenditures have seen less growth in recent years than other categories. Most libraries operate with fewer personnel than in previous times. A reduced workforce means that libraries must operate more efficiently than ever. They rely on their resource management systems more than ever to automate routine tasks. Library collections have become more complex than ever, with electronic, digital, and print components, each with its own quirky procurement processes. Traditional subscription-based procurements to electronic resources were already complex. The trend toward increased proportions of open access content has further increased complexity of management. Some of the additional factors requiring attention include tracking open materials available beyond subscription-based entitlements and article processing charges.

The increased complexity of collection management and the reduced staffing levels in libraries increases the need for sophisticated technology systems. These factors may argue against changing to a less expensive automation system with reduced capabilities. If a library does consider moving away from a library services platform, it is critical to ensure that any candidate products likewise address electronic and print resources and include the knowledge base and discovery indexes needed to work efficiently.

Open source systems may or may not be less expensive than proprietary products offered through subscription pricing. Again, there is limited data available to assess the cost of operating open source ILS or LSP products relative to proprietary products. Although the software itself is provided without a direct fee, the total cost of operation over time are likely to be similar. The cost of a subscription to a comprehensive SaaS-based library services platform would need to be compared to all the components of operating an open source service. In most cases these cost components would include a service contract for hosting, product maintenance, and support, as well as a subscription to a discovery service and e-resource knowledge base. Operating an open source product will not necessarily involve additional local personnel, unless the library opts for a self-managed and hosted implementation.

Libraries will also need to consider switching costs as they evaluate whether changing systems will result in budget relief. Some of these costs include data extraction and other exit services from the incumbent vendor, data migration and loading services to the new provider, other installation and set-up fees, as well as vendor-provided or in-house training. It often takes a library a year to return to the same level of productivity as achieved on its previous system, even when the new system has more sophisticated capabilities. The cost of switching and the intensive work required under the best of circumstances have led to libraries' retaining their systems for long periods, on average 12 or more years. During times of difficult budgets, the organizations or administrations funding libraries may also resist requests to fund a new system unless substantial savings can be projected.

Under extreme budget scenarios, libraries may also negotiate with their vendors for price concessions. Vendors may be willing to soften pricing rather than risk losing an account. Subscription contracts are usually based on a set of factors in place at the beginning of the subscription term. Factors may include institutional FTE, the number of library personnel, collection size, and transaction volume. The pricing for subsequent years tends to be determined by inflationary increases on the first-year base price. If these factors diminish, the library may be able to rationalize subscription fee adjustments. It is interesting to note that Biblionix adjusts its subscription fees for its Apollo customers annually and those that see lower use of their systems also see reductions in costs.[3]

Related questions apply to metadata management. Many libraries allocate similar costs to bibliographic services and resource sharing services as they do for their integrated library systems or library services platforms.

All these factors lead me to suggest that there will not be substantial defections in the short term away from comprehensive products such as OCLC WorldShare Management Services and Ex Libris Alma. A more likely trend would be a higher proportion of academic libraries moving away from legacy integrated library systems and opting for open source products, especially FOLIO and Koha. Data from the annual *Library Automation Perceptions Survey* suggests that as a driver of FOLIO and Koha increases among academic libraries. Those libraries that have implemented Alma and WMS show little interest in changing systems. It will be interesting to see if the results of the 2020 survey now underway, to be published in February 2021, show any new trends in this regard.

Notes

1. Library Technology Guides, "Number of Contracts Made for Automation Systems by Year," https://librarytechnology.org/products/procurements.
2. Library Technology Guides, "Statistics published by IPEDS for All US Academic Libraries," https://librarytechnology.org/libraries/nces/trends.
3. Library Technology Guides, "Biblionix fee reductions and COVID-19," https://librarytechnology.org/pr/25709.

Questions or suggestions for topics in future issues?

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January 2021
Smarter Libraries through Technology

Smart Libraries Newsletter

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

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

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